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ASSESSMENT OF INSTITUTIONAL CAPABILITIES FOR MEETING THE SKILLS TRAINING NEEDS OF GUATEMALA'S PRIVATE SECTOR

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Academy for Educational Development Consultants:

Morris Allen, Chief-of-Party
Jorge Martinez, Economist
Carole Massey, Manpower Planning Specialist
Louis Saavedra, Vocational Training Specialist
Ingrid Klanderud, Research Assistant
Frances Hays, Editor

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ACRONYMS

AED	Academy for Educational Development
AGCC	Guatemalan Association of Construction Contractors
AGG	Association of Guatemalan Managers
AID	Agency for International Development
ANACOVI	National Association of Housing Builders
ASINDES	Association of Non-Governmental Institutions for Development and Services
CACIF	Chamber of Commercial, Industrial and Financial Associations
CACM	Central American Common Market
CAP	Central American Peace Scholarship Program
CGC	Guatemalan Construction Chamber
CIIU	Economic Activity Code in Guatemala
CUM	Multiple Studies Center
DATAPRO	Our subcontractor involved in developing systems, data processing and statistical analysis
DIGBSA S.A.	Director of Statistics (see INE)
EHR	Education and Human Resources Section in LAC
FUNDESA	Foundation for the Development of Guatemala
FUNTEC	Technology Foundation
GDP	Gross Domestic Product
GEO	West German Educational Organization
GEXPRONT	Guild for Non-Traditional Exports
GOG	Government of Guatemala
IDB	Inter-American Development Bank
IEC	International Executive Service Core
IFES	Feminine Institute of Superior Studies
IGSS	Guatemala's Social Security Institute
ILO	International Labor Organization

IMF	International Monetary Fund
INE	National Institute of Statistics
INCAE	Central American Management Institute
INGUAT	Guatemala Tourism Institute
INTECAP	Technical Institute for Training and Productivity
JUNKABAL	A Catholic-sponsored organization offering self-improvement courses for girls and women.
KINAL	A Catholic-sponsored organization offering skill improvement programs
LAC	Latin American and Caribbean Bureau in AID.
MAQUILA	A company benefitting from U.S. drawback or section 807-8 tariff regulations
MOE	Ministry of Education
MOL	Ministry of Labor
NDP	National Development Plan
NICs	Newly industrialized countries in Far East
OEA	Organization of American States
OPSD	Office of Private Sector Development
PEMEM	Project for Extension and Improvement of Mid-Level Education
PID	Project Identification Document in AID
PVO	Private Voluntary Organization
Q	Quetzales - Guatemala's Currency - roughly Q2.50 = 1 US$, May 1988.
ROCAP	AID's Regional Office for Central America and Panama
SEGEPLAN	Secretary General for National Planning
SITCA	Secretariat for Central American Tourism
SUMA SA	Office of Administrative Consultants
UNDP	United Nations Development Program
USAID/Guatemala	U.S. Agency for International Development in Guatemala
USIPE	Governmental Unit for Educational Investigation and Planning

OVERVIEW

ASSESSMENT OF INSTITUTIONAL CAPABILITIES FOR MEETING THE SKILLS TRAINING NEEDS OF GUATEMALA'S PRIVATE SECTOR

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This overview integrates highlights from consultants' individual reports, which are included in the Annexes.

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EXECUTIVE SUMMARY

I. Purpose and Scope of the Study

In 1987, USAID/Guatemala commissioned an assessment of Guatemala's institutional capabilities for fulfilling the private sector's skills training needs.

II. The Setting

A. Economic Conditions

After six years of recession, the economic stabilization plan introduced by the Cerezo administration in 1986 has produced some desirable results: a more favorable investment climate; a growth in GDP of about 3.2 percent in 1987; a drop in inflation to 10 percent from close to 40 percent in the previous year, and an improved balance of payments. The statistics indicate that a moderate expansion will continue in 1988. However, the six years of deep recession generated a surplus of skilled workers in most sectors. Because an assessment of supply-demand imbalances in the labor market necessarily changes with the level of economic activity, the important issue in this study is the response capabilities of Guatemala's skills training institutions under current or expanding economic conditions.

B. Employers Surveyed

A stratified random sample of 805 employers from the manufacturing and agro-business sectors was used to analyze training needs. The sample included 23 industrial sectors, covering 180 occupations and more than 31,000 jobs. The survey instrument, stratified by industry size, location, and age in fifteen departments of Guatemala, was designed to collect information for each occupation on vacancy rates, education and skill levels required, types of training used, and preferred training providers.

C. Training Institutions Surveyed

Formal and nonformal training institutions were surveyed to assess their capabilities to provide skills training. Formal schools included one private and six public secondary schools offering entry-level training and a trades diploma. The nonformal institutions included INTECAP, which is financed by private industry through a payroll tax; church-sponsored programs such as KINAL and JUNKABAL; and private-sector programs such as FUNTEC, which was organized by private enterprise.

III. Principal Findings: Survey of Employers

A. Industry Characteristics

- According to the criteria established for the study, the following six sectors comprise major economic activities: Chemicals and Allied Products; Manufacturing of Textile Mill Products; Selected Food Products; Manufacturing of Apparel and Other Textiles; Printing, Publishing, and Allied Industries; and Manufacturing of Nonmetalic Minerals.

- Over 28 percent of the firms surveyed export some portion of their products. The Drawback Industries, Chemical and Allied Products, Manufacturing of Apparel and Other Textiles, and Textiles Mill Industries were the sectors with the highest porton of exported goods. These industries export mostly to Central American Common Market, followed by the United States.

- Obstacles to expansion of operations included lack of financing, lack of trained personnel, and restrictive laws. The industry most affected by lack of trained personnel is Manufacturing of Apparel and Other Textiles.

B. Training Needs

- Currently almost 50 percent of employees receive training from their employers and 20 percent from institutions. Almost 50 percent of employers would prefer to have that training provided by an institution. Institutional providers do not now offer the quality or type of instruction that meets employers needs, nor do institutions provide firm-specific training.

- Four occupations were found to be in demand based on vacancy rates. They include Shoe Sewing Machine Operators and Tenders; Sewing Machine Operators; Textile Machine Operators; and all Other Machine Operators and Tenders.

C. Reasons for Vacancy Rates

- In major economic activities (manufacturing of footwear, apparel, and other textiles; textile mill products, and the drawback industries) vacancy rates may indicate lack of trained personnel.

- Other possible explanations are low wages, poor working conditions, or lack of transportation.

D. Delivery of Training Services

- 35 percent of employers believe institutions are capable of supplying needed training. INTECAP and (distantly) the Imrich Fischmann Technical Institute were the two preferred institutions.

E. Public and Private Sector Interests and Linkages

- The great majority of employers have no relationship with training providers.

- The largest and most stable industries in the country are willing to contribute additional resources to training providers. Employers indicated a willingness to permit training during work hours, to pay salaries during training, to provide facilities and equipment and supplies, and to provide instructor salaries.

- Employers prefer to invest additional funds for training of their own employees rather than to contribute to the training of potential employees.

IV. Principal Findings: Institutional Training System

A. High Schools

- Vocational high schools aspire to provide entry-level skills training.

- Deficiencies include lack of operational funds, lack of texts and teaching materials, outdated or nonfunctioning equipment, and poorly trained teachers.

- Two high schools have promise - Imrich Fischmann Technical Institute with close ties to the private sector, and Mazatenango because of its assistance from West Germany.

- The Instituto Feminino de Estudios Superiores, a postsecondary school, is highly regarded by the drawback garment industries because of its supervisory training courses.

- Improvements to high schools could include textbooks and instructional materials, donations of surplus equipment from the United States, and, possibly, loans of experienced retired industrial specialists or instructors. An experimental or model school could bring these elements together.

B. Private Voluntary Organizations

- PVO's are valued because they serve the poorest neighborhoods and enable participants to earn a living in the informal labor market. They lack resources to be a major factor in a national skills training effort.

- FUNTEC is a private-enterprise organization providing technical assistance, education, and training.

C. INTECAP

- INTECAP is a well-financed and well-regarded institution. Its major deficiency may be its perceived lack of responsiveness to the private sector and its lack of advanced skills training and mid-management training. Recent developments such as competency-based curriculum and surveys of the private sector may make INTECAP more responsive to the private sector. An improving economy should bring additional resources to this payroll-supported institution.
- Future strengthening of the institution should focus on firm-specific training, improved first-line supervisory training, and quickstart training programs -- all to be delivered on a cost-recovery basis.

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V. Conclusions and Recommendations

As the economy improves, Guatemala risks encountering skill shortages due to lack of adequate institutional training capabilities. Investment now in strengthening skills training is prudent and important in enabling Guatemala's continued economic recovery.

Recommendations for USAID assistance fall under three objectives representing different funding levels and commitment on the part of the Mission.

- **In order to restore the training system (or key parts) to minimum acceptable standards, assistance could include any of the following options:** provide textbooks and teacher materials to skills training institutions, hand tools and equipment to selected programs, vocational instructors with scholarships to the Mazatenango teacher-training school. These interventions would be a low-cost, but highly visible demonstration of USAID's commitment to the poor and would preserve the capacity of the system for future development. They would not, however, provide much support to USAID/Guatemala's private-sector development strategy and would require funds that could be used for potentially more productive investments in education.

- **In order to upgrade the system to standards capable of producing adequately and well-trained workers, assistance could include any of the following options:** provision of scholarships to train trainers, and the development of advanced skills training, quickstart capabilities, short courses for supervisors, technical assistance for industry-wide programs and in-plant training (especially for small and medium sized firms). The advantages to this type of assistance are that it increases productivity of new and employed workers, contributes to attracting new industry, reduces inefficiencies in vocational training, and fosters entrepreneurship. However, it can be a costly use of scarce education funds and result in an increase in recurrent costs to the GOG. It may also raise expectations of firms or workers before the full results of the improved training can be realized.

- **Building on either of the two previous recommendations, USAID/Guatemala could improve the response of skills training institutions to the private sector by either selecting a group the Mission currently supports (such as AGG or FUNTEC) or establishing a new foundation to manage a USAID-financed matching grant fund.** The assistance would be directed to INTECAP, PVO's and/or MOE schools and could also include in-plant training. This approach would increase competitiveness and revitalize existing skills training institutions as well as improve linkages and responsiveness to the private sector. The foundation would administer matching grants, under the supervision of an advisory committee made up of one representative of USAID, one representative of the private sector, and one representative of the training institutions. The project would earmark some funds to assist INTECAP (especially in quickstart training and an improved delivery system) and some funds for the Fischmann school (to upgrade its textbooks and training technologies). This approach is relatively low cost, adaptable, easy for USAID to manage, and supportive of the Mission's private-sector development strategy. Before adopting this alternative, USAID/Guatemala should explore whether this use of training resources is appropriate and whether this increases the recurrent costs of the GOG.

I. PURPOSE AND SCOPE OF THE STUDY

In 1987, USAID/Guatemala commissioned "an assessment of Guatemala's institutional capabilities for fulfilling the private sector's skills training needs." The assessment was structured around four major questions:

- What are the skills training needs of the private sector?
- What skills training is currently available?
- What is the gap between what employers want and what the training institutions provide?
- How can the skills training system become more responsive to the needs of the private sector?

In order to carry out the assessment, the Academy for Educational Development formed a team to conduct a series of related studies:

- an economic overview of skills training needs and labor markets in Guatemala;
- a survey of employers in industry and agro-business regarding their need for skills training;
- an assessment of public and private institutions that provide skills training;
- sectoral studies of skills training needs in tourism, construction and transportation.

The scope of the studies was drawn to focus on manufacturing and agro-business. Training needs in agriculture, the predominant economic sector in Guatemala, were being assessed separately, as were needs for management training. Thus, this assessment focused primarily on manufacturing, which accounts for about 16 percent of GDP and 12 percent of the labor force. Manufacturing activity is concentrated in the food processing industry, which represents close to 45 percent of sectoral output, followed by the textile and garment industries, which together represent another 20 percent of output.

These studies were conducted during the first half of 1988, and the team met together in Guatemala in June to analyze the results of the various studies, discuss their conclusions, and form their recommendations to USAID for future actions it could take.

II. THE SETTING

A. Economic Conditions

The economic study provided an overview of recent developments in the Guatemalan economy and their relationship to needs for skilled labor. The long and deep recession, from which the Guatemalan economy is just beginning to recover, generated a surplus of skilled laborers in most sectors.

The economic stabilization plan introduced by the Cerezo administration in 1986 produced some desirable results, including a more favorable investment climate. After six years of deep recession, GDP grew about 3.2 percent in 1987. At the same time, the inflation rate dropped to 10 percent from close to 40 percent in the previous year, and the balance of payments also experienced some improvement. The statistics available indicate that a moderate expansion will continue in 1988.

The Government of Guatemala's long-term objectives are incorporated in the National Development Plan (NDP). The overall strategy of the NDP is to promote private-sector growth led by the export industry. These policies have received full support from USAID/Guatemala, which has incorporated them in its own private-sector strategy. A number of obstacles exist to achieving the long-term objectives of the NDP. These obstacles involve counterproductive government policies and structural deficiencies of the Guatemalan economy (e.g., weak financial intermediation, a marked dual economic system, and shallow markets).

This assessment was designed to investigate the seriousness of another potential deficiency: Whether Guatemala's skills training system has the ability to provide the private sector with an adequate supply of skilled workers -- under current or expanding economic conditions. With respect to possible supply and demand imbalances for skilled workers under current economic conditions, the team did not expect to find severe shortages across the broad spectrum of the economy. Because the assessment of supply-demand imbalances in the labor market necessarily changes with the level of economic activity, the truly important issue this assessment addresses is the response capabilities of Guatemala's skills training institutions under more rapid economic growth or over an extended period of time.

The economic overview of Guatemalan labor markets developed a perspective for the succeeding studies based on these principles:

1. Firms will "demand" a great range of skills if the cost of the training is perceived to be very low or no cost at all. "Effective" demand is a

matter of jobs for which the firm would be willing to pay all of the training and wage costs.

2. Skills need to be considered in two categories. One is general training for skills which the worker can carry from firm to firm; the other is firm-specific skills. Firms have no particular incentive to pay for general training but are willing to pay as part of a general cost shared by all firms, such as the contributions which fund INTECAP.

3. The fact that firms are not willing to pay for general skills training should not be considered justification for not providing such general skills training since such training is in the public interest.

4. Labor market data is a snapshot in time. Most labor markets are dynamic. The findings at any point in time are absolutely relevant only for that point in time. This idea argues for the systematic updating of labor market data to maintain its validity.

5. Care should be taken not to overvalue the activity of growth elements of the economy at the expense of slow-growing sectors. The growth elements may reflect the availability of a skilled labor force, while the slower growing sectors may reflect sectors that have stagnated because of the lack of skilled workers.

B. Employers Surveyed

For the labor market survey, interviews of a stratified random sample of 805 employers from the agro-business and manufacturing sectors were used to analyze characteristics and training needs. The sample included 23 industrial sectors, covering 180 occupations and more than 31,000 jobs.

The questionnaire was developed by the consulting team's labor market analyst and by concerned offices of USAID/Guatemala. The criteria used for the analysis of industry characteristics were based upon the strategies of the Private Sector Office for addressing potential economic growth. The criteria included the extent to which an industrial sector was represented in the sample; the size of the industries within the sector; the growth of the sector in recent years; the stability of the sector over time; and the location and growth of industrial sectors outside the department of Guatemala.

The sample was stratified according to the size, location, and age of industries in fifteen departments of Guatemala. The survey instrument was designed to collect information about the occupations within these industries including vacancy rates, education and skill levels required, types of training used, and preferred training providers. Additional questions were included in the instrument to assess the perceptions of employers regarding their needs for future training; their commitment to provide resources for training; their interest in, and problems with, expanding their businesses;

their relationships to training providers; and the extent to which they export their products.

Vacancy rates were used as an indicator of training needs. Research studies conducted by the U.S. Department of Labor, Bureau of Labor Statistics, and others have shown that the methodology of directly requesting employers to identify what their training needs in the future will be often yields unreliable information. Therefore, objective indicators of present and projected training needs are required in order to have a reliable data base from which to draw conclusions. Reliable information can be obtained by identifying the number of employees in each kind of occupation an employer has as well as the number of vacancies for each. Using the average vacancy rate obtained for all positions and then determining any significant deviation from that mean for the vacancy rate of any given occupation can identify those occupations that may need training. It is possible that the vacancy rate in any given occupation may be due to other factors, such as low wage rates, inconvenient geographical locations, or a lack of available trained personnel combined with other factors. Wage rate information was requested from the office of Social Security in Guatemala but was not made available.

The survey instrument was administered by trained interviewers employed by Aragon Associates, a research and marketing firm in Guatemala City. The firm was contracted by the Academy for Educational Development to conduct the survey over an eight-week period from February to April 1988.

C. Training Institutions Surveyed

Formal and nonformal training institutions were surveyed as part of this assessment. Fifteen training institutions were visited and observations made as to their capability to provide skills training. Preliminary visits included elementary schools that had been declared "work schools" and PEMEM schools (Proyectos de Extension y Mejoramiento de Educacion Media). These schools were eliminated from detailed evaluation because they provide only an introduction to industrial arts or to arts and crafts. About 40 ciclo basico [1] schools provide industrial arts and home economic classes. Typically, they offer a rotation through woods, metals, and electricity for boys

1/ The schools are organized with seven years of elementary school, followed by three years of ciclo basico and two or three years of ciclo diversificado. In the latter, a student may obtain a high school diploma (bachillerato) after two years or stay the third year and earn a trades diploma (bachillerato industrial). The six years of secondary education are also referred to as education media.

and foods and sewing for girls. These schools also were not included in the final assessment because they offer introductory training only.

Fifteen training institutions were included in the final assessment: seven secondary schools that offer a trades diploma, one postsecondary school, INTECAP (the national provider of nonformal skills training), and a variety of private voluntary organizations. At each institution, training programs were assessed with respect to the quality of available workshops, equipment, tools, instructional materials, faculty, and curriculum.

III. PRINCIPAL FINDINGS: SURVEY OF EMPLOYERS

A. Industry Characteristics

Six sectors of the industrial economy in Guatemala were found to be major economic activities in that they consistently ranked above the average on the criteria established for the study. These sectors included Chemicals and Allied Products; Manufacturing of Textile Mill Products; Selected Food Products; Manufacturing of Apparel and Other Textiles; Printing, Publishing, and Allied Industries; and Manufacturing of Nonmetalic Minerals.

Just over 28 percent of the firms in the study indicated that they exported some portion of their products. The drawback industries, as would be expected, export all of their goods. About 47 percent of Chemicals and Allied Products export 10-50 percent of their products. Manufacturing of Apparel and Other Textiles ranked next with about 38 percent of firms indicating that they export either 75-100 percent or 10-50 percent of their goods. The Textile Mill Industries followed with 37.5 percent of companies exporting, mostly in the 10-50 percent range. The Central American Common Market continues to receive the greatest share of exports, followed by the United States.

Fifty-one percent of all employers indicated that they had considered expanding their operations. Eight percent of all employers are still considering expansion. However, the remainder decided against it for the following reasons: lack of financing (24 percent), lack of trained personnel (11 percent), and restrictive laws (5.3 percent).

Of those sectors that cited lack of trained personnel as a reason for not expanding, the industry most affected by this situation has been the Manufacturing of Apparel and Other Textiles. Fifty-six percent of the firms in this industry considered expansion; 20 percent of the firms stated that lack of trained personnel prevented them from doing so.

B. Training Needs

An analysis of the labor market survey showed that employers seldom rely on training institutions to provide their workers with skills for their occupations. About 20 percent of employees received their training from institutions, and 47.8 percent received their training from their employers. Employers did not know where the remainder of their employees received their training. It cannot be inferred from the data that there is a lack in any training resources because employers provide training.

Employers were asked to state a preference for training providers regardless of the provider upon which they currently depended. In almost 50 percent of the cases, employers selected a training institution. In nearly 20 percent of the cases, they preferred to continue providing their own training. In more than 30 percent of the cases, employers indicated that they did not know who they would prefer as a training provider, they had no preference for a provider, or the desired training was not available in Guatemala.

By comparing present circumstances with employers' preferred situation, there is a shift of about 30 percent from self-provided or other types of training to institutional training providers. This change can be explained because current providers do not offer the quality or type of instruction to meet employer needs, including company-provided training. Second, employers may want institutions to provide some firm-specific training that schools generally are not capable of providing nor generally expected to provide.

Four occupations were found to be in demand based upon vacancy rates. These occupations included: Shoe Sewing Machine Operators and Tenders; Sewing Machine Operators, Garment; Textile Machine Operators and Tenders; and, All other Machine Operators and Tenders.

- For the occupation Shoe Sewing Machine Operators and Tenders, an occupation with a relatively large number of employees and high vacancy rates, 66 percent of employers train their own workers, 15 percent rely on institutional training, and the remainder do not know where their employees are trained. When asked their preference, 26 percent of the employers indicated that they would prefer to continue giving the training and 53 percent would prefer that the training be given by another source, and the remainder did not know or had no preference for a provider.

- In another occupation with a high vacancy rate, Sewing Machine Operators, 65 percent of employers train their own workers, 12 percent rely on institutional training, and the remainder do not know where their employees are trained. When asked their preference,

about 18 percent of employers indicated that they would prefer to continue giving training, 61 percent would prefer another provider, and the remainder did not know or had no preference for a provider.

A third occupation showing lack of workers because of high vacancy rates is Textile Machine Operators; 77 percent of employers train their own workers, about 3 percent rely on institutional training, and the remainder do not know where their employees are trained. When asked their preference, over 25 percent of employers indicated that they would prefer to continue giving training, 50 percent would prefer an institutional provider, and about 25 percent did not know or had no preference for a provider.

The fourth occupation showing a relatively high vacancy rate is All Other Machine Operators and Tenders. Currently 61 percent of employers do their own training, 10 percent rely on institutions, and the remainder do not know where their employees are trained. When asked their preference, over 17 percent of employers indicated that they would prefer to continue giving training, over 49 percent would prefer an institutional provider, and almost 33 percent did not know or had no preference for a provider.

In conclusion, employers clearly prefer relying upon an institutional provider for training of their workers. It is important to determine the extent to which these occupations require firm-specific training and the extent to which employers are willing to cover the cost of such.

The data also show that employees in 58 (31 percent) of the 187 occupations were not trained by institutions, rather by employers or some other means such as apprenticeships. Projecting to the universe, less than 50 individuals are employed in each occupation (Range = 3-46). Therefore, at this time, the demand for training would not be great enough to justify training programs in these occupations. Further, some occupations, because they are firm-specific in nature, would more appropriately be learned on the job. Those learned through apprenticeships could benefit, however, from an institutional component.

C. Reasons for Vacancy Rates

The major economic activities mentioned above -- manufacturing of footwear, apparel and other textiles; textile mill products, and the drawback industries -- are those most affected by the lack of trained personnel. The high rate of vacancy prevents these industries from being more productive and offering more goods to export markets, thereby lessening the impact these industries could have on the country's economic growth. The personnel problem experienced by current industry in this area serves as an impediment to expansion, as well as a hindrance to the attraction of new industry in these subsectors.

It is difficult to ascertain to what extent vacancy rates are due to lack of skilled personnel, as there are indications in other parts of the data analysis which show that vacancy rates persist even with the presence of employer training. The problem appears to stem from either the absence of job applicants or poor retention of personnel. In an economy of relatively high unemployment or large underemployment, this problem seems unusual. Possible factors that explain the high vacancy rates include low wages, poor working conditions, or lack of transportation. The latter reason is unlikely since most of these industries are located in and around Guatemala City, and a regular bus system is in place.

The Private Sector Office of the USAID Mission has indicated that some drawback industries are considering relocation to other parts of the country outside Guatemala City because they need to increase wages to attract workers in the city. Therefore the vacancy rate in some of these industries cannot be attributed solely to the lack of adequate training resources.

D. Delivery of Training Services

Employers were asked to evaluate the capabilities of the provider they preferred to have train their employers. Almost 35 percent of the employers indicated that they believed institutions were capable of supplying the needed training. Another third of the responses indicated that employers did not know of a good provider, did not think training was available in Guatemala. or did not respond to the question. About 11 percent of the responses indicated that employers preferred a specific training institution but definitely believed that it was not capable of responding to the need. About 16.5 percent of employers believed that the training that they provide to their workers is effective, while 2.5 percent of employers believed that the training they provide to their workers is not worthwhile. The remaining responses indicated some other choice of provider.

Of the institutions or training providers mentioned by employers, INTECAP was most often preferred; it received almost 40 percent of all responses. The second most frequently mentioned institution was the Imrich Fischmann Technical Institute, which received 1.5 percent of responses.

> For Shoe Sewing Machine Operators, over 53 percent of employers prefer an institutional provider; almost 26 percent prefer to continue giving their own training. Over 61 percent of employers believe that their preferred provider is capable of meeting their needs, and about 15 percent do not believe it is.

- For Sewing Machine Operators, Garment, almost 61 percent of employers prefer an institutional provider; almost 18 percent prefer to continue giving their own training. About 45 percent of employers believe that their preferred provider is capable of meeting their needs, and about 22 percent do not believe it is.

- For Textile Machine Operators, 50 percent of employers prefer an institutional provider; 25.5 percent prefer to continue giving their own training. About 45.5 percent of employers believe that their preferred provider is capable of meeting their needs, and about 20 percent do not believe it is.

- For All Other Machine Operators and Tenders, over 49 percent of employers prefer an institutional provider; about 17 percent prefer to continue giving their own training. About 53 percent of employers believe that their preferred provider is capable of meeting their needs, and about 18 percent do not believe it is.

E. Public and Private Sector Interests and Linkages

Employers were asked about the kinds of relationships they presently had with training providers. The great majority of employers reported no relationship with training providers.

When asked what types of resources they would contribute to the training of their personnel, many more employers indicated a willingness to participate in activities with training providers.

Resources to be Contributed	Percent Employer Willingness
Permit Training Personnel During Work Hours	47.8%
Pay Complete Salary During Training	35.1%
Provide Own Facilities	33.5%
Provide Equipment	31 %
Provide Materials and Supplies	25.7%
Provide Instructor Salaries	22.2%
Provide Transportation to Workers, If Needed	14.4%
Pay for Curriculum Development	5.2%

The economic activities most represented in the contribution of resources to training providers were Chemicals and Allied Products; Selected Food Products; Printing, Publishing, and Allied Industries; Manufacturing of Apparel and Other Textiles; Manufacturing of Nonmetallic Minerals, Except Petroleum and Carbon; Transportation Equipment Industries; and Manufacturing of Bakery Products. These are among the largest and most stable industries in the country.

When asked whether they would be willing to invest additional funds for training at this time, employers were more inclined to finance training of their own employees in comparison to supporting the training of potential employees. Nearly 49 percent of employers said they were willing to invest additional funds for upgrading or updating their employees, whereas only 22.4 percent were willing to invest additional funds to train potential employees.

Employers continued to favor their own employees when asked about investing in the future, however, their willingness to provide support to potential personnel increased. Over 46 percent of employers said they were willing to contribute to their employees' training in the future, and about one third (32.8 percent) said they would finance the training of potential employees in the future. The change seen between present and future investment in potential employees could be interpreted as employer anticipation that the firm's circumstances would improve or that employers' judgment about the present is tempered by reality.

Generally, employers appear to be more willing to invest in training if it will immediately benefit the firm. This response pattern also gives rise to the speculation that employers will pay for firm-specific training but are reluctant to invest in basic skills training that would benefit society in general.

IV. PRINCIPAL FINDINGS: INSTITUTIONAL TRAINING SYSTEM

A. Institutional Training Capabilities

1. High schools

The vocational high schools aspire to provide entry-level skills training. One private and six public secondary schools offer a trades diploma (bachiller industrial). Entry-level training is provided to about 2,000 students a year, concentrated in six areas: 15.9 percent in metal mechanics, 16.1 percent in drafting, 10.2 percent in radio and television, 16 percent in electricity, 15.1 percent in auto mechanics, and 7 percent in construction. About 400 students are graduated from the industrial high schools each year.

Seniors are placed in on-the-job training positions their last three months of school, but no follow-up studies have been done to measure the success of graduates from the vocational high schools in the workplace. The Catholic high school in Guatemala City carries out an ambitious program of trying to serve the maximum number of students possible, but its shops, equipment, tools, texts and instructional materials are as

poor as any of the public schools.

More than 90 percent of the budget for the industrial high schools goes to wages and benefits, leaving very little for other operational expenses. The schools have few books or instructional materials. The trades instructors are high school graduates. Other than some short courses, few trades teachers have any other kind of higher education. Due to severe budget constraints, none of the secondary schools have quickstart training capabilities.

Only two high schools in the study stood out as having any promise - Imrich Fischmann Technical Institute in Guatemala City because of its close ties to the private sector and the school in Mazatenango because of its assistance from West Germany to become a demonstration school and teacher-training center. The most popular programs at the Fischmann Institute are drafting, electricity, machine trades, and auto mechanics. The Mazatenango school offers similar programs.

The only postsecondary technical school, Instituto Femenino de Estudios Superiores, is highly regarded and is considered a resource for the drawback garment industries because of its supervisory training courses.

2. Private Voluntary Organizations

The private voluntary organizations do not have the resources to be a major factor in a national skills training effort. Non-government, nonformal programs are valued, however, because they serve the poorest neighborhoods, and the modest training provided, without the benefit of shops or equipment, permits participants to earn a living in the informal labor market. For example, KINAL and JUNKABAL are programs sponsored by the Catholic Church that provide services to the poorest parts of Guatemala City.

Multiple-use centers, entities under the jurisdiction of the Ministry of Education, have not achieved their mission of addressing the nonformal education needs of their communities for lack of operational funds.

FUNTEC is a private-enterprise organization founded in 1985 to address the need for technology transfer. Its activities include technical assistance, education, and training. It operates several USAID-funded projects.

The Rotary Club has a long history of assisting technical education in Guatemala City. Members of the Club are taking the lead in promoting projects to improve the Imrich Fischmann Technical Institute.

3. INTECAP

Nonformal education is dominated by INTECAP (Instituto Tecnico de Capacitacion y Productividad), which is financed by private industry through a payroll tax. INTECAP is run by the Ministry of Labor and operates six centers, two of them in Guatemala City. The headquarters building and the centers are handsome facilities, and the shops in the centers are well equipped, supplied, and maintained. INTECAP attempts to keep its programs current through the use of advisory committees, labor market surveys, and a governing board which consists of six representatives from private enterprise, three from labor, and three from government. The chief officer of INTECAP is named by the government. INTECAP graduates about 1,000 persons annually in 20 specialties -- 16 percent in the agricultural sector, 72 percent in the industrial sector, and 12 percent in the commercial sector.

INTECAP is a well-financed institution with considerable technical resources. The recovering economy is expected to add even greater financial resources to this institution. The major deficiency of INTECAP is its perceived lack of responsiveness to the private sector. It is criticized by some observers for not providing advanced skills training. It does not have a developed capacity to address the emerging need for mid-management personnel in a recovering economy. Most of its activities have centered on providing training at the semi-skilled level. Moreover, the organization is at a crucial stage of development where its previous organizational strategies must be reviewed for more effective operation.

4. Conclusion

Training beyond entry level is minimal. INTECAP considers only 12 percent of its training as extending beyond the semi-skilled level, and none of the high schools reach beyond the semi-skilled level. Neither the high schools nor INTECAP have quickstart training capacity because of the long lead time in their programming and lack of discretionary funds.

INTECAP provides technical assistance to about 1500 firms annually, but some requests (such as supervisory training for garment factories) are beyond INTECAP's capability. The drawback industry trade association is satisfied with its present supply of workers but expects shortages at the supervisor and mechanic level as the industry grows.

With a contracting economy through 1986, few unmet needs surfaced. An estimated rate of economic growth of 2.8 percent in 1987 made little immediate impact on the available labor supply.

B. Causes of Institutional Deficiencies

It is important to ask what the main causes are for the deterioration of and deficiencies in Guatemala's skills training institutions. Learning about the causes may yield insight into how they might be counteracted, how they might be avoided in the future, and what the chances are of realizing improvements. The interpretation of study findings is organized in two parts -- that pertaining to the serious neglect and deterioration of Guatemala's secondary technical school system and that pertaining to reported deficiencies in the INTECAP system.

1. Secondary Technical Schools

The main cause for deterioration of the secondary technical schools has been the lack of funding allocated to the Ministry of Education by the Guatemala government. Guatemala has one of the lowest GDP shares for the public sector in the Western Hemisphere. On top of the low overall fiscal effort, the Ministry of Education has never done well in the budget allocation process. After years of depressed economic activity and declining budgets, little or no funds have been allocated for replacement and maintenance of plant and equipment. This problem has been exacerbated at the secondary technical schools because they require a much higher investment in equipment than more academically oriented schools.

The secondary technical schools may also have been neglected because their visible output, the number of graduates per year, did not decline during the period in which their plant and equipment suffered the most. The lesson here is, of course, that performance evaluation needs to focus on characteristics other than the number of graduates. Technical secondary degrees are frequently used as a remedial measure to enter college. Therefore, many graduates and parents had little incentive to complain about the poor quality of education.

Furthermore, declines in the numbers of technically qualified graduates may not have been felt during the extended recession, which generated a surplus labor supply. Other sources of entry-level workers with basic skills training were also available -- from INTECAP, Army training, father-son apprenticeships, farm cooperatives, company programs, etc.

2. INTECAP

What are the main reasons for the frequent criticisms of INTECAP's lack of responsiveness to private-sector needs? Notwithstanding INTECAP's adequate resources, extensive donor support and advice, and knowledgeable channels to the private sector through the latter's representatives on INTECAP's board, INTECAP continues to be criticized sharply. This was evidenced in the Employers' Survey as well as in frequent informal comments from private-sector leaders, USAID/Guatemala officials, and others.

This assessment of INTECAP shows that INTECAP has much in its favor. If one were starting anew to establish a nonformal training system, it would look very much like INTECAP. INTECAP appears to be providing good quality, competency-based and tested, entry-level training; has good leadership; is pursuing information exchange and dialogue with the private sector; and is self-financing with adequate local and donor support for its current programs. From the perspective of private-sector needs, however, INTECAP is limited by its inability to provide first-line supervisory training and quickstart training programs. INTECAP is often perceived as inefficient, providing low-quality training, and unresponsive to private-sector needs.

INTECAP's funding independence has a lot to do with its lack of responsiveness. Earmarking of the one percent payroll tax saved INTECAP from experiencing the same neglect as the rest of the skills training institutions. But, at the same time, it allowed this institution to survive and even prosper without paying close attention to the needs of its clientele, the private-sector firms.

The political climate and poor economic performance of the economy in the first half of the 1980s also depressed INTECAP. Only recently during the last two years, has INTECAP been able to rely on funds to increase its activities. Donors have increased in number and support since the coming of the democratic regime, and the revenue yield of the one percent payroll tax has increased since the turn-around of the economy in early 1987. Finally, up to 1987, there was little interest in skills training deficiencies because of the labor surpluses existing in most skills and economic sectors.

Not all the criticisms leveled at INTECAP are fully justified. First of all, INTECAP's resources are shared with programs not directly or immediately related to employers' current demands. These include start-up programs for micro-entrepreneurs; specially designed programs and assistance for unemployed youth, urban marginals, and the rural underemployed; programs of technical assistance on a wide range of issues for small and medium-sized companies; training programs to improve public-sector employees; etc.

INTECAP's statistics show that while industrial employers contribute only 11 percent of INTECAP's revenues, 65 percent of INTECAP's courses are in the industrial sector. Despite this distribution of courses, industrial employers may feel that they are not getting the kind or the quality of skills training they really need. This may be true and does call for improved responsiveness and communication with the private sector. However, an important caveat must be entered here. As a public institution, INTECAP must give priority to training for skills common to various types of companies and economic activities. Employers, on the other hand, are more apt to be seeking skills training for occupations or for levels specifically related to their particular type of firm or economic activity. INTECAP's lack of positive response to such firm-specific types of training may be understandable -- especially with other more public-oriented demands on its resources.

But INTECAP should be able to provide firm-specific training on a cost-recovery basis. Policy guidelines and criteria governing such training -- developed with industry representatives -- are needed to bridge the gap between employers' wants and INTECAP's response. Given an agreed-upon policy, INTECAP is in the best position to build the kinds of capabilities and resources needed to respond to firm-specific requests for training.

Fulfilling such firm-specific training requests may be in the public interest as well as in the more narrow interest of a particular company. This may occur if the lack of well-trained employees with particular skills constitutes an obstacle to business expansion, diversification, or new investment that would be in the public interest.

This study has uncovered some but not all of the actual or perceived factors contributing to INTECAP's reported deficiencies. Probably, there is need for improving the quality and experience of INTECAP's instructors. And, there is a need for stronger private-sector representation and participation to inject new ideas and attitudes and to counteract some of the bureaucratic inertia inherent in such a large governmental organization. With little chance of seeing any change in INTECAP's earmarked funding source, INTECAP's rather monopolistic hold on Guatemala's institutional training implies the need for injecting "new blood" periodically. That will require time to take effect.

C. Factors Favoring Institutional Improvement

Fortunately, changes are occurring in some of the factors that may have contributed to INTECAP's lack of responsiveness to private-sector employers. If so, this may be an opportune time for policy intervention. INTECAP is now well funded with

flexibility for creating new programs. It has shown a desire to become more responsive to the needs of the private sector as demonstrated by the large survey it recently has undertaken. Informal INTECAP comments indicate some broad concerns among administrators over INTECAP's future development and management -- e.g., concerns about organizational strategies and improved effectiveness, centralization versus decentralization, and span of control, etc.

The new government is very aware of the need to invest in a quality labor force as one of the pillars of its long-term, export-oriented growth strategy. Expanded participation in highly competitive international markets, especially in non-traditional areas -- plus hope for some revival of CACM -- calls for greater emphasis on improved productivity. And, this in turn, implies improved skills. Steps to make domestic markets more open and competitive will also add to such pressures and needs.

The Guatemalan economy experienced a positive rate of growth in 1987. This is a favorable change after more than a decade of recession and stagnation. The stabilization plan, started in 1986, has achieved a deceleration of the inflation rate, a stabilization of the exchange rate for the quetzal, and a more favorable investment climate. A final complementary factor comes from the emergence of a new managerial class in Guatemala -- graduates from INCAE, AGG, etc. -- who understand the mutual benefits to be derived from a more skilled and productive labor force.

Unfortunately, there are not as many positive factors to work with in bringing about a revitalization of the secondary technical school system or, at least, some parts thereof. One promising development is a well-planned and financed training-of-trainers program being initiated under West German auspices at the Mazatenango technical school. Improving the number and quality of skills instructors can provide a good foundation for rebuilding the secondary technical schools. The strong relationship of the private sector with the Imrich Fischmann Technical Institute in Guatemala City may be capitalized upon to help rebuild that school -- perhaps with matching funds raised through the Fischmann Foundation.

Other basic elements may be available at little or no cost -- e.g., textbooks and instructional materials; donations of surplus equipment from the United States (equipment no longer state-of-the art in the United States but well advanced for Guatemala) and, possibly, loans of experienced retired industrial specialists as instructors, available via IESC for just the cost of their expenses. The missing link for putting all these elements together is some dynamic, private-sector leadership. With such leadership, the Fischmann school could be made into a vital experimental or model technical school responsive to private-sector needs.

Revitalizing some technical schools would serve two primary purposes: (1) provide insurance against future skills shortages -- i.e., preserve enough of the system to build upon when Guatemala experiences greater economic growth and skill needs; and (2) help the private sector build and direct some alternative, competitive sources of skills training programs.

Another potential factor that could provide some effective leverage with both INTECAP and the technical school system may be awaiting active support from USAID/Guatemala. West Germany is the leading donor currently in the area of technical training. Her local technical assistance representative, Francise Huber, has informally suggested the formation of a Council on Donor Countries to coordinate their approaches to INTECAP and MOE. With active USAID participation, such a Coordinating Council might be able to achieve significant changes and remedial measures not easily attainable by any one donor country working alone. Implementing such a scheme may not be easy, but the idea offers the potential for significant accomplishment.

V. CONCLUSIONS AND RECOMMENDATIONS

The absence of critical labor shortages at this time should not allow us to neglect the deteriorating state of Guatemala's technical training schools and the growing dissatisfaction with INTECAP's lack of responsiveness to employers' training needs. As the GOG's export-oriented growth strategy and the Mission's private-sector development strategy take hold, they risk encountering significant skill shortages due to the lack of adequate institutional training capabilities for numerous occupations and/or skill levels. If potential investors are expected to undertake the costs of providing their own training, they may transfer their expansion or investment plans to other countries competing for such new investors by offering training facilities and incentives.

Prudent planning dictates that steps to improve institutional training capabilities be initiated now while time is available and while some capacity still exists rather than risk waiting for critical unmet training demands to surface. Furthermore, USAID's leadership and assistance can take advantage of an environment more favorable now to rebuilding Guatemala's skills training facilities.

Selecting the best potential targets -- means, timing, management, and other elements -- remains to be determined via the PID and PP process. The basic alternative options -- along with their objectives, components, advantages and disadvantages -- are detailed below. The underlying strategy is clear: USAID will be investing in risk insurance and preventive medicine. The purpose is to invest in Guatemala's skills

training system now to meet future needs rather than to jeopardize Guatemala's economic recovery by waiting to address skills needs at some future point when shortages become acute.

Presented below are recommendations for interventions that the team developed upon conclusion of the separate studies. The recommendations fall under three objectives, representing two different levels of funding and commitment on the part of the USAID Mission. The first level targets a range of activities that would seek to maintain minimum acceptable standards in the training system. The second level targets a range of activities that would significantly upgrade the quality of the training system. Finally, the team discusses the option of USAID working through a foundation to implement project activities, rather than directly carrying out activities with the training institutions.

Objective 1: Restore training system (or key parts) to minimum acceptable standards. Potential activities include any or all of the following:

- Provide textbooks and teacher materials to all skills training institutions.
- Provide vocational instructors with scholarships to Mazatenango teacher-training school.
- Provide hand tools and equipment to selected programs.
- Restore a full training program to an "adopted school."

Advantages:

- Low-cost, cost-effective, highly visible alternative.
- Demonstrates USAID commitment to programs benefiting the poor.
- Preserves capacity of system for greater development in the future.

Disadvantages:

- Offers little direct support for USAID Mission's private-sector development strategy.
- Requires funds that could be used for potentially more productive investments in education.
- Unless carefully structured, efforts may not lead to resolution of private sector needs and may amount to little more than "good will."

Ojective 2: Upgrade training system (or parts) to standards capable of producing adequately and well-trained persons. Potential activities include any or all of the following:

- Develop advanced skills training capability for selected occupations at particular institutions (based on cost-recovery for firm-specific training).
- Develop selected quickstart capabilities at particular institutions.
- Assist in development of short courses and workshops for supervisory training.
- Assist in development of technical assistance for industry-wide and in-plant training programs, especially for small and medium-sized firms.
- Provide scholarships to programs for training trainers.
- Improve quality of training components where needed.

Advantages:

- Increases productivity of new and employed workers.
- Contributes to attracting new industry.
- Reduces inefficiencies in vocational training system.
- Fosters entrepreneurship.

Disadvantages:

- Constitutes costly use of scarce education funds.
- May raise expectations of firms or workers prematurely.
- Increases recurrent costs of GOG.

Objective 3: Encourage vocational educational system to be more responsive to private-sector needs.

Various elements within the previous options are aimed at enhancing the skills training system and improving its ability to respond to private-sector needs. These same elements should appear in whatever project the Mission may develop but are emphasized under this objective.

Building on the Mission's private-sector initiatives, the proposed project would work with one of the Mission's institutions that encourage private-sector growth, such as the Asociacion de Gerentes de Guatemala (AGG) or FUNTEC. The selected institution would manage a USAID-financed matching grant fund aimed at making selected

interventions in the skills training sector (INTECAP, PVOs, MOE schools, and in-plant training). The selected foundation would also attempt to coordinate other donor assistance. It is envisioned that the management of interventions by the private sector would:

- Increase competitiveness among skills training institutions;
- Develop skills training services that are more responsive to private-sector needs;
- Improve the dialogue and increase linkages between the public and private sectors in the area of skills training, and
- Revitalize the existing skills training system.

The foundation would administer the matching grant under the supervision of an advisory committee, made up of one representative of USAID, one representative of the private sector, and one representative of the public-sector training institutions. The performance of the foundation would be audited and evaluated against measurable objectives.

Under this scenario, the project would also earmark some funds to assist INTECAP and the Imrich Fischmann technical school. INTECAP would receive technical assistance to develop a capacity to respond rapidly to requests for quickstart training and to develop an implementation plan for reorganizing and strengthening its delivery system. The Fischmann school would receive limited support to upgrade its textbooks and training technologies. The project would also provide additional resources to both institutions, conditioned on their performance in the first few years of the project. For example, if INTECAP demonstrated a capacity in supervisory training, it could develop programs in that area.

Alternatively, USAID could create a new foundation and provide matching grants and technical assistance to the foundation. The foundation, in turn, would provide grants to eligible deliverers of training services such as PVO's, INTECAP, MOE schools, and private-sector, in-plant programs. The same constraints would be placed on the foundation as above, but the funds would not be earmarked for any particular training deliverers.

Advantages:

- Relatively low-cost alternative which buys "seat at the table" for USAID.

- Promotes competitiveness and responsiveness among training deliverers to meet private-sector needs.

- May prevent some public-sector training institutions from going out of business if they can compete.

- Adaptable to any type of employer-specific training need. For example, if the employer's need is very firm-specific, then funding for technical assistance and training would be borne by the employer.

- Increases productivity of new and employed workers.

- Easy for USAID to manage a project of this type.

- Promotes dialogue between public and private sector in areas of skills training.

- Supports Mission's private-sector development strategy.

Disadvantages:

- May constitute inappropriate use of training resources.

- May increase recurrent costs of GOG.

ANNEX A

A PERSPECTIVE ON SKILL TRAINING NEEDS AND LABOR MARKETS IN THE GUATEMALA ECONOMY

by
Dr. Jorge Martinez

June 1988

A PERSPECTIVE ON SKILL TRAINING NEEDS AND LABOR MARKETS IN THE GUATEMALAN ECONOMY

I. INTRODUCTION

The Guatemalan economy has made a remarkable come back under the stabilization plan introduced by the Cerezo administration in early 1986. After a six-year-long deep recession, preliminary estimates for 1987 indicate a rate of growth in real GDP between 2.5 and 3.5 percent, and for 1988, growth projections are in the same range. Inflation is significantly down from over 37 percent in 1986 to around 10 percent in 1987, and a lower rate is forecast for 1988. An appropriate set of macroeconomic policies lies behind this encouraging news. Money supply is under control and the Government deficit as a percent of GDP has declined over the last two years. The rationalization of exchange rate policies has also contributed to an improvement in the balance of payments.

With success in the stabilization front, the time is right to give emphasis now to long term growth microeconomic-oriented policies. A number of these policies have been incorporated in the Government of Guatemala National Development Plan (NDP). The overall strategy of the plan is to promote private sector growth led by the export industry. The NDP contains sensible elements such as the elimination of institutional constraints to exports and the operation of free markets, and the encouragement of product diversification and domestic savings. Other elements of the NDP are more questionable in terms of their long term economic viability, e.g., the growth of micro enterprises with six or fewer employees. This type of policy, however, can be justified on social and political grounds.

There are three main obstacles impeding the long-term growth objectives of the NDP. The first is a too-broad overall strategy covering all sectors and business sizes of the economy. By spreading resources and efforts so thin, it is likely that no single sector will experience a significant improvement in increased employment, value added and exports. Although with the encouragement of AID and other international donors, there has been some search for a few sectors with the greatest growth and export potential in which to concentrate, the Government of Guatemala strategy remains too wide in scope. An alternative approach could be to imitate the strategy though not necessarily the particular economic activities, of the NICs of Southeast Asia, (that is, a coordinated activity plan involving both the private and public sectors that concentrates on a handful of sectors with large export potential.)

The second difficulty in the way of achieving sustained long-term growth involves a number of present government policies openly in conflict with the growth objective, e.g., the export tax or the discriminatory tax treatment of capital income. A careful evaluation of present government policies and subsequent reform is the way to proceed here.

The last difficulty facing the Government of Guatemala's long-term growth objective includes a number of structural deficiencies of the Guatemalan economy: weak financial intermediation, a marked dual economic system, and shallow markets. Another possible bottleneck to further economic growth could be the inadequate supply or potential supply response of semi-skilled, skilled and technical workers.

The objective of this study is to analyze and quantify to what extent there exists an excess demand for skilled and technical workers in the Guatemalan secondary sector (agribusiness and manufacturing), as well as in the construction, tourism, transport and communication sectors. Agriculture is excluded because it is being studied elsewhere in USAID/Guatemala. Several activities in the tertiary sector are also excluded from the scope of work because, a priori, they were thought to be very likely free of skilled labor constraints and/or because they have marginal economic significance. It should be noted also that our analysis will also not encompass managerial skills because this aspect is also being studied elsewhere in USAID/Guatemala.

II. ISSUES IN THE EVALUATION OF DEMAND NEEDS AND TRAINING RESPONSES OF SKILLED WORKERS

Every economy including those of developed countries can benefit to some degree from upgrading the training and skills of its labor force. However it is necessary to realize that the demand for labor, at all skill levels, is a derived demand. Skilled workers will be hired only as long as there exists domestic or foreign demand for the commodities those skilled workers help produce. It is not a good use of economic resources, and it may even be politically destabilizing, to train more workers in particular skills than the economy will be able to absorb. It is necessary, therefore, to analyze the issue of the adequacy or "needs" of skilled labor both from a demand and a supply perspective.

In this context there are two basic questions one needs to ask. First, are there imbalances (excess demand or excess supply) for particular skills at the present time? If so, how important are they? Second, since most markets at any moment in time are out of equilibrium, how responsive is supply from training institutions and on-the-job training to increases in the demand for particular skills, i.e., are there formal and informal

training processes able to deal with market imbalances in a short period of time?

The ability of formal and informal training institutions to respond to significant increases in demand for particular skills depends critically on the existence of a pool of workers that are trainable (basically, that are literate and have some basic skills and appropriate attitudes). Even in the U.S. and other developed countries, study after study, has found that employers' main complaint about the effectiveness of on-the-job training is the lack of literacy and basic skills and attitudes of trainees. Guatemala is at the bottom of the Western hemisphere countries in the provision of educational services. For example, over 50 percent of the population is illiterate. (See Guatemala, Economic Situation and Prospects, World Bank, January 1987 for more details.) Therefore, a question to ask, from both a social optimum view point and the narrower one of the economy's response to an increase in demand for skilled workers, is whether priority, should not be given to the use of economic resources in basic general education. Comparative economic studies show that the level of development and labor productivity in a country correlate very highly and significantly with the average level of education.

To avoid the risk of possibly exacerbating excess supply imbalances of particular skills, it is desirable to measure unemployment rates by specific occupation. This may be particularly important in the case of Guatemala because of the high official estimates of the unemployment rate. Table 1 presents estimates from SEGEPLAN for open unemployment and some measure of under employment and hidden unemployment (desempleo encubierto) for 1980 to 1987. For 1987, SEGEPLAN estimates that the open unemployment rate in Guatemala is 12.5 percent. Additionally, close to 32 percent of the labor force is estimated to be underemployed or suffering from hidden unemployment. Adding these two figures, close to half (44.3 percent) of the labor force is found by SEGEPLAN to be unemployed. It would seem pertinent, therefore, to ask how many of those unemployed workers are skilled workers.

SEGEPLAN unemployment figures, however, need to be interpreted with caution because of the methodology used to derive them. SEGEPLAN methodology assumes constant input ratios and labor productivity since a 1980 household survey. It then proceeds to derive labor requirements from sectoral economic outputs in the national income accounts. Unemployment figures are last obtained as a residual from labor force estimates for each year. A recent study for AID by Peter Gregory (Analysis of the INE Household Survey"; see also "Employment and unemployment in Central America" by the same author) is highly critical of SEGEPLAN methodology. Based on preliminary information from the recent November 1986 household survey, Gregory argues that

TABLE I

Estimación del Nivel de Utilization de la Mano de Obra
Periodo: 1980 - 1987

AÑOS	Población Económicamente Activa		Empleo		Requerimientos Técnicos de Pleno Emp.		Desempleo Abierto		Desempleo Equivalente		Desempleo Total	
	Número	%	Número	%	Número	%	Número	%	Número	%	Número	%
1980	2161814	100	2135635	97.80	1528687	66.80	46979	2.20	633148	29.0	682127	31.80
1981	2352481	100	2317841	98.50	1517235	67.42	33842	1.50	722315	31.12	733455	32.50
1982	2328783	100	2158388	94.20	1467551	63.60	132395	6.20	722815	32.48	839212	36.42
1983	2371351	100	2135455	90.10	1434640	62.50	235397	9.90	722815	29.60	958713	39.50
1984	2437731	100	2215622	90.90	1448407	59.40	222132	9.10	767213	31.50	989343	42.60
1985	2522207	100	2224248	88.20	1437235	57.00	321759	12.80	767213	30.60	1088972	43.70
1986	2576175	100	2205253	85.60	1442220	56.00	365943	14.20	767213	29.80	1134156	44.20
1987	2646105	100	2315384	87.40	1475958	55.70	332954	12.60	839346	31.70	1172318	44.30

NOTA: Los calculos del nivel de utilizacion de la mano de obra para 1985 se basan en tres condiciones: A) que el PIB registrara un crecimiento de 2.2% ; B) la productividad media de los sectores economicos se mantenga en el mismo nivel que el ano anterior: y, C) la nueva PEA se situara en desempleo abierto.

FUENTE: Estimaciones efectuadas en el Departamento de Poblacion y Empleo de SEGEPLAN.

SEGEPLAN estimates significantly exaggerate the extent of true unemployment in Guatemala. According to him the labor market problem in Guatemala is not one of unemployment or hidden unemployment but rather one of low productivity and low wages. Gregory concludes that the unemployment rate in Guatemala is not higher than the 7.3 percent "open unemployment" rate found in the 1986 household survey for Guatemala's metro area. This is hardly the appropriate place to comment extensively on methodological issues. From the perspective of the present study two comments will suffice. First, 7.3 percent or less "true" unemployment rate is probably too low an estimate for Guatemala, especially considering that the country had been subject through 1986 to a pronounced six-year long recession. Many developed countries do not show today unemployment rates of 7 percent or less even after an uninterrupted worldwide economic expansion that has lasted over five years. Second, if the "true" unemployment rate in Guatemala is not higher than Gregory's estimates, there is still a good chance of significant open unemployment, hidden unemployment, or underemployment in specific occupations or skills. Several statements in Gregory's report raise a concern for high unemployment in particular skills or occupations: "...unemployment rates are higher (from preliminary survey results) as one moves from the population with no education to that with more. This pattern is only interrupted among university graduates who report the lowest levels of unemployment" (p.2), and "...the openly unemployed group is heavily weighted with individuals whose last job was in "large" establishments" (p.2). Conceivably, larger establishments are more likely to employ skilled workers.

If a significant proportion of workers with specific skills is already unemployed, training new workers in the same skill will result in labor displacement with no net additions to the number of employed workers. In this case, training represents only a transfer to those individuals receiving training from other workers now losing their jobs. Whether or not a particular skill is in over supply (workers with this skill are unemployed or underemployed, that is, holding a job which does not require the skill) can be best determined through direct surveys of the labor force. Alternatively, disequilibrium in labor markets for particular skills and the persistence of disequilibrium can be detected by studying the behaviour of wage differentials across skills over a number of years. This latter approach, however, requires the existence of fairly competitive labor markets with flexible wages. Competition and flexible wages are not frequently met requirements. A casual observation of the construction industry in the Guatemala metropolitan area illustrates this point well. Peter Gregory, in the study cited above, reports that representatives of the construction industry complained about a shortage of construction workers in the metropolitan area. Builders had been forced to truck-in workers from

outlying rural areas, a practice which is both costly and time consuming. To Gregory's question of why builders did not pay above the minimum wage to attract workers in the metro area to the construction industry, builders responded that none of them wanted to do so because they were afraid of becoming uncompetitive in contract bidding.

But if every builder has to pay a higher competitive wage, how is it that any single builder would become uncompetitive by so doing? What seems more probable is that the builder association of Guatemala City has reached a collusive monopsonistic agreement not to pay construction workers wages above the minimum wage. This suspicion is reinforced by the Guatemala City builders association practice of publishing detailed data on employment and wages for all its members. This is a typical enforcement mechanism of collusive arrangements. If these inferences are correct, how is one to interpret the "worker shortage" in the construction industry in Guatemala City? If builders are asked about the existence of labor shortages they would answer in the affirmative. However, they do not want to pay wages higher than the minimum wage. At the same time many qualified workers do not want to work in the sector at the going minimum wage. The training of additional workers in construction skills would hardly be the appropriate response to this market situation.

At the present time there does not exist published data on unemployment by occupation in Guatemala. However, the 1986 household survey conducted by the Instituto Nacional de Estadistica (INE) did collect information on employment status by occupation. These data have been entered into magnetic tape, and we have requested from INE a set of tables on employment and unemployment by occupation category at the three digit level. Table A-1 presents the basic format of the information requested. Officials of INE have been very cooperative and we hope to have the requested information by the end of January 1988. Our hope is that the INE data will provide clues about occupations with excess supply and those with tighter market conditions in which further training and upgrading of skills is warranted.

The only published data on wages by occupation in Guatemala is on minimum wages. Because of the administrative and slowly changing nature of minimum wages, this kind of data generally conveys little reliable information on market conditions by occupation. Minimum wages in force in 1987 are presented in Table A-2 Appendix. Monthly minimum wages in force in 1987 ranged from Q.33.60 for some agricultural workers to Q. 249.90 for journalists (last column of Table A-2.) Some minimum wages have not been changed since 1967 and others have changed as recently as 1987.

Although frequent upward adjustments of a minimum wage may be a reflection of

excess demand in the particular labor market, there are many other factors involved in the adjustment process, especially political factors. In combination with other wage information, however, minimum wage levels and the frequency with which they change may contribute to the understanding of labor market conditions in Guatemala. The 1986 household survey conducted by INE collected information on monthly salaries by occupation. As in the case of unemployment data, monthly salaries have been entered into magnetic tape, but they have not yet been processed. We have also requested from INE a set of tables of monthly salaries by occupation at three and two digit levels. (See Table A-3 in the Appendix for a sample table.) To get a good idea of market tightness for each occupation, we would ideally have a time series of monthly salaries by occupation instead of salary levels of a single moment in time. Labor shortages in particular occupations are likely to be accompanied by faster increasing wages. Nevertheless, wage levels by occupation and some knowledge of training costs to interpret and confirm unemployment data by occupation may be helpful.

The working of labor markets and generally, the information content of wages are distorted by the presence of labor unions. Labor unions for example can push wages beyond those that would take place under market clearing conditions. In the short period of time available to us, we were not able to find any study on the impact of unions on Guatemala's labor markets. From informal conversations held during our visit in December 1987, it would appear that Guatemalan labor unions do not affect in an important way a large number of labor markets.

If no employment and wage data are readily available, what is known from previous studies about demand and supply imbalances for skilled workers in Guatemala? A quite exhaustive review of the literature shows that no complete study of labor markets for skilled workers has ever been undertaken in Guatemala. Several studies and reports, however, have directly or indirectly dealt with this issue. In the following paragraphs we comment on the main findings of a handful of the studies that have most directly dealt with the issue of the adequacy of the supply of skilled workers in Guatemala. Our comments will not cover the INTECAP study underway in December 1987 on effective demand for skilled workers across the entire spectrum of the Guatemalan economy. INTECAP survey data still needs to be processed. We hope we will be able to comment on INTECAP'S findings in a later version of this report.

The most ambitious but by now also the most outdated study of skilled labor demand in Guatemala is SEGEPLAN's 1978 "Requirimientos de Mano de Obra en al

Mediano Plazo: 1977-1983." This study was undertaken as a component of the 1978 development plan. Its objective was to quantify at a very disaggregated level, four and five digits of the UII Code, skilled and unskilled labor requirements to meet the production objectives of the five-year development plan. SEGEPLAN used an input-output methodology which assumes fixed factor proportions in production. This approach, followed in many other countries in the 1960's and 1970's, is convenient but it presents serious weaknesses. From the perspective of the present study, SEGEPLAN's results are too unreliable and outdated to be of value in the assessment of present needs for skilled worker training in Guatemala.

Much less complete but perhaps more useful information is provided in "Technical Training: An Assessment of Needs and Recommendations for Potential Projects," a May 1986 report that the International Science and Technology Institute prepared for USAID/Guatemala. Interviews were conducted with owners and managers of twelve large Guatemala firms with the purpose of assessing; (1) attitudes regarding the need and benefits of training; (2) areas in which formal training should be developed; and (3) opinions about the performance of formal training institutions. Not surprisingly, all respondents supported and utilized training programs. Although the large firms in the survey had several problems with developing their own training, they preferred in-house and on-the-job training to any other type of training. This is a typical finding with large firms in just about every country. Regarding which areas should be emphasized in formal training, the survey produced a list of skills, but this list has only illustrative value given the reduced size of the sample. INTECAP was the most frequently cited training institution and got overall mixed reviews. Some of the criticisms of INTECAP dealt with the quality of teachers and INECAP's inability to communicate what services are available. These and a few other criticisms contrast with the generally glowing review of INTECAP in IDM's "Project Performance Review of INTECAP" in December 1983. Of course, some of the discontent expressed by the interviewed firms with INTECAP should be expected and discounted, especially the comments that the courses at INTECAP are too basic and general rather than job-specific (more about this below). An interesting point made in the report is that in spite of the criticisms, many of the firms in the survey wanted to act individually or as a group to improve INTECAP.

Another recent study for USAID/Guatemala, "The Private Sector Survey for Guatemala" by Roger Cowan and Associates (April 1986) also contains useful information on skill training "needs." The study surveyed 102 companies of all sizes and all economic sectors, although middle size companies with 10 to 100 employees were given more

weight. The objective of the survey was to discern whether business expansion opportunities existed, and if so what the main problems limiting expansion were. Did companies reveal that a lack of skilled workers constrains growth? "Worker deficiencies" were mentioned by some companies but many others said they had no problems in this area. Interestingly, in the ranking of program components designed to facilitate growth, worker training was put among the last, behind finance, technical assistance, new markets, and new investment.

With respect to the preferred institutions to mediate in the solution of constraints, INTECAP was the most frequently cited provider of technical training. Opinions about INTECAP were again divided. Some companies thought INTECAP was doing a good job, but others found it very deficient.

The "Informe del Estudio de Oferta Exportable de Guatemala" produced by the Gremial de Exportadores No Tradicionales in 1986, surveyed 663 businesses, 50 percent of which were in manufacturing and 16 percent in agribusiness. Although training needs was not cited as an important obstacle to the capability to export (a few clothing businesses were the only exception,) most firms ranked production know-how by their employees as their most important need. This type of constraint was put ahead of marketing, quality control, product design, and administrative skills. Skilled worker shortages were cited by 162 firms, the shortages being more critical in the textile and clothing sectors.

Two recent reports on Guatemalan microbusiness have also generated some information on skill training imbalances in this sector of the economy. The first study, by the Fundación FADES ["El Sector Informal. Estudio sobre el Sector Informal de Producción y Servicios en el Area Urbana Central de Guatemala" (Junio 1987)] undertakes a carefully designed survey of 800 microbusinesses. Among the findings of the survey are that less than 12 percent of those interviewed had ever received any formal training, and that while only a small minority of the businesses had an interest in administrative training, nearly half were interested in receiving skills training. The types of skills demanded included how to use, maintain, and repair equipment and methods of quality control. The second study prepared by SUMA S.A. for the office of the Vice President [Encuesta - Perfil Preliminar de Microempresas Urbanas Resultados Preliminares. Junio 1987] surveyed 400 microbusinesses in Guatemala City and the municipalities of Mixco and Villa Nueva. The survey instrument included questions about needs for skills training and technical assistance, the willingness by microbusinesses to contribute a monthly fee to cover training costs, and time availibility for formal

training. Unfortunately, the preliminary results published in the report are not detailed enough to be of much help.

As a group, those recent studies and reports present an inconclusive picture of the importance or severity of skill training needs in Guatemala. After reading these studies one could arrive at the conclusion that even though there is a need for additional training in some areas, there is no evidence of severe imbalance. It would seem that the supply mechanisms for skills training have been overall quite responsive to needs. One may get the same impression from other sources. For example, USAID/Guatemala Private Sector Strategy lists seven main constraints limiting growth of the private sector in the Guatemalan economy. These constraints range from an unstable policy environment to inadequate financial services. However, shortages or inadequacies of skilled workers is not one of them.

The fact is, however, that none of the studies reviewed above has been comprehensive and rigorous enough to allow us safely to reach the conclusion that skill and technical training does not constitute a constraint to the growth and development of the Guatemalan economy. A careful study surveying the "needs" of firms for individual skills and the responsiveness of training institutions to those "needs" is justified.

In a conventional survey of "needs" for individual skills, firms are asked about present skill grades, vacancies and potential future demand for skilled workers, and how they prefer to train their employees. There are number of issues to keep in mind in constructing the survey instrument and interpretating the results. The first issue is that firms' "needs" for skill training is an ambiguous concept. What skill levels and how much of each skill level a firm will demand depends on costs and returns. Costs include both training costs and wages needed to pay skilled workers to keep them on the job. For example, if the firms perceive that training costs are nil for themselves, they may express a "demand" for all kinds of skills. It is necessary therefore to try to establish firms' "effective demand" for skilled workers. By effective demand we mean jobs for which the firm will be willing to pay all of the attendant training and wage costs.

A second issue to keep in mind is the kind of skills one should expect firms to express an interest in. Training and skills can be broadly grouped in two categories: general training or skills that the worker can carry with him from firm to firm, and firm-specific skills which are useful to the worker only in a particular firm. Firms will be interested in receiving training assistance and be willing to pay only for the second type of skills, firm-specific skills. Firms, of course should be very happy to have public training institutions cover the costs of a firm-specific type of training. But, it is the

general training or skills that should be provided by public institutions. With highly technical skills, trainees themselves should at least cover part of the cost of training. General basic worker skills have a public-good nature. Every firm benefits from a labor force that has those general skills. However, no individual firm has an incentive to pay for this type of training because it thinks it can be provided free by other firms or the rest of society. The solution to the dilemma is to provide basic general training and skills education on the same basis as other public goods. The service is publicly supplied and all potential beneficiaries make compulsory contributions to the costs of financing the service. INTECAP in Guatemala, which is financed with a one percent payroll tax, provides a good example of how it should be done.

One implication of this analysis is that most firms will complain that the training offered by the common or public institution is too general and too basic. This kind of complaint is logical and expected for selfish reasons. Of course, firms may not realize that this general basic training will not be provided anywhere else. They may not realize either that compulsory contributions to the public training institutions are unlikely to support all the specific training that each one of the specialized firms desires. In the case of Guatemala, it is almost certain that the one percent payroll contribution to INTECAP is not nearly enough to fund all training costs of each and every one of the contributing firms. At present, there is considerable cross-subsidization among firms. According to INTECAP's own figures, firms in the tertiary service sector contribute about half of INTECAP funding but they receive only 11 percent of INTECAP expenditures. The big beneficiaries are firms in the manufacturing sector, which at the same time are also the most vocal about INTECAP limitations. Our comments are not meant to imply , of course, that all public training institutions, including INTECAP, are well run and make an efficient use of their resources.

A third issue to keep in mind in interpreting survey results is that firms are likely to express significantly different willingness to pay for firms and general skills. But the fact that firms will not be willing to pay for the costs of general skill training should not be interpreted as saying that firms will not demand and employ workers with these general skills. That is, one should avoid arriving at the fallacy that skills and training which firms are not willing to pay for should not be supplied at all.

A fourth consideration for the interpretation of survey data is its temporal validity. In highly dynamic economies, effective demand for particular skills is expected to change rapidly making existing data obsolete. In the case of Guatemala, effective demand for particular skills is expected to change much less rapidly. Nevertheless,

cyclical fluctuations and international trade changes will subject the data to some degree of obsolescence. Therefore, it will be necessary to update the data with new surveys of periodic intervals, every two or three years. From this perspective, it would be desirable to attempt to institutionalize the survey process. A "once-and-for-all" effort will not have much lasting value. Collaborating with INTECAP in its ongoing survey, and providing technical and financial assistance may be a good way of institutionalizing the data gathering process.

One last issue to consider is the survey's universe. One approach is to take a wide view of the economy. The underlying assumption in this approach is that when little or nothing is known about training and skill imbalances in the economy, knowledge of opportunity cost is needed in order to make informed training policy decisions. A second approach consists of attempting to narrow down the universe of the survey by concentrating on those economic subsector activities that have experienced the fastest rate of growth in the past few years. The underlying assumption of this second approach is that market imbalances for skilled workers are more likely to appear in those rapidly expanding economic activities. Although this second approach is intuitively appealing, it presents an important caveat. Simply put, those sectors that have been growing faster may have done so, at least in part, because of the availability of skilled labor. Meanwhile other slower growing or even stagnant sectors may have performed poorly due to the lack of skilled labor or the unresponsiveness of training institutions to their needs. It is this possibility that makes it advisable to survey both growing and non-growing sectors. The caveat also points towards the possiblity of related phenomenon which will be hard to detect in statistical data. Foreign domestic investment in some economic activities or expansion into certain fields may have never taken off in Guatemala because of the lack of qualified personnel. A well designed survey instrument can gather qualitative data on this type of phenomenon and it may be the only adequate way to do so. This issue has many manifestations. For example, has some diversified activity in the maquila sector been discouraged because of lack of trained personnel or training facilities?

The fact that it is necessary to survey non-growing and even "still-born" sectors together with growing sectors, does not make information on growing sectors entirely useless. This information combined with survey information on effective demand imbalances and training institutions' ability to respond could be useful for designing skill training policies. Other things equal, it would be preferable to use training resources in sectors with higher growth potential. But have there been any economic activities, in

the manufacturing sectors in particular, that have grown faster than the rest of the economy? We will attempt to answer this question in the next several paragraphs.

Table 2 presents the annual rate of growth from 1979 to 1985 for the main sectors of the Guatemalan economy. The decline in economic activity during the 1981-85 recession hit practically all "productive" sectors. Economic activity contracted more significantly in the mining, manufacturing and construction sectors. But agriculture, public utilities and transport and communications also experienced important decreases in economic activity.

The Guatemalan economy is still dominated by the primary sector. Agriculture accounts for about one-fourth of real GDP (Table 3) and is by far the largest employer. Close to 40 percent of all workers affiliated with the Instituto Guatemalteco de la Seguridad Social (IGSS) are employed in the agricultural sector (Table 4). This figure gets higher when the entire active labor force is included. Agricultural products also represent two-thirds of Guatemalan exports (Table 5).

In contrast, manufacturing, the main focus of this report, represents around 16 percent of real GDP and employs close to 12 percent of the labor force affiliated with the IGSS. Manfacturing activity is concentrated in the food processing industry, which represents close to 45 percent of total sectoral output, followed by the textile and garment industries that combined represent close to another 20 percent of sectoral output (Table 6).

The evolution of the manufacturing sector between 1979 and 1986 is depicted in Table 7, which presents annual rates of growth at the two digit UIIC level. Due to a significant decrease in domestic demand and exports, especially to the CACM (see bottom of Table 5), the Guatemalan manufacturing sector experienced a depression between 1981 and 1986. With very few exceptions, most manufacturing subsectors experienced negative rates of growth over that period. To help sort things out, the annual rate of growth were algebraically added for each of the two-digit subsectors and from that figure we computed the subsector's mean annual rate of growth over the 1979-1986 periods (last column of Table 7). Only one subsector, "other manufacturing industries" (UIIC 39) proved to be resilient enough over the period with a mean rate of growth in real terms of 4 percent. But even this subsector experienced a negative rate of growth of -3.3 percent in 1986. The activities grouped under "other manufacturing industries" include jewelry, toys, sporting goods and office goods. Table A-4 in the Appendix contains a more disaggregated listing. A few other manufacturing activities also managed positive mean rates of growth over the period, although considerably

TABLE 2

PRODUCTO GEOGRAFICO BRUTO POR RAMAS DE ACTIVIDAD A PRECIOS CONSTANTES
AÑOS: 1979-1985

(Tasas Anuales de Crecimiento)

RAMAS DE ACTIVIDAD	1979	1980	1981	1982	1983	1984	1985
PRODUCTO GEOGRAFICO BRUTO	4.7	3.7	0.7	- 3.5	- 2.6	0.5	- 1.0
1. Agricultura, Silvicultura, caza y pesca	2.8	1.6	1.2	- 3.0	- 1.7	1.6	- 0.8
2. Explotación de minas y canteras	79.6	71.2	-36.3	13.3	-12.4	-18.9	- 14.7
3. Industria manufacturera	5.6	5.6	- 3.1	- 5.2	- 1.9	0.5	- 0.2
4. Construcción	6.5	3.7	19.0	-11.6	-26.4	-28.4	- 9.6
5. Electricidad, gas, agua y servicios sanitarios	6.2	2.4	- 0.3	- 2.2	- 0.6	4.8	4.[illegible]
6. Transporte, almacenamiento y comunicaciones	5.2	8.2	- 2.1	- 4.8	- 0.7	3.3	1.1
7. Comercio al por mayor y al por menor	2.8	1.7	0.6	- 5.6	- 4.1	1.1	3
8. Banca y seguros	19.2	4.5	2.0	0.8	- 2.1	- 1.5	2.[illegible]
9. Propiedad de vivienda	3.5	3.0	2.6	2.6	2.6	1.8	2.[illegible]
10. Administración pública y defensa	6.7	10.6	4.3	3.9	4.7	2.0	1.[illegible]
11. Servicios privados	7.5	3.7	0.6	- 1.2	- 0.8	0.3	[illegible]

Fuente: Banco de Guatemala

TABLE 3

PRODUCTO GEOGRAFICO BRUTO POR RAMAS DE ACTIVIDAD
A PRECIOS DE MERCADO

AÑOS: 1979-1985
(Miles de Quetzales de 1958)

RAMAS DE ACTIVIDAD	1979	1980	1981	1982	1983	1984	1985
PRODUCTO GEOGRAFICO BRUTO	2 994 650	3 106 877	3 127 560	3 016 573	2 939 604	2 953 546	2 925 097
1. Agricultura, silvicultura, caza y pesca	760 054	772 010	781 385	757 950	744 855	756 526	750 385
2. Explotación de minas y canteras	8 658	14 824	9 446	10 703	9 371	7 597	6 481
3. Industria manufacturera	489 656	517 317	501 213	475 090	466 053	468 365	467 361
4. Construcción	94 390	97 904	116 502	103 024	75 792	54 279	49 082
5. Electricidad, gas, agua y servicios sanitarios	51 982	53 221	53 040	51 863	51 541	54 040	56 291
6. Transporte, almacenamiento y comunicaciones	199 465	215 784	211 240	201 156	199 715	206 322	208 619
7. Comercio al por mayor y al por menor	824 709	839 072	844 106	797 200	764 392	773 095	744 572
8. Banca y seguros	102 099	106 661	108 791	109 687	107 340	105 720	108 585
9. Propiedad de vivienda	134 070	138 144	141 726	145 394	149 176	151 930	154 969
10. Administración pública y defensa	147 400	163 006	170 081	176 741	185 086	188 828	191 061
11. Servicios privados	182 167	188 934	190 030	187 765	186 283	186 844	187 691

Feunte: Banco de Guatemala

TABLE 4

NUMERO DE TRABAJADORES POR RAMA DE ACTIVIDAD ECONOMICA EN LA REPUBLICA 1/
ESTIMACION DEL INSTITUTO GUATEMALTECO DE SEGURIDAD SOCIAL (IGSS)
PERIODO: 1960-1986

AÑO	TOTAL	Agricult. Silvicult. Caza y Pesca	Explotacion de Minas y Canteras	Industrias Manufac-tureras	Construccion	Electricidad Gas Agua y Serv. Sanit.	Comercio2/	Transporte Almacenaje y Comunicaciones	Servicios
1960	264100	135632	1517	26225	23517	1327	15927	9480	524
1961	269365	135498	1411	27597	10439	1368	18008	9176	655
1962	264884	132973	1237	26695	7571	1988	20576	9330	645
1963	274838	137796	842	28666	12271	1931	16172	9772	673
1964	322289	173291	813	30566	13726	1744	19433	9876	728
1965	345519	171666	1189	33433	16851	2605	20494	10204	898
1966	366546	193856	1161	37773	12893	1351	22269	11084	865
1967	367401	188915	1006	39947	12679	1759	23398	9847	905
1968	395800	227973	1448	39487	11312	3554	20617	11357	802
1969	446540	269279	1618	38169	14337	3763	22442	10404	857
1970	448276	207255	3417	69325	21585	4827	36649	0833	965
1971	442842	246732	1733	46864	14968	4649	30931	9860	871
1972	448378	251277	1346	40694	12239	4728	28627	16556	989
1973	468633	249165	1375	49749	16947	3970	32757	10510	1044
1974	539792	271437	4016	58117	22439	6717	45184	12452	1194
1975	523596	260855	2733	61796	20865	5788	38233	10844	1203
1976	577920	283924	1907	73279	22156	5685	36893	10770	1433
1977	708815	368342	3960	84529	24177	9204	51662	14318	1532
1978	765045	395335	3649	91701	37215	10572	56616	15073	1559
1979	758171	374609	2662	81774	42252	10161	58540	17139	1693
1980	755542	373469	3744	83066	27738	13480	58913	21634	1734
1981	591819	225688	3462	73583	23440	11673	58925	18685	1754
1982	608144	215709	3099	73851	26894	14810	61314	19951	1935
1983	583548	199847	3388	77842	17817	14230	63446	15990	1909
1984	594936	205514	2146	69506	13041	13579	59395	19755	2120
1985	631654	233572	2085	78205	14077	13634	58393	20333	2119
1986 p/	660444	239107	2518	78251	15702	11435	61763	21730	2299

1/ cifras preliminares
2/ Se refiere al numero de trabajadores afiliados cotizantes al IGSS
3/ Incluye Banca y Seguros
4/ Incluye Administracion Publica

NA: Las cifras empleo para el periodo 1974 -1982
corresponden a la revision efectuada por el IGSS.

El INSTITUTO GUATEMALTECO DE SEGURIDAD SOCIAL
11-02-87

TABLE 5

Guatemala: Exports by Principal Commodities

(Value in millions of U.S. dollars; volume in thousands of quintals; unit value in U.S. dollars per quintal)

	1982	1983	1984	1985	1986
Total	1,170.4	1,091.7	1,132.2	1,112.1	1,058.3
Principal exports	697.9	660.0	706.1	724.6	728.3
Coffee					
Value	374.6	308.8	360.6	451.5	502.3
Volume	3,324.8	2,583.8	2,842.2	4,041.1	2,957.2
Unit value	112.7	119.5	126.9	111.7	169.9
Cotton					
Value	95.1	67.4	72.3	73.1	24.3
Volume	1,731.2	1,210.4	1,154.1	1,253.6	674.4
Unit value	54.9	55.7	62.6	58.3	36.0
Bananas					
Value	74.0	53.5	54.9	70.9	73.4
Volume	8,022.0	5,429.3	5,789.6	7,062.6	7,331.5
Unit value	9.2	9.9	9.5	10.0	10.0
Sugar					
Value	47.1	95.3	71.3	46.4	51.7
Volume	4,218.0	8,540.6	6,090.6	6,158.2	7,961.9
Unit value	11.2	11.2	11.7	7.5	6.5
Meat					
Value	16.8	15.6	12.7	10.0	4.7
Volume	173.7	190.7	185.3	200.5	63.6
Unit value	96.7	81.8	68.5	49.9	74.0
Petroleum					
Value	46.1	60.0	34.0	12.0	24.6
Volume 1/	1,546.0	2,206.3	1,248.2	458.3	1,783.4
Unit value 2/	29.8	27.2	27.2	26.2	13.8
Cardamom					
Value	44.2	59.4	100.3	60.7	47.3
Volume	131.1	170.4	160.3	144.4	177.8
Unit value	337.5	348.6	625.8	420.3	266.0
Other	472.5	431.7	426.1	387.5 3/	330.0
CACM	344.3	320.9	291.4	257.0	200.0
Other	128.2	110.8	134.7	130.5	130.0

Sources: Bank of Guatemala; and Fund staff estimates.

1/ In thousands of barrels.
2/ In U.S. dollars per barrel.
3/ CACM trade figures were adjusted upward by US$50 million in 1985 to match better with reports of trading partner countries.

TABLE 6

SECTOR INDUSTRIAL
VALOR BRUTO DE LA PRODUCCION A PRECIOS CONSTANTES
AÑOS: 1979 - 1985

(Composición Porcentual)

CONCEPTO	1979	1980	1981	1982	1983	1984	1985
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
20 Industriosmanufactureros de productos alimenticios, excepto las de bebidas	38.3	38.1	37.4	36.2	36.2	36.6	36.8
21 Industrias de bebidas	7.1	6.8	6.8	6.7	6.5	6.6	6.6
22 Industria del tabaco	3.1	3.0	2.7	2.9	2.9	2.7	2.6
23 Fabricación de textiles	8.3	8.4	8.0	7.6	7.9	8.0	8.0
24 Fabricación de calzado, prendas de vestir y otros artículos confeccionados con productos textiles	10.0	10.1	10.3	10.4	10.3	10.4	10.4
25 Industrias de la madera y del corcho excepto la fabricación de muebles	1.9	1.9	1.9	1.7	1.7	1.7	1.7
26 Fabricación de muebles y accesorios	1.4	1.3	1.4	1.5	1.4	1.4	1.4
27 Fabricación de papel y productos de papel	1.5	1.5	1.4	1.4	1.5	1.4	1.4
28 Imprentas, editoriales e industrias conexas	0.8	0.8	1.0	0.9	0.9	1.0	0.8
29 Industria del cuero y productos de cuero y piel, excepto el calzado y otras prendas de vestir	0.6	0.6	0.6	0.6	0.6	0.6	0.6
30 Fabricación de productos de caucho	1.3	1.3	1.4	1.5	1.4	1.4	1.4
31 Fabricación de sustancias y productos químicos	3.2	3.3	3.6	3.5	3.5	3.5	3.4
33 Fabricación de productos minerales no metálicos, excepto los derivados del petróleo y el carbón	3.8	3.7	3.7	3.8	3.7	3.5	3.4
35 Fabricación de productos metálicos, excepto maquinaria y equipo de transporte	6.7	6.8	6.7	7.4	7.2	6.9	6.9
36 Construcción de maquinaria, excepto la maquinaria eléctrica	0.8	0.8	0.8	0.8	0.8	0.7	0.7
37 Construcción de maquinaria, aparatos, accesorios y artículos eléctricos	1.0	1.0	0.9	0.9	0.9	0.8	0.8
38 Construcción de material de transporte	0.7	0.7	0.7	0.7	0.6	0.6	0.6
39 Industrias manufactureras diversas	9.5	9.9	10.7	11.5	12.0	12.2	12.5

Fuente: Banco de Guatemala

TABLE 7

SECTOR INDUSTRIAL
VALOR BRUTO DE LA PRODUCCION A PRECIOS CONSTANTES
AÑOS: 1979 - 1986

(Tasas Anuales de Crecimiento)

CONCEPTO	1979	1980	1981	1982	1983	1984	1985	1986	Suma Acumulada 79-86	Media Anual
TOTAL	6.0	6.0	- 3.0	- 5.6	-1.7	0.8	-0.1	0.3	2.7	0.3
20 Industrias manufactureras de productos alimenticios, excepto las de bebidas	6.6	5.3	- 4.7	- 8.8	-1.6	2.1	0.3	1.3	0.5	0.1
21 Industrias de bebidas	2.5	1.8	- 3.3	- 5.9	-5.0	1.5	1.0	10.4	3.0	0.4
22 Industria del tabaco	4.7	3.5	-11.4	1.0	-2.9	-6.0	-3.2	- 5.5	-19.8	- 2.5
23 Fabricación de textiles	5.2	7.3	- 7.7	- 9.4	1.8	1.6	0.2	0.5	0.5	0.1
24 Fabricación de calzado, prendas de vestir y otros artículos confeccionados con productos textiles	6.5	7.5	- 1.0	- 4.5	-3.5	2.0	0.4	0.6	8.0	1.0
25 Industrias de la madera y del corcho excepto la fabricación de muebles	2.7	3.3	- 2.9	-12.7	-5.6	1.8	2.0	1.2	-10.2	-1.3
26 Fabricación de muebles y accesorios	3.8	4.2	3.1	- 3.0	-4.3	0.8	-2.5	-1.0	1.1	0.2
27 Fabricación de papel y productos de papel	2.6	6.0	- 5.2	- 8.0	3.8	-1.9	-5.1	0.3	-7.5	-0.9
28 Imprentas, editoriales e industrias conexas	7.2	7.1	3.8	- 4.0	-1.1	-0.8	-4.6	0.6	8.2	1.0
29 Industria del cuero y productos de cuero y piel, excepto el calzado y otros prendas de vestir	-3.0	5.6	- 2.9	- 7.0	-2.4	-1.6	-4.2	-1.5	-17	-2.1
30 Fabricación de productos de caucho	1.6	8.0	5.4	1.5	-4.9	-3.5	-1.7	-2.3	4.1	0.5
31 Fabricación de sustancias y productos químicos	5.1	9.4	4.3	- 9.3	-0.6	2.0	-3.5	-3.2	-5.1	-0.6
33 Fabricación de productos minerales no metálicos excepto los derivados del petróleo y el carbón	4.3	4.4	- 3.0	- 3.6	-3.9	-4.3	-4.0	1.4	-8.7	-1.1
35 Fabricación de productos metálicos, excepto maquinaria y equipo de transporte	4.5	6.9	- 4.1	4.5	-4.2	-4.0	-0.4	-3.5	-7.1	-0.9
36 Construcción de maquinaria, excepto la maquinaria eléctrica	4.6	3.1	- 1.5	- 5.4	-3.5	-3.0	-3.7	-5.2	-14.6	-1.8
37 Construcción de maquinaria, aparatos, accesorios y artículos eléctricos	3.4	0.4	- 8.3	-12.1	-3.4	-3.5	-3.2	-4.9	-28.6	-3.6
38 Construcción de material de transporte	4.2	4.7	- 8.4	-10.8	-5.0	-1.5	-1.2	-3.9	-21.9	-2.7
39 Industrias manufactureras diversas	12.0	10.0	5.2	1.1	2.8	2.5	2.3	-5.3	32.6	4.1

1. rounded figures
Fuente: Banco de Guatemala

lower. They are garments with 1 percent; rubber products with 0.5 percent; beverages with 0.4 percent; and textiles and food processing both with 0.1 percent. We have gathered the statistical information needed to compute rates of growth within each subsector of economic activity at the four digit level (or even more disaggregated) of the UIIC. These data come from the quarterly and annual survey of manufacturing activity undertaken by the INE. Because of time constraints and the limited value of the information at this stage however, we have not computed these detailed rates of growth.

Many other economic sectors of interest (from the perspective of this study) also performed poorly over the last seven years. Practically, all types of transportation experienced negative rates of growth between 1981 and 1985 (Table 8). The same is true for construction, with the only exception being industrial buildings (Table 9). All types of construction, however, experienced a temporary burst of activity after the 1982 earthquake.

A completely different story holds true for the communications sector. This sector has experienced all positive and frequently large annual rates of growth since 1979 (bottom of Table 8).

In summary, our brief review of economic activity by sector over the last six or seven years reveals a generally poor performance, with most sectors having experienced significant contractions. Using this information alone, we would not anticipate any severe shortages of skilled workers across the economy, if the supply and skills of workers were adequate before the economic contraction began. Our review of economic activity, however, has been done at an aggregate level; thus it is possible that demand-supply imbalances exist in selected labor markets. Also depending on the rate of technological progress, excess demand for upgraded skills may exist despite the contraction in overall labor demand in recent years. This is the type of information we hope the survey of firms' demand for skilled workers will help to unveil.

SECTOR TRANSPORTE, ALMACENAMIENTO Y COMUNICACIONES
PRODUCCION BRUTA A PRECIOS CONSTANTES
AÑOS: 1979-1985

CONCEPTO	1979	1980	1981	1982	1983	1984	1985
PRODUCCION BRUTA TOTAL	5.4	6.8	- 1.4	- 5.4	- 0.8	2.6	0.2
TRANSPORTE	3.7	4.7	- 2.5	- 6.9	- 2.3	1.6	-1.1
Transporte de pasajeros	8.1	3.4	- 0.2	- 7.2	3.0	2.4	-1.0
Carretera							
Urbano	15.3	13.7	0.5	2.3	2.0	2.4	0.5
Extraurbano	3.5	3.6	2.8	- 9.7	5.0	2.6	0.4
Ferrocarril	30.1	3.6	-66.4	155.0	9.0	5.7	-41.8
Aéreo							
Interno	8.5	8.9	-23.4	-21.1	-59.8	2.3	-18.7
Internacional	15.1	-11.6	- 9.8	-17.7	- 2.7	1.2	-8.0
Acuático	16.1	3.9	2.8	2.8	2.8	1.7	-5.7
Transporte de carga	1.1	5.8	- 3.3	- 6.5	- 5.3	1.0	-0.8
Carretera	3.3	3.1	- 3.5	- 6.2	- 4.5	0.8	-1.8
Ferrocarril	-29.8	64.4	- 7.3	3.8	-30.8	-20.6	12.9
Aéreo							
Interno	-13.2	2.5	11.[illegible]	-34.4	-82.6	29.3	1.9
Internacional	10.5	-20.8	- 7.3	- 4.1	2.5	-3.3	7.2
Acuático	- 7.0	18.3	- 0.3	-11.6	- 2.4	8.6	2.5
Agencia de viajes	18.2	- 6.1	-13.5	-18.9	3.5	1.6	-13.3
ALMACENAMIENTO	- 6.3	1.3	23.5	22.3	- 5.5	-3.8	-5.7
COMUNICACIONES	28.4	29.5	6.6	5.4	10.0	9.6	8.2

Fuente: Banco de Guatemala

TABLE 9

SECTOR CONSTRUCCION
SUPERFICIE DE LA CONSTRUCCION AUTORIZADA
EN EL AREA METROPOLITANA
AÑOS: 1979-1985

(Tasas anuales de crecimiento)

CONCEPTO	1979	1980	1981	1982	1983	1984	1985
TOTAL	0.5	-42.3	-30.4	25.1	4.1	-1.7	6.0
Vivienda Unifamiliar y en Serie	4.2	-25.6	-20.6	19.2	- 2.5	-7.5	13.0
Vivienda Multifamiliar	78.4	-58.7	-79.9	617.7	-23.1	9.4	0.1
Comercio	-26.2	-63.2	-51.8	-42.3	88.3	28.6	-29.2
Industria	123.6	-84.6	-47.9	170.1	37.9	38.0	15.3
Uso Colectivo	81.3	-36.8	59.7	30.6	-15.8	33.9	-39.9
Ampliaciones	- 0.8	-10.8	-33.4	29.7	12.7	-23.7	27.9

Fuente: Banco de Guatemala

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List of Contacts Jorge Martinez

AID Office

Felipe Manteiga - Chief, OPSP
Ruben Mejía - Assistant, OPSP
Sam Skogstad - Chief, OEPA
Mary Ott - Assistant, OEPA
Paul White - Deputy Director
Alfonso Martinez - OEPA
Gilberto Mendez - Education Advisor, OEHRD

Government of Guatemala

Manuel Cetina Puga, Subdirector Servicio de Estudios Económicos. Banco de Guatemala.

Guido Rodes, Jefe de Sección de Cuentas Nacionales, Banco de Guatemala.

Mar a Elena Sandoval, Jefe del Departamento de Computación y Cálculo Estad stico, Instituto Nacional de Estad stica.

César Diaz Paiz, Director Jefe de Estad stica Instituto Guatemalteco de la Seguridad Social (IGSS).

Gustavo Arqueta, Banco de Guatemala.

Israel Valenzuela. Banco de Guatemala.

Oscar Chacón. Departmento de Salarios, Ministerio de Trabajo.

Waleska de Garciá, Departmento de Estadistica del Trabajo, Ministerio de Trabajo.

Carlos Aldana, Departmento de Relaciones Internacionles (?) INTECAP.

José Enriquez, Director del Departmento de Planificación, INTECAP.

Frider Peña, Departmento de Planificación, INTECAP.

Oscar Villagrám 690655

TABLE A-1

EMPLEO Y DESEMPLEO POR OCUPACION (Que se tenía previamente a estar desempleado)

(Código)	Ocupación (a tres y dos dígitos)	Con Empleo	Cesante*	Total
793	Obrero en la fabricación de cosméticos	x	x	x
796	Obrero en la fabricación de acumuladores y pilas de linternas	x	x	x
etc.				
79	Obreros a dos dígitos	x	x	x

(Sería ventajoso el poder incluir también trabajadores que están subempleados en el sentido que están desempeñando un trabajo que no les permite usar su nivel de capacitación más alto; por ejemplo un mecánico que está actualmente como descargador de mercancía)

* En esta categoría se podría distinguir entre distintas categorías pero no es necesario.

TABLE A-2

SALARIOS MINIMOS LEGALES VIGENTES EN LA REPUBLICA DE GUATEMALA POR ACTIVIDAD ECONOMICA

	CONCEPTO	Año de ajuste	Valor en año de ajuste diario Q.	Valor en año de ajuste mensual Q.	Salarios mínimos elevados en 1972 diario Q.	Salarios mínimos elevados en 1972 mensual Q.	Tasa de ajuste	Salarios mínimos elevados en 1980 diario Q.	Salarios mínimos elevados en 1980 mensual Q.	Tasa de ajuste	Salarios mínimos vigentes diario Q.	Salarios mínimos vigentes mensual Q.
I.	Agricultura y Ganadería											
	Café	1973	1,04	31,13				3,30	96,00	207,7	3,30	96,00
	Algodón	1972	1,12	33,60				3,30	96,00	185,7	3,30	96,00
	Caña de azúcar	1974	1,12	33,63				3,30	96,00	185,7	3,30	96,00
	Banano y plátano	1976	1,25	37,50							1,25	37,50
	Tabaco	1976	1,25	37,50							1,25	37,50
	Maíz	1976	1,12	33,60							1,12	33,60
	Arroz	1976	1,12	33,60							1,12	33,60
	Ajonjolí	1976	1,12	33,63							1,12	33,60
	Maicillo	1976	1,12	33,60							1,12	33,60
	Té de India	1976	1,12	33,60							1,12	33,60
	Cardamomo	1976	1,12	33,60							1,12	33,60
	Ajonjolí	1976	1,12	33,63							1,12	33,60
	Cacao	1976	1,12	33,60							1,12	33,60
	Quina	1976	1,12	33,60							1,12	33,60
	Hule	1976	1,12	33,63							1,12	33,60
	Trigo	1976	1,12	33,63							1,12	33,63
	Hortalizas	1976	1,12	33,60							1,12	33,60
	Floricultura	1976	1,12	33,63							1,12	33,60
	Frutícultura	1976	1,12	33,60							1,12	33,63
	Ganadería	1973	1,12	33,63				3,30	96,00	185,7	3,30	96,00
	Avicultura	1974	1,25	37,50							1,25	37,50
II.	Explotación de Minas y Canteras											
	Arena	1970	1,52	45,60	1,67	50,10	9,9	3,36	100,80	101,2	3,36	100,80
	Arcilla	1970	1,52	45,60	1,67	50,10	9,9	3,36	100,80	101,2	3,36	100,80
	Piedra	1970	1,52	45,63	1,67	50,10	9,9	3,36	100,80	101,2	3,36	100,80
	Otras actividades no metálicas	1970	1,52	45,60	1,67	50,10	9,9	3,36	100,80	101,2	3,36	100,80
III.	Industria Manufacturera											
	Productos alimenticios	1967	1,40	48,00	1,98	59,40	23,8	4,00	120,00	102,0	4,00	120,00
	Bebidas alcohólicas	1972	1,20	36,00				3,36	100,80	183,0	3,36	100,80
	Alcoholes, bebidas alcohólicas destiladas y fermentadas	1966	2,00	60,00	2,48	74,40	24,0	4,12	123,60	66,1	4,12	123,60
	Aguas gaseosas y bebidas refrescantes	1966	1,32	43,60	2,05	61,50	54,9	4,12	123,60	101,0	4,12	123,60
	Industria textil	1966	1,40	41,00	1,99	59,70	24,4	4,00	120,00	101,0	4,00	120,00
	Confección de ropa	1966	1,40	41,00	1,99	58,30	21,9	3,40	100,00	84,6	3,40	100,00
	Cuero, calzado y productos relacionados	1968	1,32	43,60	1,85	55,50	21,7	3,72	111,60	101,1	3,72	111,60
	Textiles	1968	1,36	40,80	1,66	49,80	22,1	3,72	111,60	124,1	3,72	111,60
	Industria de la madera	1970	1,36	40,80				3,36	100,80	147,1	3,36	100,80
	Fabricación de muebles	1968	1,40	46,00	1,95	58,50	21,9	3,92	117,60	101,0	3,92	117,60
	Papel cartón y sus productos	1972	1,24	35,20				4,00	120,00	117,6	4,00	120,00
	Imprentas, editoriales y actividades conexas	1966	1,84	55,20	2,12	63,60	13,3	3,72	111,60	75,3	3,72	111,60
	Substancias y productos químicos	1966	1,68	50,40	2,00	60,00	19,0	4,04	121,20	102,0	4,04	121,20
	Productos de caucho	1968	1,68	50,40	2,05	61,50	22,0	4,12	123,60	101,0	4,12	123,60
	Productos plásticos	1966	1,52	50,40	2,09	62,70	24,4				2,09*	62,70
	Industria del tabaco	1973	3,72	(111,60							3,72	111,60
	Productos metálicos	1967	1,40	48,00	1,93	57,40	23,6	4,00	120,00	102,0	4,00	120,00
	Construcción y reparación de material de transporte de maquinaria y aparatos eléctricos	1971	1,70	51,00	2,07	62,10	21,8	4,00	120,00	93,2	4,00	120,00
	Derivados del petróleo	1965	4,04	121,20							4,04	121,20
	Reparación de aparatos eléctricos y electrónicos	1980	3,40	102,00							3,40	102,00
	Vidrio	1973	1,52	45,60				3,70	111,00	106,7	3,70	111,00
	Fondeadores calificados con sus ayudantes	1978	6,00 (seis quetzales)								6,00 (seis quetzales)	
	Fondeadores en empresas industriales mecanizadas 6/	1979	3,00	90,00				7,00	210,00**	133,3	7,00	210,00
	Galletero	1978	3,00	90,00							3,00	90,00
	Trabajador administrativo	1978	2,00	60,00				3,30	165,00***	75,0	3,30	165,00
	[illegible]	1979										
	Repartidor, pastel grande, con 15% 5/	1978										
	Cerveza	1973	1,80	54,00							1,80	54,00
IV.	Construcción											
	Construcción	1966	1,36	40,80	1,69	50,70	24,3	3,20	96,00	32,3	4,24 ****	127,20 ****
V.	Comercio											
	Comercio al por mayor y menor	1966	1,36	40,80	1,69	50,70	24,3	3,48	104,40	105,9	3,48	104,40
	Restaurantes, bares, cantinas y hoteles de mala	1966	1,36	40,80	1,69	50,70	24,3	3,48	104,40	105,9	3,48	104,40
	Hoteles	1966	1,32	42,60	1,69	50,70	24,3	3,48	104,40	84,1	3,48	104,40
VI.	Transporte											
	Transporte urbano	1978	5,13	153,[illegible]							5,13	153,90
	Transporte extraurbano	1972	1,40	[illegible]				3,26	97,80	132,9	3,26	97,80
VII.	Establecimientos financieros, seguros y fianzas	1973	2,50	75,00				5,12	153,60	104,8	5,12	153,60
VIII.	Servicios											
	Educación privada											
	Preparatoria	1967		60,00								60,00
	Primaria, ciudad de Guatemala	1967		75,00								75,00
	Primaria, resto de la República	1967		60,00								60,00
	Educación nocturna y fines de semana en la República	1967		30,00							1,00 (hora)	30,00
	Educación media y vocacional	1967	1,00 (hora)									45,00
	Educación rural	1967		45,00								
	Periodismo impreso											
	Reportero redactor	1975	8,33	249,90							8,33	249,90
	Reportero	1973	6,67	200,10							6,67	200,10
	Fotógrafo	1975	5,00	150,00							5,00	150,00
	Reportero gráfico	1975	6,66	199,80							6,66	199,80
	Radio periodismo											
	Reportero redactor	1975	2,00	60,00							2,00	60,00
	Periodismo televisado											
	Reportero camarógrafo (por una unidad)	1973	6,67	200,10							6,67	200,10
	Reportero	1973	2,50	75,00							2,50	75,00
	Otras actividades en la actividad del periodismo	1973	2,56	76,80							2,56	76,80
	Lavandería y limpieza de ropa	1966	1,52	45,60	1,91	57,30	25,7	3,40	104,40	82,2	3,40	104,40
	Salones de belleza y barberías	1976	2,22	65,76				2,60	78,00***	30,0	2,60	78,00
	Farmacias médicas y sanitarias	1970	1,44	41,30	1,70	51,00	18,1	3,60	108,00	111,8	3,60	108,00
	Teatros y cines	1965	1,84	55,20	2,29	68,70	24,5	3,80	114,00	65,9	3,80	114,00

6/ El periodista mecanizado se paga al salario mínimo de Q. 9,00 por unidad.
5/ Corresponde al porcentaje que se calcula sobre el valor bruto de la producción diaria.

* Ajustado en el año 1982
** Ajustado en el año 1978
*** Ajustado en el año 1981
**** Nuevo salario según acuerdo G.b. No. 78-87 del 12-07-87

FUENTE: Departamento Nacional de Salarios del Ministerio de Trabajo y Previsión Social.

TABLE A-3

INGRESOS MENSUALES MEDIOS POR OCUPACION

(Código)	Ocupación	(1) Ingresos Totales	(2) Empleo*	(3) Ingresos Medios
793	Obrero en la fabricación de cosméticos	x	x	x
796	Obrero en la fabricación de acumuladores	x	x	x
etc.				
79	(a dos dígitos)	x	x	x

* Es necesario para saber cómo se han obtenido los ingresos medios

TABLE A-4

Códigos y Denominaciones de la Categoría 39 de la Clasificación Industrial Internaciónal Uniforme

CODIGO	DESCRIPCION DEL PRODUCTO
38521111	TELESCOPIOS
38521112	INSTRUMENTOS D/ASTRONOMIA Y COSMOGRAFI
38521199	OTROS INSTRUMENTOS D/OPTICA, LENTES, Y ARTICULOS OSTALMICOS N.E.P.
38521201	CAMARAS FOTOGRAFICAS
38521202	AMPLIADORES O REDUCTORES FOTOGRAFICOS
38521203	IMPLEMENTOS PARA CAMARAS FOTOGRAFICAS
38521204	RECIPIENTES PARA REVELADO FOTOGRAFICO
38521205	CAMARAS FILMADORAS
38521206	MAQUINAS PARA HACER COPIAS FOTOSTATICAS
38521207	APARATOS PROYECTORES CINEMATOGRAFICOS
38521208	APARATOS DE PROYECCION FIJA
38521209	TELONES PARA PROYECTAR PELICULAS
38521210	PLACAS PARA FOTOGRABADOS (CLISHES)
38521299	OTROS ARTICULOS FOTOGRAFICOS, N.E.P.
38531101	RELOJES DE BOLSILLO
38531102	RELOJES DESPERTADORES DE MESA
38531103	RELOJES DE PULSERA
38531104	RELOJES DE CONTROL
38531108	RELOJES DE MESA
38531106	REPUESTOS PARA RELOJES, EXC.CRISTALES
38531199	OTROS RELOJES, N.E.P.
39011101	DIAMANTES TRABAJADOS. (EXCEPTO INDUST.)
39011102	ANILLOS, AROS, DE METALES PRECIOSOS
39011103	BRAZALETES Y PULSERAS D/MET. PRECIOSOS.
39011104	COLLARES DE METALES PRECIOSOS
39011105	CADENAS DE METALES PRECIOSOS
39011106	MEDALLAS DE ORO
39011107	MEDALLAS DE PLATA
39011108	MEDALLAS DE OTROS METALES
39011109	PRENDEDORES DE METALES PRECIOSOS
39011110	ZARCILLOS Y PENDIENTES DE ORO.ARETES
39011111	MONEDAS DE ORO
39011112	MONEDAS DE PLATA
39011113	MONEDAS DE OTROS METALES
39011114	VAJILLA O PIEZA DE VAJILLA DE PLATA
39011115	TROFEOS Y COPAS HECHOS DE MET.PRECIOSOS
39011116	DIPLOMAS DE METAL
39011199	OTRAS JOYAS Y ADORNOS,D/MET. PRECIOSOS.
39021101	CUERDAS PARA INSTRUMENTOS MUSICALES
39021102	GUITARRAS Y SIMILARES
39021103	CUATRO
39021104	ARPAS
39021105	VIOLINES
39021106	VIOLONCELLOS
39021107	BANDOLINAS, BANDOLA Y SIMILARES
39021112	OTROS INSTRUMENTOS DE CUERDA
39021113	PIANO
39021114	INSTRUMENTOS MUSICALES DE PERCUSION (TAMBORES, TIMBALES)
39021115	PIEZAS Y ACC. P/ INSTRUMENTOS MUSICALES
39021116	MARIMBA
39021117	CHIRIMIA
39021118	FLAUTAS
39021199	OTROS INSTRUMENTOS MUSICALES, N.E.P. (MARACAS)
39031101	MESAS DE BILLAR
39031102	TACOS PARA BILLAR
39031103	BOLAS DE BILLAR
39031104	MESAS PARA PING-PONG Y FUTILLO
39031105	RAQUETAS PARA TENNIS Y PING PONG
39031106	PELOTAS PARA PING PONG
39031107	PELOTAS PARA TENNIS
39031108	PELOTAS PARA BEIS-BALL
39031109	GUANTES PARA BEIS-BALL
39031110	BATES PARA BEIS-BALL
39031111	CASCOS PROTECTORES PARA BEIS-BALL
39031112	JUEGOS DE BOLAS CRIOLLAS (BOCHAS)
39031113	JUEGOS DE BOLAS (BOLICHE)
39031114	PELOTAS PARA BASKET-BALL
39031115	PELOTAS DE VOLLEY-BALL
39031116	PELOTAS PARA FOOT-BALL
39031117	MALLAS P/VOLLEY-BALL, PING-PONG/TENNIS.
39031118	GUANTES PARA BOXEO
39031119	MAQUINAS Y APARATOS PARA GIMNASIA
39031120	PATINES DE RUEDAS
39031121	APARATOS P/CAMPOS DE JUEGO Y RECREACION
39031122	JUEGOS DE DOMINO
39031123	DADOS
39031124	JUEGOS DE AJEDREZ
39031125	BARAJAS,(NAIPES POKER)
39031126	CAÑAS PARA PESCAR Y SUS ACCESORIOS
39031127	ARPONES PARA PESCAR
39031128	ANZUELOS PARA PESCAR
39031199	O/ART.DE DEPORTE, ATLETISMO,NEP. E T C.
39091101	MUÑECAS, EXCEPTO DE CAUCHO O PLASTICO
39091102	PISTOLAS DE JUGUETE
39091103	TRENES DE JUGUETE
39091104	JUGUETES MUSICALES
39091105	ESCOPETAS Y RIFLES DE JUGUETE
39091106	CARROS DE JUGUETE
39091107	ANIMALES DE FIELTRO Y PELUCHE
39091108	ADORNOS INFANTILES
39091109	JUEGOS DIDACTICOS
39091199	O/JUGUETES (EXCEPTO DE CAUCHO/PLASTICO O MADERA) N.E.P.
39091201	LAPICES DE GRAFITO
39091202	LAPICES DE COLOR
39091203	BOLIGRAFOS
39091204	MARCADORES
39091205	REPUESTOS PARA BOLIGRAFOS
39091206	PLUMAS ESTILOGRAFICAS
39091207	PLUMILLAS
39091208	PORTAPLUMAS

TABLE A-4 (continued)

CODIGO	DESCRIPCION DEL PRODUCTO
39091209	BORRADORES.....
39091210	CINTAS P/MAQ. DE ESCRIBIR Y CALCULAR...
39091211	ENGRAPADORAS.....
39091212	SACAGRAPAS.....
39091213	PERFORADORAS.....
39091214	MAQUINA ENCOMADORA.....
39091215	MAQUINA NUMERADORA Y FECHADORA DE MANO.
39091216	ALMOHADILLAS PARA SELLOS.....
39091217	SELLOS DE MANO.....
39091218	PAPEL CARBON EN HOJAS.....
39091219	PAPEL PARA STENCILS.....
39091299	OTROS ARTICULOS DE OFICINA, N.E.P.....
39091301	ESCOBAS.....
39091302	CEPILLOS DE BARRER.....
39091303	CEPILLOS PARA ROPA O CALZADO.....
39091306	OTRO TIPO DE CEPILLOS.....
39091307	BROCHAS PARA PINTURA.....
39091308	BARAGANES (PALOS DE TRAPEADOR).....
39091309	PINCELES.....
39091399	O/PROD.D/FAB.DE ESCOBAS BROCHAS, NEP...
39091401	ANUNCIOS LUMINOSOS, DE PLASTICO.....
39091402	PLACAS DE IDENTIFICACION.....
39091403	ANUNCIOS METALICOS.....
39091404	CARTELES, LETREROS Y ROTULOS.....
39091405	IMPRESIONES EN SERIGRAFIA.....
39091499	OTROS ANUNCIOS, N.E.P.....
39091501	BOTONES.....
39091502	BROCHES Y SIMILARES.....
39091503	CIERRES DE CREMALLERA.....
39091504	HEBILLAS.....
39091505	ALFILERES.....
39091506	AGUJAS PARA COSER.....
39091507	AGUJAS PARA TEJER.....
39091599	O/PROD.DERIVADOS D/LA FAB.D/BOTONES, CIERRES DE CREMALLERAS, HEBILLAS, ALFILERES Y AGUJAS.....
39091601	GRABADO DE TROFEOS.....
39091602	GRABADO DE COPAS .....
39091603	GRABADO DE ANILLOS.....
39091604	GRABADO DE DIPLOMAS.....
39091699	O/TRABAJOS REL. CON GRABADOS, N.E.P....
39091901	PELUCAS.....
39091902	PANTALLAS DE METAL PARA LAMPARA .....
39091903	REDES PARA EL CABELLO.....
39091904	ADORNOS PARA ARBOLES DE NAVIDAD.....
39091905	CEPILLOS PARA DIENTES.....
39091906	BOQUILLAS.....
39091907	CIGARRERAS.....
39091908	ENCENDEDORES DE CIGARRILLOS.....
39091909	PIPAS.....
39091910	ARMAZONES PARA SOMBRILLAS.....
39091911	BASTONES.....

CODIGO	DESCRIPCION DEL PRODUCTO
39091912	PARAGUAS.(SOMBRILLAS QUITASOL).....
39091913	PRODUCTOS DE HUESO.....
39091914	MANIQUIES.....
39091915	JOYAS DE FANTASIA.....
39091916	PRODUCTOS MARINOS.....
39091917	PINTURAS ARTISTICAS DE CUALQUIER CLASE.
39091918	ADORNOS PEQUEÑOS ELABORADOS A BASE DE SEMILLAS (CARAS, FIBRAS, PIEDRAS DE OJO DE VENADO PEQUEÑO TAMAÑO, ETC).....
39091919	CAMBRILLON .....
39091920	PLACAS PARA ACUMULADORES.....
39091921	DISTINTIVOS METALICOS.....
39091999	O/ART.NO CLASIF.EN NINGUN OTRO GRUPO DE LA INDUSTRIA MANUFACTURERA.....

ANNEX B

SURVEY OF EMPLOYERS' SKILLS TRAINING NEEDS IN INDUSTRY AND AGRO-BUSINESS

by
Dr. Carole B. Massey

June 1988

Survey of Employers' Skills Training Needs in Industry and Agro-business

Methodology

A. The sample. For the labor market survey, a stratified random sample of 805 employers was used from a universe of 2,295 firms in the agro-business and manufacturing sectors of Guatemala. The sample consisted of twenty-three industry subsectors and included 180 occupations and more than 31,000 jobs.

B. The instrument. A survey instrument was developed to determine the size, location , and age of industries in fifteen departments of Guatemala. Information about the occupations within the industries was collected to provide data on occupational demand, education and training required for occupations, training providers, and employer preferences for training providers.

Vacancy rates were used as an objective indicator of training needs. Research studies conducted by the U. S. Department of Labor, Bureau of Labor Statistics and by others, have shown that the methodology of directly requesting employers to identify what their perceived training needs will be, yields completely unreliable information. The reasons found for unreliability were that employers either: (a) frequently change their plans, (b) do not plan very much in advance, (c) make judgments based upon emotional reactions as to how well their businesses have done on the day they were surveyed (e.g., if it was a good day for business, they will say they intend to expand and therefore will need increased numbers of trained employees). Therefore, objective indicators of present and projected training needs are required in order to have a reliable data base from which to draw conclusions. A system for obtaining reliable information is one which identifies the numbers of each kind of occupation an employer has, as well as the number of vacancies for each. Using the average vacancy rate obtained for all positions and then determining any significant deviation from that mean for the vacancy rate of any given occupation can identify those that may have need for training.

It is possible that the vacancy rate in any given occupation may be due to other factors, such as low wage rates or inconvenient geographical locations or a combination of lack of trained personnel available plus other factors.

The team attempted to obtain wage rate information from the office of Social Security in Guatemala and were told it would be made available. The information, however, was not sent to USAID as had been arranged. No attempt was made to collect wage rate information through the survey instrument, since the collection of that type of information is extremely cumbersome and would require a different survey.

Additional questions were included in the instrument to assess the perceptions of employers regarding their needs for future training, resources for training, and their relationships to training providers. In discussing firm-specific training, it was made clear in the questionnaire that all costs would be borne by the employer. Since public funds for training are scarce and the cost for customizing training for each employer would be prohibitive, employers should pay the additional costs for firm-specific training. The schools should provide general entry-level skills training and training to upgrade or update skills of a general nature.

Questions were also asked concerning expansion of business operations, and the amount of exporting they do. The survey was administered to owners and managers of firms on site, by trained interviewers employed by Aragon Associates, a research and marketing firm in Guatemala City. The firm was contracted by The Academy for Educational Development to conduct the survey over an eight week period from February to April, 1988.

C. **The analysis.** The Statistical Package for the Social Sciences (SPSS) and Supercalc 4 IBM spreadsheet and database manager software package were used to analyze the data. Measures of central tendency and percentages were determined for industries and occupations where appropriate, and standard deviations were calculated to measure variability within the sample.

The criteria used for the analysis of industry characteristics were developed from reports produced by the consulting team's economist and by USAID/Guatemala's Private Sector Office. The criteria were generated from factors identified as constraints to growth of private enterprise and the strategies of the Private Sector Office for addressing those constraints.

For purposes of this study, the composition of the labor force within the manufacturing sector, was established using the occupations and number of employees reported by Guatemalan employers (generally without including professionals with a university degree). A system developed by the U. S. Department of Labor was used to reduce the number of occupations from over five hundred to a manageable number of 180. This system also includes a "crosswalk" between occupations and their respective training programs.

Occupations were first analyzed in terms of their demand in the labor market of the manufacturing sector. Next, skill and educational levels required for each occupation were compared to demand for each occupation in order to determine upon inspection, if there were any relationship between them.

Definitions for skill and education levels as they appear in the tables are given below:

Number Assigned	Level of Skill Required
1	No skill required or specific training;
2	Rudimentary knowledge or having some training;
3	More than rudimentary knowledge, but not completely experienced nor experienced on the job;
4	Vocational certificate received;
5	Expert in the field, fully experienced.

Number Assigned	Level of Education Required
1	No literacy skills required;
2	Must read and write but no specified level of education;
3	Completed some primary school education;
4	Completed sixth grade of primary school education;
5	Completed "basico" level (3 years of "ciclo basico");
6	Completed "ciclo diversificado" (Bachiller, Perito Contador,Secretaria, etc.) - roughly equivalent of high school;
7	Completed some university course work;
8	Completed university degree;
9	Other, specify:_____

Occupations were reviewed to determine who provided training for them and who employers preferred to have train them. Occupations in demand were also analyzed by types of training providers to determine if demand may be related to a lack of training resources. Finally, the types of institutional training providers that employers identified as a preference were reviewed to determine whether any institutions were favored more than others, and if so, if there were any particular employer groupings associated more frequently with the favored institutions.

II. Analysis

A. Training needs and demand

Occupational demand. Five occupations were found to be in demand based upon real numbers of vacancies and vacancy rates. These occupations included: Shoe Sewing Machine Operator and Tenders; Other Helpers, Laborers, and Manual Movers; and, All Other Machine Operators and Tenders. All require some level of training as indicated by employers.

Table 2 shows the universe of employees, vacancies and vacancy rates for these occupations. Although the occupation of Shoe Sewing Machine Operators and Tenders does not show a much above average vacancy rate (3.87%), the real numbers (562) indicate a rather large need.

Sewing Machine Operators, Garment, on the other hand, shows a high vacancy rate of 14.85%, as well as a considerable need in real numbers (527). The occupations of Textile Machine Operators and Tenders and Other Helpers, Laborers, and Manual Movers show an above average vacancy rate with significant numbers (>.05) of real vacancies. The occupation of All Other Machine Operators and Tenders also shows an above average vacancy rate and a large number of vacancies, which if measurement efforts are considered, would be significant.

For the occupation of Shoe Sewing Machine Operator and Tenders, 66 percent of employers train their own workers, 15 percent rely on institutional training, and the remainder do not know where their employees are trained. When asked their preference, 26 percent of employers indicated that for this occupation, they preferred to continue giving the training and 53 percent preferred that the training be given by another source, and the remainder do not know or have no preference for a provider.

For Sewing Machine Operators, 65 percent of employers train their own workers, 12 percent rely on institutional training, and the remainder do not know where their employers are trained. When asked their preference, about 18 percent of employers indicated that for this occupation, they would prefer to continue giving training, 61 percent, on the other hand, would prefer another provider, and the remainder do not know or have no preference for a provider.

A third occupation showing a lack of workers because of a large number of vacancies, is Textile Machine Operators and Tenders. More than 77 percent of employers train their own workers, about 2.8 percent rely on institutional training, and the remainder do not know where their employees are trained. When asked their preference, over 25 percent of employers indicated that for this occupation, they would prefer to continue giving training. However, 50 percent prefer an institutional provider, and about 25 percent do not know or have no preference for a provider.

For the occupation of Other Helpers, Laborers, and Manual Movers, 56.7 percent of employers provide training to their workers, about 10.5 percent of employers rely on institutions for training them, and the remainder do not know where these employees receive their training. Regarding their preferences for training, 25.4 percent of employers respond that they want to continue training their workers, while 44.9 percent would like an institution to provide the training. About one half of one percent of employers (=3) prefer another type of provider and just over 29 percent do not have a preference or do not know who should provide training.

The fifth occupation showing a relatively high vacancy rate is All Other Machine Operators and Tenders. Currently 61 percent of employers do their own training, 10 percent rely on institutions, and the remainder do not know where their employees are trained. When asked regarding their preference, over 17 percent of employers indicated that for this occupation, they would prefer to continue giving training, over 49 percent prefer an institutional provider, and almost 33 percent do not know or have no preference for a provider.

The industries most affected by the occupations in demand are: the Drawback Industries; Manufacturing of Footwear, Except Rubber; Manufacturing of Apparel and Other Textiles; Manufacturing of Textile Mill Products. Others affected to a somewhat lesser

degree are: Selected Food Products; Preserved Fruits and Vegetables; Printing, Publishing, and Allied Industries; Chemicals and Allied Products; and the Manufacturing of Nonmetallic Minerals, Except Petroleum and Carbon. An occupation such as Other Helpers, Laborers, and Manual Movers, for example, can be found in all subsectors, but some industries employ many more of them than others.

Future demand. Although statistical projections from labor market data is the generally accepted practice for predicting occupational demand, no statistical projections can be made from one year's collection of labor market data. Employers, however, were asked a general question regarding their anticipated training needs in the next two years.

If employer-stated preferences on the survey are considered, a good deal of the training responsibility for turnover in most occupations would be shifted from employers to training institutions in the future. The occupation of Shoe Sewing Machine Operator was the most frequently recorded response (over 10 percent of employers). This finding is not unusual because of the large number of employers in the textile subsector and because of the shortage presently being experienced in this occupation.

Mentioned less frequently, but nevertheless notable (mentioned by over 6 percent of employers were the occupations of Industrial Production Managers and Sales Representatives, Except Retail. This finding is not surprising in that these occupations are common to all subsectors except the "Drawback" industries. More Industrial Production Managers are found in the food, printing, publishing, and transportation equipment industries than in others; and more Sales Representatives, except Retail are found in the food and beverage industries than in others. If the economy continues to recover and grow over the next two years, training needs for occupations currently in demand and for those mentioned as having a need for training by employers will increase.

Demand and skill/education levels required. In comparing skill levels and education levels with vacancy rates, some occupations with high vacancy rates have relatively high skill requirements for the job. Although these occupations are not among the high demand occupations because they have much smaller absolute vacancies, they can be considered as a second set of demand occupations, because of the high vacancy rates experienced within the occupation. See Tables 3, 4, and 5 for details.

Training courses required for occupations. The types of training courses that should be offered for the occupations identified as presently in demand or for which employers believe they will need training in the next two years are listed below:

Shoe Sewing Machine Operators and Tenders

Shoe and Boot Repair

Sewing Machine Operators, Garment

Commercial Garment and Apparel Construction
Custom Drapery and Window Treatment Design/Making
Textiles Testing

Textile Machine Operators and Tenders

Commercial Garment and Apparel Construction
Custom Drapery and Window Treatment Design/Making
Shoe and Boot Repair
Upholstering

Other Helpers, Laborers, Manual Movers*

Logging
Commercial Garment and Apparel Construction
Baking
Chef/Cook
Custodial Services
Building Maintenance
Glazing
Tile Setting
Carpentry
Brick, Block, and Stone Masonry
Concrete Placing and Finishing
Terrazzo Installation
Pipefitting and Steamfitting
Industrial Machinery Maintenance and Repair
Lithography, Photography, and Platemaking
Printing Press Operations
Slaughtering and Butchering

Machine Tool Operation/Machine Shop
Metal Fabrication
Sheet Metal
Industrial Ceramics Manufacturing
Plastics
Material Handling

All Other Machine Operators and Tenders*

Textiles Testing
Commercial Garment and Apparel Construction
Custom Drapery and Window Treatment Design/Making
Shoe and Boot Repair
Forest Products Utilization
Furniture Making
Cooling and Refrigeration
Bookbinding
Printing Press Operations
Plastics

Industrial Production Managers*

Food Products
Food Technology
Food Processing Technology
Industrial Technology
Manufacturing Technology

Sales Representatives, Except Retail*

Fashion Merchandising
Wholesale Food Marketing
Footwear Marketing
Industrial Sales
Wholesaling
Floor Coverings, Draperies and Upholstery Marketing
Furniture Marketing
Hardware Marketing
Building Materials Marketing

Automotive Vehicles and Accessories Marketing
Sales

*Courses were selected from a larger listing. Those courses listed above were chosen because of the type of industries found in Guatemala and the number of individuals employed in the occupations by each industry type.

B. Training experience and preferences

Current training providers. The data show that employees in 51 (28.3%) of the 180 occupations were not trained by institutions, rather by employers or by some other means, such as apprenticeship. In projecting to the universe, less than 50 individuals are employed in each occupation (Range = 3 to 46) and vacancy rates are not high.

At this time, even with a shift in employer preference from self to institutional provider, the demand would not be great enough to justify a program in these occupations. Further, some occupations, because they are firm-specific in nature, would more appropriately be learned on-the-job. Those learned through apprenticeship could benefit, however, from an institutional component.

A list of the occupations presently learned by other than institution training follows:
Industrial Production Managers
Cost Estimators
Industrial Engineers
Drafters
Life Scientists
Licensed Practical Nurses
Artists and Commercial Artists
Procurement Clerks
Statistical Clerks
Payroll and Timekeeping Clerks
All Other Office Machine Operators
Weighers, Measures, Checkers, and Samplers -- Recordkeeping
Bakers, Bread and Pastry
Child Care Workers
All Other Cleaning and Building Service Workers, Exc. Household

Cooks, Institution or Cafeteria
First Line Supervisor, Agricultural, Forestry, and Fishing
Gardeners and Groundskeepers, Exc. Farm
Small Engine Specialists
Electric Home Appliance Power Tool Repairers
Watchmakers
Mechanical Control Valve Installers and Repairers
Carpet Installers
Extractive and Related Work -- Inc. Blasters
Jewelers and/or Silversmiths
All Other Precision Metal Workers
Cabinet Makers and Bench Carpenters
Slaughterers and Butchers
Precision Optical Goods Workers
Drilling and Boring Machine Tool Setters and Set-Up Operators, Metal and Plastic
Punching Machine Setters and Set-Up Operators, Metal and Plastic
Press and Press Brake Machine Setters and Set-up Operators
Machine Forming Operators and Tenders, Metals and Plastic
Metal Molding, Core Making, Casting Machine Setters and Set-Up
Operators Metal Molding, Core Making, Casting Machine Operators and Tenders
Nonelectrolytic Plating and Coating Machine Operators and Tenders
Typesetting and Composing Machine Operators and Tenders
Tire Building Machine Operators
Cooking Machine Operators and Tenders
Dairy Processing Equipment Operators
Chemical Equipment Controllers and Operators
Cutting and Slicing Machine Operators
Coating, Painting, Spraying Machine Operators
Cleaning, Washing, and Pickling Equipment Operators and Tenders
Cutters and Trimmers, Hand
All Other Hand Workers
Pump Operators
Construction Trades Extractive Worker Helpers
Helpers, Painters, Paperhangers, Plasterers and Machine Feeders and Offbearers.

The labor market survey showed that a relatively small percentage of employers rely on training institutions to provide their workers with skills for their occupations. About 20 percent of employees presently receive their training from institutions and 47.8 percent receive training from their employers. Employers did not know where the remainder of their employees received their training.

It cannot be inferred from the data that there is a lack in any training resources, because employers provide training, and there does not exist a high demand for workers. However, from observations of employer preferences for training providers, it can be pointed out that employers would prefer to be relieved of this responsibility in about 60 percent of the cases.

Preferences for training providers. Employers were asked to state a preference for training providers regardless of who currently provided the training for their employees. In almost 50 percent of the cases, employers selected a training institution. In nearly 20 percent of the cases they preferred to continue providing their own training. In more than 30 percent of the cases, employers indicated that they either did not know who they would prefer as a training provider; or they had no preference for a provider; or they indicated that the desired training was not available in Guatemala. In less than one half percent of the cases employers preferred other than institutional or self-provided training.

By comparing the present circumstances with employers' preferred situation, there is a shift in preference of about 30 percent from self-provided or other types of training to institutional training for employees. This difference could be explained first, because current providers, including both institution and company, may not offer the quality or type of instruction to meet employer needs. Second, employers may want institutions to provide some firm-specific training that schools generally are not capable of providing, nor are they generally expected to provide.

Employer evaluations of preferred providers. Employers were asked to evaluate the capabilities of the provider that they preferred to have train their employees. Almost 35 percent of employer responses indicated that they believed institutions were capable of supplying the needed training. Some of these answers may include the training of employees by providers that employers could not identify.

About 11 percent of the responses indicated that employers preferred a specific training institution but definitely stated that it was not capable of responding to the need. Another one third of the responses indicated that employers did not know, did not think training was available in Guatemala, or did not respond to the question.

About 16.5 percent of employers believe that the training that they provide to their workers is effective. Another 2.5 percent of employers believe that the training they provide to their workers is not worthwhile. The remaining responses indicated some other choice of provider.

With respect to employer perceptions of INTECAP, it should be noted that the changes at INTECAP in curriculum and training methodology are of very recent occurrence, with the changeover taking place within the past few years. There will, of course, be a lag time before students who have completed training under the new system are working in the field. Until that time, the old perceptions will persist.

For the occupation in demand, refer to an earlier part of the report, "Training needs and demand", for employer preferences. Their evaluations of preferred providers are indicated below.

- Shoe Sewing Machine Operators, over 61 percent of employers believe that their preferred provider is capable of meeting their needs and about 15 percent do not believe it is.

- Sewing Machine Operators, Garment, about 45 percent of employers believe that their preferred provider is capable of meeting their needs and about 22 percent do not believe it is.

- Other Helpers, Laborers, and Manual Movers, over 52 percent of employers believe that their preferred provider is capable of meeting their needs and almost 11 percent do not believe it is. A third of employers do not have a preference or do not know if their preference is capable.

- Textile Machine Operators, about 45.5 percent of employers believe that their preferred provider is capable of meeting their needs and about 20 percent do not believe it is.

- All Other Machine Operators and Tenders, about 53 percent of employers believe that their preferred provider is capable of meeting their needs and 11 percent do not believe it is.

- Industrial Production Managers, about 56 percent of employers believe that their preferred provider is capable of meeting their needs and 15 percent do not believe it is.

- Sales Representatives, Except Retail, 55.5 percent of employers believe that their preferred provider is capable of meeting their needs and just over 18 percent do not believe it is.

Other employer responses regarding preferred provider, generally were represented in the category of responses indicating that employers either did not know of a training provider they preferred, they did not use a provider, they believed the training was not available in Guatemala, or they did not respond to the question. Few responses indicated other types of providers were preferred. Other employer responses regarding evaluation of the preferred provider were reported in the category of responses indicating no knowledge, no provider named, or no response.

In conclusion, there is a definite preference of employers for relying upon an institutional provider for training of their workers. However, there appears to be some doubt as to the capabilities of their choices to deliver adequate training. It is also important to determine the extent to which employees require firm-specific training, which is not generally considered to be the mission of public-supported training institutions. In determining the needs of employers for firm-specific training, the extent to which employers are willing to cover the cost of it should also be appraised.

The data indicate that the high number of vacancies or vacancy rates experienced in the demand occupations would not be entirely associated with a lack of trained personnel, since there are 17-25 percent of employers who would continue to train for these occupations. Thus, other explanations such as low wage rates or poor working conditions, which would influence recruitment, may contribute to the vacancy rates being experienced.

Favored institutions. Of the institutions or training providers mentioned by employers, INTECAP was most often preferred, receiving almost 40 percent of all responses. The second most frequently mentioned institution was Imrich Fischmann, which received 1.5 percent of responses.

Within the manufacturing sector, two economic activities ranked INTECAP significantly (>.05) more often than the others. The industries showing strongest preference for training from this institution were: Printing, Publishing, and Allied Industries and Selected Food Products.

C. Linkages with training providers

Employers were asked about the kinds of relationships they presently had with training providers. The great majority of employers report no relationship with them.

The kinds of relationships reported and the percentage of employers indicating participation are shown in the table below.

Relationship	Percent Employer Participation
Donates Equipment, Supplies, Funds, etc.	8.5%
Hires Graduates of Specific Institutions	7.0%
Contracts with Providers for Short-term Training	4.0%
Makes Presentations at Provider Site	4.0%
Contracts Providers' Instructors at Company Site	3.2%
Employer Participates as Curriculum Advisor	2.5%
Other	3.1%

Most frequently mentioned of the training providers was INTECAP with respect to all activities above. Next mentioned, but distantly was Imrich Fischmann.

D. Potential support for additional training

When asked which types of additional resources they would contribute to the training of their personnel, more employers indicated their willingness to participate. The kinds of resources they reportedly would contribute and the percentage of employers indicating willingness are shown in the table below.

Resources to Be Continued	Percent Employer Participation
Permit Training Personnel During Work Hours	47.8%
Pay Complete Salary During Training	35.1%
Provide Own Facilities	33.5%
Provide Equipment	31.0%
Provide Material and Supplies	25.7%
Provide Instructor Salaries	22.2%
Provide Transportation to Workers if Needed	14.4%
Pay for Curriculum Development	5.2%

The economic activities most represented in the contribution of resources to training providers were: Chemicals and Allied Products; Selected Food Products; Printing, Publishing, and Allied Industries; Manufacturing of Apparel and Other Textiles; Manufacturing of Nonmetallic Minerals, Except Petroleum and Carbon; Transportation Equipment Industries; and Manufacturing of Bakery Products. Most of these are among the largest and most stable industries in the country.

Investment of additional funds. Employers were given to understand in the survey that additional training or customized training would mean additional contributions from them. When asked whether they would be willing to invest additional funds for training, employers were more inclined to finance the training of their own employees. Nearly 49 percent of employers said they were willing to invest additional funds now for upgrading or updating their employees; whereas, 22.4 percent were willing to invest additional dollars to train potential employees now.

Employers continued to favor their own employees when asked about investing in the future, however, their willingness to provide support for potential personnel increased. Over 46 percent of employers said they were willing to contribute to their employees' training in the future, and about one third (32.8%) said they would finance the training of potential employees in the future. The change seen between present and future investment in potential employees could be interpreted as employer anticipation that his firm's circumstances will improve, or perhaps when confronted with the present and an impending decision, his concern is tempered by self-interest.

More than 50 percent of employers said they would not invest in training potential employees, while about 32 percent said they would not invest in upgrading or updating their own employees. About 10 percent were undecided about training potential employees, and just over 7 percent were undecided regarding financing their own employees.

In conclusion, employers generally appear to be more willing to invest in training if it is to immediately benefit the firm. This response pattern supports speculation that employers will pay for firm-specific training, but are reluctant to invest in fundamental skill training that would benefit society in general.

E. Characteristics of Industries

The data from the sample showed great variability when the criteria for measuring size, growth, stability and other characteristics of industries were applied. Tables 13 through 19 provide the data, means, and standard deviations for the sample and universe of industries.

Size. Of the twenty-three subsectors, the Chemicals and Allied Products industries is the largest economic activity in Guatemala, employing a significantly (>.05) larger number of employees and having significantly (>.05) more firms than any other subsector.

Growth. Growth was measured first by any increase in the number of employees between 1986 and 1988, and second, by the number of new firms established within an industry during that same time period. By the first measure, the drawback industries grew significantly (>.05) during those years, employing more than 4400 new people. By the second measure, the subsector of Manufacturing Apparel and Other Textiles grew significantly (>.05) in the number of new firms established.

Of the new firms established, 60 percent were small, 27 percent were medium, and 13 percent were large. Small was defined as <25 employees, medium was defined as >25 <100, and large was >100 employees. The subsector with the largest number of new small firms were Chemicals and Allied Products, Manufacturing Apparel and Other Textiles, and Printing, Publishing, and Allied Industries. Subsectors with the greatest number of large firms newly established was the Drawback Industries. The subsector with the most new medium-sized firms was the Manufacturing of Apparel and Other Textiles.

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Outside of the department of Guatemala, two departments had the most new firms established during the past two years (approximately 9 firms each). These departments were Sacateqequez and Escuintla.

Vacancy rates were higher in new firms as compared to average or older establishments. New firms experienced a 5.92 percent vacancy rate at the time of the study in 1988; average firms had a 2.47 percent rate; and old firms had a 3.1 percent vacancy rate.

Stability. Stability was measured by the age of a firm, i.e., the number of years a firm had been in business. Twenty years was determined the minimum number for firms to be classified in the category of "old"; > 3 < 20 years was considered "average"; and, <= 3 years was considered "new". No subsectors had significantly (>.05) more firms in the stable category than others, although several sectors approached this level. These industries were: Selected Food Products, Chemical and Allied Products, and the Manufacturing of Nonmetallic Minerals, Except Petroleum and Carbon.

Outside the department of Guatemala, the department of Quetzaltenango has significantly (>.05) more old firms than the others. Two other departments which approached this level on this measure were Sacateqequez and Escuintla.

Pattern of strength. Six industries consistently appeared in the upper eight to ten subsectors that were performing above average on all the criteria applied in the analysis. These industries were: Chemicals and Allied Products; Manufacturing of Apparel and Other Textiles; Printing, Publishing, and Allied Industries; Manufacturing of Nonmetallic Minerals, Except Petroleum and Carbon; Selected Food Products; Manufacturing of Bakery Products; and Manufacturing of Textile Mill Products.

III. Principal Findings and Conclusions

Four major economic subsectors are affected by the current vacancy rates in the occupations described earlier: The Manufacturing of Footwear, Except Rubber; The Manufacturing of Apparel and Other Textiles; The Manufacturing of Textile Mill Products; and the Drawback Industries. It is difficult to ascertain the extent to which vacancy rates are due to lack of skilled personnel, as there are indications in other parts of the data analysis which show that vacancy rates persist even with the presence of employer training.

The problem appears to stem from either the absence of job applicants or poor retention of personnel. In an economy of relatively high unemployment or large underemployment, this problem seems unusual. A search for explanations uncovers possible contributing factors, such as low wages, poor working conditions, or lack of transportation. The latter reason is unlikely since most of these industries are located in and around Guatemala City, and a regular bus system is in place.

Related to these speculations, the USAID/Guatemala Private Sector Office has indicated that some "drawback" industries are considering relocation to other parts of the country outside of Guatemala City because they need to increase wages to attract workers in the city. Therefore, the vacancy rate in some of these industries cannot be attributed simply to the lack of adequate training resources.

Although some occupations surveyed in the manufacturing sector do not generally have workers trained by institutions, some of these occupations are firm-specific and others represent trades more suitable to being learned on the job or through apprenticeship. On-the-job training and apprenticeship, however, are areas that could benefit from an institutional component which provides a better structure for learning concepts and providing competency-based instruction.

High vacancy rates are experienced in a number of other occupations, but because they do not represent high absolute vacancies, they were not regarded to be occupations in great demand. Upon inspection of vacancy rates in these occupations, it was noted that some appear to require exceptionally high qualifications for hiring. These employer requirements may be contributing to the high vacancy rates.

Most training in occupations is being provided by employers, however, most would prefer that training be provided by an institution. The institution identified most often by employers as the provider they would most prefer to give training was INTECAP. The other provider mentioned by name, but to a very small extent, was Imrich Fischmann.

About one third of employers believed that their choice of training provider, whether it was institution, self, or other, was capable at this time. Eleven percent did not believe their choices to be capable, and others were not sure or did not know.

With two-thirds of employers unsure, not knowing, or not believing that their preferred providers are capable of offering the training that they need, there is a strong indication of problems in the training sector. It is important to remember, however, that some employers will prefer that institutions provide firm-specific training, a role not usually expected of institutions without the cost being sustained by the employer. It is also noteworthy that the improvements in curriculum and training methodology at INTECAP have not been in place long enough for employers to appreciate the results.

The willingness of employers to contribute additional resources to training appears to be more related to that which is firm-specific rather than to training that will benefit society as a whole. Currently, there is little relationship between the private sector and training providers in areas that would entail the contribution of time or resources to training providers. This lack of involvement influences the lack of responsiveness, resources, and quality of instruction of training providers. Without participation of employers in all of these areas, employer perceptions will continue to be either negative or alienated from whatever the circumstances of the training provider.

A set of six industries were found to have strengths in the areas of size or representation in the sector, growth potential, stability, and some related factors. These industries may provide some initial focus for any economic development efforts that may be planned in the future.

DATA TABLES

TABLE 1

COMPOSITION OF THE LABOR FORCE IN THE GUATEMALAN MANUFACTURING SECTOR

OCCUPATIONS	UNIVERSE EMPLOYEES	PERCENT REPRESENTED
Shoe Sewing Machine Operators and Tenders	14531	16.39%
All Other Machine Operators and Tenders	5904	6.66%
Other Helpers, Laborers, Manual Movers	4676	5.27%
Textile Machine Operators and Tenders	4507	5.08%
Sewing Machine Operators, Garment	3552	4.01%
Packaging and Filling Machine Operators	3156	3.56%
Truck Drivers, Light Delivery Route Workers	3013	3.40%
Sales Representatives, Except Retail	2771	3.13%
Secretaries	2261	2.55%
Freight, Stock, and Material Movers, Hand	1865	2.10%
All Other Cleaning Building Service Workers	1850	2.09%
All Other Sales and Related Workers	1693	1.91%
Production Inspectors, Testers, Graders, Sorters,	1568	1.77%
Salespersons, Retail	1545	1.74%
General Managers and Top Executives	1511	1.70%
Janitors and Cleaners	1386	1.56%
Guards and Watch Guards	1289	1.45%
Food and Beverage Preparation and Service	1149	1.30%
Bookkeeping, Accounting, Auditing Clerks	1075	1.21%
Accountants and Auditors	1035	1.17%
Carpenters	1023	1.15%
Machinery Maintenance Mechanics	952	1.07%
First Line Supervisors, Production & Operations	870	.98%
Machinery Maintenance Workers	801	.90%
Production, Planning, and Expediting Clerks	787	.89%
All Other Clerical and Administrative Personnel	753	.85%
Other First Line Mgrs/Supervisors, Production	704	.79%
Biological, Agricultural, and Food Technicians	693	.78%
Bakers, Manufacturing	681	.77%
Extruding/Forming/Pressing/Compact Mach. Setters	653	.74%
Industrial Production Managers	639	.72%
Welders and Cutters	590	.67%
Photographic Processing Machine Operators	553	.62%
Heat Treating, Annealing, Tempering Mach. Opers	545	.61%
Bookbinders	510	.58%
Printing Press Machine Operators and Tenders	473	.53%
All Other Hand Workers	473	.53%
Chemical Equipment Tenders	462	.52%
Cashiers	439	.50%
Helpers, Carpenters and Related	411	.46%
Food Preparation Workers	399	.45%
Lathe and Turning Machine Tool Setters/Set-Up Oprs	399	.45%
Mechanic and Repairer Helpers	396	.45%
Painters, Paperhangers, Contruction & Maintenance	385	.43%
Fabric Apparel Patternmakers, Layout Worekrs	379	.43%

Coating, Painting, Spraying Machine Oprs/Tenders	342	.39%
First Line Mgrs/Supervrs, Laborers/Material Movers	334	.38%
Automotive Mechanics	331	.37%
Textile Bleaching and Dyeing Machine Operators	322	.36%
Hard Tile Setters	319	.36%
Assemblers and Fabricators, Exc. Machine	316	.36%
Market, Advertising, Public Relations Managers	311	.35%
Machine Forming Operators/Tenders, Metal & Plastic	302	.34%
Masons	299	.34%
Industrial Truck and Tractor Operators	294	.33%
Electricians	291	.33%
Pressing Machine Operators and Tenders	282	.32%
Furnace, Kiln, Oven, Drier or Kettle Operators	268	.30%
Coating, Printing, Spraying Machine Setters/Set-Up	268	.30%
Cutters and Trimmers, Hand	265	.30%
General Office Clerks	257	.29%
Bakers, Bread, and Pastry	251	.28%
Maintenance Repairers, General Utility	251	.28%
Driver/Sales Workers	251	.28%
First Line Managers/Supervisors	245	.28%
Crushing/Grinding/Mixing/Blending Mach. Oprs/Tndrs	231	.26%
Cutting and Slicing Machine Setters/Set-Up Oprs	228	.26%
Cooking Machine Operators and Tenders	217	.24%
Automotive Body and Related Repairers	208	.23%
Roasting, Baking, Drying Mach. Oprs, Food/Tobacco	197	.22%
Helpers-Brick and Stone Masons and Hard Tile	194	.22%
Personnel, Training, Labor Relations Managers	191	.22%
Electrolytic Plating & Coating Machine Operators	188	.21%
Head Sawyers	188	.21%
Extruding/Forming/Pressing/Compact Mach. Oprs/Tndr	182	.21%
Receptionists and Information Clerks	171	.19%
Custom Tailors and Sewers	168	.19%
Sales Representatives, Scientific and Related	163	.18%
Gardeners & Groundskeepers, Exc. Farm	160	.18%
Plastic Molding and Casting Machine Operators	160	.18%
Machine Forming Operators	151	.17%
Molders and Casters, Hand	151	.17%
Upholsterers	145	.16%
Photoengraving and Lithography	145	.16%
Vehicle Washers and Equipment Cleaners	145	.16%
Data Entry Keyers, Exc. Composing	140	.16%
Credit Checkers	137	.15%
Cooling and Freezing Equipment Operators/Tenders	137	.15%
First Line Managers/Supervisors - Service	131	.15%
Offset Lithographic Press Setters and Set-Up Oprs	128	.14%
All Other Mechanics, Installers and Repairers	120	.14%
Cutting and Slicing Machine Operators/Tenders	114	.13%
Artists and Related Workers	105	.12%
First Line Supervisors and Manager/Supervisors	105	.12%
All Other Management Support Workers	103	.12%
Helpers, Electricians	100	.11%

Purchasing Managers	97	.11%
First Line Suprvrs-Agricultral, Forestry & Fishing	94	.11%
Precision, Compositors, Typesetters, Arrangers	94	.11%
Slaughterers and Butchers	94	.11%
Numerical Control Machine Tool Operators	94	.11%
File Clerks	88	.10%
Metal Molding/Core Making/Casting Mach. Oprs/Tndrs	83	.09%
Electrical, Electronic Engineering Technicians	80	.09%
Metal Molding/Core Making/Casting Mach. Setters	80	.09%
Sawing Machine Operators and Tenders	68	.08%
Designers, Exc. Interior Designers	66	.07%
Letterpress Setters and Set-Up Operators	66	.07%
Separating/Filtering/Clarify./Precip. Mach. Oprs	63	.07%
Systems Analysts, Electronic Data Processing	60	.07%
Meat, Poultry, Fish Cutters and Trimmers, Hand	60	.07%
Cementing and Gluing Machine Operators/Tenders	60	.07%
All Other Managers and Administrators	57	.06%
Woodworking Machine Operators & Tenders, Exc.	54	.06%
Writers and Editors	51	.06%
Laundry and Drycleaning Machine Operators	48	.05%
Plumbers, Pipefitters, and Steamfitters	46	.05%
Billing, Cost and Rate Clerks	43	.05%
Administrative Services Managers	40	.05%
Traffic, Shipping, and Receiving Clerks	40	.05%
Jewelers and/or Silversmiths	40	.05%
Teachers, Vocational Education and Training	37	.04%
Small Engine Specialist	37	.04%
Payroll and Timekeeping Clerks	34	.04%
All Other Agricultral, Forestry, Fishing Personnel	34	.04%
Mobile Heavy Equipment Mechanics, Exc. Engines	34	.04%
Extractive and Related Work - Inc. Blasters	34	.04%
Machinists	34	.04%
Typesetting, Composing Machine Operators	34	.04%
Cost Estimators	29	.03%
Tool Grinders, Filers, Sharpeners, and Others	29	.03%
Dairy Processing Equipment Operators	29	.03%
Statistical Clerks	26	.03%
Painting, Coating, Decorating Workers, Hand	26	.03%
Construction Trades Extractive Worker Helpers	26	.03%
Life Scientists	23	.03%
Licensed Practical Nurses	23	.03%
All Other Office Machine Operators	23	.03%
Pump Operators	23	.03%
First Line Managers/Supervisors, Clerical	20	.02%
Weighers, Measurers, Samplers - Recordkeeping	20	.02%
Financial Managers	14	.02%
Purchasing Agents, Exc. Wholesale, Retail, & Farm	14	.02%
First Line Mgrs/Supervrs, Transportation Materials	14	.02%
Aircraft Mechanics	14	.02%
All Other Precision Metal Workers	14	.02%
Press and Press Brake Machine Setters, Set-Up	14	.02%

Animal Caretakers, Exc. Farm	11	.01%
Hand Workers, Jewelry and Related Products	11	.01%
Precision Optical Goods Workers	11	.01%
Cleaning/Washing/Pickling Equipment Oprs & Tenders	11	.01%
Industrial Engineers, Exc. Safety	9	.01%
Procurement Clerks	9	.01%
Graders and Sorters, Agricultural Products	9	.01%
Farm Equipment Mechanics	9	.01%
Shoe and Leather Workers Repairers, Precision	9	.01%
Tire Building Machine Operators	9	.01%
Helpers, Painters, Paperhangers, Plasterers	9	.01%
Budget Analysts	6	.01%
Chemists, Exc. Biochemists	6	.01%
Artists and Commercial Artists	6	.01%
Cooks, Institutional or Cafeteria	6	.01%
Child Care Workers	6	.01%
Electrical Home Appliances, Power Tool Repairers	6	.01%
Mechanical Control Valve Installers & Repairers	6	.01%
Carpet Installers	6	.01%
Cabinet Makers and Bench Carpenters	6	.01%
Drilling Boring Machine Tools Setters/Set-Up Oprs	6	.01%
Machine Feeders and Offbearers	6	.01%
Mechanical Engineers	3	.00%
Drafters	3	.00%
Physicians and Surgeons	3	.00%
Other Cleaning, Building Services, Exc. Household	3	.00%
Precision Inspectors, Testers, and Graders	3	.00%
Machinery Maintenance Mechanics, Textile Machinery	3	.00%
Watchmakers	3	.00%
Punching Mach. Setters/Set-Up Oprs, Metal/Plastic	3	.00%
Nonelectrolytic Plating & Coating Machine Operator	3	.00%
Chemical Equipment Controllers and Operators	3	.00%
TOTAL	88530	
MEAN	494.58	
MEDIAN	137	
STANDARD DEVIATION	1,348.19	

TABLE 2

VACANCIES FOR GUATEMALAN OCCUPATIONS (RANKED)

OCCUPATIONS	UNIV. EMPL.	UNIV. VAC'Y	% VACANCY OCCUPATION
Shoe Sewing Machine Operators and Tenders	14531	562	3.87%
Sewing Machine Operators, Garment	3552	527	14.85%
Textile Machine Operators and Tenders	4507	242	5.38%
Other Helpers, Laborers, Manual Movers	4676	211	4.51%
All Other Machine Operators and Tenders	5904	131	2.22%
Carpenters	1023	71	6.96%
Helpers, Carpenters and Related	411	46	11.11%
Sales Representatives, Except Retail	2771	43	1.54%
Bookkeeping, Accounting, Auditing Clerks	1075	37	3.45%
Production, Planning, and Expediting Clerks	787	37	4.71%
All Other Cleaning Building Service Workers	1850	37	2.00%
Machinery Maintenance Workers	801	37	4.63%
Truck Drivers, Light Delivery Route Workers	3013	37	1.23%
Bookbinders	510	34	6.70%
Secretaries	2261	31	1.39%
Printing Press Machine Operators and Tenders	473	31	6.63%
Assemblers and Fabricators, Exc. Machine	316	31	9.91%
Salespersons, Retail	1545	29	1.85%
Extruding/Forming/Pressing/Compact Mach. Setters	653	29	4.37%
Accountants and Auditors	1035	26	2.48%
Driver/Sales Workers	251	26	10.23%
Automotive Mechanics	331	23	6.90%
Slaughterers and Butchers	94	23	24.24%
Packaging and Filling Machine Operators	3156	23	.72%
All Other Sales and Related Workers	1693	20	1.18%
All Other Clerical and Administrative Personnel	753	20	2.65%
Other First Line Mgrs/Supervisors, Production	704	17	2.43%
Machinery Maintenance Mechanics	952	17	1.80%
Industrial Production Managers	639	14	2.23%
Guards and Watch Guards	1289	14	1.11%
First Line Supervisors, Production & Operations	870	14	1.64%
Production Inspectors, Testers, Graders, Sorters,	1568	14	.91%
Electricians	291	14	4.90%
Letterpress Setters and Set-Up Operators	66	14	21.74%
Photoengraving and Lithography	145	14	9.80%
Laundry and Drycleaning Machine Operators	48	14	29.41%
Roasting, Baking, Drying Mach. Oprs, Food/Tobacco	197	14	7.25%
Cutters and Trimmers, Hand	265	14	5.38%
General Managers and Top Executives	1511	11	.75%
Chemical Equipment Tenders	462	11	2.47%
Cutting and Slicing Machine Operators/Tenders	114	11	10.00%
General Office Clerks	257	9	3.33%
Maintenance Repairers, General Utility	251	9	3.41%
All Other Mechanics, Installers and Repairers	120	9	7.14%

Painters, Paperhangers, Contruction & Maintenance	385	9	2.22%
Extractive and Related Work - Inc. Blasters	34	9	25.00%
Upholsterers	145	9	5.88%
Precision, Compositors, Typesetters, Arrangers	94	9	9.09%
Lathe and Turning Machine Tool Setters/Set-Up Oprs	399	9	2.14%
Numerical Control Machine Tool Operators	94	9	9.09%
Plastic Molding and Casting Machine Operators	160	9	5.36%
Electrolytic Plating & Coating Machine Operators	188	9	4.55%
Offset Lithographic Press Setters and Set-Up Oprs	128	9	6.67%
Pressing Machine Operators and Tenders	282	9	3.03%
Cutting and Slicing Machine Setters/Set-Up Oprs	228	9	3.75%
Extruding/Forming/Pressing/Compact Mach. Oprs/Tndr	182	9	4.69%
Freight, Stock, and Material Movers, Hand	1865	9	.46%
Market, Advertising, Public Relations Managers	311	6	1.83%
Artists and Related Workers	105	6	5.41%
Sales Representatives, Scientific and Related	163	6	3.51%
Cashiers	439	6	1.30%
Food Preparation Workers	399	6	1.43%
Small Engine Specialist	37	6	15.38%
Masons	299	6	1.90%
Hard Tile Setters	319	6	1.79%
Machinists	34	6	16.67%
All Other Precision Metal Workers	14	6	40.00%
Fabric Apparel Patternmakers, Layout Worekrs	379	6	1.50%
Custom Tailors and Sewers	168	6	3.39%
Coating, Painting, Spraying Machine Oprs/Tenders	342	6	1.67%
Mechanic and Repairer Helpers	396	6	1.44%
Administrative Services Managers	40	3	7.14%
All Other Managers and Administrators	57	3	5.00%
First Line Managers/Supervisors	245	3	1.16%
Credit Checkers	137	3	2.08%
Receptionists and Information Clerks	171	3	1.67%
Traffic, Shipping, and Receiving Clerks	40	3	7.14%
First Line Managers/Supervisors - Service	131	3	2.17%
Food and Beverage Preparation and Service	1149	3	.25%
Bakers, Bread, and Pastry	251	3	1.14%
Janitors and Cleaners	1386	3	.21%
Tool Grinders, Filers, Sharpeners, and Others	29	3	10.00%
Photographic Processing Machine Operators	553	3	.52%
Welders and Cutters	590	3	.48%
Molders and Casters, Hand	151	3	1.89%
All Other Hand Workers	473	3	.60%
Financial Managers	14	0	.00%
Personnel, Training, Labor Relations Managers	191	0	.00%
Purchasing Managers	97	0	.00%
Budget Analysts	6	0	.00%
Purchasing Agents, Exc. Wholesale, Retail, & Farm	14	0	.00%
Cost Estimators	29	0	.00%
All Other Management Support Workers	103	0	.00%
Industrial Engineers, Exc. Safety	9	0	.00%
Mechanical Engineers	3	0	.00%

Electrical, Electronic Engineering Technicians	80	0	.00%
Drafters	3	0	.00%
Chemists, Exc. Biochemists	6	0	.00%
Life Scientists	23	0	.00%
Biological, Agricultural, and Food Technicians	693	0	.00%
Systems Analysts, Electronic Data Processing	60	0	.00%
Teachers, Vocational Education and Training	37	0	.00%
Physicians and Surgeons	3	0	.00%
Licensed Practical Nurses	23	0	.00%
Writers and Editors	51	0	.00%
Artists and Commercial Artists	6	0	.00%
Designers, Exc. Interior Designers	66	0	.00%
Meat, Poultry, Fish Cutters and Trimmers, Hand	60	0	.00%
First Line Managers/Supervisors, Clerical	20	0	.00%
File Clerks	88	0	.00%
Procurement Clerks	9	0	.00%
Statistical Clerks	26	0	.00%
Payroll and Timekeeping Clerks	26	0	.00%
Billing, Cost and Rate Clerks	43	0	.00%
Data Entry Keyers, Exc. Composing	140	0	.00%
All Other Office Machine Operators	23	0	.00%
Weighers, Measurers, Samplers - Recordkeeping	20	0	.00%
Cooks, Institutional or Cafeteria	6	0	.00%
Child Care Workers	6	0	.00%
Other Cleaning, Building Services, Exc. Household	3	0	.00%
First Line Suprvrs-Agricultral, Forestry & Fishing	94	0	.00%
Graders and Sorters, Agricultural Products	9	0	.00%
Gardeners & Groundskeepers, Exc. Farm	160	0	.00%
Animal Caretakers, Exc. Farm	11	0	.00%
All Other Agricultral, Forestry, Fishing Personnel	34	0	.00%
First Line Supervisors and Manager/Supervisors	105	0	.00%
First Line Mgrs/Supervrs, Transportation Materials	14	0	.00%
First Line Mgrs/Supervrs, Laborers/Material Movers	334	0	.00%
Precision Inspectors, Testers, and Graders	3	0	.00%
Machinery Maintenance Mechanics, Textile Machinery	3	0	.00%
Automotive Body and Related Repairers	208	0	.00%
Mobile Heavy Equipment Mechanics, Exc. Engines	34	0	.00%
Farm Equipment Mechanics	9	0	.00%
Aircraft Mechanics	14	0	.00%
Electrical Home Appliances, Power Tool Repairers	6	0	.00%
Watchmakers	3	0	.00%
Mechanical Control Valve Installers & Repairers	6	0	.00%
Plumbers, Pipefitters, and Steamfitters	46	0	.00%
Carpet Installers	6	0	.00%
Jewelers and/or Silversmiths	40	0	.00%
Hand Workers, Jewelry and Related Products	11	0	.00%
Cabinet Makers and Bench Carpenters	6	0	.00%
Shoe and Leather Workers Repairers, Precision	9	0	.00%
Bakers, Manufacturing	681	0	.00%
Precision Optical Goods Workers	11	0	.00%
Drilling Boring Machine Tools Setters/Set-Up Oprs	6	0	.00%

Punching Mach. Setters/Set-Up Oprs, Metal/Plastic	3	0	.00%
Press and Press Brake Machine Setters, Set-Up	14	0	.00%
Machine Forming Operators/Tenders, Metal & Plastic	302	0	.00%
Machine Forming Operators	151	0	.00%
Metal Molding/Core Making/Casting Mach. Oprs/Tndrs	83	0	.00%
Metal Molding/Core Making/Casting Mach. Setters	80	0	.00%
Nonelectrolytic Plating & Coating Machine Operator	3	0	.00%
Heat Treating, Annealing, Tempering Mach. Opers	545	0	.00%
Head Sawyers	188	0	.00%
Sawing Machine Operators and Tenders	68	0	.00%
Woodworking Machine Operators & Tenders, Exc.	54	0	.00%
Typesetting, Composing Machine Operators	34	0	.00%
Textile Bleaching and Dyeing Machine Operators	322	0	.00%
Tire Building Machine Operators	9	0	.00%
Cooking Machine Operators and Tenders	217	0	.00%
Furnace, Kiln, Oven, Drier or Kettle Operators	268	0	.00%
Cooling and Freezing Equipment Operators/Tenders	137	0	.00%
Dairy Processing Equipment Operators	29	0	.00%
Chemical Equipment Controllers and Operators	3	0	.00%
Coating, Printing, Spraying Machine Setters/Set-Up	268	0	.00%
Cementing and Gluing Machine Operators/Tenders	60	0	.00%
Cleaning/Washing/Pickling Equipment Oprs & Tenders	11	0	.00%
Separating/Filtering/Clarify./Precip. Mach. Oprs	63	0	.00%
Crushing/Grinding/Mixing/Blending Mach. Oprs/Tndrs	231	0	.00%
Painting, Coating, Decorating Workers, Hand	26	0	.00%
Industrial Truck and Tractor Operators	294	0	.00%
Pump Operators	23	0	.00%
Construction Trades Extractive Worker Helpers	26	0	.00%
Helpers-Brick and Stone Masons and Hard Tile	194	0	.00%
Helpers, Electricians	100	0	.00%
Helpers, Painters, Paperhangers, Plasterers	9	0	.00%
Machine Feeders and Offbearers	6	0	.00%
Vehicle Washers and Equipment Cleaners	145	0	.00%
TOTAL	88521	2834	
MEAN	495	16	3.20%
MEDIAN	137	0	0.00%
STANDARD DEVIATION	1348	62.50	7.24%

TABLE 3

EDUCATION AND SKILL LEVELS REQUIRED OF OCCUPATIONS
THEIR VACANCIES AND VACANCY RATES IN GUATEMALA

(* = MODE)

OCCUPATIONS	SKILL LEVEL*	EDUC. LEVEL*	% VAC. OCC.	UNIV. VAC.
Drafters	5	7	.00%	0
Other Cleaning, Building Services, Exc. Household	5	7	.00%	0
Animal Caretakers, Exc. Farm	5	7	.00%	0
Industrial Production Managers	5	6	2.23%	14
Market, Advertising, Public Relations Managers	5	6	1.83%	6
Administrative Services Managers	5	6	7.14%	3
General Managers and Top Executives	5	6	.75%	11
Accountants and Auditors	5	6	2.48%	26
Purchasing Agents, Exc. Wholesale, Retail, & Farm	5	6	.00%	0
All Other Management Support Workers	5	6	.00%	0
Systems Analysts, Electronic Data Processing	5	6	.00%	0
Teachers, Vocatinal Education and Training	5	6	.00%	0
Licensed Practical Nurses	5	6	.00%	0
Artists and Related Workers	5	6	5.41%	6
Graders and Sorters, Agricultural Products	5	6	.00%	0
First Line Supervisors and Manager-Supervisors	5	6	.00%	0
Precision Inspectors, Testers, and Graders	5	6	.00%	0
Machinery Maintenance Mechanics	5	6	1.80%	17
Electrical Home Appliances, Power Tool Repairers	5	6	.00%	0
Designers, Exc. Interior Designers	5	5	.00%	0
Other First Line Mgrs/Supervsrs, Production	5	5	2.43%	17
Jewelers and/or Silversmiths	5	5	.00%	0
Offset Lithographic Press Setters and Set-Up Oprs	5	5	6.67%	9
Photoengraving and Lithography	5	5	9.80%	14
Traffic, Shipping, and Receiving Clerks	5	4	7.14%	3
Automotive Mechanics	5	4	6.90%	23
Automotive Body and Related Repairers	5	4	.00%	0
Mobile Heavy Equipment Mechanics, Exc. Engines	5	4	.00%	0
Farm Equipment Mechanics	5	4	.00%	0
Small Engine Specialist	5	4	15.38%	6
Mechanical Control Valve Installers & Repairers	5	4	.00%	0
Cabinet Makers and Bench Carpenters	5	4	.00%	0
Fabric Apparel Patternmakers, Layout Workers	5	4	1.50%	6
Shoe and Leather Workers Repairers, Precision	5	4	.00%	0
Laundry and Drycleaning Machine Operators	5	4	29.41%	14
Coating, Printing, Spraying Machine Setters/Set-Up	5	4	.00%	0
Woodworking Machine Operators & Tenders, Exc.	5	3	.00%	0
Cost Estimators	4	6	.00%	0
First Line Managers/Supervisors, Clerical	4	6	.00%	0
Secretaries	4	6	1.39%	31
Data Entry Keyers, Exc. Composing	4	6	.00%	0
Machinery Maintenance Mechanics, Textile Machinery	4	6	.00%	0
Maintenance Repairers, General Utility	4	6	3.41%	9

Electricians	4	6	4.90%	14
Separating/Filtering/Clarify./Precip. Mach. Oprs	4	5	.00%	0
Punching Mach. Setters/Set-Up Oprs, Metal/Plastic	4	4	.00%	0
Personnel, Training, Labor Relations Managers	3	6	.00%	0
Purchasing Managers	3	6	.00%	0
All Other Managers and Administrators	3	6	5.00%	3
Life Scientists	3	6	.00%	0
Biological, Agricultural, and Food Technicians	3	6	.00%	0
First Line Managers/Supervisors	3	6	1.16%	3
Sales Representatives, Except Retail	3	6	1.54%	43
Cashiers	3	6	1.30%	6
Credit Checkers	3	6	2.08%	3
Receptionists and Information Clerks	3	6	1.67%	3
Statistical Clerks	3	6	.00%	0
Bookkeeping, Accounting, Auditing Clerks	3	6	3.45%	37
Payroll and Timekeeping Clerks	3	6	.00%	0
General Office Clerks	3	6	3.33%	9
First Line Managers/Supervisors - Service	3	6	2.17%	3
First Line Supervisors, Production & Operations	3	6	1.64%	14
First Line Mgrs/Supervrs, Laborers/Material Movers	3	6	.00%	0
Machinery Maintenance Workers	3	6	4.63%	37
Machinists	3	6	16.67%	6
Precision Optical Goods Workers	3	6	.00%	0
Freight, Stock, and Material Movers, Hand	3	6	.46%	9
Budget Analysts	3	5	.00%	0
Artists and Commercial Artists	3	5	.00%	0
All Other Sales and Related Workers	3	5	1.18%	20
Weighers, Measurers, Samplers - Recordkeeping	3	5	.00%	0
Production Inspectors, Testers, Graders, Sorters,	3	5	.91%	14
All Other Mechanics, Installers and Repairers	3	5	7.14%	9
Plumbers, Pipefitters, and Steamfitters	3	5	.00%	0
Typesetting, Composing Machine Operators	3	5	.00%	0
Helpers, Electricians	3	5	.00%	0
Financial Managers	3	4	.00%	0
Industrial Engineers, Exc. Safety	3	4	.00%	0
Electrical, Electronic Engineering Technicians	3	4	.00%	0
Writers and Editors	3	4	.00%	0
Production, Planning, and Expediting Clerks	3	4	4.71%	37
Carpenters	3	4	6.96%	71
Masons	3	4	1.90%	6
Painters, Paperhangers, Contruction & Maintenance	3	4	2.22%	9
All Other Precision Metal Workers	3	4	40.00%	6
Precision, Compositors, Typesetters, Arrangers	3	4	9.09%	9
Bookbinders	3	4	6.70%	34
Bakers, Manufacturing	3	4	.00%	0
Lathe and Turning Machine Tool Setters/Set-Up Oprs	3	4	2.14%	9
Machine Forming Operators	3	4	.00%	0
Plastic Molding and Casting Machine Operators	3	4	5.36%	9
Metal Molding/Core Making/Casting Mach. Oprs/Tndrs	3	4	.00%	0
Nonelectrolytic Plating & Coating Machine Operator	3	4	.00%	0
Heat Treating, Annealing, Tempering Mach. Opers	3	4	.00%	0

Letterpress Setters and Set-Up Operators	3	4	21.74%	14
Printing Press Machine Operators and Tenders	3	4	6.63%	31
Textile Machine Operators and Tenders	3	4	5.38%	242
Sewing machine Operators, Garment	3	4	14.85%	527
Pressing Machine Operators and Tenders	3	4	3.03%	9
Cooking Machine Operators and Tenders	3	4	.00%	0
Dairy Processing Equipment Operators	3	4	.00%	0
Cutting and Slicing Machine Operators/Tenders	3	4	10.00%	11
Cleaning/Washing/Pickling Equipmt Oprs & Tenders	3	4	.00%	0
Welders and Cutters	3	4	.48%	3
Assemblers and Fabricators, Exc. machine	3	4	9.91%	31
Truck Drivers, Light Delivery Route Workers	3	4	1.23%	37
Custom Tailors and Sewers	3	3	3.39%	6
Upholsterers	3	2	5.88%	9
Extractive and Related Work - Inc. Blasters	3	1	25.00%	9
Chemical Equipment Controllers and Operators	3	1	.00%	0
Extruding/Forming/Pressing/Compact Mach. Setters	3	1	4.37%	29
Sales Representatives, Scientific and Related	2	6	3.51%	6
Billing, Cost and Rate Clerks	2	6	.00%	0
Watchmakers	2	6	.00%	0
Salespersons, Retail	2	5	1.85%	29
File Clerks	2	5	.00%	0
Numerical Control Machine Tool Operators	2	5	9.09%	9
Procurement Clerks	2	4	.00%	0
All Other Clerical and Administrative Personnel	2	4	2.65%	20
Guards and Watch Guards	2	4	1.11%	14
Food and Beverage Preparation and Service	2	4	.25%	3
Bakers, Bread, and Pastry	2	4	1.14%	3
Cooks, Institutional or Cafeteria	2	4	.00%	0
First Line Supervisors, Agric., Forestry, Fishing	2	4	.00%	0
Gardeners & Groundskeepers, Exc. Farm	2	4	.00%	0
Aircraft Mechanics	2	4	.00%	0
Carpet Installers	2	4	.00%	0
Slaughterers and Butchers	2	4	24.24%	23
Head Sawyers	2	4	.00%	0
Photographic Processing Machine Operators	2	4	.52%	3
Tire Building Machine Operators	2	4	.00%	0
Cooling and Freezing Equipment Operators/Tenders	2	4	.00%	0
Chemical Equipment Tenders	2	4	2.47%	11
Coating, Painting, Spraying Machine Oprs/Tenders	2	4	1.67%	6
Crushing/Grinding/Mixing/Blending Mach. Oprs/Tndrs	2	4	.00%	0
Extruding/Forming/Pressing/Compact Mach. Oprs/Tndr	2	4	4.69%	9
All Other Machine Operators and Tenders	2	4	2.22%	131
Molders and Casters, Hand	2	4	1.89%	3
Driver/Sales Workers	2	4	10.23%	26
Industrial Truck and Tractor Operators	2	4	.00%	0
Mechanic and Repairer Helpers	2	4	1.44%	6
Helpers-Brick and Stone Masons and Hard Tile	2	4	.00%	0
Helpers, Carpenters and Related	2	4	11.11%	46
Other Helpers, Laborers, Manual Movers	2	4	4.51%	211
First Line Mgrs/Supervrs, Transportation Materials	2	3	.00%	0

Furnace, Kiln, Oven, Drier or Kettle Operators	2	3	.00%	0
Construction Trades Extractive Worker Helpers	2	3	.00%	0
Hard Tile Setters	2	2	1.79%	6
Drilling Boring Machine Tools Setters/Set-Up Oprs	2	2	.00%	0
Machine Forming Operators/Tenders, Metal & Plastic	2	2	.00%	0
Metal Molding/Core Making/Casting Mach. Setters	2	2	.00%	0
Electrolytic Plating & Coating Machine Operators	2	2	4.55%	9
Sawing Machine Operators and Tenders	2	2	.00%	0
Textile Bleaching and Dyeing Machine Operators	2	2	.00%	0
Cutters and Trimmers, Hand	2	2	5.38%	14
All Other Hand Workers	2	2	.60%	3
All Other Agricltral, Forestry, Fishing Personnel	2	1	.00%	0
Chemists, Exc. Biochemists	1	5	.00%	0
Hand Workers, Jewelry and Related Products	1	5	.00%	0
All Other Office Machine Operators	1	4	.00%	0
Janitors and Cleaners	1	4	.21%	3
All Other Cleaning Building Service Workers	1	4	2.00%	37
Child Care Workers	1	4	.00%	0
Tool Grinders, Filers, Sharpeners, and Others	1	4	10.00%	3
Shoe Sewing machine Operators and Tenders	1	4	3.87%	562
Cutting and Slicing Machine Setters/Set-Up Oprs	1	4	3.75%	9
Packaging and Filling Machine Operators	1	4	.72%	23
Painting, Coating, Decorating Workers, Hand	1	4	.00%	0
Pump Operators	1	4	.00%	0
Helpers, Painters, Paperhangers, Plasterers	1	4	.00%	0
Vehicle Washers and Equipment Cleaners	1	4	.00%	0
Press and Press Brake Machine Setters, Set-Up	1	3	.00%	0
Meat, Poultry Fish Cutters and Trimmers, Hand	1	2	.00%	0
Food Preparation Workers	1	2	1.43%	6
Machine Feeders and Offbearers	1	2	.00%	0
Roasting, Baking, Drying Mach. Oprs, Food/Tobacco	1	1	7.25%	14
Cementing and Gluing Machine Operators/Tenders	1	1	.00%	0
Mechanical Engineers	0	8	.00%	0
Physicians and Surgeons	0	8	.00%	0
	528	797		2834
MEAN	3	4	3.20%	16
STANDARD DEVIATION	1	1	7.24%	62

TABLE 4

SKILL LEVELS REQUIRED BY EMPLOYERS FOR OCCUPATIONS
AND OCCUPATIONAL VACANCIES AND VACANCY RATES IN GUATEMALA

(* = MODE)

OCCUPATIONS	SKILL LEVEL*	% VACANCY	UNIVERSE VACANCIES
Laundry and Drycleaning Machine Operators	5	29.41%	14
Small Engine Specialist	5	15.38%	6
Photoengraving and Lithography	5	9.80%	14
Administrative Services Managers	5	7.14%	3
Traffic, Shipping, and Receiving Clerks	5	7.14%	3
Automotive Mechanics	5	6.90%	23
Offset Lithographic Press Setters and Set-Up Oprs	5	6.67%	9
Artists and Related Workers	5	5.41%	6
Accountants and Auditors	5	2.48%	26
Other First Line Mgrs/Supervsrs, Production	5	2.43%	17
Industrial Production Managers	5	2.23%	14
Market, Advertising, Public Relations Managers	5	1.83%	6
Machinery Maintenance Mechanics	5	1.80%	17
Fabric Apparel Patternmakers, Layout Workers	5	1.50%	6
General Managers and Top Executives	5	.75%	11
Purchasing Agents, Exc. Wholesale, Retail, & Farm	5	.00%	0
All Other Management Support Workers	5	.00%	0
Drafters	5	.00%	0
Systems Analysts, Electronic Data Processing	5	.00%	0
Teachers, Vocatinal Education and Training	5	.00%	0
Licensed Practical Nurses	5	.00%	0
Designers, Exc. Interior Designers	5	.00%	0
Other Cleaning, Building Services, Exc. Household	5	.00%	0
Graders and Sorters, Agricultural Products	5	.00%	0
Animal Caretakers, Exc. Farm	5	.00%	0
First Line Supervisors and Manager-Supervisors	5	.00%	0
Precision Inspectors, Testers, and Graders	5	.00%	0
Automotive Body and Related Repairers	5	.00%	0
Mobile Heavy Equipment Mechanics, Exc. Engines	5	.00%	0
Farm Equipment Mechanics	5	.00%	0
Electrical Home Appliances, Power Tool Repairers	5	.00%	0
Mechanical Control Valve Installers & Repairers	5	.00%	0
Jewelers and/or Silversmiths	5	.00%	0
Cabinet Makers and Bench Carpenters	5	.00%	0
Shoe and Leather Workers Repairers, Precision	5	.00%	0
Woodworking Machine Operators & Tenders, Exc.	5	.00%	0
Coating, Printing, Spraying Machine Setters/Set-Up	5	.00%	0
Electricians	4	4.90%	14
Maintenance Repairers, General Utility	4	3.41%	9
Secretaries	4	1.39%	31
Cost Estimators	4	.00%	0
First Line Managers/Supervisors, Clerical	4	.00%	0

Data Entry Keyers, Exc. Composing	4	.00%	0
Machinery Maintenance Mechanics, Textile Machinery	4	.00%	0
Punching Mach. Setters/Set-Up Oprs, Metal/Plastic	4	.00%	0
Separating/Filtering/Clarify./Precip. Mach. Oprs	4	.00%	0
All Other Precision Metal Workers	3	40.00%	6
Extractive and Related Work - Inc. Blasters	3	25.00%	9
Letterpress Setters and Set-Up Operators	3	21.74%	14
Machinists	3	16.67%	6
Sewing machine Operators, Garment	3	14.85%	527
Cutting and Slicing Machine Operators/Tenders	3	10.00%	11
Assemblers and Fabricators, Exc. machine	3	9.91%	31
Precision, Compositors, Typesetters, Arrangers	3	9.09%	9
All Other Mechanics, Installers and Repairers	3	7.14%	9
Carpenters	3	6.96%	71
Bookbinders	3	6.70%	34
Printing Press Machine Operators and Tenders	3	6.63%	31
Upholsterers	3	5.88%	9
Textile Machine Operators and Tenders	3	5.38%	242
Plastic Molding and Casting Machine Operators	3	5.36%	9
All Other Managers and Administrators	3	5.00%	3
Production, Planning, and Expediting Clerks	3	4.71%	37
Machinery Maintenance Workers	3	4.63%	37
Extruding/Forming/Pressing/Compact Mach. Setters	3	4.37%	29
Bookkeeping, Accounting, Auditing Clerks	3	3.45%	37
Custom Tailors and Sewers	3	3.39%	6
General Office Clerks	3	3.33%	9
Pressing Machine Operators and Tenders	3	3.03%	9
Painters, Paperhangers, Contruction & Maintenance	3	2.22%	9
First Line Managers/Supervisors - Service	3	2.17%	3
Lathe and Turning Machine Tool Setters/Set-Up Oprs	3	2.14%	9
Credit Checkers	3	2.08%	3
Masons	3	1.90%	6
Receptionists and Information Clerks	3	1.67%	3
First Line Supervisors, Production & Operations	3	1.64%	14
Sales Representatives, Except Retail	3	1.54%	43
Cashiers	3	1.30%	6
Truck Drivers, Light Delivery Route Workers	3	1.23%	37
All Other Sales and Related Workers	3	1.18%	20
First Line Managers/Supervisors	3	1.16%	3
Production Inspectors, Testers, Graders, Sorters,	3	.91%	14
Welders and Cutters	3	.48%	3
Freight, Stock, and Material Movers, Hand	3	.46%	9
Financial Managers	3	.00%	0
Personnel, Training, Labor Relations Managers	3	.00%	0
Purchasing Managers	3	.00%	0
Budget Analysts	3	.00%	0
Industrial Engineers, Exc. Safety	3	.00%	0
Electrical, Electronic Engineering Technicians	3	.00%	0
Life Scientists	3	.00%	0
Biological, Agricultural, and Food Technicians	3	.00%	0
Writers and Editors	3	.00%	0

Artists and Commercial Artists	3	.00%	0
Statistical Clerks	3	.00%	0
Payroll and Timekeeping Clerks	3	.00%	0
Weighers, Measurers, Samplers - Recordkeeping	3	.00%	0
First Line Mgrs/Supervrs, Laborers/Material Movers	3	.00%	0
Plumbers, Pipefitters, and Steamfitters	3	.00%	0
Bakers, Manufacturing	3	.00%	0
Precision Optical Goods Workers	3	.00%	0
Machine Forming Operators	3	.00%	0
Metal Molding/Core Making/Casting Mach. Oprs/Tndrs	3	.00%	0
Nonelectrolytic Plating & Coating Machine Operator	3	.00%	0
Heat Treating, Annealing, Tempering Mach. Opers	3	.00%	0
Typesetting, Composing Machine Operators	3	.00%	0
Cooking Machine Operators and Tenders	3	.00%	0
Dairy Processing Equipment Operators	3	.00%	0
Chemical Equipment Controllers and Operators	3	.00%	0
Cleaning/Washing/Pickling Equipmt Oprs & Tenders	3	.00%	0
Helpers, Electricians	3	.00%	0
Slaughterers and Butchers	2	24.24%	23
Helpers, Carpenters and Related	2	11.11%	46
Driver/Sales Workers	2	10.23%	26
Numerical Control Machine Tool Operators	2	9.09%	9
Cutters and Trimmers, Hand	2	5.38%	14
Extruding/Forming/Pressing/Compact Mach. Oprs/Tndr	2	4.69%	9
Electrolytic Plating & Coating Machine Operators	2	4.55%	9
Other Helpers, Laborers, Manual Movers	2	4.51%	211
Sales Representatives, Scientific and Related	2	3.51%	6
All Other Clerical and Administrative Personnel	2	2.65%	20
Chemical Equipment Tenders	2	2.47%	11
All Other Machine Operators and Tenders	2	2.22%	131
Molders and Casters, Hand	2	1.89%	3
Salespersons, Retail	2	1.85%	29
Hard Tile Setters	2	1.79%	6
Coating, Painting, Spraying Machine Oprs/Tenders	2	1.67%	6
Mechanic and Repairer Helpers	2	1.44%	6
Bakers, Bread, and Pastry	2	1.14%	3
Guards and Watch Guards	2	1.11%	14
All Other Hand Workers	2	.60%	3
Photographic Processing Machine Operators	2	.52%	3
Food and Beverage Preparation and Service	2	.25%	3
File Clerks	2	.00%	0
Procurement Clerks	2	.00%	0
Billing, Cost and Rate Clerks	2	.00%	0
Cooks, Institutional or Cafeteria	2	.00%	0
First Line Supervisors, Agric., Forestry, Fishing	2	.00%	0
Gardeners & Groundskeepers, Exc. Farm	2	.00%	0
All Other Agricltral, Forestry, Fishing Personnel	2	.00%	0
First Line Mgrs/Supervrs, Transportation Materials	2	.00%	0
Aircraft Mechanics	2	.00%	0
Watchmakers	2	.00%	0
Carpet Installers	2	.00%	0

Drilling Boring Machine Tools Setters/Set-Up Oprs	2	.00%	0
Machine Forming Operators/Tenders, Metal & Plastic	2	.00%	0
Metal Molding/Core Making/Casting Mach. Setters	2	.00%	0
Head Sawyers	2	.00%	0
Sawing Machine Operators and Tenders	2	.00%	0
Textile Bleaching and Dyeing Machine Operators	2	.00%	0
Tire Building Machine Operators	2	.00%	0
Furnace, Kiln, Oven, Drier or Kettle Operators	2	.00%	0
Cooling and Freezing Equipment Operators/Tenders	2	.00%	0
Crushing/Grinding/Mixing/Blending Mach. Oprs/Tndrs	2	.00%	0
Industrial Truck and Tractor Operators	2	.00%	0
Construction Trades Extractive Worker Helpers	2	.00%	0
Helpers-Brick and Stone Masons and Hard Tile	2	.00%	0
Tool Grinders, Filers, Sharpeners, and Others	1	10.00%	3
Roasting, Baking, Drying Mach. Oprs, Food/Tobacco	1	7.25%	14
Shoe Sewing machine Operators and Tenders	1	3.87%	562
Cutting and Slicing Machine Setters/Set-Up Oprs	1	3.75%	9
All Other Cleaning Building Service Workers	1	2.00%	37
Food Preparation Workers	1	1.43%	6
Packaging and Filling Machine Operators	1	.72%	23
Janitors and Cleaners	1	.21%	3
Chemists, Exc. Biochemists	1	.00%	0
Meat, Poultry Fish Cutters and Trimmers, Hand	1	.00%	0
All Other Office Machine Operators	1	.00%	0
Child Care Workers	1	.00%	0
Hand Workers, Jewelry and Related Products	1	.00%	0
Press and Press Brake Machine Setters, Set-Up	1	.00%	0
Cementing and Gluing Machine Operators/Tenders	1	.00%	0
Painting, Coating, Decorating Workers, Hand	1	.00%	0
Pump Operators	1	.00%	0
Helpers, Painters, Paperhangers, Plasterers	1	.00%	0
Machine Feeders and Offbearers	1	.00%	0
Vehicle Washers and Equipment Cleaners	1	.00%	0
Mechanical Engineers	0	.00%	0
Physicians and Surgeons	0	.00%	0
TOTAL	528		2,834
MEAN	2.95	3.20%	16
STANDARD DEVIATION	1.30	7.24%	82

TABLE 5

EDUCATION LEVELS REQUIRED BY EMPLOYERS FOR OCCUPATIONS AND OCCUPATIONAL VACANCY RATES IN GUATEMALA

(* = MODE)

OCCUPATIONS	EDUC. LEVEL*	% VACANCY	UNIVERSE VACANCIES
Mechanical Engineers	8	.00%	0
Physicians and Surgeons	8	.00%	0
Drafters	7	.00%	0
Other Cleaning, Building Services, Exc. Household	7	.00%	0
Animal Caretakers, Exc. Farm	7	.00%	0
Machinists	6	16.67%	6
Administrative Services Managers	6	7.14%	3
Artists and Related Workers	6	5.41%	6
All Other Managers and Administrators	6	5.00%	3
Electricians	6	4.90%	14
Machinery Maintenance Workers	6	4.63%	37
Sales Representatives, Scientific and Related	6	3.51%	6
Bookkeeping, Accounting, Auditing Clerks	6	3.45%	37
Maintenance Repairers, General Utility	6	3.41%	9
General Office Clerks	6	3.33%	9
Accountants and Auditors	6	2.48%	26
Industrial Production Managers	6	2.23%	14
First Line Managers/Supervisors - Service	6	2.17%	3
Credit Checkers	6	2.08%	3
Market, Advertising, Public Relations Managers	6	1.83%	6
Machinery Maintenance Mechanics	6	1.80%	17
Receptionists and Information Clerks	6	1.67%	3
First Line Supervisors, Production & Operations	6	1.64%	14
Sales Representatives, Except Retail	6	1.54%	43
Secretaries	6	1.39%	31
Cashiers	6	1.30%	6
First Line Managers/Supervisors	6	1.16%	3
General Managers and Top Executives	6	.75%	11
Freight, Stock, and Material Movers, Hand	6	.46%	9
Personnel, Training, Labor Relations Managers	6	.00%	0
Purchasing Managers	6	.00%	0
Purchasing Agents, Exc. Wholesale, Retail, & Farm	6	.00%	0
Cost Estimators	6	.00%	0
All Other Management Support Workers	6	.00%	0
Life Scientists	6	.00%	0
Biological, Agricultural, and Food Technicians	6	.00%	0
Systems Analysts, Electronic Data Processing	6	.00%	0
Teachers, Vocatinal Education and Training	6	.00%	0
Licensed Practical Nurses	6	.00%	0
First Line Managers/Supervisors, Clerical	6	.00%	0
Statistical Clerks	6	.00%	0
Payroll and Timekeeping Clerks	6	.00%	0

Billing, Cost and Rate Clerks	6	.00%	0
Data Entry Keyers, Exc. Composing	6	.00%	0
Graders and Sorters, Agricultural Products	6	.00%	0
First Line Supervisors and Manager-Supervisors	6	.00%	0
First Line Mgrs/Supervrs, Laborers/Material Movers	6	.00%	0
Precision Inspectors, Testers, and Graders	6	.00%	0
Machinery Maintenance Mechanics, Textile Machinery	6	.00%	0
Electrical Home Appliances, Power Tool Repairers	6	.00%	0
Watchmakers	6	.00%	0
Precision Optical Goods Workers	6	.00%	0
Photoengraving and Lithography	5	9.80%	14
Numerical Control Machine Tool Operators	5	9.09%	9
All Other Mechanics, Installers and Repairers	5	7.14%	9
Offset Lithographic Press Setters and Set-Up Oprs	5	6.67%	9
Other First Line Mgrs/Supervsrs, Production	5	2.43%	17
Salespersons, Retail	5	1.85%	29
All Other Sales and Related Workers	5	1.18%	20
Production Inspectors, Testers, Graders, Sorters,	5	.91%	14
Budget Analysts	5	.00%	0
Chemists, Exc. Biochemists	5	.00%	0
Artists and Commercial Artists	5	.00%	0
Designers, Exc. Interior Designers	5	.00%	0
File Clerks	5	.00%	0
Weighers, Measurers, Samplers - Recordkeeping	5	.00%	0
Plumbers, Pipefitters, and Steamfitters	5	.00%	0
Jewelers and/or Silversmiths	5	.00%	0
Hand Workers, Jewelry and Related Products	5	.00%	0
Typesetting, Composing Machine Operators	5	.00%	0
Separating/Filtering/Clarify./Precip. Mach. Oprs	5	.00%	0
Helpers, Electricians	5	.00%	0
All Other Precision Metal Workers	4	40.00%	6
Laundry and Drycleaning Machine Operators	4	29.41%	14
Slaughterers and Butchers	4	24.24%	23
Letterpress Setters and Set-Up Operators	4	21.74%	14
Small Engine Specialist	4	15.38%	6
Sewing machine Operators, Garment	4	14.85%	527
Helpers, Carpenters and Related	4	11.11%	46
Driver/Sales Workers	4	10.23%	26
Tool Grinders, Filers, Sharpeners, and Others	4	10.00%	3
Cutting and Slicing Machine Operators/Tenders	4	10.00%	11
Assemblers and Fabricators, Exc. machine	4	9.91%	31
Precision, Compositors, Typesetters, Arrangers	4	9.09%	9
Traffic, Shipping, and Receiving Clerks	4	7.14%	3
Carpenters	4	6.96%	71
Automotive Mechanics	4	6.90%	23
Bookbinders	4	6.70%	34
Printing Press Machine Operators and Tenders	4	6.63%	31
Textile Machine Operators and Tenders	4	5.38%	242
Plastic Molding and Casting Machine Operators	4	5.36%	9
Production, Planning, and Expediting Clerks	4	4.71%	37
Extruding/Forming/Pressing/Compact Mach. Oprs/Tndr	4	4.69%	9

Other Helpers, Laborers, Manual Movers	4	4.51%	211
Shoe Sewing machine Operators and Tenders	4	3.87%	562
Cutting and Slicing Machine Setters/Set-Up Oprs	4	3.75%	9
Pressing Machine Operators and Tenders	4	3.03%	9
All Other Clerical and Administrative Personnel	4	2.65%	20
Chemical Equipment Tenders	4	2.47%	11
Painters, Paperhangers, Contruction & Maintenance	4	2.22%	9
All Other Machine Operators and Tenders	4	2.22%	131
Lathe and Turning Machine Tool Setters/Set-Up Oprs	4	2.14%	9
All Other Cleaning Building Service Workers	4	2.00%	37
Masons	4	1.90%	6
Molders and Casters, Hand	4	1.89%	3
Coating, Painting, Spraying Machine Oprs/Tenders	4	1.67%	6
Fabric Apparel Patternmakers, Layout Workers	4	1.50%	6
Mechanic and Repairer Helpers	4	1.44%	6
Truck Drivers, Light Delivery Route Workers	4	1.23%	37
Bakers, Bread, and Pastry	4	1.14%	3
Guards and Watch Guards	4	1.11%	14
Packaging and Filling Machine Operators	4	.72%	23
Photographic Processing Machine Operators	4	.52%	3
Welders and Cutters	4	.48%	3
Food and Beverage Preparation and Service	4	.25%	3
Janitors and Cleaners	4	.21%	3
Financial Managers	4	.00%	0
Industrial Engineers, Exc. Safety	4	.00%	0
Electrical, Electronic Engineering Technicians	4	.00%	0
Writers and Editors	4	.00%	0
Procurement Clerks	4	.00%	0
All Other Office Machine Operators	4	.00%	0
Cooks, Institutional or Cafeteria	4	.00%	0
Child Care Workers	4	.00%	0
First Line Supervisors, Agric., Forestry, Fishing	4	.00%	0
Gardeners & Groundskeepers, Exc. Farm	4	.00%	0
Automotive Body and Related Repairers	4	.00%	0
Mobile Heavy Equipment Mechanics, Exc. Engines	4	.00%	0
Farm Equipment Mechanics	4	.00%	0
Aircraft Mechanics	4	.00%	0
Mechanical Control Valve Installers & Repairers	4	.00%	0
Carpet Installers	4	.00%	0
Cabinet Makers and Bench Carpenters	4	.00%	0
Shoe and Leather Workers Repairers, Precision	4	.00%	0
Bakers, Manufacturing	4	.00%	0
Punching Mach. Setters/Set-Up Oprs, Metal/Plastic	4	.00%	0
Machine Forming Operators	4	.00%	0
Metal Molding/Core Making/Casting Mach. Oprs/Tndrs	4	.00%	0
Nonelectrolytic Plating & Coating Machine Operator	4	.00%	0
Heat Treating, Annealing, Tempering Mach. Opers	4	.00%	0
Head Sawyers	4	.00%	0
Tire Building Machine Operators	4	.00%	0
Cooking Machine Operators and Tenders	4	.00%	0
Cooling and Freezing Equipment Operators/Tenders	4	.00%	0

Dairy Processing Equipment Operators	4	.00%	0
Coating, Printing, Spraying Machine Setters/Set-Up	4	.00%	0
Cleaning/Washing/Pickling Equipmt Oprs & Tenders	4	.00%	0
Crushing/Grinding/Mixing/Blending Mach. Oprs/Tndrs	4	.00%	0
Painting, Coating, Decorating Workers, Hand	4	.00%	0
Industrial Truck and Tractor Operators	4	.00%	0
Pump Operators	4	.00%	0
Helpers-Brick and Stone Masons and Hard Tile	4	.00%	0
Helpers, Painters, Paperhangers, Plasterers	4	.00%	0
Vehicle Washers and Equipment Cleaners	4	.00%	0
Custom Tailors and Sewers	3	3.39%	6
First Line Mgrs/Supervrs, Transportation Materials	3	.00%	0
Press and Press Brake Machine Setters, Set-Up	3	.00%	0
Woodworking Machine Operators & Tenders, Exc.	3	.00%	0
Furnace, Kiln, Oven, Drier or Kettle Operators	3	.00%	0
Construction Trades Extractive Worker Helpers	3	.00%	0
Upholsterers	2	5.88%	9
Cutters and Trimmers, Hand	2	5.38%	14
Electrolytic Plating & Coating Machine Operators	2	4.55%	9
Hard Tile Setters	2	1.79%	6
Food Preparation Workers	2	1.43%	6
All Other Hand Workers	2	.60%	3
Meat, Poultry Fish Cutters and Trimmers, Hand	2	.00%	0
Drilling Boring Machine Tools Setters/Set-Up Oprs	2	.00%	0
Machine Forming Operators/Tenders, Metal & Plastic	2	.00%	0
Metal Molding/Core Making/Casting Mach. Setters	2	.00%	0
Sawing Machine Operators and Tenders	2	.00%	0
Textile Bleaching and Dyeing Machine Operators	2	.00%	0
Machine Feeders and Offbearers	2	.00%	0
Extractive and Related Work - Inc. Blasters	1	25.00%	9
Roasting, Baking, Drying Mach. Oprs, Food/Tobacco	1	7.25%	14
Extruding/Forming/Pressing/Compact Mach. Setters	1	4.37%	29
All Other Agricltral, Forestry, Fishing Personnel	1	.00%	0
Chemical Equipment Controllers and Operators	1	.00%	0
Cementing and Gluing Machine Operators/Tenders	1	.00%	0
TOTAL	797		2,834
MEAN	4.453	3.20%	16
STANDARD DEVIATION	1.383	7.24%	62

TABLE 6

PERCENTAGE OF RESPONDING EMPLOYERS WHOSE EMPLOYEES RECEIVE INSTITUTIONAL TRAINING FOR THEIR OCCUPATIONS IN GUATEMALA

OCCUPATIONS	Total Universe Employers	% Instit. Train	Emplyrs Using Instit.
Chemists, Exc. Biochemists	6	100.00%	6
Machinery Maintenance Mechanics, Textile Machinery	6	100.00%	6
Mobile Heavy Equipment Mechanics, Exc. Engines	3	100.00%	3
Farm Equipment Mechanics	3	100.00%	3
Aircraft Mechanics	3	100.00%	3
Traffic, Shipping, and Receiving Clerks	17	66.67%	11
Graders and Sorters, Agricultural Products	9	66.67%	6
Administrative Services Managers	48	64.71%	31
Photoengraving and Lithography	97	61.76%	60
First Line Managers/Supervisors	40	57.14%	23
First Line Managers/Supervisors, Clerical	23	50.00%	11
Machinists	23	50.00%	11
Teachers, Vocational Education and Training	11	50.00%	6
First Line Mgrs/Supervrs, Transportation Materials	11	50.00%	6
Numerical Control Machine Tool Operators	11	50.00%	6
Painting, Coating, Decorating Workers, Hand	11	50.00%	6
All Other Mechanics, Installers and Repairers	63	45.45%	29
Electrolytic Plating & Coating Machine Operators	31	45.45%	14
Automotive Mechanics	128	44.44%	57
Maintenance Repairers, General Utility	77	44.44%	34
Hard Tile Setters	60	42.86%	26
Electrical, Electronic Engineering Technicians	34	41.67%	14
Machinery Maintenance Workers	242	41.18%	100
Systems Analysts, Electronic Data Processing	48	41.18%	20
All Other Managers and Administrators	63	40.91%	26
Meat, Poultry, Fish Cutters and Trimmers, Hand	14	40.00%	6
Molders and Casters, Hand	51	38.89%	20
Machinery Maintenance Mechanics	231	38.27%	88
Electricians	157	38.18%	60
Artists and Related Workers	60	38.10%	23
Sales Representatives, Scientific and Related	46	37.50%	17
Separating/Filtering/Clarify./Precip. Mach. Oprs	23	37.50%	9
Data Entry Keyers, Exc. Composing	94	36.36%	34
Market, Advertising, Public Relations Managers	120	35.71%	43
Bookkeeping, Accounting, Auditing Clerks	465	35.58%	165
Lathe and Turning Machine Tool Setters/Set-Up Oprs	137	35.42%	48
First Line Supervisors, Production & Operations	259	34.07%	88
File Clerks	26	33.33%	9
Letterpress Setters and Set-Up Operators	26	33.33%	9
Purchasing Agents, Exc. Wholesale, Retail, & Farm	17	33.33%	6
Financial Managers	9	33.33%	3

Budget Analysts	9	33.33%	3
All Other Agricultral, Forestry, Fishing Personnel	9	33.33%	3
Tool Grinders, Filers, Sharpeners, and Others	9	33.33%	3
Hand Workers, Jewelry and Related Products	9	33.33%	3
Secretaries	1368	30.83%	4
Accountants and Auditors	664	30.47%	202
Welders and Cutters	160	30.36%	48
Plastic Molding and Casting Machine Operators	29	30.00%	9
First Line Managers/Supervisors - Service	97	29.41%	29
Other First Line Mgrs/Supervisors, Production	217	28.95%	63
Extruding/Forming/Pressing/Compact Mach. Setters	165	27.59%	46
Receptionists and Information Clerks	145	27.45%	40
Sales Representatives, Except Retail	473	27.11%	128
Personnel, Training, Labor Relations Managers	188	25.76%	48
Industrial Production Managers	502	25.57%	128
Shoe and Leather Workers Repairers, Precision	11	25.00%	3
Purchasing Managers	94	24.24%	23
Cutting and Slicing Machine Setters/Set-Up Oprs	83	24.14%	20
Designers, Exc. Interior Designers	48	23.53%	11
Custom Tailors and Sewers	48	23.53%	11
Bookbinders	134	23.40%	31
Production, Planning, and Expediting Clerks	160	23.21%	37
Chemical Equipment Tenders	91	21.88%	20
Credit Checkers	105	21.62%	23
Mechanic and Repairer Helpers	114	20.00%	23
Precision, Compositors, Typesetters, Arrangers	71	20.00%	14
All Other Management Support Workers	14	20.00%	3
Plumbers, Pipefitters, and Steamfitters	14	20.00%	3
Cementing and Gluing Machine Operators/Tenders	14	20.00%	3
First Line Mgrs/Supervrs, Laborers/Material Movers	268	19.15%	51
Cashiers	200	18.57%	37
Automotive Body and Related Repairers	77	18.52%	14
First Line Supervisors and Manager/Supervisors	63	18.18%	11
Coating, Printing, Spraying Machine Setters/Set-Up	63	18.18%	11
Driver/Sales Workers	31	18.18%	6
Printing Press Machine Operators and Tenders	143	18.00%	26
Carpenters	194	17.65%	34
Freight, Stock, and Material Movers, Hand	562	17.26%	97
All Other Sales and Related Workers	154	16.67%	26
Heat Treating, Annealing, Tempering Mach. Opers	120	16.67%	20
Sawing Machine Operators and Tenders	34	16.67%	6
Offset Lithographic Press Setters and Set-Up Oprs	34	16.67%	6
Writers and Editors	17	16.67%	3
Biological, Agricultural, and Food Technicians	88	16.13%	14
Bakers, Manufacturing	143	16.00%	23
Painters, Paperhangers, Contruction & Maintenance	145	15.69%	23
General Office Clerks	111	15.38%	17
Industrial Truck and Tractor Operators	74	15.38%	11
Shoe Sewing Machine Operators and Tenders	844	15.20%	128
All Other Cleaning Building Service Workers	188	15.15%	29
General Managers and Top Executives	510	15.08%	77

Furnace, Kiln, Oven, Drier or Kettle Operators	57	15.00%	9
Assemblers and Fabricators, Exc. Machine	77	14.81%	11
Production Inspectors, Testers, Graders, Sorters,	214	14.67%	31
Upholsterers	20	14.29%	3
Helpers-Brick and Stone Masons and Hard Tile	20	14.29%	3
Salespersons, Retail	282	13.13%	37
Photographic Processing Machine Operators	46	12.50%	6
Vehicle Washers and Equipment Cleaners	46	12.50%	6
Sewing Machine Operators, Garment	237	12.05%	29
Food and Beverage Preparation and Service	120	11.90%	14
All Other Clerical and Administrative Personnel	505	11.30%	57
Woodworking Machine Operators & Tenders, Exc.	26	11.11%	3
Other Helpers, Laborers, Manual Movers	573	10.45%	60
All Other Machine Operators and Tenders	536	10.11%	54
Fabric Apparel Patternmakers, Layout Worekrs	174	9.84%	17
Packaging and Filling Machine Operators	399	8.57%	34
Food Preparation Workers	103	8.33%	9
Extruding/Forming/Pressing/Compact Mach. Oprs/Tndr	68	8.33%	6
Billing, Cost and Rate Clerks	34	8.33%	3
Crushing/Grinding/Mixing/Blending Mach. Oprs/Tndrs	74	7.69%	6
Cooling and Freezing Equipment Operators/Tenders	37	7.69%	3
Helpers, Electricians	37	7.69%	3
Helpers, Carpenters and Related	77	7.41%	6
Machine Forming Operators/Tenders, Metal & Plastic	43	6.67%	3
Head Sawyers	43	6.67%	3
Truck Drivers, Light Delivery Route Workers	730	6.25%	46
Guards and Watch Guards	436	5.88%	26
Janitors and Cleaners	516	4.97%	26
Masons	71	4.00%	3
Pressing Machine Operators and Tenders	71	4.00%	3
Textile Machine Operators and Tenders	413	2.76%	11
All Other Hand Workers	128	2.22%	3
Bakers, Bread, and Pastry	83	.00%	0
Coating, Painting, Spraying Machine Oprs/Tenders	71	.00%	0
Gardeners & Groundskeepers, Exc. Farm	66	.00%	0
Cutters and Trimmers, Hand	54	.00%	0
Metal Molding/Core Making/Casting Mach. Oprs/Tndrs	51	.00%	0
Cooking Machine Operators and Tenders	51	.00%	0
Small Engine Specialist	46	.00%	0
Roasting, Baking, Drying Mach. Oprs, Food/Tobacco	43	.00%	0
Textile Bleaching and Dyeing Machine Operators	34	.00%	0
First Line Suprvrs-Agricultral, Forestry & Fishing	29	.00%	0
Jewelers and/or Silversmiths	26	.00%	0
Cost Estimators	23	.00%	0
Cutting and Slicing Machine Operators and Tenders	20	.00%	0
Licensed Practical Nurses	17	.00%	0
Payroll and Timekeeping Clerks	17	.00%	0
Slaughterers and Butchers	17	.00%	0
Laundry and Drycleaning Machine Operators	17	.00%	0
Life Scientists	14	.00%	0
Weighers, Measurers, Samplers - Recordkeeping	14	.00%	0

Typesetting, Composing Machine Operators	14	.00%	0
Dairy Processing Equipment Operators	14	.00%	0
Statistical Clerks	11	.00%	0
All Other Office Machine Operators	9	.00%	0
Artists and Commercial Artists	6	.00%	0
Cooks, Institutional or Cafeteria	6	.00%	0
Animal Caretakers, Exc. Farm	6	.00%	0
Extractive and Related Work - Inc. Blasters	6	.00%	0
Cabinet Makers and Bench Carpenters	6	.00%	0
Drilling Boring Machine Tools Setters/Set-Up Oprs	6	.00%	0
Press and Press Brake Machine Setters, Set-Up	6	.00%	0
Tire Building Machine Operators	6	.00%	0
Cleaning/Washing/Pickling Equipment Oprs & Tenders	6	.00%	0
Construction Trades Extractive Worker Helpers	6	.00%	0
Helpers, Painters, Paperhangers, Plasterers	6	.00%	0
Industrial Engineers, Exc. Safety	3	.00%	0
Drafters	3	.00%	0
Child Care Workers	3	.00%	0
Other Cleaning, Building Services, Exc. Household	3	.00%	0
Precision Inspectors, Testers, and Graders	3	.00%	0
Electrical Home Appliances, Power Tool Repairers	3	.00%	0
Watchmakers	3	.00%	0
Mechanical Control Valve Installers & Repairers	3	.00%	0
Carpet Installers	3	.00%	0
All Other Precision Metal Workers	3	.00%	0
Precision Optical Goods Workers	3	.00%	0
Punching Mach. Setters/Set-Up Oprs, Metal/Plastic	3	.00%	0
Nonelectrolytic Plating & Coating Machine Operator	3	.00%	0
Chemical Equipment Controllers and Operators	3	.00%	0
Pump Operators	3	.00%	0
Machine Feeders and Offbearers	3	.00%	0
Procurement Clerks	0	.00%	0

TABLE 7

NUMBER AND PERCENTAGE OF RESPONDING EMPLOYERS WHO PROVIDE TRAINING FOR EACH OCCUPATION IN GUATEMALA MANUFACTURING INDUSTRIES

OCCUPATIONS	TOTAL UNIVERSE EMPLOYERS	% EMPLYR TRAIN	EMPLOYERS WHO TRAIN
Shoe Sewing Machine Operators and Tenders	844	66.22%	559
Secretaries	1368	27.50%	376
All Other Machine Operators and Tenders	536	61.17%	328
Other Helpers, Laborers, Manual Movers	573	56.72%	325
Textile Machine Operators and Tenders	413	77.24%	319
Truck Drivers, Light Delivery Route Workers	730	37.89%	277
Janitors and Cleaners	516	51.38%	265
Freight, Stock, and Material Movers, Hand	562	45.69%	257
Packaging and Filling Machine Operators	399	63.57%	254
General Managers and Top Executives	510	45.81%	234
All Other Clerical and Administrative Personnel	505	42.94%	217
Industrial Production Managers	502	42.61%	214
Sales Representatives, Except Retail	473	42.77%	202
Guards and Watch Guards	436	45.75%	200
Salespersons, Retail	282	68.69%	194
Accountants and Auditors	664	27.90%	185
Sewing Machine Operators, Garment	237	65.06%	154
Bookkeeping, Accounting, Auditing Clerks	465	30.06%	140
Production Inspectors, Testers, Graders, Sorters,	214	61.33%	131
Other First Line Mgrs/Supervisors, Production	217	56.58%	123
First Line Mgrs/Supervrs, Laborers/Material Movers	268	43.62%	117
Carpenters	194	57.35%	111
First Line Supervisors, Production & Operations	259	41.76%	108
Fabric Apparel Patternmakers, Layout Worekrs	174	59.02%	103
All Other Cleaning Building Service Workers	188	51.52%	97
Machinery Maintenance Mechanics	231	39.51%	91
All Other Sales and Related Workers	154	57.41%	88
Production, Planning, and Expediting Clerks	160	55.36%	88
Extruding/Forming/Pressing/Compact Mach. Setters	165	50.00%	83
Cashiers	200	41.43%	83
Food Preparation Workers	103	75.00%	77
All Other Hand Workers	128	60.00%	77
Machinery Maintenance Workers	242	31.76%	77
Welders and Cutters	160	46.43%	74
Bookbinders	134	53.19%	71
Painters, Paperhangers, Contruction & Maintenance	145	49.02%	71
Mechanic and Repairer Helpers	114	60.00%	68
Food and Beverage Preparation and Service	120	57.14%	68
Bakers, Bread, and Pastry	83	79.31%	66
Chemical Equipment Tenders	91	68.75%	63
General Office Clerks	111	56.41%	63
Bakers, Manufacturing	143	44.00%	63

Heat Treating, Annealing, Tempering Mach. Opers	120	50.00%	60
Personnel, Training, Labor Relations Managers	188	31.82%	60
Printing Press Machine Operators and Tenders	143	40.00%	57
Electricians	157	36.36%	57
Assemblers and Fabricators, Exc. Machine	77	70.37%	54
Helpers, Carpenters and Related	77	70.37%	54
Lathe and Turning Machine Tool Setters/Set-Up Oprs	137	39.58%	54
Coating, Painting, Spraying Machine Oprs/Tenders	71	72.00%	51
Crushing/Grinding/Mixing/Blending Mach. Oprs/Tndrs	74	69.23%	51
Credit Checkers	105	48.65%	51
Automotive Mechanics	128	40.00%	51
Precision, Compositors, Typesetters, Arrangers	71	68.00%	48
Industrial Truck and Tractor Operators	74	65.38%	48
Biological, Agricultural, and Food Technicians	88	54.84%	48
Market, Advertising, Public Relations Managers	120	40.48%	48
Pressing Machine Operators and Tenders	71	64.00%	46
Receptionists and Information Clerks	145	31.37%	46
Coating, Printing, Spraying Machine Setters/Set-Up	63	68.18%	43
Data Entry Keyers, Exc. Composing	94	45.45%	43
Cooking Machine Operators and Tenders	51	77.78%	40
Automotive Body and Related Repairers	77	51.85%	40
First Line Managers/Supervisors - Service	97	41.18%	40
Photographic Processing Machine Operators	46	81.25%	37
First Line Supervisors and Manager/Supervisors	63	59.09%	37
Purchasing Managers	94	39.39%	37
Roasting, Baking, Drying Mach. Oprs, Food/Tobacco	43	73.33%	31
Small Engine Specialist	46	68.75%	31
Vehicle Washers and Equipment Cleaners	46	68.75%	31
Cutters and Trimmers, Hand	54	57.89%	31
Billing, Cost and Rate Clerks	34	83.33%	29
Textile Bleaching and Dyeing Machine Operators	34	83.33%	29
Sales Representatives, Scientific and Related	46	62.50%	29
Maintenance Repairers, General Utility	77	37.04%	29
Photoengraving and Lithography	97	29.41%	29
Metal Molding/Core Making/Casting Mach. Oprs/Tndrs	51	50.00%	26
Hard Tile Setters	60	42.86%	26
All Other Mechanics, Installers and Repairers	63	40.91%	26
Cutting and Slicing Machine Setters/Set-Up Oprs	83	31.03%	26
Cooling and Freezing Equipment Operators/Tenders	37	61.54%	23
Helpers, Electricians	37	61.54%	23
Artists and Related Workers	60	38.10%	23
Jewelers and/or Silversmiths	26	77.78%	20
Plastic Molding and Casting Machine Operators	29	70.00%	20
Designers, Exc. Interior Designers	48	41.18%	20
Custom Tailors and Sewers	48	41.18%	20
Molders and Casters, Hand	51	38.89%	20
Furnace, Kiln, Oven, Drier or Kettle Operators	57	35.00%	20
Gardeners & Groundskeepers, Exc. Farm	66	30.43%	20
Extruding/Forming/Pressing/Compact Mach. Oprs/Tndr	68	29.17%	20
Masons	71	28.00%	20
First Line Suprvrs-Agricultral, Forestry & Fishing	29	60.00%	17

Driver/Sales Workers	31	54.55%	17
Sawing Machine Operators and Tenders	34	50.00%	17
Head Sawyers	43	40.00%	17
Weighers, Measurers, Samplers - Recordkeeping	14	100.00%	14
Dairy Processing Equipment Operators	14	100.00%	14
Separating/Filtering/Clarify./Precip. Mach. Oprs	23	62.50%	14
Letterpress Setters and Set-Up Operators	26	55.56%	14
Electrolytic Plating & Coating Machine Operators	31	45.45%	14
First Line Managers/Supervisors	40	35.71%	14
Machine Forming Operators/Tenders, Metal & Plastic	43	33.33%	14
All Other Managers and Administrators	63	22.73%	14
Plumbers, Pipefitters, and Steamfitters	14	80.00%	11
Laundry and Drycleaning Machine Operators	17	66.67%	11
Upholsterers	20	57.14%	11
Woodworking Machine Operators & Tenders, Exc.	26	44.44%	11
Electrical, Electronic Engineering Technicians	34	33.33%	11
Offset Lithographic Press Setters and Set-Up Oprs	34	33.33%	11
Shoe and Leather Workers Repairers, Precision	11	75.00%	9
Writers and Editors	17	50.00%	9
Payroll and Timekeeping Clerks	17	50.00%	9
Cutting and Slicing Machine Operators and Tenders	20	42.86%	9
Cost Estimators	23	37.50%	9
Machinists	23	37.50%	9
File Clerks	26	33.33%	9
Systems Analysts, Electronic Data Processing	48	17.65%	9
Cooks, Institutional or Cafeteria	6	100.00%	6
Extractive and Related Work - Inc. Blasters	6	100.00%	6
Drilling Boring Machine Tools Setters/Set-Up Oprs	6	100.00%	6
Press and Press Brake Machine Setters, Set-Up	6	100.00%	6
Tire Building Machine Operators	6	100.00%	6
Cleaning/Washing/Pickling Equipment Oprs & Tenders	6	100.00%	6
Construction Trades Extractive Worker Helpers	6	100.00%	6
Helpers, Painters, Paperhangers, Plasterers	6	100.00%	6
All Other Office Machine Operators	9	66.67%	6
Tool Grinders, Filers, Sharpeners, and Others	9	66.67%	6
Statistical Clerks	11	50.00%	6
Painting, Coating, Decorating Workers, Hand	11	50.00%	6
All Other Management Support Workers	14	40.00%	6
Life Scientists	14	40.00%	6
Meat, Poultry, Fish Cutters and Trimmers, Hand	14	40.00%	6
Typesetting, Composing Machine Operators	14	40.00%	6
Licensed Practical Nurses	17	33.33%	6
Traffic, Shipping, and Receiving Clerks	17	33.33%	6
Slaughterers and Butchers	17	33.33%	6
First Line Managers/Supervisors, Clerical	23	25.00%	6
Watchmakers	3	100.00%	3
Mechanical Control Valve Installers & Repairers	3	100.00%	3
Carpet Installers	3	100.00%	3
All Other Precision Metal Workers	3	100.00%	3
Precision Optical Goods Workers	3	100.00%	3
Punching Mach. Setters/Set-Up Oprs, Metal/Plastic	3	100.00%	3

Nonelectrolytic Plating & Coating Machine Operator	3	100.00%	3
Machine Feeders and Offbearers	3	100.00%	3
Cabinet Makers and Bench Carpenters	6	50.00%	3
Financial Managers	9	33.33%	3
Budget Analysts	9	33.33%	3
Hand Workers, Jewelry and Related Products	9	33.33%	3
Teachers, Vocational Education and Training	11	25.00%	3
First Line Mgrs/Supervrs. Transportation Materials	11	25.00%	3
Cementing and Gluing Machine Operators/Tenders	14	20.00%	3
Purchasing Agents, Exc. Wholesale, Retail, & Farm	17	16.67%	3
Helpers-Brick and Stone Masons and Hard Tile	20	14.29%	3
Administrative Services Managers	48	5.88%	3
Procurement Clerks	0	.00%	0
Industrial Engineers, Exc. Safety	3	.00%	0
Drafters	3	.00%	0
Chemists, Exc. Biochemists	6	.00%	0
Artists and Commercial Artists	6	.00%	0
Child Care Workers	3	.00%	0
Other Cleaning, Building Services, Exc. Household	3	.00%	0
Graders and Sorters, Agricultural Products	9	.00%	0
Animal Caretakers, Exc. Farm	6	.00%	0
All Other Agricultral, Forestry, Fishing Personnel	9	.00%	0
Precision Inspectors, Testers, and Graders	3	.00%	0
Machinery Maintenance Mechanics, Textile Machinery	6	.00%	0
Mobile Heavy Equipment Mechanics, Exc. Engines	3	.00%	0
Farm Equipment Mechanics	3	.00%	0
Aircraft Mechanics	3	.00%	0
Electrical Home Appliances, Power Tool Repairers	3	.00%	0
Numerical Control Machine Tool Operators	11	.00%	0
Chemical Equipment Controllers and Operators	3	.00%	0
Pump Operators	3	.00%	0

TABLE 8

NUMBER AND PERCENTAGE OF RESPONDING EMPLOYERS WHOSE SOURCE OF TRAINING FOR THEIR EMPLOYEES WAS UNKNOWN FOR OCCUPATIONS IN THE GUATEMALAN MANUFACTURING INDUSTRIES

OCCUPATIONS	Total Universe Employers	% Other or Unknown	No.Choosi Other o Unknown
Secretaries	1368	41.67%	570
Truck Drivers, Light Delivery Route Workers	730	55.86%	408
Accountants and Auditors	664	41.63%	277
All Other Clerical and Administrative Personnel	505	45.76%	231
Janitors and Cleaners	516	43.65%	225
Guards and Watch Guards	436	48.37%	211
Freight, Stock, and Material Movers, Hand	562	37.06%	208
General Managers and Top Executives	510	39.11%	200
Other Helpers, Laborers, Manual Movers	573	32.84%	188
Bookkeeping, Accounting, Auditing Clerks	465	34.36%	160
Industrial Production Managers	502	31.82%	160
Shoe Sewing Machine Operators and Tenders	844	18.58%	157
All Other Machine Operators and Tenders	536	28.72%	154
Sales Representatives, Except Retail	473	30.12%	143
Packaging and Filling Machine Operators	399	27.86%	111
First Line Mgrs/Supervrs, Laborers/Material Movers	268	37.23%	100
Textile Machine Operators and Tenders	413	20.00%	83
Personnel, Training, Labor Relations Managers	188	42.42%	80
Cashiers	200	40.00%	80
Machinery Maintenance Workers	242	27.06%	66
All Other Cleaning Building Service Workers	188	33.33%	63
First Line Supervisors, Production & Operations	259	24.18%	63
Printing Press Machine Operators and Tenders	143	42.00%	60
Receptionists and Information Clerks	145	41.18%	60
Bakers, Manufacturing	143	40.00%	57
Fabric Apparel Patternmakers, Layout Worekrs	174	31.15%	54
Sewing Machine Operators, Garment	237	22.89%	54
Painters, Paperhangers, Contruction & Maintenance	145	35.29%	51
Production Inspectors, Testers, Graders, Sorters,	214	24.00%	51
Machinery Maintenance Mechanics	231	22.22%	51
Salespersons, Retail	282	18.18%	51
Masons	71	68.00%	48
All Other Hand Workers	128	37.78%	48
Carpenters	194	25.00%	48
Gardeners & Groundskeepers, Exc. Farm	66	69.57%	46
Extruding/Forming/Pressing/Compact Mach. Oprs/Tndr	68	62.50%	43
Heat Treating, Annealing, Tempering Mach. Opers	120	33.33%	40
All Other Sales and Related Workers	154	25.93%	40
Electricians	157	25.45%	40
Cutting and Slicing Machine Setters/Set-Up Oprs	83	44.93%	37
Food and Beverage Preparation and Service	120	30.95%	37

Welders and Cutters	160	23.21%	37
Extruding/Forming/Pressing/Compact Mach. Setters	165	22.41%	37
Purchasing Managers	94	36.36%	34
Lathe and Turning Machine Tool Setters/Set-Up Oprs	137	25.00%	34
Production, Planning, and Expediting Clerks	160	21.43%	34
Credit Checkers	105	29.73%	31
General Office Clerks	111	28.21%	31
Bookbinders	134	23.40%	31
Other First Line Mgrs/Supervisors, Production	217	14.47%	31
Furnace, Kiln, Oven, Drier or Kettle Operators	57	50.00%	29
First Line Managers/Supervisors - Service	97	29.41%	29
Market, Advertising, Public Relations Managers	120	23.81%	29
Machine Forming Operators/Tenders, Metal & Plastic	43	60.00%	26
Metal Molding/Core Making/Casting Mach. Oprs/Tndrs	51	50.00%	26
Biological, Agricultural, and Food Technicians	88	29.03%	26
Head Sawyers	43	53.33%	23
Cutters and Trimmers, Hand	54	42.11%	23
All Other Managers and Administrators	63	36.36%	23
Pressing Machine Operators and Tenders	71	32.00%	23
Automotive Body and Related Repairers	77	29.63%	23
Mechanic and Repairer Helpers	114	20.00%	23
Systems Analysts, Electronic Data Processing	48	41.18%	20
Coating, Painting, Spraying Machine Oprs/Tenders	71	28.00%	20
Automotive Mechanics	128	15.56%	20
Offset Lithographic Press Setters and Set-Up Oprs	34	50.00%	17
Designers, Exc. Interior Designers	48	35.29%	17
Custom Tailors and Sewers	48	35.29%	17
Crushing/Grinding/Mixing/Blending Mach. Oprs/Tndrs	74	23.08%	17
Helpers, Carpenters and Related	77	22.22%	17
Bakers, Bread, and Pastry	83	20.69%	17
Data Entry Keyers, Exc. Composing	94	18.18%	17
Food Preparation Workers	103	16.67%	17
Helpers-Brick and Stone Masons and Hard Tile	20	71.43%	14
Cost Estimators	23	62.50%	14
Small Engine Specialist	46	31.25%	14
Administrative Services Managers	48	29.41%	14
Artists and Related Workers	60	23.81%	14
First Line Supervisors and Manager/Supervisors	63	22.73%	14
Industrial Truck and Tractor Operators	74	19.23%	14
Maintenance Repairers, General Utility	77	18.52%	14
Licensed Practical Nurses	17	66.67%	11
Slaughterers and Butchers	17	66.67%	11
Cutting and Slicing Machine Operators and Tenders	20	57.14%	11
Woodworking Machine Operators & Tenders, Exc.	26	44.44%	11
First Line Suprvrs-Agricultral, Forestry & Fishing	29	40.00%	11
Sawing Machine Operators and Tenders	34	33.33%	11
Cooling and Freezing Equipment Operators/Tenders	37	30.77%	11
Helpers, Electricians	37	30.77%	11
Roasting, Baking, Drying Mach. Oprs, Food/Tobacco	43	26.67%	11
Cooking Machine Operators and Tenders	51	22.22%	11
Molders and Casters, Hand	51	22.22%	11

Assemblers and Fabricators, Exc. Machine	77	14.81%	11
Life Scientists	14	60.00%	9
Typesetting, Composing Machine Operators	14	60.00%	9
Cementing and Gluing Machine Operators/Tenders	14	60.00%	9
Purchasing Agents, Exc. Wholesale, Retail, & Farm	17	50.00%	9
Payroll and Timekeeping Clerks	17	50.00%	9
File Clerks	26	33.33%	9
Driver/Sales Workers	31	27.27%	9
Electrical, Electronic Engineering Technicians	34	25.00%	9
Vehicle Washers and Equipment Cleaners	46	18.75%	9
Hard Tile Setters	60	14.29%	9
All Other Mechanics, Installers and Repairers	63	13.64%	9
Coating, Printing, Spraying Machine Setters/Set-Up	63	13.64%	9
Precision, Compositors, Typesetters, Arrangers	71	12.00%	9
Chemical Equipment Tenders	91	9.38%	9
Photoengraving and Lithography	97	8.82%	9
Artists and Commercial Artists	6	100.00%	6
Animal Caretakers, Exc. Farm	6	100.00%	6
All Other Agricultral, Forestry, Fishing Personnel	9	66.67%	6
Statistical Clerks	11	50.00%	6
Numerical Control Machine Tool Operators	11	50.00%	6
All Other Management Support Workers	14	40.00%	6
Writers and Editors	17	33.33%	6
Laundry and Drycleaning Machine Operators	17	33.33%	6
Upholsterers	20	28.57%	6
First Line Managers/Supervisors, Clerical	23	25.00%	6
Jewelers and/or Silversmiths	26	22.22%	6
Textile Bleaching and Dyeing Machine Operators	34	16.67%	6
Industrial Engineers, Exc. Safety	3	100.00%	3
Drafters	3	100.00%	3
Child Care Workers	3	100.00%	3
Other Cleaning, Building Services, Exc. Household	3	100.00%	3
Precision Inspectors, Testers, and Graders	3	100.00%	3
Electrical Home Appliances, Power Tool Repairers	3	100.00%	3
Chemical Equipment Controllers and Operators	3	100.00%	3
Pump Operators	3	100.00%	3
Cabinet Makers and Bench Carpenters	6	50.00%	3
Financial Managers	9	33.33%	3
Budget Analysts	9	33.33%	3
All Other Office Machine Operators	9	33.33%	3
Graders and Sorters, Agricultural Products	9	33.33%	3
Hand Workers, Jewelry and Related Products	9	33.33%	3
Teachers, Vocational Education and Training	11	25.00%	3
First Line Mgrs/Supervrs, Transportation Materials	11	25.00%	3
Meat, Poultry, Fish Cutters and Trimmers, Hand	14	20.00%	3
Machinists	23	12.50%	3
Letterpress Setters and Set-Up Operators	26	11.11%	3
Electrolytic Plating & Coating Machine Operators	31	9.09%	3
Billing, Cost and Rate Clerks	34	8.33%	3
First Line Managers/Supervisors	40	7.14%	3
Photographic Processing Machine Operators	46	6.25%	3

Procurement Clerks	0	.00%	0
Chemists, Exc. Biochemists	6	.00%	0
Sales Representatives, Scientific and Related	46	.00%	0
Weighers, Measurers, Samplers - Recordkeeping	14	.00%	0
Traffic, Shipping, and Receiving Clerks	17	.00%	0
Cooks, Institutional or Cafeteria	6	.00%	0
Machinery Maintenance Mechanics, Textile Machinery	6	.00%	0
Mobile Heavy Equipment Mechanics, Exc. Engines	3	.00%	0
Farm Equipment Mechanics	3	.00%	0
Aircraft Mechanics	3	.00%	0
Watchmakers	3	.00%	0
Mechanical Control Valve Installers & Repairers	3	.00%	0
Plumbers, Pipefitters, and Steamfitters	14	.00%	0
Carpet Installers	3	.00%	0
Extractive and Related Work - Inc. Blasters	6	.00%	0
Tool Grinders, Filers, Sharpeners, and Others	9	.00%	0
All Other Precision Metal Workers	3	.00%	0
Shoe and Leather Workers Repairers, Precision	11	.00%	0
Precision Optical Goods Workers	3	.00%	0
Drilling Boring Machine Tools Setters/Set-Up Oprs	6	.00%	0
Punching Mach. Setters/Set-Up Oprs, Metal/Plastic	3	.00%	0
Press and Press Brake Machine Setters, Set-Up	6	.00%	0
Plastic Molding and Casting Machine Operators	29	.00%	0
Nonelectrolytic Plating & Coating Machine Operator	3	.00%	0
Tire Building Machine Operators	6	.00%	0
Dairy Processing Equipment Operators	14	.00%	0
Cleaning/Washing/Pickling Equipment Oprs & Tenders	6	.00%	0
Separating/Filtering/Clarify./Precip. Mach. Oprs	23	.00%	0
Painting, Coating, Decorating Workers, Hand	11	.00%	0
Construction Trades Extractive Worker Helpers	6	.00%	0
Helpers, Painters, Paperhangers, Plasterers	6	.00%	0
Machine Feeders and Offbearers	3	.00%	0

TABLE 9

PREFERENCES OF GUATEMALAN EMPLOYERS IN THE MANUFACTURING SECTOR FOR OCCUPATIONAL TRAINING BY INSTITUTIONAL PROVIDERS

OCCUPATIONS	Total Universe Employers	% Prefer Instit.	No.Emplyrs Who Prefer Instit.
Secretaries	1223	45.69%	559
Shoe Sewing Machine Operators and Tenders	730	53.13%	388
Truck Drivers, Light Delivery Route Workers	704	42.91%	302
Accountants and Auditors	622	45.87%	285
Industrial Production Managers	450	60.13%	271
Freight, Stock, and Material Movers, Hand	519	52.20%	271
Sales Representatives, Except Retail	442	55.48%	245
Other Helpers, Laborers, Manual Movers	527	44.86%	237
General Managers and Top Executives	462	48.15%	222
All Other Machine Operators and Tenders	428	49.33%	211
Bookkeeping, Accounting, Auditing Clerks	405	47.18%	191
All Other Clerical and Administrative Personnel	488	35.09%	171
Textile Machine Operators and Tenders	314	50.00%	157
Packaging and Filling Machine Operators	356	43.20%	154
Janitors and Cleaners	493	30.06%	148
First Line Supervisors, Production & Operations	231	62.96%	145
Salespersons, Retail	271	53.68%	145
Machinery Maintenance Workers	208	68.49%	143
Machinery Maintenance Mechanics	205	63.89%	131
Guards and Watch Guards	430	30.46%	131
Sewing Machine Operators, Garment	211	60.81%	128
Personnel, Training, Labor Relations Managers	174	62.30%	108
First Line Mgrs/Supervrs, Laborers/Material Movers	237	45.78%	108
Other First Line Mgrs/Supervisors, Production	188	54.55%	103
Welders and Cutters	148	63.46%	94
Cashiers	188	50.00%	94
All Other Cleaning Building Service Workers	171	53.33%	91
Electricians	148	59.62%	88
Carpenters	168	52.54%	88
Fabric Apparel Patternmakers, Layout Worekrs	171	51.67%	88
All Other Sales and Related Workers	137	62.50%	86
Extruding/Forming/Pressing/Compact Mach. Setters	140	61.22%	86
Bookbinders	103	80.56%	83
Mechanic and Repairer Helpers	105	78.38%	83
Painters, Paperhangers, Contruction & Maintenance	137	60.42%	83
Heat Treating, Annealing, Tempering Mach. Opers	103	77.78%	80
Bakers, Manufacturing	128	62.22%	80
Production Inspectors, Testers, Graders, Sorters,	202	39.44%	80
Automotive Mechanics	108	68.42%	74
Printing Press Machine Operators and Tenders	123	55.81%	68
Production, Planning, and Expediting Clerks	145	47.06%	68
Photoengraving and Lithography	83	79.31%	66

Lathe and Turning Machine Tool Setters/Set-Up Oprs	123	53.49%	66
Food Preparation Workers	94	63.64%	60
Cutting and Slicing Machine Setters,Oprs/Tenders	83	65.52%	54
Market, Advertising, Public Relations Managers	114	47.50%	54
Precision, Compositors, Typesetters, Arrangers	66	78.26%	51
Data Entry Keyers, Exc. Composing	88	58.06%	51
Food and Beverage Preparation and Service	103	47.22%	48
Bakers, Bread, and Pastry	77	59.26%	46
First Line Managers/Supervisors - Service	88	51.61%	46
General Office Clerks	108	39.47%	43
Receptionists and Information Clerks	137	31.25%	43
Automotive Body and Related Repairers	57	70.00%	40
All Other Managers and Administrators	51	72.22%	37
Coating, Printing, Spraying Machine Setters/Set-Up	63	59.09%	37
Crushing/Grinding/Mixing/Blending Mach. Oprs/Tndrs	71	52.00%	37
Assemblers and Fabricators, Exc. Machine	74	50.00%	37
Helpers, Carpenters and Related	77	48.15%	37
Purchasing Managers	86	43.33%	37
All Other Mechanics, Installers and Repairers	51	66.67%	34
Artists and Related Workers	54	63.16%	34
Maintenance Repairers, General Utility	60	57.14%	34
Pressing Machine Operators and Tenders	71	48.00%	34
Biological, Agricultural, and Food Technicians	88	38.71%	34
Systems Analysts, Electronic Data Processing	48	64.71%	31
First Line Supervisors and Manager/Supervisors	57	55.00%	31
Coating, Painting, Spraying Machine Oprs/Tenders	66	47.83%	31
Credit Checkers	94	33.33%	31
Administrative Services Managers	43	66.67%	29
Extruding/Forming/Pressing/Compact Mach. Oprs/Tndr	60	47.62%	29
Industrial Truck and Tractor Operators	68	41.67%	29
Masons	71	40.00%	29
Cutters and Trimmers, Hand	51	50.00%	26
Offset Lithographic Press Setters and Set-Up Oprs	31	72.73%	23
Photographic Processing Machine Operators	46	50.00%	23
Letterpress Setters and Set-Up Operators	23	87.50%	20
Cooking Machine Operators and Tenders	37	53.85%	20
Designers, Exc. Interior Designers	40	50.00%	20
Traffic, Shipping, and Receiving Clerks	17	100.00%	17
Electrical, Electronic Engineering Technicians	29	60.00%	17
First Line Managers/Supervisors	31	54.55%	17
Sawing Machine Operators and Tenders	31	54.55%	17
Roasting, Baking, Drying Mach. Oprs, Food/Tobacco	34	50.00%	17
Cooling and Freezing Equipment Operators/Tenders	37	46.15%	17
Molders and Casters, Hand	37	46.15%	17
Helpers, Electricians	37	46.15%	17
Sales Representatives, Scientific and Related	40	42.86%	17
Payroll and Timekeeping Clerks	20	71.43%	14
First Line Suprvrs-Agricultral, Forestry & Fishing	23	62.50%	14
Hard Tile Setters	23	62.50%	14
Jewelers and/or Silversmiths	23	62.50%	14
File Clerks	26	55.56%	14

Woodworking Machine Operators & Tenders, Exc.	26	55.56%	14
Metal Molding/Core Making/Casting Mach. Oprs/Tndrs	43	33.33%	14
Custom Tailors and Sewers	48	29.41%	14
Gardeners & Groundskeepers, Exc. Farm	66	21.74%	14
All Other Hand Workers	117	12.20%	14
Plumbers, Pipefitters, and Steamfitters	11	100.00%	11
Weighers, Measurers, Samplers - Recordkeeping	14	80.00%	11
Writers and Editors	17	66.67%	11
Helpers-Brick and Stone Masons and Hard Tile	20	57.14%	11
Driver/Sales Workers	26	44.44%	11
Head Sawyers	34	33.33%	11
Vehicle Washers and Equipment Cleaners	37	30.77%	11
Painting, Coating, Decorating Workers, Hand	9	100.00%	9
Numerical Control Machine Tool Operators	11	75.00%	9
Cementing and Gluing Machine Operators/Tenders	11	75.00%	9
Purchasing Agents, Exc. Wholesale, Retail, & Farm	14	60.00%	9
Machinists	20	42.86%	9
Plastic Molding and Casting Machine Operators	23	37.50%	9
Upholsterers	26	33.33%	9
Textile Bleaching and Dyeing Machine Operators	34	25.00%	9
Chemical Equipment Tenders	40	21.43%	9
Chemists, Exc. Biochemists	6	100.00%	6
Tire Building Machine Operators	6	100.00%	6
Financial Managers	9	66.67%	6
First Line Mgrs/Supervrs, Transportation Materials	9	66.67%	6
Tool Grinders, Filers, Sharpeners, and Others	9	66.67%	6
Hand Workers, Jewelry and Related Products	9	66.67%	6
Shoe and Leather Workers Repairers, Precision	9	66.67%	6
Dairy Processing Equipment Operators	9	66.67%	6
Meat, Poultry, Fish Cutters and Trimmers, Hand	11	50.00%	6
All Other Management Support Workers	14	40.00%	6
Typesetting, Composing Machine Operators	14	40.00%	6
Slaughterers and Butchers	17	33.33%	6
Laundry and Drycleaning Machine Operators	17	33.33%	6
Cost Estimators	20	28.57%	6
First Line Managers/Supervisors, Clerical	20	28.57%	6
Electrolytic Plating & Coating Machine Operators	20	28.57%	6
Machine Forming Operators/Tenders, Metal & Plastic	23	25.00%	6
Billing, Cost and Rate Clerks	29	20.00%	6
Furnace, Kiln, Oven, Drier or Kettle Operators	29	20.00%	6
Industrial Engineers, Exc. Safety	3	100.00%	3
Drafters	3	100.00%	3
Animal Caretakers, Exc. Farm	3	100.00%	3
Machinery Maintenance Mechanics, Textile Machinery	3	100.00%	3
Mobile Heavy Equipment Mechanics, Exc. Engines	3	100.00%	3
Farm Equipment Mechanics	3	100.00%	3
Aircraft Mechanics	3	100.00%	3
Watchmakers	3	100.00%	3
Mechanical Control Valve Installers & Repairers	3	100.00%	3
Carpet Installers	3	100.00%	3
Punching Mach. Setters/Set-Up Oprs, Metal/Plastic	3	100.00%	3

Chemical Equipment Controllers and Operators	3	100.00%	3
Pump Operators	3	100.00%	3
Helpers, Painters, Paperhangers, Plasterers	3	100.00%	3
Budget Analysts	6	50.00%	3
Procurement Clerks	6	50.00%	3
All Other Office Machine Operators	6	50.00%	3
Cooks, Institutional or Cafeteria	6	50.00%	3
All Other Agricultral, Forestry, Fishing Personnel	9	33.33%	3
Teachers, Vocational Education and Training	11	25.00%	3
Small Engine Specialist	11	25.00%	3
Licensed Practical Nurses	14	20.00%	3
Separating/Filtering/Clarify./Precip. Mach. Oprs	14	20.00%	3
Life Scientists	14	.00%	0
Artists and Commercial Artists	6	.00%	0
Statistical Clerks	11	.00%	0
Child Care Workers	3	.00%	0
Graders and Sorters, Agricultural Products	9	.00%	0
Precision Inspectors, Testers, and Graders	3	.00%	0
Electrical Home Appliances, Power Tool Repairers	3	.00%	0
Extractive and Related Work - Inc. Blasters	3	.00%	0
All Other Precision Metal Workers	3	.00%	0
Cabinet Makers and Bench Carpenters	6	.00%	0
Precision Optical Goods Workers	3	.00%	0
Drilling Boring Machine Tools Setters/Set-Up Oprs	6	.00%	0
Press and Press Brake Machine Setters, Set-Up	6	.00%	0
Nonelectrolytic Plating & Coating Machine Operator	3	.00%	0
Cleaning/Washing/Pickling Equipment Oprs & Tenders	6	.00%	0
Construction Trades Extractive Worker Helpers	6	.00%	0
Machine Feeders and Offbearers	3	.00%	0
Other Cleaning, Building Services, Exc. Household	0	.00%	0

TABLE 10

PREFERENCES OF EMPLOYERS IN THE GUATEMALAN MANUFACTURING SECTOR FOR OCCUPATIONAL TRAINING PROVIDED BY EMPLOYERS THEMSELVES

OCCUPATIONS	Total Universe Employer	% Prefer Employer	No. of Employers Prefer Self
Shoe Sewing Machine Operators and Tenders	730	25.78%	188
Secretaries	1223	14.92%	182
All Other Clerical and Administrative Personnel	488	29.24%	143
Other Helpers, Laborers, Manual Movers	527	25.41%	134
Janitors and Cleaners	493	24.86%	123
Truck Drivers, Light Delivery Route Workers	704	17.00%	120
Guards and Watch Guards	430	25.17%	108
Packaging and Filling Machine Operators	356	27.20%	97
Freight, Stock, and Material Movers, Hand	519	18.68%	97
Accountants and Auditors	622	15.14%	94
Textile Machine Operators and Tenders	314	25.45%	80
Sales Representatives, Except Retail	442	18.06%	80
Bookkeeping, Accounting, Auditing Clerks	405	19.01%	77
General Managers and Top Executives	462	16.67%	77
All Other Machine Operators and Tenders	428	17.33%	74
Industrial Production Managers	450	15.82%	71
All Other Hand Workers	117	48.78%	57
First Line Mgrs/Supervrs, Laborers/Material Movers	237	20.48%	48
Production Inspectors, Testers, Graders, Sorters,	202	22.54%	46
Production, Planning, and Expediting Clerks	145	29.41%	43
Salespersons, Retail	271	15.79%	43
First Line Supervisors, Production & Operations	231	17.28%	40
All Other Cleaning Building Service Workers	171	21.67%	37
Other First Line Mgrs/Supervisors, Production	188	19.70%	37
Sewing Machine Operators, Garment	211	17.57%	37
Credit Checkers	94	36.36%	34
Carpenters	168	20.34%	34
Cashiers	188	18.18%	34
Extruding/Forming/Pressing/Compact Mach Setters	140	22.45%	31
Machinery Maintenance Workers	208	15.07%	31
Crushing/Grinding/Mixing/Blending Mach. Oprs/Tndrs	71	40.00%	29
Coating, Painting, Spraying Machine Oprs/Tenders	66	39.13%	26
Biological, Agricultural, and Food Technicians	88	29.03%	26
Lathe and Turning Machine Tool Setters/Set-Up Oprs	123	20.93%	26
Bakers, Manufacturing	128	20.00%	26
Receptionists and Information Clerks	137	18.75%	26
Fabric Apparel Patternmakers, Layout Worekrs	171	15.00%	26
Textile Bleaching and Dyeing Machine Operators	34	66.67%	23
Assemblers and Fabricators, Exc. Machine	74	30.77%	23
Food and Beverage Preparation and Service	103	22.22%	23
Printing Press Machine Operators and Tenders	123	18.60%	23
All Other Sales and Related Workers	137	16.67%	23

Welders and Cutters	148	15.38%	23
Billing, Cost and Rate Clerks	29	70.00%	20
Gardeners & Groundskeepers, Exc. Farm	66	30.43%	20
Helpers, Carpenters and Related	77	25.93%	20
General Office Clerks	108	18.42%	20
Personnel, Training, Labor Relations Managers	174	11.48%	20
Machinery Maintenance Mechanics	205	9.72%	20
Molders and Casters, Hand	37	46.15%	17
Custom Tailors and Sewers	48	35.29%	17
Industrial Truck and Tractor Operators	68	25.00%	17
Purchasing Managers	86	20.00%	17
Market, Advertising, Public Relations Managers	114	15.00%	17
Vehicle Washers and Equipment Cleaners	37	38.46%	14
Metal Molding/Core Making/Casting Mach. Oprs/Tndrs	43	33.33%	14
Painters, Paperhangers, Contruction & Maintenance	137	10.42%	14
Cooling and Freezing Equipment Operators/Tenders	37	30.77%	11
Sales Representatives, Scientific and Related	40	28.57%	11
Photographic Processing Machine Operators	46	25.00%	11
All Other Mechanics, Installers and Repairers	51	22.22%	11
Cutters and Trimmers, Hand	51	22.22%	11
First Line Supervisors and Manager/Supervisors	57	20.00%	11
Coating, Printing, Spraying Machine Setters/Set-Up	63	18.18%	11
Pressing Machine Operators and Tenders	71	16.00%	11
Bakers, Bread, and Pastry	77	14.81%	11
Heat Treating, Annealing, Tempering Mach. Opers	103	11.11%	11
Automotive Mechanics	108	10.53%	11
Electricians	148	7.69%	11
Slaughterers and Butchers	17	50.00%	9
Jewelers and/or Silversmiths	23	37.50%	9
Machine Forming Operators/Tenders, Metal & Plastic	23	37.50%	9
Upholsterers	26	33.33%	9
Driver/Sales Workers	26	33.33%	9
Electrical, Electronic Engineering Technicians	29	30.00%	9
First Line Managers/Supervisors	31	27.27%	9
Cooking Machine Operators and Tenders	37	23.08%	9
Designers, Exc. Interior Designers	40	21.43%	9
Chemical Equipment Tenders	40	21.43%	9
Automotive Body and Related Repairers	57	15.00%	9
Maintenance Repairers, General Utility	60	14.29%	9
Masons	71	12.00%	9
Photoengraving and Lithography	83	10.34%	9
Data Entry Keyers, Exc. Composing	88	9.68%	9
First Line Managers/Supervisors - Service	88	9.68%	9
Food Preparation Workers	94	9.09%	9
Bookbinders	103	8.33%	9
Drilling Boring Machine Tools Setters/Set-Up Oprs	6	100.00%	6
Press and Press Brake Machine Setters, Set-Up	6	100.00%	6
Graders and Sorters, Agricultural Products	9	66.67%	6
Meat, Poultry, Fish Cutters and Trimmers, Hand	11	50.00%	6
Statistical Clerks	11	50.00%	6
Small Engine Specialist	11	50.00%	6

Cost Estimators	20	28.57%	6
Electrolytic Plating & Coating Machine Operators	20	28.57%	6
First Line Suprvrs-Agricultral, Forestry & Fishing	23	25.00%	6
Hard Tile Setters	23	25.00%	6
Plastic Molding and Casting Machine Operators	23	25.00%	6
File Clerks	26	22.22%	6
Woodworking Machine Operators & Tenders, Exc.	26	22.22%	6
Sawing Machine Operators and Tenders	31	18.18%	6
Head Sawyers	34	16.67%	6
Roasting, Baking, Drying Mach. Oprs, Food/Tobacco	34	16.67%	6
Systems Analysts, Electronic Data Processing	48	11.76%	6
Artists and Related Workers	54	10.53%	6
Extruding/Forming/Pressing/Compact Mach. Oprs/Tndr	60	9.52%	6
Precision, Compositors, Typesetters, Arrangers	66	8.70%	6
Cutting and Slicing Machine Setters,Oprs/Tenders	83	6.90%	6
Mechanic and Repairer Helpers	105	5.41%	6
All Other Precision Metal Workers	3	100.00%	3
Nonelectrolytic Plating & Coating Machine Operator	3	100.00%	3
Machine Feeders and Offbearers	3	100.00%	3
Budget Analysts	6	50.00%	3
Artists and Commercial Artists	6	50.00%	3
Cooks, Institutional or Cafeteria	6	50.00%	3
Cabinet Makers and Bench Carpenters	6	50.00%	3
Cleaning/Washing/Pickling Equipment Oprs & Tenders	6	50.00%	3
Construction Trades Extractive Worker Helpers	6	50.00%	3
All Other Agricultral, Forestry, Fishing Personnel	9	33.33%	3
Hand Workers, Jewelry and Related Products	9	33.33%	3
Shoe and Leather Workers Repairers, Precision	9	33.33%	3
Teachers, Vocational Education and Training	11	25.00%	3
All Other Management Support Workers	14	20.00%	3
Life Scientists	14	20.00%	3
Weighers, Measurers, Samplers - Recordkeeping	14	20.00%	3
Typesetting, Composing Machine Operators	14	20.00%	3
Separating/Filtering/Clarify./Precip. Mach. Oprs	14	20.00%	3
Writers and Editors	17	16.67%	3
Laundry and Drycleaning Machine Operators	17	16.67%	3
First Line Managers/Supervisors, Clerical	20	14.29%	3
Machinists	20	14.29%	3
Furnace, Kiln, Oven, Drier or Kettle Operators	29	10.00%	3
Offset Lithographic Press Setters and Set-Up Oprs	31	9.09%	3
Helpers, Electricians	37	7.69%	3
Financial Managers	9	.00%	0
Administrative Services Managers	43	.00%	0
All Other Managers and Administrators	51	.00%	0
Purchasing Agents, Exc. Wholesale, Retail, & Farm	14	.00%	0
Industrial Engineers, Exc. Safety	3	.00%	0
Drafters	3	.00%	0
Chemists, Exc. Biochemists	6	.00%	0
Licensed Practical Nurses	14	.00%	0
Procurement Clerks	6	.00%	0
Payroll and Timekeeping Clerks	20	.00%	0

All Other Office Machine Operators	6	.00%	0
Traffic, Shipping, and Receiving Clerks	17	.00%	0
Child Care Workers	3	.00%	0
Animal Caretakers, Exc. Farm	3	.00%	0
First Line Mgrs/Supervrs, Transportation Materials	9	.00%	0
Precision Inspectors, Testers, and Graders	3	.00%	0
Machinery Maintenance Mechanics, Textile Machinery	3	.00%	0
Mobile Heavy Equipment Mechanics, Exc. Engines	3	.00%	0
Farm Equipment Mechanics	3	.00%	0
Aircraft Mechanics	3	.00%	0
Electrical Home Appliances, Power Tool Repairers	3	.00%	0
Watchmakers	3	.00%	0
Mechanical Control Valve Installers & Repairers	3	.00%	0
Plumbers, Pipefitters, and Steamfitters	11	.00%	0
Carpet Installers	3	.00%	0
Extractive and Related Work - Inc. Blasters	3	.00%	0
Tool Grinders, Filers, Sharpeners, and Others	9	.00%	0
Precision Optical Goods Workers	3	.00%	0
Punching Mach. Setters/Set-Up Oprs, Metal/Plastic	3	.00%	0
Numerical Control Machine Tool Operators	11	.00%	0
Letterpress Setters and Set-Up Operators	23	.00%	0
Tire Building Machine Operators	6	.00%	0
Dairy Processing Equipment Operators	9	.00%	0
Chemical Equipment Controllers and Operators	3	.00%	0
Cementing and Gluing Machine Operators/Tenders	11	.00%	0
Painting, Coating, Decorating Workers, Hand	9	.00%	0
Pump Operators	3	.00%	0
Helpers-Brick and Stone Masons and Hard Tile	20	.00%	0
Helpers, Painters, Paperhangers, Plasterers	3	.00%	0
Other Cleaning, Building Services, Exc. Household	0	.00%	0

TABLE 11

NUMBER AND PERCENTAGE OF EMPLOYERS IN THE GUATEMALAN MANUFACTURING SECTOR WHO EITHER HAVE NO PREFERENCE OR DO NOT KNOW WHO SHOULD PROVIDE OCCUPATIONAL TRAINING

OCCUPATIONS	Total Universe Employers	% Don't Know	No. Who Don't Know
Secretaries	1223	38.69%	473
Truck Drivers, Light Delivery Route Workers	704	40.08%	282
Accountants and Auditors	622	38.07%	237
Janitors and Cleaners	493	44.51%	220
Guards and Watch Guards	430	44.37%	191
All Other Clerical and Administrative Personnel	488	35.67%	174
General Managers and Top Executives	462	34.57%	160
Other Helpers, Laborers, Manual Movers	527	29.19%	154
Freight, Stock, and Material Movers, Hand	519	29.12%	151
Shoe Sewing Machine Operators and Tenders	730	20.70%	151
All Other Machine Operators and Tenders	428	32.67%	140
Bookkeeping, Accounting, Auditing Clerks	405	33.80%	137
Sales Representatives, Except Retail	442	26.45%	117
Packaging and Filling Machine Operators	356	29.60%	105
Industrial Production Managers	450	23.42%	105
Salespersons, Retail	271	30.53%	83
First Line Mgrs/Supervrs, Laborers/Material Movers	237	33.73%	80
Production Inspectors, Testers, Graders, Sorters,	202	38.03%	77
Textile Machine Operators and Tenders	314	24.55%	77
Receptionists and Information Clerks	137	50.00%	68
Cashiers	188	31.82%	60
Fabric Apparel Patternmakers, Layout Worckrs	171	33.33%	57
Machinery Maintenance Mechanics	205	26.39%	54
Electricians	148	32.69%	48
Other First Line Mgrs/Supervisors, Production	188	25.76%	48
General Office Clerks	108	42.11%	46
All Other Hand Workers	117	39.02%	46
Carpenters	168	27.12%	46
Personnel, Training, Labor Relations Managers	174	26.23%	46
First Line Supervisors, Production & Operations	231	19.75%	46
Sewing Machine Operators, Garment	211	20.27%	43
Market, Advertising, Public Relations Managers	114	35.00%	40
Painters, Paperhangers, Contruction & Maintenance	137	29.17%	40
All Other Cleaning Building Service Workers	171	23.33%	40
Masons	71	48.00%	34
First Line Managers/Supervisors - Service	88	38.71%	34
Production, Planning, and Expediting Clerks	145	23.53%	34
Gardeners & Groundskeepers, Exc. Farm	66	47.83%	31
Purchasing Managers	86	36.67%	31
Food and Beverage Preparation and Service	103	30.56%	31
Lathe and Turning Machine Tool Setters/Set-Up Oprs	123	25.58%	31
Printing Press Machine Operators and Tenders	123	25.58%	31

Welders and Cutters	148	21.15%	31
Machinery Maintenance Workers	208	15.07%	31
Biological, Agricultural, and Food Technicians	88	32.26%	29
Data Entry Keyers, Exc. Composing	88	32.26%	29
All Other Sales and Related Workers	137	20.83%	29
Extruding/Forming/Pressing/Compact Mach. Oprs/Tndr	60	42.86%	26
Pressing Machine Operators and Tenders	71	36.00%	26
Credit Checkers	94	27.27%	26
Food Preparation Workers	94	27.27%	26
Chemical Equipment Tenders	40	57.14%	23
Industrial Truck and Tractor Operators	68	33.33%	23
Cutting and Slicing Machine Setters,Oprs/Tenders	83	27.59%	23
Automotive Mechanics	108	21.05%	23
Bakers, Manufacturing	128	17.78%	23
Extruding/Forming/Pressing/Compact Mach. Setters	140	16.33%	23
Furnace, Kiln, Oven, Drier or Kettle Operators	29	70.00%	20
Bakers, Bread, and Pastry	77	25.93%	20
Head Sawyers	34	50.00%	17
Helpers, Electricians	37	46.15%	17
Custom Tailors and Sewers	48	35.29%	17
Maintenance Repairers, General Utility	60	28.57%	17
Helpers, Carpenters and Related	77	22.22%	17
Mechanic and Repairer Helpers	105	16.22%	17
Administrative Services Managers	43	33.33%	14
Metal Molding/Core Making/Casting Mach. Oprs/Tndrs	43	33.33%	14
All Other Managers and Administrators	51	27.78%	14
Cutters and Trimmers, Hand	51	27.78%	14
Artists and Related Workers	54	26.32%	14
First Line Supervisors and Manager/Supervisors	57	25.00%	14
Coating, Printing, Spraying Machine Setters/Set-Up	63	22.73%	14
Assemblers and Fabricators, Exc. Machine	74	19.23%	14
Licensed Practical Nurses	14	80.00%	11
First Line Managers/Supervisors, Clerical	20	57.14%	11
Roasting, Baking, Drying Mach. Oprs, Food/Tobacco	34	33.33%	11
Vehicle Washers and Equipment Cleaners	37	30.77%	11
Designers, Exc. Interior Designers	40	28.57%	11
Sales Representatives, Scientific and Related	40	28.57%	11
Photographic Processing Machine Operators	46	25.00%	11
Systems Analysts, Electronic Data Processing	48	23.53%	11
Bookbinders	103	11.11%	11
Heat Treating, Annealing, Tempering Mach. Opers	103	11.11%	11
Life Scientists	14	60.00%	9
Laundry and Drycleaning Machine Operators	17	50.00%	9
Cost Estimators	20	42.86%	9
Machinists	20	42.86%	9
Electrolytic Plating & Coating Machine Operators	20	42.86%	9
Helpers-Brick and Stone Masons and Hard Tile	20	42.86%	9
Machine Forming Operators/Tenders, Metal & Plastic	23	37.50%	9
Plastic Molding and Casting Machine Operators	23	37.50%	9
Upholsterers	26	33.33%	9
Sawing Machine Operators and Tenders	31	27.27%	9

Cooking Machine Operators and Tenders	37	23.08%	9
Cooling and Freezing Equipment Operators/Tenders	37	23.08%	9
Automotive Body and Related Repairers	57	15.00%	9
Precision, Compositors, Typesetters, Arrangers	66	13.04%	9
Coating, Painting, Spraying Machine Oprs/Tenders	66	13.04%	9
Photoengraving and Lithography	83	10.34%	9
Teachers, Vocational Education and Training	11	50.00%	6
Statistical Clerks	11	50.00%	6
Purchasing Agents, Exc. Wholesale, Retail, & Farm	14	40.00%	6
All Other Management Support Workers	14	40.00%	6
Typesetting, Composing Machine Operators	14	40.00%	6
Separating/Filtering/Clarify./Precip. Mach. Oprs	14	40.00%	6
Payroll and Timekeeping Clerks	20	28.57%	6
File Clerks	26	22.22%	6
Woodworking Machine Operators & Tenders, Exc.	26	22.22%	6
Driver/Sales Workers	26	22.22%	6
First Line Managers/Supervisors	31	18.18%	6
Offset Lithographic Press Setters and Set-Up Oprs	31	18.18%	6
All Other Mechanics, Installers and Repairers	51	11.11%	6
Crushing/Grinding/Mixing/Blending Mach. Oprs/Tndrs	71	8.00%	6
Child Care Workers	3	100.00%	3
Precision Inspectors, Testers, and Graders	3	100.00%	3
Electrical Home Appliances, Power Tool Repairers	3	100.00%	3
Extractive and Related Work - Inc. Blasters	3	100.00%	3
Precision Optical Goods Workers	3	100.00%	3
Artists and Commercial Artists	6	50.00%	3
Procurement Clerks	6	50.00%	3
All Other Office Machine Operators	6	50.00%	3
Cabinet Makers and Bench Carpenters	6	50.00%	3
Cleaning/Washing/Pickling Equipment Oprs & Tenders	6	50.00%	3
Construction Trades Extractive Worker Helpers	6	50.00%	3
Financial Managers	9	33.33%	3
Graders and Sorters, Agricultural Products	9	33.33%	3
All Other Agricultral, Forestry, Fishing Personnel	9	33.33%	3
First Line Mgrs/Supervrs, Transportation Materials	9	33.33%	3
Tool Grinders, Filers, Sharpeners, and Others	9	33.33%	3
Dairy Processing Equipment Operators	9	33.33%	3
Small Engine Specialist	11	25.00%	3
Numerical Control Machine Tool Operators	11	25.00%	3
Cementing and Gluing Machine Operators/Tenders	11	25.00%	3
Writers and Editors	17	16.67%	3
Slaughterers and Butchers	17	16.67%	3
First Line Suprvrs-Agricultral, Forestry & Fishing	23	12.50%	3
Hard Tile Setters	23	12.50%	3
Letterpress Setters and Set-Up Operators	23	12.50%	3
Electrical, Electronic Engineering Technicians	29	10.00%	3
Billing, Cost and Rate Clerks	29	10.00%	3
Textile Bleaching and Dyeing Machine Operators	34	8.33%	3
Molders and Casters, Hand	37	7.69%	3
Other Cleaning, Building Services, Exc. Household	0	.00%	0
Budget Analysts	6	.00%	0

Industrial Engineers, Exc. Safety	3	.00%	0
Drafters	3	.00%	0
Chemists, Exc. Biochemists	6	.00%	0
Meat, Poultry, Fish Cutters and Trimmers, Hand	11	.00%	0
Weighers, Measurers, Samplers - Recordkeeping	14	.00%	0
Traffic, Shipping, and Receiving Clerks	17	.00%	0
Cooks, Institutional or Cafeteria	6	.00%	0
Animal Caretakers, Exc. Farm	3	.00%	0
Machinery Maintenance Mechanics, Textile Machinery	3	.00%	0
Mobile Heavy Equipment Mechanics, Exc. Engines	3	.00%	0
Farm Equipment Mechanics	3	.00%	0
Aircraft Mechanics	3	.00%	0
Watchmakers	3	.00%	0
Mechanical Control Valve Installers & Repairers	3	.00%	0
Plumbers, Pipefitters, and Steamfitters	11	.00%	0
Carpet Installers	3	.00%	0
Jewelers and/or Silversmiths	23	.00%	0
Hand Workers, Jewelry and Related Products	9	.00%	0
All Other Precision Metal Workers	3	.00%	0
Shoe and Leather Workers Repairers, Precision	9	.00%	0
Drilling Boring Machine Tools Setters/Set-Up Oprs	6	.00%	0
Punching Mach. Setters/Set-Up Oprs, Metal/Plastic	3	.00%	0
Press and Press Brake Machine Setters, Set-Up	6	.00%	0
Nonelectrolytic Plating & Coating Machine Operator	3	.00%	0
Tire Building Machine Operators	6	.00%	0
Chemical Equipment Controllers and Operators	3	.00%	0
Painting, Coating, Decorating Workers, Hand	9	.00%	0
Pump Operators	3	.00%	0
Helpers, Painters, Paperhangers, Plasterers	3	.00%	0
Machine Feeders and Offbearers	3	.00%	0

TABLE 12

PREFERENCES OF EMPLOYERS IN THE GUATEMALAN MANUFACTURING SECTOR FOR OCCUPATIONAL TRAINING TO BE PROVIDED BY A SOURCE OTHER THAN TRAINING INSTITUTIONS OR THEMSELVES

OCCUPATIONS	Total Universe Employers	% Prefer Other	No. Who Prefer Other
Secretaries	1223	.70%	9
Accountants and Auditors	622	.92%	6
Life Scientists	14	20.00%	3
Separating/Filtering/Clarify./Precip. Mach. Oprs	14	20.00%	3
Helpers, Carpenters and Related	77	3.70%	3
Credit Checkers	94	3.03%	3
Market, Advertising, Public Relations Managers	114	2.50%	3
All Other Cleaning Building Service Workers	171	1.67%	3
Machinery Maintenance Workers	208	1.37%	3
Sewing Machine Operators, Garment	211	1.35%	3
All Other Machine Operators and Tenders	428	.67%	3
Industrial Production Managers	450	.63%	3
General Managers and Top Executives	462	.62%	3
Janitors and Cleaners	493	.58%	3
Other Helpers, Laborers, Manual Movers	527	.54%	3
Shoe Sewing Machine Operators and Tenders	730	.39%	3
Other Cleaning, Building Services, Exc. Household	0	.00%	0
Financial Managers	9	.00%	0
Personnel, Training, Labor Relations Managers	174	.00%	0
Purchasing Managers	86	.00%	0
Administrative Services Managers	43	.00%	0
All Other Managers and Administrators	51	.00%	0
Budget Analysts	6	.00%	0
Purchasing Agents, Exc. Wholesale, Retail, & Farm	14	.00%	0
Cost Estimators	20	.00%	0
All Other Management Support Workers	14	.00%	0
Industrial Engineers, Exc. Safety	3	.00%	0
Electrical, Electronic Engineering Technicians	29	.00%	0
Drafters	3	.00%	0
Chemists, Exc. Biochemists	6	.00%	0
Biological, Agricultural, and Food Technicians	88	.00%	0
Systems Analysts, Electronic Data Processing	48	.00%	0
Teachers, Vocational Education and Training	11	.00%	0
Licensed Practical Nurses	14	.00%	0
Writers and Editors	17	.00%	0
Artists and Commercial Artists	6	.00%	0
Artists and Related Workers	54	.00%	0
Designers, Exc. Interior Designers	40	.00%	0
Meat, Poultry, Fish Cutters and Trimmers, Hand	11	.00%	0
First Line Managers/Supervisors	31	.00%	0
Sales Representatives, Scientific and Related	40	.00%	0
Sales Representatives, Except Retail	442	.00%	0

Salespersons, Retail	271	.00%	0
Cashiers	188	.00%	0
All Other Sales and Related Workers	137	.00%	0
First Line Managers/Supervisors, Clerical	20	.00%	0
Receptionists and Information Clerks	137	.00%	0
File Clerks	26	.00%	0
Procurement Clerks	6	.00%	0
Statistical Clerks	11	.00%	0
Bookkeeping, Accounting, Auditing Clerks	405	.00%	0
Payroll and Timekeeping Clerks	20	.00%	0
Billing, Cost and Rate Clerks	29	.00%	0
General Office Clerks	108	.00%	0
Data Entry Keyers, Exc. Composing	88	.00%	0
All Other Office Machine Operators	6	.00%	0
Production, Planning, and Expediting Clerks	145	.00%	0
Weighers, Measurers, Samplers - Recordkeeping	14	.00%	0
Traffic, Shipping, and Receiving Clerks	17	.00%	0
All Other Clerical and Administrative Personnel	488	.00%	0
First Line Managers/Supervisors - Service	88	.00%	0
Guards and Watch Guards	430	.00%	0
Food and Beverage Preparation and Service	103	.00%	0
Bakers, Bread, and Pastry	77	.00%	0
Cooks, Institutional or Cafeteria	6	.00%	0
Food Preparation Workers	94	.00%	0
Child Care Workers	3	.00%	0
First Line Suprvrs-Agricultral, Forestry & Fishing	23	.00%	0
Graders and Sorters, Agricultural Products	9	.00%	0
Gardeners & Groundskeepers, Exc. Farm	66	.00%	0
Animal Caretakers, Exc. Farm	3	.00%	0
All Other Agricultral, Forestry, Fishing Personnel	9	.00%	0
First Line Supervisors and Manager/Supervisors	57	.00%	0
First Line Supervisors, Production & Operations	231	.00%	0
First Line Mgrs/Supervrs, Transportation Materials	9	.00%	0
First Line Mgrs/Supervrs, Laborers/Material Movers	237	.00%	0
Other First Line Mgrs/Supervisors, Production	188	.00%	0
Precision Inspectors, Testers, and Graders	3	.00%	0
Production Inspectors, Testers, Graders, Sorters,	202	.00%	0
Machinery Maintenance Mechanics	205	.00%	0
Machinery Maintenance Mechanics, Textile Machinery	3	.00%	0
Maintenance Repairers, General Utility	60	.00%	0
Automotive Mechanics	108	.00%	0
Automotive Body and Related Repairers	57	.00%	0
Mobile Heavy Equipment Mechanics, Exc. Engines	3	.00%	0
Farm Equipment Mechanics	3	.00%	0
Aircraft Mechanics	3	.00%	0
Small Engine Specialist	11	.00%	0
Electrical Home Appliances, Power Tool Repairers	3	.00%	0
Watchmakers	3	.00%	0
Mechanical Control Valve Installers & Repairers	3	.00%	0
All Other Mechanics, Installers and Repairers	51	.00%	0
Carpenters	168	.00%	0

Electricians	148	.00%	0
Masons	71	.00%	0
Hard Tile Setters	23	.00%	0
Painters, Paperhangers, Contruction & Maintenance	137	.00%	0
Plumbers, Pipefitters, and Steamfitters	11	.00%	0
Carpet Installers	3	.00%	0
Extractive and Related Work - Inc. Blasters	3	.00%	0
Machinists	20	.00%	0
Tool Grinders, Filers, Sharpeners, and Others	9	.00%	0
Jewelers and/or Silversmiths	23	.00%	0
Hand Workers, Jewelry and Related Products	9	.00%	0
All Other Precision Metal Workers	3	.00%	0
Cabinet Makers and Bench Carpenters	6	.00%	0
Fabric Apparel Patternmakers, Layout Worekrs	171	.00%	0
Custom Tailors and Sewers	48	.00%	0
Upholsterers	26	.00%	0
Shoe and Leather Workers Repairers, Precision	9	.00%	0
Precision, Compositors, Typesetters, Arrangers	66	.00%	0
Bookbinders	103	.00%	0
Slaughterers and Butchers	17	.00%	0
Bakers, Manufacturing	128	.00%	0
Precision Optical Goods Workers	3	.00%	0
Lathe and Turning Machine Tool Setters/Set-Up Oprs	123	.00%	0
Drilling Boring Machine Tools Setters/Set-Up Oprs	6	.00%	0
Punching Mach. Setters/Set-Up Oprs, Metal/Plastic	3	.00%	0
Press and Press Brake Machine Setters, Set-Up	6	.00%	0
Machine Forming Operators/Tenders, Metal & Plastic	23	.00%	0
Numerical Control Machine Tool Operators	11	.00%	0
Plastic Molding and Casting Machine Operators	23	.00%	0
Metal Molding/Core Making/Casting Mach. Oprs/Tndrs	43	.00%	0
Electrolytic Plating & Coating Machine Operators	20	.00%	0
Nonelectrolytic Plating & Coating Machine Operator	3	.00%	0
Heat Treating, Annealing, Tempering Mach. Opers	103	.00%	0
Head Sawyers	34	.00%	0
Sawing Machine Operators and Tenders	31	.00%	0
Woodworking Machine Operators & Tenders, Exc.	26	.00%	0
Offset Lithographic Press Setters and Set-Up Oprs	31	.00%	0
Letterpress Setters and Set-Up Operators	23	.00%	0
Photoengraving and Lithography	83	.00%	0
Typesetting, Composing Machine Operators	14	.00%	0
Printing Press Machine Operators and Tenders	123	.00%	0
Textile Machine Operators and Tenders	314	.00%	0
Textile Bleaching and Dyeing Machine Operators	34	.00%	0
Laundry and Drycleaning Machine Operators	17	.00%	0
Pressing Machine Operators and Tenders	71	.00%	0
Photographic Processing Machine Operators	46	.00%	0
Tire Building Machine Operators	6	.00%	0
Cooking Machine Operators and Tenders	37	.00%	0
Roasting, Baking, Drying Mach. Oprs, Food/Tobacco	34	.00%	0
Furnace, Kiln, Oven, Drier or Kettle Operators	29	.00%	0
Cooling and Freezing Equipment Operators/Tenders	37	.00%	0

Dairy Processing Equipment Operators	9	.00%	0
Chemical Equipment Controllers and Operators	3	.00%	0
Chemical Equipment Tenders	40	.00%	0
Cutting and Slicing Machine Setters,Oprs/Tenders	83	.00%	0
Coating, Printing, Spraying Machine Setters/Set-Up	63	.00%	0
Coating, Painting, Spraying Machine Oprs/Tenders	66	.00%	0
Cementing and Gluing Machine Operators/Tenders	11	.00%	0
Cleaning/Washing/Pickling Equipment Oprs & Tenders	6	.00%	0
Crushing/Grinding/Mixing/Blending Mach. Oprs/Tndrs	71	.00%	0
Extruding/Forming/Pressing/Compact Mach. Oprs/Tndr	60	.00%	0
Extruding/Forming/Pressing/Compact Mach. Setters	140	.00%	0
Packaging and Filling Machine Operators	356	.00%	0
Welders and Cutters	148	.00%	0
Cutters and Trimmers, Hand	51	.00%	0
Molders and Casters, Hand	37	.00%	0
Painting, Coating, Decorating Workers, Hand	9	.00%	0
Assemblers and Fabricators, Exc. Machine	74	.00%	0
All Other Hand Workers	117	.00%	0
Truck Drivers, Light Delivery Route Workers	704	.00%	0
Driver/Sales Workers	26	.00%	0
Industrial Truck and Tractor Operators	68	.00%	0
Pump Operators	3	.00%	0
Mechanic and Repairer Helpers	105	.00%	0
Construction Trades Extractive Worker Helpers	6	.00%	0
Helpers Brick and Stone Masons and Hard Tile	20	.00%	0
Helpers, Electricians	37	.00%	0
Helpers, Painters, Paperhangers, Plasterers	3	.00%	0
Machine Feeders and Offbearers	3	.00%	0
Freight, Stock, and Material Movers, Hand	519	.00%	0
Vehicle Washers and Equipment Cleaners	37	.00%	0

TABLE 13

SIZE OF GUATEMALAN MANUFACTURING INDUSTRIES BY NUMBER OF EMPLOYEES

ECONOMIC ACTIVITY	SAMPLE 1988	UNIVERSE 1988	SIZE W/IN SECTOR
Chemicals and Allied Products	4428	12624	13.38%
Manufacturing of Textile Mill Products	3012	8587	9.10%
Selected Food Products	2951	8413	8.91%
Drawback Industries	2474	7053	7.47%
Manufacturing of Apparel and Other Textiles	2470	7042	7.46%
The Beverage Industry	2311	6589	6.98%
Printing, Publishing and Allied Industries	1973	5625	5.96%
Mfg. of Nonmetalic Minerals, Exc. Petro & Carbon	1782	5080	5.38%
Manufacturing of Footwear, Exc. Rubber	1543	4399	4.66%
Transportation Equipment Industries	1227	3498	3.71%
Preserved Fruits and Vegetables	1182	3370	3.57%
Manufacturing of Bakery Products	1082	3085	3.27%
Fabricated Metal Products Industries	853	2432	2.58%
Manufacturing of Paper and Allied Products	844	2406	2.55%
Manufacturing of Furniture and Fixtures	841	2398	2.54%
Primary Metals Industries	719	2050	2.17%
Manufacturing of Rubber Products	694	1979	2.10%
Meat and Dairy Products	669	1907	2.02%
Lumber and Wood Products, Exc. Furniture	620	1768	1.87%
Miscellaneous Manufacturing Industries	533	1520	1.61%
Mfg. of Electrical & Electronic Equipment	492	1403	1.49%
Manufacturing of Machinery, Exc. Electrical	228	650	.69%
Leather and Related Products, Exc. Footwear	174	496	.53%
TOTALS	33102	94372	100.00%
MEANS	1439	4103	4.35%
STANDARD DEVIATION	1051	2997	3.18%

TABLE 14

SIZE OF GUATEMALAN MANUFACTURING INDUSTRIES BY NUMBER OF FIRMS - 1988

ECONOMIC ACTIVITY	SAMPLE 1988	UNIVERSE 1988	SIZE W/IN SECTOR	SIGNI
Chemicals and Allied Products	87	248	30.81%*	>.05
Transportation Equipment Industries	77	220	27.27%	
Manufacturing of Apparel and Other Textiles	66	188	23.37%	
Printing, Publishing and Allied Industries	65	185	23.02%	
Mfg. of Nonmetalic Minerals, Exc. Petro & Carbon	60	171	21.25%	
Selected Food Products	56	160	19.83%	
Manufacturing of Bakery Products	54	154	19.12%	
Manufacturing of Textile Mill Products	48	137	17.00%	
Manufacturing of Footwear, Exc. Rubber	37	105	13.10%	
Fabricated Metal Products Industries	34	97	12.04%	
Manufacturing of Furniture and Fixtures	32	91	11.33%	
Miscellaneous Manufacturing Industries	30	86	10.62%	
Lumber and Wood Products, Exc. Furniture	28	80	9.92%	
Mfg. of Electrical & Electronic Equipment	25	71	8.85%	
Drawback Industries	14	40	4.96%	
Manufacturing of Rubber Products	14	40	4.96%	
Manufacturing of Paper and Allied Products	12	34	4.25%	
Primary Metals Industries	12	34	4.25%	
The Beverage Industry	11	31	3.90%	
Preserved Fruits and Vegetables	11	31	3.90%	
Meat and Dairy Products	11	31	3.90%	
Manufacturing of Machinery, Exc. Electrical	11	31	3.90%	
Leather and Related Products, Exc. Footwear	10	29	3.54%	
TOTALS	805	2295	285.09%	
MEANS	35	100	12.40%	
STANDARD DEVIATION	24	68	8.41%	

TABLE 15

GROWTH RATE OF GUATEMALAN MANUFACTURING INDUSTRIES
1986 - 1988 BY NUMBER OF EMPLOYEES

ECONOMIC ACTIVITY	UNIVERSE 1986	UNIVERSE 1988	GROWTH WITHIN INDUSTRY	GROWT WITHI SECTO
Drawback Industries	2651	7053	166.02%	22.15'
Selected Food Products	6429	8413	30.86%	9.98'
Manufacturing of Apparel and Other Textiles	5186	7042	35.79%	9.34'
Chemicals and Allied Products	10999	12624	14.77%	8.18'
The Beverage Industry	5240	6589	25.73%	6.79'
Manufacturing of Textile Mill Products	7333	8587	17.11%	6.31'
Mfg. of Nonmetalic Minerals,Exc. Petro & Carbon	4111	5080	23.58%	4.88'
Printing, Publishing and Allied Industries	4727	5625	19.00%	4.52'
Manufacturing of Paper and Allied Products	1634	2406	47.29%	3.89'
Preserved Fruits and Vegetables	2643	3370	27.51%	3.66'
Manufacturing of Rubber Products	1277	1979	54.91%	3.53'
Manufacturing of Furniture and Fixtures	1742	2398	37.64%	3.30'
Primary Metals Industries	1585	2050	29.32%	2.34'
Manufacturing of Bakery Products	2725	3085	13.18%	1.81'
Fabricated Metal Products Industries	2107	2432	15.43%	1.64'
Meat and Dairy Products	1585	1907	20.32%	1.62'
Transportation Equipment Industries	3222	3498	8.56%	1.39'
Mfg. of Electrical & Electronic Equipment	1138	1403	23.31%	1.33'
Lumber and Wood Products, Exc. Furniture	1520	1768	16.32%	1.25'
Manufacturing of Footwear, Exc. Rubber	4202	4399	4.68%	.99'
Miscellaneous Manufacturing Industries	1346	1520	12.92%	.88'
Manufacturing of Machinery, Exc. Electrical	596	650	9.09%	.27'
Leather and Related Products, Exc. Footwear	502	496	-1.14%	-.03%
TOTALS	74498	94372	652.25%	100.00%
MEANS	3239	4103	28.36%	.00%
STANDARD DEVIATION	2473	2997	32.07%	4.72'

TABLE 16

GROWTH RATE OF GUATEMALAN MANUFACTURING INDUSTRIES
BY NUMBER OF NEW FIRMS 1986-88

ECONOMIC ACTIVITY	UNIV. NEW	UNIV. ALL	NEW W/IN INDUSTRY	NEW W/IN SECTOR
Manufacturing of Apparel and Other Textiles	34	188	18.18%	13.06%
Chemicals and Allied Products	29	248	11.49%	10.88%
Manufacturing of Furniture and Fixtures	26	91	28.13%	9.79%
Drawback Industries	26	40	64.29%	9.79%
Printing, Publishing and Allied Industries	20	185	10.77%	7.62%
Manufacturing of Textile Mill Products	17	137	12.50%	6.53%
Selected Food Products	14	160	8.93%	5.44%
Mfg of Nonmetalic Minerals, Exc. Petro/Carbon	14	171	8.33%	5.44%
Lumber and Wood Products, Exc. Furniture	11	80	14.29%	4.35%
Transportation Equipment Industries	11	220	5.19%	4.35%
Manufacturing of Footwear, Exc. Rubber	9	105	8.11%	3.26%
Manufacturing of Rubber Products	9	40	21.43%	3.26%
Manufacturing of Machinery, Exc. Electrical	9	31	27.27%	3.26%
Manufacturing of Bakery Products	6	154	3.70%	2.18%
Leather and Related Products, Exc. Footwear	6	29	20.00%	2.18%
Fabricated Metal Products Industries	6	97	5.88%	2.18%
Mfg. of Electrical & Electronic Equipment	6	71	8.00%	2.18%
Miscellaneous Manufacturing Industries	6	86	6.67%	2.18%
Preserved Fruits and Vegetables	3	31	9.09%	1.09%
Manufacturing of Paper and Allied Products	3	34	8.33%	1.09%
Meat and Dairy Products	0	31	.00%	.00%
The Beverage Industry	0	31	.00%	.00%
Primary Metals Industries	0	34	.00%	.00%
TOTALS	262	2295		100.11%
MEANS	11	100	13.07%	4.35%
STANDARD DEVIATION	9.47	67.7	13.33%	3.62%

TABLE 17

NUMBER OF SMALL FIRMS WITHIN GUATEMALAN MANUFACTURING INDUSTRIES

ECONOMIC ACTIVITY	UNIV. SMALL	UNIV. ALL	% W/IN INDUSTRY	% W/IN SECTOR
Transportation Equipment Industries	182	220	83.12%	82.19%
Chemicals and Allied Products	148	248	59.77%	66.78%
Printing, Publishing and Allied Industries	145	185	78.46%	65.49%
Manufacturing of Apparel and Other Textiles	131	188	69.70%	59.07%
Manufacturing of Bakery Products	128	154	83.33%	57.79%
Mfg. Nonmetalic Minerals, Exc. Petro/Carbon	117	171	68.33%	52.65%
Selected Food Products	86	160	53.57%	38.53%
Miscellaneous Manufacturing Industries	71	86	83.33%	32.11%
Fabricated Metal Products Industries	71	97	73.53%	32.11%
Manufacturing of Footwear, Exc. Rubber	71	105	67.57%	32.11%
Manufacturing of Furniture and Fixtures	68	91	75.00%	30.82%
Manufacturing of Textile Mill Products	66	137	47.92%	29.54%
Lumber and Wood Products, Exc. Furniture	57	80	71.43%	25.68%
Mfg. of Electrical & Electronic Equipment	48	71	68.00%	21.83%
Manufacturing of Machinery, Exc. Electrical	26	31	81.82%	11.56%
Leather and Related Products, Exc. Footwear	23	29	80.00%	10.27%
Manufacturing of Rubber Products	23	40	57.14%	10.27%
Primary Metals Industries	20	34	58.33%	8.99%
Preserved Fruits and Vegetables	17	31	54.55%	7.71%
Meat and Dairy Products	17	31	54.55%	7.71%
Manufacturing of Paper and Allied Products	14	34	41.67%	6.42%
The Beverage Industry	9	31	27.27%	3.85%
Drawback Industries	0	40	.00%	.00%
TOTALS	1257	1833		566.33%
MEANS	84	122	70.78%	37.76%
STANDARD DEVIATION	39	60	10.24%	17.78%

TABLE 18

NUMBER OF LARGE FIRMS WITHIN GUATEMALAN MANUFACTURING INDUSTRIES

ECONOMIC ACTIVITY	UNIV. LARGE	UNIV. ALL	% W/IN INDUSTRY	% W/IN SECTOR
Chemicals and Allied Products	40	248	16.09%	17.98%
Manufacturing of Textile Mill Products	29	137	20.83%	12.84%
Drawback Industries	26	40	64.29%	11.56%
Selected Food Products	23	160	14.29%	10.27%
Manufacturing of Apparel and Other Textiles	20	188	10.61%	8.99%
The Beverage Industry	11	31	36.36%	5.14%
Manufacturing of Paper and Allied Products	11	34	33.33%	5.14%
Mfg. Nonmetalic Minerals, Exc. Petro/Carbon	11	171	6.67%	5.14%
Printing, Publishing and Allied Industries	11	185	6.15%	5.14%
Preserved Fruits and Vegetables	9	31	27.27%	3.85%
Meat and Dairy Products	9	31	27.27%	3.85%
Primary Metals Industries	9	34	25.00%	3.85%
Manufacturing of Rubber Products	9	40	21.43%	3.85%
Fabricated Metal Products Industries	9	97	8.82%	3.85%
Manufacturing of Footwear, Exc. Rubber	9	105	8.11%	3.85%
Manufacturing of Furniture and Fixtures	6	91	6.25%	2.57%
Manufacturing of Bakery Products	6	154	3.70%	2.57%
Lumber and Wood Products, Exc. Furniture	3	80	3.57%	1.28%
Miscellaneous Manufacturing Industries	3	86	3.33%	1.28%
Transportation Equipment Industries	3	220	1.30%	1.28%
Leather and Related Products, Exc. Footwear	0	29	.00%	.00%
Manufacturing of Machinery, Exc. Electrical	0	31	.00%	.00%
Mfg. of Electrical & Electronic Equipment	0	71	.00%	.00%
TOTALS	254	2192		114.29%
MEANS	12	104	16.41%	5.44%
STANDARD DEVIATION	10	69	15.11%	4.36%

TABLE 19

STABILITY OF GUATEMALAN MANUFACTURING INDUSTRIES
BY NUMBER OF OLD FIRMS - 1988

ECONOMIC ACTIVITY	UNIV. OLD	UNIV. ALL	% W/IN INDUSTRY	% W/IN SECTOR
Selected Food Products	74	160	46.43%	10.85%
Chemicals and Allied Products	74	248	29.89%	10.85%
Mfg of Nonmetalic Minerals, Exc. Petro/Carbon	71	171	41.67%	10.44%
Transportation Equipment Industries	66	220	29.87%	9.60%
Printing, Publishing and Allied Industries	60	185	32.31%	8.77%
Manufacturing of Apparel and Other Textiles	40	188	21.21%	5.84%
Manufacturing of Textile Mill Products	37	137	27.08%	5.43%
Miscellaneous Manufacturing Industries	37	86	43.33%	5.43%
Lumber and Wood Products, Exc. Furniture	34	80	42.86%	5.01%
Fabricated Metal Products Industries	29	97	29.41%	4.17%
The Beverage Industry	26	31	81.82%	3.76%
Manufacturing of Furniture and Fixtures	26	91	28.13%	3.76%
Mfg. of Electrical & Electronic Equipment	23	71	32.00%	3.34%
Manufacturing of Bakery Products	22	154	14.29%	3.22%
Manufacturing of Footwear, Exc. Rubber	17	105	16.22%	2.50%
Leather and Related Products, Exc. Footwear	14	29	50.00%	2.09%
Primary Metals Industries	11	34	33.33%	1.67%
Meat and Dairy Products	6	31	19.13%	.88%
Manufacturing of Paper and Allied Products	6	34	16.67%	.83%
Manufacturing of Rubber Products	6	40	14.29%	.83%
Manufacturing of Machinery, Exc. Electrical	3	31	9.09%	.42%
Preserved Fruits and Vegetables	2	31	6.38%	.29%
Drawback Industries	0	40	.00%	.00%
TOTALS	683	2295		99.98%
MEANS	30	100	28.93%	4.35%
STANDARD DEVIATION	23.8	67.7	17.19%	3.49%

ANNEX C

ASSESSMENT OF TRAINING CAPABILITIES OF PUBLIC AND PRIVATE INSTITUTIONS IN GUATEMALA

by
Dr. Louis E. Saavedra

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ASSESSMENT OF TRAINING CAPABILITIES OF PUBLIC AND PRIVATE INSTITUTIONS IN GUATEMALA

By Louis E. Saavedra, Consultant
Academy for Educational Development

Executive Summary

Nonformal skills training in Guatemala is mainly delivered by the Ministry of Labor through INTECAP (Instituto Tecnico de Capacitacion y Productividad). They graduate about 1000 persons annually in 20 specialties. Also functioning in this field are small PVOs (Private Voluntary Organizations) working at the arts and crafts level.

The formal education system is divided into 7 years of elementary followed by 6 years of secondary education (The first three years are referred to as "basico" and the last two or three years are referred to as "diversificado." Students may obtain a high school diploma (bachiller) in the last two or three years of the six years of secondary education. The entire six years of secondary education are also referred to as "educacion media." Industrial arts are offered at about 40 ciclo basico schools. One private and six public secondary schools offer a trades diploma (bachiller industrial). Entry level training is provided about 2000 students a year, concentrated around six areas: 15.9% in metal mechanics; 16.1% in drafting, 10.2 in radio and TV, 16% in electricity, 15.1% in auto mechanics, and 7% in construction trades. About 400 students are graduated from the industrial high schools each year.

At the postsecondary technical level, a women's school offers programs in hospitality management and design (fashion, interior, and graphic).

More than 90% of the budget for the industrial high schools goes to wages and benefits leaving very little for other operational expenses. The schools have few books or instructional materials. The trades instructors are high school graduates. Other than some short courses, few trades teachers have any other kind of higher education.

INTECAP is a well-funded skills training organization which operates six major installations and several smaller attendance centers. Its training is 16% in the agricultural sector, 72% in the industrial area, and 12% in commercial.

Neither the high schools nor INTECAP have quickstart training capacity because of the long lead time in their programming and lack of discretionary funds budgeting.

INTECAP provides technical assistance to about 1500 firms annually, but some requests (such as supervisory training for garment factories) are beyond INTECAP's capability. The drawback industry trade association is satisfied with its present supply of workers but expects shortages at supervisor and mechanics level as the industry grows.

With a contracting economy through 1986, few unmet needs surfaced. An estimated economic growth of 2.8% in 1987 made little impact on the available

labor supply.

Training beyond entry level is minimal. INTECAP considers only 12% of its training as extending beyond the semi-skilled level, and none of the high schools reach beyond the semi-skilled level.

The high school training capacity is nearing liquidation except at Mazatenango where a major donation from Germany is expected to bring that high school back to state-of-the-art in the fields it offers.

While INTECAP has a budget that is nearly five times that of all the industrial high schools combined, its "delivery system" cost per unit is not much higher than at the industrial high schools, Q.27.60 vs. Q.23.59.

Many low cost alternatives for donor aid exist which would maintain a response capability at the subject institutions until such a time as a recovering economy in Guatemala would justify a major investment based on demand for skilled workers by private enterprise.

Without donor aid, the industrial high school skills training capacity may be lost entirely within the next four years.

Without donor aid, it is unlikely that the delivery system represented by INTECAP can be fine-tuned to the responsiveness required to regain its credibility with the private sector or to respond to new skills training demanded by a recovering economy.

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I. INTRODUCTION

The work of the consultant was initiated under the assumption that a shortage of skills training existed in Guatemala. Because of existing projects in many areas, it was decided to narrow the scope of the assessment to exclude such well addressed areas as agriculture, commercial (which includes secretarial, accounting, banking, sales, and computer training), government employment, and the informal labor market. The latter is considered as temporary, underemployment of persons who undertake some self-employment, while looking for more permanent employment. This assumption about marginal self-employment is not meant to dismiss such work as inconsequential since some efforts at self-employment do evolve into substantial microenterprises.

The assessment was designed as an independent study as compared to one done in collaboration with private enterprise because it was believed that the involvement of private enterprise at the survey stage might unduly bias the result according to the vested interests normally represented by private industry.

The two conflicting views which the study was to try to accommodate was the view that the skills training assessment should be demand driven vs. supply driven. Of the two views, the demand side was to receive the major emphasis. This was accomplished by making provisions for ascertaining the unmet training needs of private enterprise through an extensive survey of manpower status in a sample that included 810 companies. The survey of companies was to provide both immediate training needs and, if appropriate, longer term institution building needs.

An important part of the demand side considerations was the element of attempting to detect training needs in economic growth subsectors and the key training needs in as many of these subsectors as possible

The impact of these considerations on the skills training assessment consultant was that the consultant was to begin the assessment of institutions presumed to be deliverers of training. At first, many institutions were included in the proposed sample of training institutions, but the initial survey of such institutions led to the quick deletion of those schools operating at the junior high (ciclo basico) and elementary school level.

The reason for the deletion of these institutions from consideration in the skills training assessment was that at the elementary and junior high level, the training did not reach to the skills training level but reached simply to orientation or exploratory industrial arts exposure in traditional areas of electricity, metals, woods, and home economics.

From the initial survey of 15 institutions in the consultant's first phase of field work, it was determined that the presumed deliverers of skills training were the diversified high schools offering the diploma called

bachillerato industrial and the quick start and/or nonformal training offered by INTECAP (Instituto Tecnico de Capacitacion y Productividad).

A third group of institutions that came to the attention of the consultant as the study developed was the existence of Private Voluntary Organizations providing very elementary skills training but which showed promise, particularly if some consideration is given to providing skills training for the informal labor market.

The skills training assessment was further narrowed by deleting from the project the element of other than skills training. For example, management training was not be considered as part of the survey. Management training for small and medium sized firms was being addressed under the Private Enterprise Development Project. The Asociacion de Gerentes de Guatemala, a private sector management training institution, was regarded as doing a satisfactory job of meeting the management training needs of most firms. This focus did provide some very close decisions on certain expressions of training needs, such as supervisory training for production line supervisors at garment and shoe factories.

A sound framework for placing the skills training assessment into perspective was suggested by Martinez (footnote: A PERSPECTIVE ON SKILL TRAINING NEEDS AND LABOR MARKETS IN THE GUATEMALAN ECONOMY, Jorge Martinez, December, 1987) and is summarized as follows:

1. Firms will "demand" a great range of skills if the cost of the skills is perceived to be very low or no cost at all. "Effective" demand is a matter of jobs for which the firm would be willing to pay all of the training and wage costs.

2. Skills need to be considered in two categories. One is general training which the worker can carry from firm to firm; the other is firm specific skills. Martinez says firms have no particular incentive to pay for general training but are willing to pay as part of a general cost shared by all firms such as contributions which fund INTECAP.

3. The fact that firms are not willing to pay for general skills training should not be considered justification for not providing such general skills training since such training is in the public interest.

4. Labor market data is a snapshot in time. Most labor markets are dynamic. The findings at any point in time are absolutely relevant only for that point in time. This idea argues for the systematic updating of labor market data to maintain its validity.

5. Care should be taken not to overvalue the activity of growth elements of the economy at the expense of slow growing sectors. The growth elements may reflect the availability of a skilled labor force for its growth while the slower growing sectors may reflect a sector which has stagnated because of the lack of skilled workers for its expansion.

<u>Review of the Literature.</u> In addition to the Martinez study referenced above, the field had been addressed in a number of papers and studies which

helped expedite the efficient development of the study. The issues were clarified as to mission expectations in a report by Bernbaum (11/13/87).

The Rotary Club of Guatemala as a sponsor of the diversified secondary school in the capitol had submitted a proposal to upgrade the technical offerings in a proposal in 1982. A project review in 1983 reviewed the results of a $14.6 million investment in INTECAP generally calling the project a success but criticizing the internal management of the institution, a view maintained up to the time of this assessment. The review also called for a training needs survey. A sector evaluation in 1985 included a chapter by Gene Lamb which gave an accurate status study of skills training in the country. Also in 1985, INTECAP submitted a proposal suggesting possible areas of cooperation with USAID. Those proposals were included in the survey/verification activities of the consultant. A ten page report by Friday-Cowan in May, 1986, was an assessment of technical training in Guatemala. They interviewed employers and reported attitudes toward training and recommended programs needed. They also evaluated INTECAP and reported their need for technical assistance in planning courses, need for additional publicity, and teacher training.

Several GOG studies also contributed to the background for the Skills Training Assessment. In 1987, the Comite de Reconstruccion National Proyecto de Mejoramiento de los PEMEM (Proyectos de Extension y Mejoramiento de Educacion Media) came up with a Q.52,000,000 proposal to increase the PEMEM designation to include a total of 37 schools. USIPE (Unidad Sectorial de Investigacion y Planificacion Educativa) concluded a study in 1987 for the construction and equipping of buildings for occupational and technical education in Guatemala which would total Q.7,799,000. In a later study, USIPE in 1987 also produced a study to establish 425 elementary schools as "Schools for the Workplace" which would cost about Q.12,000,000.

The technical assistance mission of Germany also provided a copy of the project it is funding at Mazatenango in the amount of DM.2,800,000 starting in 1988, which is intended to make the diversified high school there into a demonstration project in technical education at the secondary level by which it is hoped a considerable amount of teacher training can be done at a very low cost and at the same time upgrade the level of technology in vocational programs at other schools because of the demonstration project.

Plan for the study. After reviewing the literature, the consultant visited a sample of 15 potential training institutions to ascertain the capability of the institutions to provide skills training and at what level. The preliminary survey ascertained that schools operating below the ninth school year had marginal capabilities for skills training and served to narrow the universe of skills training institutions to those working in nonformal education and/or diversified secondary education. The presumed provider of nonformal education is INTECAP. In this field, however, operate a number of Private Voluntary Organizations (PVO) largely serving the nonformal labor market which is estimated to account for nearly one-third of the labor market (Cronica, May 11, 1988).

The study was to proceed upon the basis of the labor market survey, but neither the Massey study nor the INTECAP study became available in a timely schedule. It had been intended that the training capacity of the institutions be evaluated in terms of the demand for skills training as determined by the industry surveys. Notwithstanding the cautions by Martinez that ". . . review of economic activity by sector . . . reveals generally poor performance, with most sectors having experienced significant contractions. Using this information alone, we would not anticipate any severe shortages of skilled workers across the economy . . ." it was decided to proceed with an assessment of the skills training deliverers to permit a swift assessment once the demands for skills training was known. The consultant visited each major training site of INTECAP and the diversified secondary schools capable of providing skills training. In addition, PVOs operating in nonformal skills training were also visited to evaluate the potential of this sector even though their present capability might not be of consequence.

In addition, the consultant made visits to appropriate GOG ministries to assess their infrastructure capabilities in terms of managing major skills training project and PVOs which might also serve as a sponsor/grantee should a project be identified as feasible.

II. ANALYSIS OF EXISTING TRAINING CAPACITY

Postsecondary Schools

Instituto Femenimo de Estudios Superiores. IFES is the only school in the country which offers postsecondary subbaccalaureate degrees in technical areas. It has recently been approved for university level degrees and at the time of the visit had had five graduates with approximately 20 candidates for degrees becoming eligible for graduation each of the next two years.

IFES is a private school largely funded by donations since the fees are estimated to account for only 20 per cent of its annual costs. It has excellent facilities, located in a modern five-story building with classrooms arranged attractively around a central atrium extending the entire height of the building. Well lit and perfectly maintained, IFES provides a near ideal environment in which to carry out its mission.

Students can complete the requirements for a technical postsecondary subbaccalaureate degree in three years. Two additional years of study are necessary to obtain a university degree.

Its most popular course is in administration with the graduates finding jobs in hotels, restaurants, clubs, hospitals, clinics, and industrial offices. The program includes a strong offering in math, accounting, administrative specialties, and basic studies in chemistry and physics as well. More than 400 students are enrolled at some level of the five-year course in administration. The major impediment to students earning the university degree is completion of thesis which is required and represents a much higher level of academic achievement than is required to receive the technical certificate.

The other programs offered include interior design and graphic design with approximately 200 students enrolled in the three-year program. The students may specialize in one or the other of the emphasis. Fashion design enrolls about 150 women. Nondegree classes are also offered (cursos libres) for which there are no entrance requirements. The nondegree classes average enrollment of about 200 in topics centering around cooking, sewing, arts and crafts.

Deficiencies of IFES center around an antiquated chemistry lab which nonetheless has all the basic furniture and fixtures necessary to build an excellent lab given some suitable equipment and instructional materials. The importance of the chemistry lab is that it provides the scientific basis for the professional study of large scale food preparation and processing. The second deficiency noted is the lack of computer training for its students in administration. This is an improvement which would be of great importance if IFES were to become a resource for midmanagement training for industry developing in Guatemala.

This latter aspect is already being courted by emerging industries. The trade association for drawback garment industries has listed IFES as a source of supervisory training and technicians. The IFES administration, given suitable resources, has the professional staff to offer nondegree classes in administration which could lead to providing a pool of women capable of taking leadership and supervisory positions in the drawback and other industries. At the present, the facility is not used on weekends and represents a considerable resource because of the facility itself as well as the prestige of this highly-regarded institution.

Secondary Schools

Leading to the diversified secondary schools is a system of elementary and junior high school education wherein some notions of industrial arts training is attempted. Industrial centers are attached to some primary schools. The most ambitious effort in this area are Multiple Use Centers (CUM-Centros de Usos Multiples). These were intended to serve as "area vocational schools" serving several primary schools. One such CUM serves only the adjacent elementary school and offered a limited menu of nonformal skills training for lack of operational funds. The second CUM had been converted to a regional elementary school. At the time of the consultant's final visit, the Ministry of Education had succeeded in allocating part of the CUM to house the Instituto Tecnico Femenino. The "work schools" known by their acronym "PEMEM" included three to four shop/laboratory areas in which was offered a standard industrial arts program of woods, metals, electricity, and home economics. Their level of equipment and handtools was largely a function of how recent the facilities had been established. This survey did not include the three agricultural formation schools.

Industrial institutes functioning at the junior high level did not function at the skills training level although it was expected that both completers and dropouts would find their way into the informal labor market by virtue of the education acquired at the institutions.

The institutions which aspired to provide entry skill level training were the diversified secondary schools which provided the bachillerato industrial or "perito" level training. Due to budget constraints, none of the secondary schools in the study had quickstart training capabilities. More than 90 per cent of the budget for the schools went to fixed costs such as wages and maintenance and operations. The review of the institutions follows;

Instituto Tecnico Femenino, Guatemala City

In addition to women enrolled in the high school diploma program (bachillerato industrial) who may specialize in foods or sewing, the Instituto Tecnico Femenino enrolls upwards of 300 young women in self-improvement courses similar to the technical courses offered the graduation-track students (cursos libres). About 20 women are graduated annually with a bachillerato industrial in foods and sewing.

Located in a converted residence in Zone 10, the large numbers of persons attending can scarcely be accommodated because of the smallness of the locale. The second major problem is obsolete or nonfunctioning equipment. This includes both sewing, where few industrial quality machines are available and foods, where several of the stoves did not have functioning ovens.

The third greatest problem is the scarcity of instructional materials. Pattern books and old fashion magazines are hoarded as valuable resources, and at their level of funding, are irreplaceable resources.

A promising development was recent agreement to relocate the school to one of the new multiple use centers which would at least create the opportunity to install new equipment due to the new space available.

Business links for this school are more promising because it is viewed as a possible resource for supervisory and training personnel by the drawback garment manufacturers who have expressed satisfaction with the work of graduates utilized for this purpose. In addition to the potential placement of the graduate in this valuable emerging part of the economy of Guatemala, the new laboratory spaces at the multiple use center opens the possibility that the Instituto Tecnico Femenino could be used as a laboratory school for supervisory training to which senior employees of cooperating industries could be sent to receive theory and practice (by presenting lessons to students in a supervised lab setting).

Ratings for its shops are not included because of the pending relocation of the school which would greatly alter an assessment of its conditions.

Instituto Tecnico Industrial Dr. Imrich Fischmann, Guatemala City

The largest and most successful diversified secondary school in the country is the Instituto Tecnico Industrial Dr. Imrich Fischmann. During its period of development, which began in the middle 1960s, it had virtual state-of-the art equipment and full complement of hand tools. It had more than 100 high school graduates a year by 1969 and reached a peak of 329 in 1979. Its most popular programs in terms of graduates, in order, have been drafting, electricity, machine trades, and auto mechanics. Of the programs offered over the same period of time, the least popular has been printing due in no small measure to the fact that the print shop was never modernized. The initial investment of the 1960s still remains and represents the resources with which it still attempts to fulfill its role in Guatemala. The graduates of Fischmann are in countless positions throughout the country, including leadership and faculty positions in both other technical schools and INTECAP centers.

The first impression the school now gives is one of a place which has been thoroughly trashed. On closer inspection, it can be ascertained that the appearance is a consequence of a desire of the faculty to keep on hand all

kinds of nonfunctioning or scrap items in the hopes that such surplus materials might be useful in some future project. This thinking pervades the entire school since most of the faculty think it unlikely that new instructional materials will be forthcoming soon.

Another aspect of the school that gives it a less than favorable appearance is the fact that the funds available for maintenance and operations are so low that paying the electricity bills becomes a major problem for the school. Consequently, what lighting there is, is of low quality and for the most part the faculty relies on skylighting or other extemporaneous fenestration the result of recent modifications (holes were punched in the walls to let in more light).

The major difference between the programs at Fischmann and INTECAP is that Fischmann students get a comprehensive education which includes some elements of technical education while INTECAP students receive only the skill training. Employers intuitively prefer the technical school students because they "catch on" quickly while the more modestly educated participants from INTECAP for the most part do not have the broader intellectual skills that would permit them to adapt as readily to the changing workplace. On the other side of the difference, INTECAP students benefit from better shops, equipment, and considerable resources for learning materials.

Next to improvements needed to shops, equipment, and hand tools, the next greatest priority is for texts and other learning materials. It is a rare student who has a text for the course he is taking. The students depend on the teacher to present via lecture or on occasion, photocopies, theoretical materials from a text which might be available to the teacher. The only program which had a classroom set of textbooks was the baking specialty.

Because of the long tenure of most of the teachers at Fischmann, most of them have received some additional training in other countries through some scholarship or fellowship which may have become available over the past 30 years.

Fischmann is unique among the technical secondary schools in that it has good linkages with private enterprise. Businessmen working through the Rotary Club have helped the school over its nearly 30-year history. The most recent such aid was to reequip the toolroom for the auto mechanics program. A break-in and subsequent theft of nearly all hand tools this year was partially remedied by a quick resupply by the Rotary Club. In addition, businessmen have incorporated a foundation for the school to handle grants and donations as well as to make purchases for the school. The president of the school's foundation is also president-elect of the Rotary Club and each of the trustees of the foundation happen to be Rotary Club members.

These businessmen have been working with members of government leadership to come up with a matching funds program for the foundation which they think is promising. Obviously, they would like to make maximum use of donor contributions to strengthen the government's commitment to technical education and believe it can be accomplished.

Notwithstanding that Fischmann is the largest technical secondary school in the country, its capacity is still small compared to the supply of applicants. About one in ten applicants is accepted.

Another unique aspect of Fischmann, and one that perhaps contributes to its rundown condition, is that it works three shifts, the night shift being allocated for adult education.

As with all of the secondary schools, the general education components are determined by the Ministry of Education. The curriculum for the technical areas is represented by a brief recitation of the expectations for the technical programs. The latter is adjusted according to the facilities and equipment available to implement the technical program. In most cases, textbooks are not available to the students who must rely on the teacher lecture from whatever source materials are available to the teacher.

Ratings of its various programs follows. A ten-point system was used in an attempt to compare the institutions. A ten-point rating was used to indicate an ideal, or state-of-the-art related to Guatemala. A five-point rating would be about "half" of the ideal or state-of-the-art. The standard against which all institutions were measured was the INTECAP center known as Guatemalteco-Aleman which is rated a "10" in all areas. The facilities, equipment, tools, instructional materials, practical training, preparation of faculty (much of it in Germany), and curriculum has been painstakingly developed.

In the table which follows, for example, the first program is Graphic Arts. Its equipment consists of hand-fed platen presses, whose manufacture dates back to the 1920s. It was rated zero. Tools consist of some Rose type cabinets. A rating of one was assigned to the fact that there was "something" there to work with. The program had no texts or other print materials and a rating of zero was given. Obviously no practical training was possible. The skill level was evaluated at "one." This was because the teacher gives the students lectures on printing and with this theoretical knowledge, they are able to find jobs in the printing industry. The teacher is an experienced printer, but has no other preparation. As a teacher, he was rated at "one/half the state of the art" lacking any formal preparation as a teacher. The curriculum was rated as zero because it did not have so much as a description of what the program was supposed to be like.

In contrast, the last item on the table which follows, is auto body. The shop is crowded, poorly lit, and poorly ventilated. It was rated a 5. It had no anchors for any frame straightening (nearby trees were used), for example. Equipment was rated a "2" as they did have a nearly functioning paintbooth. Some tools were available but they had only one operational paint sprayer. Tools were rated a "2". The had no texts or manuals on paints. Instructional materials were rated a zero. They work on actual cars. Practical training was therefore rated a 5 (everything is relative). The skill level (compared to similar training at Guatemalteco-Aleman is less than half, it was rated a 4. The teacher is an experienced tradesman but had no teacher training, received a 5 rating.There was a description of the program. A description of the program obtains a 5 rating for curriculum if it resembled what was being done.

NAME: INSTITUTO TECNICO VOCACIONAL IMRICH FISCHMANN

PROGRAM -	ENROLLMENT 4to	5to	6to	SHOP	EQUIP	TOOLS	INS MAT & TEXTS	PRACTICAL TRAINING	SKILL LEVEL	FACULTY	CURR.
GRAPHIC ARTS	24	22	18	5	0	1	0	0	1	5	0
INDUS. ELEC.	44	48	37	5	3	3	0	5	4	6	5
AUTO MECH.	54	23	27	4	3	2	0	5	3	7	5
DIESEL	42	33	29	5	2	2	0	5	2	5	5
AIR COND. & REFRI.	39	30	23	5	2	2	0	3	2	3	5
MACHINE TRADE	42	28	23	3	3	5	0	5	3	6	5
RADIO & TV	30	26	29	5	5	4	0	5	3	6	5
IRON WORK	19	10	9	5	4	3	0	7	7	6	5
BAKING	16	14	9	3	2	2	2	8	5	7	6
CARPEN-TRY	13	5	12	6	5	6	0	7	5	7	5
CONS. DRAFTING	90	64	62	6	-	-	0	8	4	5	4
AUTO BODY	33	19	16	5	2	2	0	5	4	5	4

Instituto Tecnico Industrial Para Varones, Quetzaltenango

A modest program and relatively low utilization of the facilities has contributed to a very positive level of maintenance and capability of the school at Quetzaltenango. Although the school operates in two shifts, the number of students in each specialty is kept at no more than 15 students at each grade level. Obviously, the wear and tear at this school is much less than at the more intensively used sites.

The vocational high school diploma is offered in radio and TV, machine trades, drafting, and electricity.

Because of the relatively long distance to the capitol, this school is not among those frequently visited by consultants of the Ministry of Education. However, this handicap has not appeared to have a deleterious effect on the school except that the school administration has not pressured the government for sufficient support to increase the level of its operations. The high school shares a site with a junior high school which has a substantial enrollment and offers an introduction to industrial arts which includes such areas as shoemaking, tailoring, printing, carpentry, welding, electricity, drawing, and auto mechanics.

The assessment of the high school programs follow:

NAME: INSTITUTO INDUSTRIAL PARA VARONES, QUETZALTENANGO

	ENROLLMENT 4to	5to	6to	SHOP	EQUIP	TOOLS	INS MAT & TEXTS	PRACTICAL TRAINING	SKILL LEVEL	FACULTY	CURR.
RADIO & TV	12	10	3	7	3	3	3	2	3	5	5
MACHINE TRADES	15	12	10	7	5	6	4	5	5	5	5
CONS. DRAFTING	15	15	15	8	-	-	3	8	7	5	5
INDUST. ELECTRI.	15	15	15	7	5	7	4	5	5	5	5

Instituto Experimental "Luis Pasteur", Puerto Barrios

This school offers the high school diploma in metal work, but most of the school is devoted to a large junior high school enrollment (ciclo basico) for which it has a very adequate facility, including ample grounds and a spacious multipurpose room for events.

The rating for the high school vocational program is as follows, on a ten-point scale, with 10 being an ideal status for such a program in Guatemala.

Program: General Mechanics
Enrollment: 4th--20; 5th--20; 6th--15
Shop: 5
Equipment: 5
Tools: 4
Instructional Materials and Texts: 1
Practical Training: 5
Skill Level: 2
Faculty: 3
Curriculum: 5

Instituto Tecnico Industrial "Georg Kerschensteiner", Mazatenango

Mazatenango's high school has benefited from a considerable infusion of donor aid and technical assistance. In addition, this school has been selected for its creation as a demonstration school by the German mission. A project funded with DM.2,500,000.

Another unique feature about this school is the existence of dormitory facilities permitting it to accept students from areas beyond the city.

This school comes as close to an ideal vocational high school as is available and its deficiencies (lack of instructional materials in some areas) is expected to be remedied through the technical assistance project which has been designed and approved.

The ratings for the various programs follow:

NAME: INSTITUTO TECNICO INDUSTRIAL 'GEORG KERSCHENSTEINER', MAZATENANGO

PROGRAM	ENROLLMENT 4to	5to	6to	SHOP	EQUIP	TOOLS	INS MAT & TEXTS	PRACTICAL TRAINING	SKILL LEVEL	FACULTY	CURR.
INDUST. ELECTRIC.	15	15	15	6	7	7	10	8	10	5	10
MACHINE TRADES	15	15	15	7	7	7	10	8	8	5	10
AUTO MECHANICS	20	20	20	5	5	5	10	5	5	5	10
BRICK LAYING	20	20	20	-	7	8	5	10	5	5	5
CARPEN-TRY	20	20	18	8	7	8	10	8	5	5	5
WELDING	15	15	12	7	5	5	4	5	5	5	6

Instituto Nacional Con Orientacion Industrial "Guastatoya", El Progreso

If the school at Mazatenango represents the top of the line among the vocational high schools, El Progreso is a hands-down winner for the poorest. Once a part of a six-grade ciclo basico installation, the lower three grades were transferred to a new facility and the upper three grades were left as the "Instituto Industrial." It offers the diploma of "bachillerato industrial" but the quality of <u>any</u> of the instruction is beyond minimal. An attempt at rating its program follows:

Program: General Mechanics
Enrollment: 4th--30; 5th--25; 6th--0
Note: The school director did not count as students the seniors who had gone to the capitol to obtain on-the-job training, nor did he know if they obtained suitable posts because the school had no capability to provide OJT supervision.
Shop: 5
Note: The building itself was secure from the elements and lighting on a sunny day was adequate.
Equipment: 3
Tools: 3
Instructional Materials and texts: 1
Practical training: 3
Skill level: 1
Faculty: 5
Curriculum: 5

Instituto Tecnico Vocacional Privado "Emiliani", Guatemala City

Emiliani is a catholic sponsored institution which was founded in 1978 and has graduated eight classes in the fields of electricity, radio and television, construction drafting, and auto mechanics.

The operations of the school are funded entirely by fees paid by students although there is some financial aid provided needy students.

Emiliani operates both a day and night shift. Candidates for admission must have completed nine years of elementary and basic education with an average of 70 points. In addition, there is an admissions examination. Students in the day program must be under eighteen years of age and the night program is for adults with preference given to persons who live in the vicinity of the school. The school accepts only students in "fourth" grade of middle education and no new students are accepted in fifth or sixth and generally students are not accepted to repeat a course. Costs of admission run to about Q100 and monthly fees are about Q50. Night school fees are considerably less.

In addition, families must agree to participate both by giving encouragement to their student, attending school meetings, and attend other meetings as necessary.

In the ratings which follow, at least half of the curriculum is determined by the government, that being the academic part. The technical portion of the curriculum is determined largely by the teacher and the equipment, tools, materials, and texts which might be available to the teacher and the students. As a rule, the students do not have texts because of the prohibitive cost of the same and the generally low income of the families from which the school draws its students.

At the time of the consultant's visit, there were 429 students enrolled in the school.

NAME: INSTITUTO TECNICO VOCACIONAL PRIVADO EMILIANI

PROGRAM	ENROLLMENT 4to	5to	6to	SHOP	EQUIP	TOOLS	INS MAT & TEXTS	PRACTICAL TRAINING	SKILL LEVEL	FACULTY	CURR.
ELECTRI-CITY	39	38	33	6	5	6	3	5	5	5	5
RADIO & TV	57	29	15	6	4	4	2	4	3	5	3
CONSTRUC. DRAFTING	25	21	25	8	8	-	6	8	8	5	6
AUTO MECHANICS	65	48	34	6	3	5	6	5	5	5	5

Informal Education

INTECAP

The Instituto Tecnico de Capacitacion y Productividad (INTECAP) was founded in 1972 to provide manpower training which was closely attuned to the needs of business and industry. INTECAP is funded entirely by contributions made by private industry based on a payroll tax.

INTECAP is governed by a board made up of six members of private enterprise, three members of labor, and three government officials, one of whom is the minister of labor. The government names the director of INTECAP.

INTECAP accepts as participants persons as young as 13, as long as they have completed primary school. In addition, candidates may also take additional admissions examinations. Persons who are just out of primary school are the minority among participants and a small portion of the capacity of the institution is devoted to this mission. The bulk of the activities of INTECAP are aimed at persons in the labor force who need skill upgrading or persons who have a job or are sponsored by a business for the training they receive.

The regional centers were built in one phase and are very similar. They are perfectly adequate for training, are flexible, and for the most part are spacious, well lit, and thoughtfully laid out.

While INTECAP attempts to categorize its various activities into several delivery systems, for the most part they may be summarized as training that occurs mostly in the shops (habilitacion) and upgrading (complementacion and aprendizaje) which means the participants spend the majority of the time on the job and return to the INTECAP center only for the related theory or upgrading course.

The skill training objective of the preponderance of the INTECAP programs is to train persons at the operator level or at the semiskilled level. A few courses are aimed at skilled craftsmen (perfeccionamiento).

The financing of INTECAP had its setback with the devaluation of the currency (the Quetzal) during which time wages paid remained relatively stable, but inflation caused major loss of buying power both for personnel employed by the institution and in supplying the various programs with equipment, tools, and consumable materials.

INTECAP is on a calendar year fiscal year. For 1985, the total expenditures were Q.6,600,000 and decreased to Q.6,440,800 in 1986. Expenditures rebounded to Q.8.040,000 in 1987, the major part of the increase being represented by pay plan improvements. The budget for 1988 is estimated at Q.11,672,126. The increase for 1988 is expected to provide plenty of

flexibility for quickstart or other unplanned demands discovered during the course of the year.

The regional centers were constructed to represent the basic industrial trade courses of electricity, wood working, metals, and auto mechanics. Some expansion of these areas has led to subspecialties such as welding and agricultural mechanics in another center. The construction trades were heavily supported at one time and greatly needed because of the earthquake of 1976. This sector was oversupplied, according to some observers, and led to the phasing out of training in the area. At the time of the consultant's visit, the construction trades were not well represented. The wood shops were being used for cabinet making rather than carpentry and only two regional centers had bricklaying programs at the time of the visits. Each of the centers, however, offers residential electricity and many have capacity for industrial electricity. Only one plumbing program was in operation and, surprisingly, only one airconditioning and refrigeration program was in operation. Baking was offered in the capitol and industrial sewing classes were being added at three centers.

The latter represents a response to the country's rapidly growing garment manufacturing industry. While INTECAP offers sewing at the artisan level, the familiarization obtained is regarded as useful to the garment factories and no operator training is really demanded by the industries. In addition, INTECAP offers classes for maintenance mechanics; although the proliferation of garment manufacturers has led to a shortage of such mechanics for the industry. INTECAP is planning to recycle its sewing machine mechanics courses as rapidly as time permits. Another highly welcomed course is Supervisor of Industrial Sewing, a 330 hour course. The classes are developed under the guidance of an advisory committee made up of representatives from the drawback garment industries.

The kind of training given is nonformal in that it offers neither high school nor university credit. Each course has its own length and intensity and a participant who meets all the requirements receives a Certificado de Aptitud Profesional (certificate of skills training).

INTECAP has benefited from a wide range of technical assistance and has developed a very eclectic view toward delivery systems depending on the propensity of the technical assistance being received. The programs being aided by the German mission lean toward that system in which the participant spends four days on the job and one day at the training center. The program being aided by the Swiss mission prevailed in setting up a residential program for agricultural machinery mechanics in an isolated area. INTECAP is about to give up on this particular variation and plans to move the program back to the heart of agricultural programs. Most of the programs still have a high tendency to institutional training supported by early U. S. technical assistance and to it has been added elements of individualized instruction by modules and competency based instruction. Other U. S. influences are seen in the efforts to maintain mobile units and storefront training programs, the latter accounting for a significant part of INTECAP's outreach programs.

INTECAP has a high commitment to designing its training program based on industry needs. Until recently, it depended entirely on advisory committees. These frequently were made up of representatives of trade associations rather than individual businessmen. Since these committees do not include every person who might wish to provide advice, there has been criticism that the committees do not "really" represent the needs of industry. To respond to criticism that some of its programs were still missing the mark, and to add additional valid input to its program design, INTECAP embarked on a universe-wide survey of manpower needs based on person-to-person interviews conducted during November and December, 1987. To some extent, this effort has had a slowing effect on development of additional programs as program development has been temporarily suspended until the results of the survey are available. At the time of the consultant's visit, the survey was being printed.

A significant part of INTECAP's outreach is the provision of technical assistance to businessmen, including microenterprises. This may consist of as complex a job as helping a manufacturer develop a more efficient production line to simply helping a small shop owner learn how to operate or repair a new machine he has purchased. Again responding to the propensities of the agencies providing technical assistance, INTECAP set up a special division to help the small (or tiny) industry under the guidance of the International Labor Organization. Since the original program was initiated, it has been transformed by additional technical assistance from other agencies and now functions under the label "Division of Small and Medium Industry."

Notwithstanding the existence of regional centers, INTECAP operates in a fairly centralized mode insofar as programming is concerned. Except for programs actually operated in the regional centers, the programs in the regions are managed from the central office in the capitol. For example, a technician in Guatemala City is responsible for delivering training to garment manufacturers in the drawback industry program even though the companies are established inconveniently at faraway locations such as Quetzaltenango and Puerto Barrios.

The teachers are selected from among persons who have both graduated from a technical high school and who have industrial experience. In addition, each candidate is given additional training through INTECAP's professional development plan. The scheme for training new teachers is undergoing revision at INTECAP. The original plan involved a self-teaching program in which the new teacher was given a group of modules (15 in a recent effort). When the new teacher had studied the module, he was given an exam and proceeded with the next module until the entire sequence was completed. At a given time, an evaluator was sent to observe the teacher and from that observation grade the teacher. This was not considered satisfactory as the new teacher would gear up for the visit and receive a passing grade when in fact his day-to-day practice would not reflect the desired behaviors resulting from the module. A more traditional type of teacher-training is in the works which includes supervised student-teaching.

Where technical assistance is available, teachers are sent to study in other countries which include the USA, Germany, Italy, and many other Latin American countries.

A state-of-the-art print shop and graphic arts program is housed at the INTECAP headquarters in the city and complements the activities at the centers.

Because of the variety of modes in which training is offered, numbers reported as enrollments are difficult to pin down. A few students come in for a full day of training. These are usually boys 13 to 14 years old and represent the minority of training offered. The rest of the training activities closely resemble USA community college continuing education programs in they may meet any time of the day or night and for any length of time. Many seminars are offered as well as workshops. The best index of INTECAP activity is teacher or consultant hours rather than "enrollment" as no effort is made to determine a full-time equivalent enrollment. The programmed offering is shown for "enrollment" or where possible, a director was asked to state how many persons were attending at the time of the visit.

A summary of observations at each center follows. A change here from the previous tables is that H stands for Habilitacion (institutional training), C is Complementacion (part-time upgrading), and A is apprenticeship. Enrollments change quickly because many programs start and end all the time and a particular center will have full or empty depending on the cycling of classes. A better index to persons served is the annual report or the number of teacher/consultant hours delivered.

Guatemala I.

Having the advantage of being in the capitol where the headquarters of INTECAP is located, the "I" center has benefited from continual growth and improvements. This center was inaugurated in 1980 and begin programs in 1981 with horticulture, carpentry, plumbing, outboard boat motor repair, bricklaying, beekeeping, and short courses in radio, TV, and electronics.

The following year courses were added in hygiene, nutrition, macrame, industrial sewing, pump maintenance, woods carving and baking.

In 1983, the center started experimenting with a dual system of training moving from entirely institutional to a combination of institutional and on-the-job training. The latter was the mode for programs in auto mechanics, industrial electricity, carpentry and plumbing. A program for handicapped persons was also begun. Also operating out of the center is a Swiss-sponsored program to provide technical assistance to small and medium shops in the rural areas. Currently the center offers baking, electricity, electromechanics, industrial electricity, plumbing, carpentry, industrial sewing, and other needle trades. In addition various storefront operations work out of the center, such as bricklaying.

Responding to the concern that Guatemala's timber resources are not being adequately utilized, the center has obtained technical assistance and donor aid from Germany to add a shop which would be devoted to processing this resource into high quality cabinetwork and furniture making. The equipment has been received and the shop is in the process of being constructed. The program and curriculum is under design by technicians from Germany.

NAME: INTECAP: GUATEMALA I

PROGRAM	ENROLLMENT H	C	A	SHOP	EQUIP	TOOLS	INS MAT & TEXTS	PRACTICAL TRAINING	SKILL LEVEL	FACULTY	CURR.
BAKING	20	20	-	10	10	10	10	10	10	7	10
ELEC-TRICITY	72	72	40	10	10	10	10	10	10	8	10
ELECTRO-MECHANICS	19	19	25	10	10	10	10	10	10	8	10
BIOMED MECHANICS	-	20	-	7	8	7	10	10	10	10	10
PLUMBING	-	-	60	7	10	10	10	10	10	8	10
INDUST. SEWING	25	60	-	10	7	8	10	10	5	7	10

Centro de Capacitacion Guatemalteco-Aleman.

The G-Aleman center has a long history predating much of INTECAP's operation since the German mission established the center in 1975. The shops at this center set the standard for state-of-the-art in both equipment, instructional materials (including Spanish language texts), and teaching technology emphasizing on-the-job training.

The two outstanding shops are in machine trades and hydraulics-pneumatics, the latter having been established this year. The teachers for the shop have all been trained in Germany, one of them at the factory which produced much of the hydraulics-pneumatics equipment.

The machine trades shops are only lacking numerically-controlled and computer-controlled machines to compete very well with training programs for industry in the USA, are rated state-of-the-art for industry in Guatemala as higher technology machine tools are not in use in the industry.

The programs at the G-A center are auto mechanics (several shops, including one devoted entirely to auto electric mechanics), machine trades, hydraulics-pneumatics, electricity, welding, and classes offered in off-campus locations under their "acciones moviles" format.

Because of the emphasis of on-the-job training, this center can generate many more participants with the number of shops it has since the system utilized has productivity which is five times greater than in the conventional systems. Only the carpentry program at Guatemala I is on the "German" system.

Since the shops at this center are the standard for state-of-the-art determinations, the rating for these programs are all at the "10" level.

NAME: INTECAP: GUATEMALTECO-ALEMAN

PROGRAM	ENROLLMENT H	C	A	SHOP	EQUIP	TOOLS	INS MAT & TEXTS	PRACTICAL TRAINING	SKILL LEVEL	FACULTY	CURR.
MACHINE TRADES	105	385	105	10	10	10	10	10	10	10	10
WELDING	75	400	75	10	10	10	10	10	10	10	10
ELEC-TRICITY	105	255	105	10	10	10	10	10	10	10	10
AUTO MECHANICS	105	255	105	10	10	10	10	10	10	10	10

Centro Regional Escuintla.

The center at Escuintla includes shops for auto mechanics, bricklaying, electricity, machine trades, cabinet making, welding, and sewing. In addition it has a library, snackbar and offices. The center runs programs in the morning shift for students who have completed primary school and starts programs in late afternoon for persons who have work. The shops are equipped with the minimum equipment, but the equipment is of good quality and in operating condition.

The ratings follow:

NAME: INTECAP: ESCUINTLA

PROGRAM	ENROLLMENT H	C	A	SHOP	EQUIP	TOOLS	INS MAT & TEXTS	PRACTICAL TRAINING	SKILL LEVEL	FACULTY	CURR.
MACHINE TRADES	16	-	16	10	5	6	10	5	5	8	10
AUTO MECHANICS	45	45	-	10	6	6	10	5	5	8	10
CAR-PENTRY	-	-	16	10	5	7	10	4	5	8	10
WELDING	-	-	16	10	5	5	10	4	5	8	10
ELEC-TRICITY	-	-	16	10	7	7	10	4	5	8	10

Centro Regional Quetzaltenango.

The center at Quetzaltenango has shops for bricklaying, cabinetmaking, welding, auto mechanics, machine trades, electricity, and sewing. Outside of the two centers in Guatemala City, this center is the best equipped. Because this area has a vigorous textile industry, industrial sewing classes are a high demand area. The area has also been identified as one where additional drawback industries will locate. Even at this well equipped center, some areas have fallen behind, notably in auto mechanics where the instructional materials are aging and in the absence of foreign technical assistance, recent motors and vehicles for class use are in short supply. The problem is greater at the other centers out of the capitol. The supply of equipment and tools is more like what might be found in a U.S. high school rather than the postsecondary school level of equipping evident in the centers in the capitol. The sewing lab had all electric machines, but none of the special purpose industrial sewing machines found in the factories were available to the center.

The rating of the shops follows:

NAME: INTECAP: QUETZALTENANGO

PROGRAM	ENROLLMENT H	C	A	SHOP	EQUIP	TOOLS	INS MAT & TEXTS	PRACTICAL TRAINING	SKILL LEVEL	FACULTY	CURR.
BRICK LAYING	60			10	8	8	10	8	5	8	10
CABINET MAKING	15			10	6	8	10	5	5	8	10
WELDING	15		60	10	6	6	10	5	5	8	10
AUTO MECHANICS	15		75	10	6	7	10	5	5	8	10
MACHINE TRADES	15		60	10	6	8	10	5	5	8	10
ELEC-TRICITY	15	-	120	10	7	7	10	6	5	8	10
SEWING	30	-	-	10	7	8	10	5	5	8	8

Centro Regional Santa Tomas de Castilla.

Located next to Puerto Barrios, this INTECAP center serves a region extending through Peten and Alta Verapaz. The effects of centralized planning are evident in this center. Notwithstanding that it is located in a port city, in one of the hotter regions of the country, and in a fast developing area for drawback industries, no particular specialization has occurred for either the marine occupations, for establishing an air conditioning program, or an industrial sewing specialty. The industrial sewing activities are run out of the Guatemala City operation. For example, the sewing machine repair instructor is employed at the capitol and travels to the center from time to time to offer a course. The port industries make use of graduates, making use of participants with basic skills in welding and general mechanics and adding whatever orientation or training they need to work on the boats and related equipment or structures. The garment manufacturers make similar adaptation of participants since the combination of training and exposure to industrial settings makes the INTECAP participants very adaptable for firm specific occupations.

The rating of the shops available follows:

NAME: INTECAP: SANTO TOMAS DE CASTILLA

PROGRAM	ENROLLMENT H	C	A	SHOP	EQUIP	TOOLS	INS MAT & TEXTS	PRACTICAL TRAINING	SKILL LEVEL	FACULTY	CURR.
BRICKLAY.	15	15	-	-	7	8	10	10	7	8	10
AUTO MEC.	30	-	30	10	7	7	10	10	7	8	10
ELECTRIC.	-	-	30	10	7	8	10	10			
CARPENTRY	45	-	30	10	5	6	10	6	8	5	10
METALS	-	-	28	10	5	6	10	10			
WELDING	-	-	30	10	6	6	10	8	5	5	10
SEWING	15	-	20	6	5	5	8	5	5	5	5
REFRIG-ERATION	-	-	40	4	3	2	10	4	3	5	5

Centro Regional Chiquimula.

This region noted for its commercial trade nonetheless is home for one of the more ambitious programs in agricultural mechanics. Based on Swiss technical assistance, the center devoted two major shops for the ag mechanics program and developed hosts for housing of students to come from throughout the country. The scheme worked to the extent that most of the participants are from outside the region but it seems oddly out of place. The state-of-the art ag mechanics program is coveted by other centers with more intensive use of farm machinery and transfer of the program is pending even though its likely relocation would raise facility problems. If this center were to lose the ag mechanics program, it would decimate the operations. As for alternate programs, some thought is being given to something in ceramics, but only at the arts and crafts level, not at a commercial level.

Taking advantage of a well equipped ag mechanics program, this center also has very good auto mechanics program when compared to other centers or technical schools. None of the training providers have the capability to serve the vast variety offered by today's modern automotive industry. Indeed, few U.S. technical colleges can do an adequate job, either.

Located in a particularly hilly locale, the center has encountered considerable drainage problems and in addition lost its water supply from the city. Fortunately, it was able to locate potable water through a 60-foot well sunk on the premises and enough water is now pumped to adequately supply the center.

The ratings of the shops follow:

NAME: INTECAP: CHIQUIMULA

PROGRAM	ENROLLMENT H	C	A	SHOP	EQUIP	TOOLS	INS MAT & TEXTS	PRACTICAL TRAINING	SKILL LEVEL	FACULTY	CURR.
AUTO MECHANICS	65	75	-	10	6	8	10	6	15	8	10
AGRICULT. MECHANICS	40	-	-	10	10	8	10	8	5	8	10
WELDING	35	30	-	10	6	5	10	5	5	8	10

PRIVATE VOLUNTARY ORGANIZATIONS

KINAL.

KINAL is an indigenous word meaning the birthplace of fire and is the name for a catholic-sponsored program that begins with programs to strengthen the families in a catholic setting and in addition offers skill improvement programs on an informal and abbreviated basis. The institution is located near the perimeter of the sanitary land fill, overlooking Zones 9 and 10 below, the capitol's prestige residential and business areas. Notwithstanding the one mile of distance from their location in Zone 7 to the heart of the capitol's highly developed areas, the KINAL facilities are surrounded by one of the poorest sectors of the city, a location specifically selected for that feature.

Still in the first year of moving into their new facilities, the program has yet to develop its hoped for occupational programs. Consequently, its skill training capability is not rated although it is developing an infrastructure which has potential because of the private enterprise support is has carefully courted. It has a roomful of shoemaking equipment and is negotiating on two other programs with private enterprise sponsors. Nearly all of the impressive facilities now occupied have been constructed with donations from private enterprise.

The paucity of operations is a consequence of abandoning their previous locale where their operations were more abundant. The prospects in the new facility are immensely greater, however, given some time.

JUNKABAL.

The delivery system for education for women in Zone 7 is sponsored by the same catholic order as JUNKABAL. More developed than KINAL, this program has a functioning primary school for girls and an active program for adult women. Located on the opposite side of the sanitary land fill from KINAL, and conveniently adjacent to a public laundry area, JUNKABAL serves as a distribution site for various commodities distributed free to women in the area. The source of these commodities is mainly from the USA although other sources are also welcomed. The commodities include flour and corn and other staples. One of the conditions for receiving the commodities is that the women sign up for a class at the facility. The offering may range from literacy education, hygiene, nutrition, or any other self improvement course including arts and crafts that can be used as income producing cottage industries. It divides its offerings into single session classes (cursos libres) or classes arranged in a series to provide greater depth (carreras tecnicas). Among the latter are administration of the home, cosmetology, flower arrangement, baking, desserts, cake decorating, and sewing. Among the courses offered to capitalize on students who cannot attend for periods of time were such classes as recipes for meat dishes, how to use a microwave oven, vegetarian cooking, cake recipes, ice cream dishes, basketmaking, how to make bouquets, macrame and many specialty sewing classes.

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The school receives technical assistance from the Instituto Femenino de Estudios Superiores.

Salesiano Parroquia La Divina Providencia.

Using homes acquired near their church, the Salesian priests have organized a nonformal training project reaching 500 to 800 persons at a time, many of them women learning needle work and some in industrial sewing. Operating in Zone 8 in a poor neighborhood, the facilities include a medical clinic, a feature of both KINAL and JUNKABAL. Among other popular courses is typing which accounts for nearly 100 students. While the skill training capability of this nonformal vocational operation is modest, it represents a valuable resource for the residents of the area.

Rotary Club.

The Rotary Clubs of Guatemala City have a long history of assisting and promoting technical education. The best example is its long association with the Instituto Tecnico Vocational Imrich Fischmann. Members of the clubs also have collaborated through Fundacion Tecnologica (FUNTEC), among other projects, to help put together a group of single family microenterprise garment producers into a cooperative capable of becoming a drawback garment industry in a nearby town. FUNTEC is currently the sponsor/grantee for at least several USAID projects.

Lacking a corporate identification, the club members work through other means such as the Imrich Fischmann Foundation which they have organized as a nonprofit foundation and through which leading businessmen are willing to work to develop a project which would strengthen technical education programs not only at Fischmann but at any other eligible institution which might qualify.

The president of the Fischmann Foundation (Ing. Juan Niemann E., president of J. C. Niemann Industries) is also president-elect of the Rotary Club and is scheduled to take office next year. Another club member serves as secretary of the foundation (Ing. Cesar Osorio, production manager for Extrudoplast).

Fundacion Tecnologica (FUNTEC).

In 1985, a group of private businessmen created FUNTEC to seek solutions to problems created by the need for technology transfer in order to develop the Guatemalan economy. FUNTEC obtained nonprofit corporate status and began functioning in both a training role as well as referring technical assistance, training, and education to participating institutions and individuals.

FUNTEC is run by a governing board made up of chief executives of companies which support FUNTEC with contributions. In addition, nonmembers who are associated with the organization make up executive committees to

oversee the operation of its various projects. In all, nearly 50 chief executive officers or managers participate either on the governing board or on its executive committees. FUNTEC operates on very low overhead with only the executive director and a secretary staffing the foundation offices and the balance of its resources going directly to operations.

The programs it currently operates are (1) technology transfer; (2) development of microbusinesses; (3) technical assistance; (4) technical seminars; (5) international cooperation; (5) junior achievement program; and (6) a technology information center.

The technology transfer program includes training for sewing machine operators and sewing machine mechanics.

The contracts currently in effect with USAID are for more than $500,000 which includes inkind and cash match made by the organization.

Each of its projects has an executive committee chaired by a member of the organization's governing board and includes other businessmen who may not be members of FUNTEC.

To some extent, the organization serves a brokering role as well as being an operating agency (in the case of the sewing and sewing machine mechanics classes).

Still relatively new at contract administration, the FUNTEC capability as a sponsor/grantee is being taxed within it present resources but has prospects of an emerging institution with greater capabilities given the strong private enterprise links it has. Please see Annex II for a list of FUNTEC members.

Multiple use centers. Two centers were built in Guatemala City intended to serve as area vocational schools for elementary schools in the region and to be used in the late afternoon and at night for nonformal vocational education classes. The Zone 7 center (CUM-Centro de Usos Multiples) serves the elementary school with which it shares the site but at the time had not expanded its activities to include other elementary schools in the region. Except for a few arts and crafts activities during the day, the objective of skill improvement classes had not been realized. The center did not have a budget for such classes and the area residents were not considered able to support such classes with fees to make them selfsupporting. The center in Zone 5 had been converted into an magnet elementary school, accepting students from throughout the city and was not accepting students from other elementary schools for its industrial arts programs. The centers have been in operation for less than three years and their level of equipping is suitable for delivering various levels of skill improvement training.

It was expected that the Instituto Tecnico Feminino would be relocated to the Zone 5 center. The Instituto has been operating out of a converted residential dwelling with extreme crowding.

III. REVIEW OF MANPOWER SURVEYS

The labor market survey undertaken by the project covered 810 companies and provided date on more than 30,000 jobs. At the time of the survey, slightly more than 900 jobs were vacant, with the largest number being in the field of machine operators. Of machine operators, sewing machine operators was most frequently listed, but also included shoe sewing machine operators. Among other information developed as a result of the survey were opinions as to the adequacy of training as perceived by company spokespersons. The number of responses reflecting dissatisfaction is an indication that a rebounding economy is making significant inroads into the skilled manpower pools and companies are now drawing from inexperienced persons in the manpower pool whose only preparation for the jobs has been that received in the secondary schools or in the nonformal training system in which the main provider is INTECAP.

The project manpower survey also attempted to obtain opinions as to growth areas for which training was considered inadequate. Basic occupational groups were again indicated rather than any new or emerging occupations. In this category would be such workers as sewing machine mechanics since mechanics represent a general manpower pool from which firm specific workers are drawn for specialization. At least two programs aimed at providing some specialization. Both programs were in Guatemala City, one by FUNTEC and one by INTECAP. In the latter case, INTECAP intended to send its trainer to locations where drawback garment manufacturing industries were located. The use of the "itinerant" teacher is referred to as "acciones moviles" in INTECAP programming jargon.

A labor market survey was done at the end of the 1987 calendar year by INTECAP and the results tabulated by May, 1988. Printing of the results was programmed for June with the first five volumes being available to the project although still not released to the public. The detail of the study can be appreciated in that the partial results represent a stack of booklets reaching eight inches high.

The INTECAP labor market survey was a sample of 3,735 companies taken from a universe of 10,582 on record with the government, a sample of 35.3%.

The INTECAP survey invited respondents to indicate which of the training offerings currently on the INTECAP menu would be needed in the future. This yielded excellent information as to demand of existing programs. An additional question asked was about training for which INTECAP did not have training and this yielded raw information by job title but had not been translated into a training offering which would satisfy the requirements of the job title. This analysis was to be the subject of a subsequent volume.

Another interesting aspect of the survey was the inquiry as to technical assistance desired. Again, managers were asked to indicate TA desired from a menu of INTECAP offerings and this also yielded TA for which INTECAP had no current offering. The respondents identified "problem perceived" and INTECAP technicians are working on appropriate TA strategies which might respond to

the request for technical assistance. Because some of the TA requests were beyond the existing INTECAP capability, this might represent an area where donor technical assistance might be greatly welcomed.

A separate analysis was made of needs in the construction trades by INTECAP. Again selecting from INTECAP's menu of existing offerings, managers identified needs and their estimate of participants which totaled 7,947. A separate analysis also yielded a list of construction jobs for which training was not apparently offered by INTECAP. Of the 241 jobs listed, however, 200 were named by one company, all in the field of bricklaying, data which obviously called for clarification by a followup visit by INTECAP training technicians. Even though the subsurvey was of the construction industry, the training needed by the industry was not centered on need for workers in the construction trades. For example, the construction companies asked for training in such disparate areas as human relations, industrial safety, salesmanship, principles of supervision, truck drivers, quality control, and personnel management.

Others. Informe Comision Maquiladores "Confeccion 2000." In November, 1987, the Committee of Maquiladores of the trade association of exporters of nontraditional exports (GEXPRONT) contracted with Megatex for a plan for the development of the garment industry in Guatemala. Among its findings were that INTECAP was a major resource in providing skilled persons at the supervisory level (p. 34) but also included Instituto Femenino de Estudios Superiores, Instituto Tecnico Femenino, Universidad Rafael Landivar, and Universidad de San Carlos. At the operator level, the finding was (emphasis added) "we believe that operator training should be the direct responsibility of the industries." The need as perceived by the study was to train teachers and supervisory personnel and that the industry could reduce its risk of not obtaining ideal persons for these posts by working with Fundacion Technologica and INTECAP. As to the future needs for skills training, the study speculated that specialized training would be needed for mechanics, plant engineers, cost accountants, and supervisors. Of the secondary schools only "Emiliani" (electricistas) and Instituto Tecnico Femenino (supervisor, produccion) were listed as providers of skilled persons. The major provider was INTECAP with IFES listed as a source for teachers and supervisors. The study showed an increase in employment in the garment industry from 1,290 in 1984 to 11,000 in 1987, clearly labeling this as a growth industry. The projections made were for an expansion to a workforce in this industry estimated at 78,700 by 1992.

IV. APPROACHES TO MANPOWER TRAINING

The major influences in manpower training in Guatemala have been the technical assistance endeavors of the USA, the German mission, and the International Labor Organization. Each has contributed to influencing the actual system in Guatemala, although the German influence is most pronounced because of the recency of its activities. The USA had its major input into the system by the end of 1983, succeeding early work by ILO, and subsequently superceded by the work of the German mission.

While there are many similarities among the approaches to manpower training, a simplified view would characterize the ILO system as focusing on a very narrowly circumscribed module of employable skills, while the USA system typically leans toward longer periods of institutional training and more generous view as to what constitutes competency-based instruction. The tendency toward more institutional training in the USA is a consequence of the greater incidence of high technology which cannot be readily accessed through on-the-job training and apprenticeship systems which characterize the German system.

The German system seeks to place the participant in on-the-job training as soon as practicable but has the feature that at least one day a week must be reserved for institutional training while the participant is in training. This feature makes maximum use of the fact that the learner is ready to learn when confronted with real job situations and maximizes use of costly facilities since the same facility can serve five times the number of participants that would full-time institutional training.

All three systems promote their own version of competency-based instruction based on which each organization has found to be effective job analysis in their own environment.

The Guatemalan experience has been very eclectic given that its cooperation with the technical assistance offered is essential to receiving the hardware/software that is part of the package. The nonformal education system provided by INTECAP incorporates most of the German plan features at its Guatemalteco/Aleman center and in the carpentry program at Guatemala I center. At least one vocational high school (at Mazatenango) expects to convert to the same system for the coming school year as part of an investment expected to amount to DM2,500,000 from Germany.

Only a small similarity is experienced at the other vocational high schools, with the on-the-job component more closely resembling USA cooperative education projects, except that the three-month on-the-job training is typically full-time rather than half-time as practiced at USA high schools.

Full and candid followup programs are evident in the INTECAP programs, but no followup studies were available at the high school level. The German mission conducted a followup study as part of its planning the high school at

Mazatenango, but the results had not been published at the time of the consultant's visit.

V. UNMET NEEDS AND RESPONSE STRATEGIES

When the project's manpower survey fulfilled the Martinez prediction, it nullified assumptions as to quickstart training.

The needs revealed by the manpower survey centered around dissatisfaction by employers with the level of skill training provided by training providers as well as the results of their own inhouse efforts. Management training, whether it involved supervisors or senior personnel selected to instruct subordinates is a phenomenon of the developed countries, where it is equally a problem, and is increasing its visibility in Guatemala.

An entire industry has evolved in the USA around supervisory training and the training of trainers. Much of the activities are organized by private enterprise and to a lesser extent, are institutionalized at universities and other postsecondary schools. The programs range from extensive litanies aimed at professional teachers, such as the Ohio State University 100 modules for vocational education to one-day programs on "How to Deal With Difficult People" marketed at $99 per student by a variety of national companies.

Other needs may be inferred at the risk of making leaps of logic and combining disparate information received during this project.

The one growth area of the Guatemalan economy that has been verified with some certainty is the so-called drawback industries. In summary, this sector is expected to grow from 11,000 workers to 70,000 in the next four years. The effect will be two-fold. If the growth is realized, the activity will absorb a significant portion of the pool of available labor. The wages paid will reflect first in the increased consumption of consumer goods and services, further generating disposable income. Some adjustment may be expected in the labor market as lucrative options begin to appear in commerce and services as well as in the drawback industries themselves. Over the four-year period, it may be expected that available manpower for basic sectors of the economy will decrease in both quantity and quality, all other factors being equal. Persons now attracted to mechanics, metal work, and construction will have other options to choose from and university education will become even more attractive as managers begin to select managers from other than their own home-grown systems.

At some point in the four-year period, the basic sectors will begin to be squeezed for manpower, resulting either in inflationary alternatives, significant shortages nationally, or a serious decline in the quality of work done in such areas as maintenance, mechanics, construction, and metal work. A recovering economy may be expected to lean toward higher technology, further exacerbating the manpower shortages.

The installed capacity to deal with these factors will be marginal. The nonformal delivery system (INTECAP) will benefit from added revenues from

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greater payrolls, but the concept of rapid deployment of resources to meet these needs must be institutionalized at INTECAP. Moreover, the influence of foreign technical assistance must accommodate a higher level of skill training than is currently the objective of the system where an operator level of training is deemed satisfactory. The perception of lack of responsiveness must be addressed by INTECAP and is not likely to be achieved unless the government yields to the demand that the CEO of the organization be subject to the discretion of the governing board of INTECAP.

The other training delivery system is the most fragile of the components in what would be a measured response. The vocational high schools are nearing extinction as viable institutions. As their technical capability deteriorates, they may decline beyond the stage of being suitable for a rescue effort. Some immediate intervention is required simply to maintain their viability for some future major improvement justified on the basis of industrial demand. This alarmist proposition is not so far fetched. Already, the capability of serious skills training at the vocational high schools is nearing empty except at the model school at Mazatenango. Few as they are, the government has been unable or unwilling to maintain its six vocational high schools in anything resembling a basic level of capability. Donor agencies genuinely concerned with the economic recovery of Guatemala and stabilization of its democratic government can not tolerate the eventual extinction of these institutions for no alternatives exist at the informal, secondary, or postsecondary level. Should their existence be openly (what they are privately suspected of being) only that of being a sham credentialing process which permits clever students to enter the university without the inconvenience of challenging a taxing liberal arts high school education? That future is not so far away as it may appear. A followup study of these graduates, perhaps one/tenth as costly as the manpower survey done as part of this project might settle once and for all the genuine mission of the vocational high schools. Rather than a futile followup study which confirms the obvious, a similar investment in real aid to these faltering vocational programs might reclaim the remaining dedication to the original mission of these institutions. The investment in potential studies should be relative to the potential real aid contemplated. Thus an intervention costing some amount reaching five figures should not be gained at the expense of a study costing six figures.

VI. RESOURCE ALLOCATION

Allocation of funds to the nonformal training sector represented by INTECAP is far more generous than funds allocated to vocational training in the secondary schools, particularly when one considers that at least half of the funds allocated to the vocational high schools is to support the general education components. In fact, there is a skewing toward the general education component in expenditures by the fact that "academic" teachers generally qualify for seniority bonuses, whereas vocational teachers do not gain status on pay plans if their training has not included the university degree essential to moving upward on the pay plan. Technical training which does not provide university credit or industrial experience is not recognized on the pay plan for teachers at the vocational high schools.

The resources for INTECAP have fluctuated severely over the past four years both as a consequence of devaluation and a persistent recession. In 1985, expenditures were Q.6,600,000 and declined to Q.6,440,800 in 1986. A recovery of resources was observed in 1987 when expenditures increased to Q.8,040,000 with most of the increase going to improvement in pay plans to make up for the decimating effect of devaluation. Real resource gains were expected for 1988 when the budgeted expenditures were Q.11,672,126. Disregarding all other factors, an index of cost may be useful. The budget was expected to fund 305,550 teacher hours and 117,342 consultant hours for a total of 422,892 hours of "delivery system" time at a rate of Q.27.60 per hour.

During the period 1986-88, the entire budget for all the vocational high schools was Q.1,302,623 in 1985; Q.1,587,369 in 1986; Q.1,885,685 in 1987; and Q.2,123,247 in 1988. It is not surprising that the outlook has been so dismal for the vocational high schools. Using a pupil-teacher ratio of one to ten and a school day averaging 5 hours a day, and a school year averaging 180 days a year, the estimated number of "teacher hours" is 90,000 yielding a cost per teacher hour of Q.23.59.

In fact, the entire secondary school system (junior and high school: six grades, all public schools in the country and the ministry of education administration for it) came to only Q.32,848,194 for 1988 compared to Q.11,672,126 for the INTECAP operation for the same year.

VII. ALTERNATIVES FOR USE OF DONOR AID

Lacking sufficient justification for demand-based intervention, some intermediate steps should be taken to maintain a presence for donor agencies which have a stake in the recovery of the economy of Guatemala and the stabilization of the democratic government. Areas which should be addressed should include the vocational high schools and the nonformal sector represented by INTECAP and the fledgling Private Voluntary Organizations.

Learning Materials. A low cost intervention which would be highly visible would be the provision of Spanish-language textbooks in vocational areas for the vocational high schools, INTECAP, and the PVOs. Classroom sets and library additions would vastly improve the resources at all institutions. Similar programs are already in place in Central America to aid university students. This proposal would be for a free textbook program since these training providers work largely with the poorest of the poor, particularly the PVOs (including the catholic vocational high school). Notwithstanding some of the criticism which could be expected at providing nonSpanish materials, subscriptions to appropriate English language periodicals, especially for the schools devoted to the education of women where fashion and sewing literature is avidly hoarded,, would provide a valuable resource and maintain an essential presence for the donor agency.

Adopt a School. Borrowing an idea from another donor agency, a suitable school could be adopted. Depending on the ambitiousness of the donor agency, this activity might encompass any of the fledgling PVOs, a nearly destitute vocational high school such as the one at El Progreso, or a truly salvageable institution such as Imrich Fischmann Technical-Vocational Institute. The so-called adoption could involve any of the upgrading alternatives available or all of them. Other donor agencies have upgraded equipment, provided texts, scholarships for out-of-country teacher training, in-country teacher training, technical assistance, demonstration projects for nearby schools, financial aid for students, linkages with industry, and regular followup studies of graduates. The costs, for example, might not be as excessive as might be expected at first consideration. The wish list received from a Rotary Club/Fischmann TVI proposal to USAID to reequip the school totaled Q.382,512 for all areas.

Mobile Training Units. The surge of the sewing industry in various sectors of the country lends itself perfectly to a mobile unit for industrial sewing which could provide intense training in both sewing and sewing machine mechanics on state-of-the art machines. The work stations would fit perfectly in any off-the-shelf mobile unit and a modest self-contained power source would free the unit from the vagaries of power supplies that afflict various regions. Moreover airconditioning systems for such mobile units would make the unit truly mobile and usable in such areas as Mazatenango, Chiquimula, and Puerto Barrios where the heat can be brutal in a mobile unit not air conditioned. Such a mobile unit could be viewed as welcome auxiliary for short courses at upscale institutions like the Instituto Femenino de Estudios

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Superiores where outfitting one of their classrooms with industrial sewing machines would be an unwelcome intrusion.

Advanced welding technologies also lend themselves to the use of mobile units. While most INTECAP and vocational high school locations have access to gas and arc welding, they do not have access to inert gas welding. A culmination unit in the use of inert gas welding and automatic feed welders could be programmed to rotate among the interested institutions. Such a unit should also have testing unit, also perfectly suitable for a mobile unit, to include small nondestructive test units and X-ray facilities.

Transfer Operation of a Vocational High School to Private Enterprise. A tongue-in-cheek proposition that a school such as Fischmann be turned over to private enterprise for operation may not be as bizarre as it may sound. There is already some movement in obtaining matching GOG funds for the activities of the Fischmann Foundation basically sponsored by the Rotary Club. It is only a small leap in logic that a government-business-donor agency coalition for funding and a private sector management of the school might have some merit.

Establish and Fund Foundations at Each Vocational High School. The foundations could be as ambitious as considered reasonable by the donor agency or as modest as a matching activity fund to amplify the contributions of parent organizations, fundraisers by the schools themselves, and donations from private industry. Boards of trustees for these foundations (or activity accounts) could be drawn from CEOs of local businesses and making the much desired business connection for these schools. The involvement of the communities in these schools might also exert some influence on the government to pay more attention to the schools.

Use Vocational High Schools as Site for Supervisory Training. One of the problems of industry is how to go about taking senior craftsmen and be able to teach these craftsmen how to become trainers themselves. The utmost in simplicity would be to provide some basic teacher training modules available from many sources in the USA, but of which the work at Ohio State University is most widely known. There would be no need for group instruction. The company would have to be willing to release the craftsman one day a week since ideally the so-called training should occur while there are students at the school. A "master teacher" would be assigned to sponsor the "student teacher." The master teacher would also have become familiar with the teacher training modules. On the designated day, the craftsman would become a student teacher and the master teacher would become a "supervisor" of teacher training. The students would benefit from having a master craftsman as their teacher for the day. The whole exercise would bring business and school together. The role of supervising teacher would also make the regular teacher more aware of so-called teaching technology.

Provide a Quickstart Training Fund for Vocational High Schools. The lament of the vocational high schools is that they have no discretionary funds for anything outside of the prescribed curriculum. It would greatly increase the prestige of the high schools if they could respond to an immediate training need by industry. Taking a few pages from the INTECAP program of work, it can

be seen that the prevailing cost of some sample quick start programs look something like this:

Industrial Safety, 20 hours: Q.180.00
Ceramics, 200 hour course: Q.1,200.00
Carpentry, 200 hour module: Q.1,000.00
Propagation of Ornamental Plants, 100 hours: Q.440.00
Administration of Export Industries, 54 hours: Q.486.00
Principles of Supervision, 20 hours: Q.180.00.

Obviously, the quickstart training funds for each schools or for the country as a whole could as ambitious or as modest as the donor country believed reasonable.

Cooperative Programs with INTECAP. The basic idea of INTECAP is exactly the kind of vehicle donor agencies would design to address the needs of a growing economy (or in the case of Guatemala, a recovering economy). Dissatisfaction with the INTECAP organization, management, or political structure does not invalidate the basic design of the institution as a nonformal education approach to addressing the training needs of industry in the country. Some cooperative programs would permit the donor agency to help shape needed reforms. You have to be a player to stay in the game. While some structural reforms may not be achieved during the span of the present elected government, a democratic government more inclined to private enterprise might resolve the major point of contention.

INTECAP proposed some areas for donor agency assistance in 1985, some of which have been overtaken by implementation of appropriate programs or made obsolete by the passage of time. Within that proposal, however, is a menu of projects from which could be selected appropriate interventions. The most obvious area which suggests itself is one in which linkages with INTECAP would not occasion any additional inconverience to the donor agency since the latter has existing programs. This is in the area of technical assistance to small and medium size industry. Opening a dialogue between donor agency technicians in the area, the existing grantee (Associacion de Gerentes de Guatemala), and INTECAP could bring about the proposed collaboration without having to create any additional infrastructure.

Other areas still candidates for consideration would include mining. The development in this area in the Chiquimula area, for example, still has not progressed beyond selfemployment by individual miners. The delivery system for agricultural sector training could be examined for the need for additional mobile units as originally requested in 1985. The area of development of timber resources is being addressed by German technical assistance. A hotel training school is still on the INTECAP agenda, something other Central American countries already have. The area generally described as improvement to the "transportation" industry was too general to suggest the proposed response but could be worthy of additional inquiry, given the high reliance of surface transportation to serve commerce and industry in Guatemala.

VII. ESTIMATE OF POSSIBLE OUTPUTS

A project which would affect all vocational high schools would involve improving the educational opportunity for about 2,000 students a year and improving the capability of upwards of 300 teachers a year. The improvements in infrastructure could be anticipated at the level of 15% per year as reflected by increased support by GOG for its vocational high schools if support was pegged to some rate of increase above the five-year history of support by the GOG.

A project which would stimulate the increased participation of private enterprise in activities at the high schools could easily increase cash and inkind support from private enterprise to the high schools by at least 25% per year, as judged by what amount of local match is likely to be readily accepted by private enterprise. Private enterprise provides some assistance to some schools and PVOs even without the outlook of additional donor aid.

A project which would provide followup information for graduates of each high school would both improve selection of students (who would go to industry after graduation) as well as improve the administration of the high schools because of the improved business/school links.

Mobile training units, assuming a training program of a month's duration, more or less, would result in the upgrading of skills of 1,000 participants per unit per year. This assumes a three shift schedule, not unusual in terms of prevailing practice in Guatemala. Some elementary schools run three "schools" in one location, with the shifts divided during the 7 a.m. to 6 p.m. time span.

Each of these outputs would also have a major effect on quality of training over the long run, particularly as high school administrators begin to feel the pressure of accountability because of the technical assistance to be provided.

One of the most significant outputs would be to recapture the INTECAP operations for their intended use as an institution which works side by side with government and private enterprise to fuel the recovery of the Guatemalan economy. The opportunity to shape the reform of the INTECAP system could be maintained with small apertures provided by small amounts of aid and technical assistance. Once the donor agency again becomes involved with INTECAP, the possibility arises for the coordination of donor agency aid and technical assistance. A concerted effort by <u>all</u> donor agencies to maximize the efficiency of INTECAP by appropriate governmental reforms could greatly expedite said reforms even within the existing government which has been reluctant to give up any prerogatives.

Another unintended, but perhaps valuable output, would be the internal improvement of the donor agency's operation. A project which would operate over the full spectrum of training would require the donor agency to bring together projects in agriculture, private enterprise, education, health, and other delivery system components into an organized, systematic manner. The

overlapping projects and uncoordinated elements of similar programs makes for the possibility of competing and inefficient allocation of donor resources. Moreover, the public appearance given by the donor agency when its operating units are not fully coordinated is one of a donor agency in a stage of confusion which has a diminishing effect on the otherwise excellent image enjoyed by the donor agency among the Guatemalan public.

ANNEX I

Institutions and Persons Consulted

Colegio de Ingenieros de Guatemala. Ing. Luis Eduardo Perez.

Instituto Tecnico Vocacional Dr. Imrich Fischmann. Lic. Julio Cesar Valdez.

KINAL. Armando Secaira.

JUNKABAL. Coralia F. M. Coronado.

Colegio San Juan Bosco. P. Gervasio Acomazzi.

Salesiano Parroquia La Divina Providencia. P. Mario Fiandri.

Instituto Industrial Central "G. Lazaro Chacon G." Arturo Monzon Corado.

Instituto Tecnico Femenino. Graciela Aqueche de Fuentes.

Centro de Usos Multiples, Zona 7. Aida Almazon.

PEMEM "Nueva Montserrat." L. Amilcar Aguilar.

Centro de Usos Multiples, Zona 5. Victorio Mendez Garrido.

PEMEM Dr. Carlos Federico Mora.

Universidad Rafael Landivar. Daniel Borja.

Instituto Tecnico de Capacitacion y Productividad (INTECAP).
- Juan Migual Orriols
- Luis Valiente
- Carlos G. Aldana
- Horacio Paganini M.
- Alberto Gonzales
- Friedel R. Pena
- Jose Fernando Davila
- Pedro Ramos
- Estuardo Aguilar Vandemberg
- Servio E. Alvarez
- Carlos H. Matute
- Hector Murga
- J. Gallardo Flores

Ministerio de Educacion, GOG
- Amilcar Estrada
- Eliseo Lopez Merida
- Max Castaneda Mayorga
- Omero Jerez
- Maria del Carman Stella Riviera A.

Comite de Reconstruccion National. Edwin Sagastume.

USIPE (Unidad Sectorial de Investigacion y Planificacion Educativa).

Amilcar Estrada
Reht Suasnavar Garcia-Salas
Olga M. Hernandez de Leon
Olga Diaz de Ortiz

Technical Assistance Mission of Germany. Francise Huber.

Aragon & Asoc.
Jeniffe Dardon
Alejandro Cifuentes

ASIES (Asociacion de Investigaciones y Estudios Sociales)
R. Amilcar Burgos S.

Instituto Tecnico Vocacional de Quetzaltenango.
Lic. Herbert N. de Leon Ovalle.

Instituto Tecnico Vocacional "Emiliani"
Consuelo de Espell

Centro de Usos Multiples, Zona 5
Gustavo Adolfo Crocker Sagastume
Alberto Reyes Aguilar

EXTRUDUPLAST. Ing. Cesar Osorio.

ASINDES. (Asociacion de Entidades de Desarrollo y de Servicio no Gubernamentales de Guatemala).
Lic. Oscar Manuel Osorio

Instituto Tecnico Industrial "Georg Kerschensteiner"
Jorge Amilcar Tercero

Instituto Industrial El Progreso
Luis Rodolfo de Paz A.

FUNTEC (Fundacion Tecnologica). Ing. Fernando Pullin Villaverde.

IBM. Herbert R. Fleischer.

J. C. NIEMANN. Ing. Juan Niemann E.

J. & R. Ropa Deportiva Femenina de Centro America.
Lic. Rudy Gradys
Frances McCall

Best Manufacturers. Humberto Teos

INTECAP Chiquimula. Arturo Dardora, Bladimiro Moreno

ANNEX II

Members of FUNTEC

Fundación Tecnológica

7a. Avenida 5-10, Zona 4, Nivel 7, Torre I, Centro Financiero Teléfono 311741

LISTADO DE MIEMBROS FUNTEC

ING. JUAN NIEMANN	Calle Mariscal Cruz, 10-69 Zona 5	315454
SR. EDMUNDO NANNE	DIFASA/7a. Av.1-31, Zona 4	310843-4
ING. MICHAEL ASCOLI	Av. Reforma 3-48, Z.9 Ed. Anel, Nivel 4, Of. 401	373937
ING. ALVARO CASTILLO	7a. Av. 5-10, Z.4 Ed. Centro Financiero, Torre I, Nivel 6	317692 317244
SR. ALBERTO YARHI	EL GRAN EMIR/ 6a. Av. 10-34 Zona 1	534222
SR. AMADOR CARBALLIDO	FOMENTO INDUSTRIAL 7a. Av. 5-10, Zona 4. Ed. Centro Financiero, T.I, Nivel 11	325454
LIC. FRANCISCO AGUIRRE	1a. Av. 9-23, Zona 10	64001
ING. RAFAEL VIEJO	BANEX Av. Reforma 11-49, Zona 10	373863-5
SR. JULIO MATHEU	5a. Calle 0-69, Zona 9	321163-7
SR. JULIO HERRERA	5a. Calle 6-51, Zona 9	321211
SR. JUAN FCO. PORRAS	6a. Calle 6-38, Z.9 Ed. Tivoli Plaza Nivel 9	314666 320070
SR. ARTURO BIANCHI	4a. Calle 19-03, Z.15 V.H.I	373227
SR. CARLOS ARIAS M.	Calz. Aquilar Batres 31-53 Z.12	762748
SR. CARLOS BERGER	6a. Av. 2-53, Z.9	316587
SR. EDUARDO EVERTSZ	ALMAGUATE/Av. Petapa 38-55, Z.12	760276 760212
SR. JEN SMITH	10a. Calle 3-17, Z.10 N.4	311261-57
SR. VICTOR BENCHOAM	FAB. IRIS, 18 Calle 10-56 Zona 1	511067 82220
ING. JORGE SITTENFELD	1a. Calle 6-62, Z.9	313777

Fundación Tecnológica

7a. Avenida 5-10, Zona 4, Nivel 7, Torre I, Centro Financiero Teléfono 311741

SRA. RUTH DE HASTEDT	6a. Av. 3-71, Z.10	63613
LIC. RODOLFO GORDILLO	24 Calle 24-34, Z.12 Sta. Elisa	760193 760245/7
LIC. ADAM FRAUN	7a. Av. 5-10, Z.4 Ed. Centro Financiero, T.I, N.16	311229 311734-01
LIC. ALFONSO NOVALES	5a. Av. 10-66, Z.1 Of.201	23013 535855
SR. RICARDO FAIZ MEDINA	CYAUTO/Calz. Aguilar Batres 23-80, Z.11	760631 762277
SR. MARIO ASTURIAS MOREL	Serv.Comer. e Ind., 12 Calle 4-74, Z.9, Ed. Quinta Montúfar, Nivel 5	321444-6
SR. JULIO RIVERA	ACEROS ARQUITECTONICOS 17 Av. 16-96, Z.11	481761-40 481592
SR. JUAN MINI	Vía 1, No. 1-04, Zona 4	67051-38
SR. GABRIEL DENGO	21 Calle 5-33, Z.14	516029
ING. FERNANDO PULLIN (Director Ejecutivo)	FUNTEC/7a. Av. 5-10, Ed. Centro Financiero T.I, N.7	311741

ANNEX III

Documents Consulted

1982
Rotary Club asks renovation of TVI Imrich Fischmann, Q.382,512. This request in slightly altered form keeps popping up every year.

1983
PPR 11/83 INTECAP
Project cost was about $14.6 million. Project was considered a success. Internal management was criticized and a training needs study was recommended.

1984
A Study of Management Training Needs and Existing Training Resources in Honduras. American Management Associations.

1984
Vocational Education in Honduras: Industrial, Artisan, and Computer Training. Ned Van Steenwyk, Creative Associates.

1985
Ch. 7, sector evaluation, status by Gene Lamb. Recommended a national education action plan, to plan training to answer unmet needs, to involve labor,called for more money, to upgrade math and science classes in the vocational high schools, and improvements to the experimental schools.

1985
Informe Sobre Posibles Areas de Cooperacion Financiera de USAID a INTECAP, Q.530,590. Proposal from INTECAP.

1986
Assessment of Technical Training. Barbara Friday and Roger Cowan.

1987
Comite de Reconstruccion Nacional Proyecto de Mejoramiento de los PEMEM. Proposal in the amount of Q.52,200,000.

1987
USIPE. Proyecto de Equipamiento y Construccion de Edificios Para la Formacion Ocupacional y tecnica en Guatemala. Proposal in the amount of Q.7,799,000.

1987
USIPE. Establecer 425 Escuelas Primarias como "Escuelas Para El Trabajo." Proposal in the amount of Q.12,000,000.

1987
Issues Paper: Private Sector Strategy. Peter Bittner.

1987
Memorandum reviewing staff views on training needs project. M. Bernbaum.

1987
Memorandum with suggestions for training needs project. D. Evans.

1987

A Perspective on Skill Training Needs and Labor Markets in the Guatemalan Economy. Jorge Martinez.

1988
Programacion, primer trimestre. INTECAP.

1988
Plan de Trabajo, 1988. INTECAP.

1988
Informe Final de Investigacion de Necesidades de Capacitacion y Asistencia Tecnica a Nivel Nacional. INTECAP. Five volumes.

ANNEX D

SURVEY BACKGROUND:

Selection of Sample
Employers Survey Questionnaire
Execution of Sample

Sampling Methodology

The sampling universe initially consisted of 10,256 companies (all economic activities from all sectors) reported by the Guatemalan Social Security Institute (IGSS) as contributing to the INTECAP fund through the 1% tax during the month of June, 1987. These companies correspond to the universe used by INTECAP in their sample selection. Data on number of employees were added from a separate June, 1987 tape obtained from IGSS; in 107 cases no employee data were obtained and these cases discarded. This list was added to by creating a new economic activity, the maquila, or drawback industry. Data on 29 drawback companies were obtained from the Drawback Guild, and company size (e.g., number of employees) was approximated by the number of machines operated. Project-defined delimitation of economic activities to be included in the study reduced this universe to a total of 2,296 companies. The list of companies was then sorted by region (Region 1/rest of country), economic activity, and company size.

Sample dropout (due to non-cooperating or closed businesses) was estimated, based upon the experience of the INTECAP survey, to approximate 35%. In order to provide for a randomly-selected "reserve" replacement if this dropout rate was exceeded, an additional 8% and 16% were added for Region 1 and the rest of the country, respectively. Thus, in order to assure the final desired sample size of 750, and based upon the distribution by region observed in the reduced universe, an initial drawing of 904 companies in Region 1 and 223 companies in the rest of the country was to be performed. The distribution of these sample sizes within each region was proportional to the number of companies in each economic activity within each region, approximated to the nearest whole company. The sampling interval within economic activity was then determined, a random starting point within each size-ordered list determined, and then a systematic sample drawn from smallest to largest company size within each economic activity and region. Mailing labels were produced to affix to the questionnaire forms to facilitate later processing.

A review of the companies from the construction sector indicated that the universe of such companies reflected individual construction works rather than companies undertaking such works. It was decided, therefore, to eliminate these from the sample and to employ a separate universe and sampling methodology, described under the section of this report dealing with the construction sector. This removed 145 companies from the sample of 1,127, leaving 982.

Since oversampling had been performed to provide a "reserve" replacement list, the final first contact sample was derived by separating out, using a simple random selection, the "reserve" oversampling proportion for each region. This provided a separate reserve list to be administered by AED's local representative in providing Aragon & Asociados with replacements as needed.

The reserve list was quickly exhausted by Aragon & Asociados. The methodology then employed for obtaining replacement companies was as follows. The ID numbers of the companies dropped were periodically input. A program evaluated the economic activity and region to which the company pertained. A search was then conducted on the original, size within economic activity within region, file, and an attempt made to select the "neighboring" company, alternating between the next-smaller and next-larger company, within the same economic activity. If the next larger company had already been selected, the next smaller company was chosen, and vice-versa. This method tended to preserve the original randomness of the sample, while assuring the most similar replacement company based upon the three criteria of region, economic activity and company size.

A total of 226 replacement companies were provided in five batches to Aragon & Asociados in this manner, although not all of the replacements were used in the survey. Thus, excluding construction, a total of 1,208 companies were provided to Aragon, of which 807 questionnaires were completed and returned for data processing. Additionally, Aragon conducted 59 interviews in the construction sector. The report by Aragon & Asociados contains a quantification of interviewing outcomes.

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EMPLOYERS SURVEY QUESTIONNAIRE

Ayalde 8/23/88

ENCUESTA DE LA FUERZA LABORAL

Introducción

La encuesta de planificación de la fuerza laboral tiene como propósito la determinación de las necesidades de capacitación entre los trabajadores de las empresas de los sectores industriales y de construcción. Esta encuesta está siendo auspiciado por el sector privada con el apoyo financiero de la Agencia para el Desarrollo Internacional - AID - y ejecudado por Aragon Asocionados.

La encuesta se está realizando entre una muestra de aproximadamente 1,000 empresas seleccionadas al azar del universo de contribuyentes al sistema del IGSS. Las respuestas que proporcionan las empresas son de carácter estrictamente confidencial, y serán usadas únicamente en forma estadística, y nunca en una forma que permita su identificación en forma individual.

ENCUESTA DE LA FUERZA LABORAL

(1) No. Patronal _____ (2) Codigo CIIU: _____

Nombre de la Empresa:_____

Direccion:_____Tel:_____

Personas Entrevistadas: Nombre:_____

Cargo :_____

Nombre:_____

Cargo :_____

(3) Ubicacion:

	(01) Guatemala	(12) San Marcos
	(02) El Progreso	(13) Huehuetenango
	(03) Sacatepequez	(14) El Quiche
	(04) Chimaltenango	(15) Baja Verapaz
	(05) Escùintla	(16) Alta Verapaz
	(06) Santa Rosa	(17) Peten
	(07) Solola	(18) Izabal
	(08) Totonicapan	(19) Zacapa
	(09) Quetzaltenango	(20) Chiquimula
	(10) Suchitepequez	(21) Jalapa
	(11) Retalhuleu	(22) Jutiapa

(4) Numero Total de Empleados
(Incluyendo Vacantes):_____

(5) Tamaño:
(1) = 5-25 Empl
(2) = 26-99 Empl
(3) =100- + Empl

(6) Numero Total de Empleados
(hace dos anos):

(7) Años en Operacion:_____

(8) De cual asociacion o gremial es usted miembro activo?
(Ver lista en la proxima pagina, y marcar el codigo o codigos.)

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22

23 Otras: _____

_____

ASOCIACIONES Y GREMIALES DE LA CUAL LA EMPRESA ES MIEMBRO ACTIVO

(1) Asociación de Amigos del País
(2) Asociación de Azucareros de Guatemala
(3) Asociación de Gerentes de Guatemala
(4) Asociación Nacional del Café
(5) Asociación de Productos de Aceite
(6) Asociación de Productores de Cardamomo - APROCAR -
(7) Cámara del Agro de Guatemala
(8) Cámara de Comercio de Guatemala
(9) Cámara de Finanzas de Guatemala
(10) Cámara de Industria de Guatemala
(11) Cámara de la Construcción
(12) Cámara de la Libre Empresa
(13) Cámara de Turismo de Guatemala
(14) Cámara Empresarial de Guatemala
(15) Consejo Nacional del Algodón
(16) Fundación de Asesoria Finaciera a Institu ciones de Desarollo y Servicio Social - FAFIDESS -
(17) Fundación para el Desarrollo de Guatemala - FUNDESA -
(18) Gremial de Exportadores de Productos No Tradicionales
(19) Gremial de Huleros de Guatemala
(20) Gremial de Paneleros de Guatemala
(21) Gremial de Proveedores de Productos para Agricultura
(22) Unión Nacional Agropecuaria
(23) Otras

(9) Cuáles son las diferentes ocupaciones o puestos permanentes que hay en esta empresa?

[Refiérase a los códigos de hoja adjunta.]

(10) Cuál es el número de plazas permanentes que necesita la empresa (incluyendo vacantes) de cada ocupación, puesto u oficio?

(11) Cuál es el número actual de vacantes en:_____ (cada ocupación)?
(Ocupación)

(12) **(Entrevistador: Muestre Tarjeta No. 1.)** De acuerdo con esta tarjeta, ?Cuál es el nivel <u>mínimo</u> de educación (escolaridad) que requiere esta empresa para aspirar al puesto de:_____(de cada ocupación)?
(Ocupación)

[Refiérase a los códigos de hoja adjunta.]

[Nota: En los casos en que el puesto requiera nivel universitario completo, anote y ponga linea a través del resto de las columnas en la fila; si el puesto no requiere tambien un nivel de destreza vocacional.]

(13) **(Entrevistador: Muestre Tarjeta No. 2.)** De acuerdo con esta tarjeta, ?Cuál es el nivel <u>mínimo</u> de destreza que requiere esta empresa para aspirar al puesto de:_____ (de cada ocupación)?
(Ocupación)

[Refiérase a los códigos de hoja adjunta.]

(14-18) Cuál o cuáles personas, instituciones u organizaciones que proveen capacitación han proporcionado entrenamiento a sus empleados en este puesto?

[Refiérase a los códigos de hoja adjunta e incluya los siguientes códigos: "el empleador = 98"; "no sabe o no utiliza ningun proveedor = 99."]

[Nota: Puede tener más de una contesta.]

(19-21) **(Entrevistador: A los que han sido provistos de capacitación según pregunta 14-18: Muestre Tarjeta No. 3.** ?Qué tipo o tipos de capacitación recibieron sus empleados para este puesto?

[Refiérase a los códigos de hoja adjunta.]

(22-26) Qué persona, institución o empresa cree used qu deberá proveer capacitación a aquellos que son o van a ser sus empleados?

[Refiérase a los códigos de hoja adjunta e incluya los siguientes códigos: "el empleador = 98"; "no sabe o no utiliará ningun proveedor = 99."]

(27) **(Entrevistador:** Si el entrevistado mencionó alguna persona, institución o empresa en prengunta 22-26, pregunte: ?Cree used que este o estos proveedores pueden cumplir con sus necesidades actuales de capacitación? **[Anote la respuesta utilizando los siguientes códigos:**

(1) Si (2) No (3) No sabe o no está seguro

OCUPACI[illegible] (NOMBRE Y CODIGO) COL. (9)	NUMERO EMPLEADOS COL. (10)	NUMERO DE VACANTES COL. (11)	NIVE[illegible] REQUERI[illegible]		PROVEEDOR DE CAPACITACION COLS. (14-18)	TIPO DE CAPACITACION COLS. (19-21)	PREFERENCIA POR EMPRESA COLS. (22-26)	PUEDEN[illegible] CUMPLI[illegible] COL. (27)
			EDUC. C. (12)	DESTR. C. (13)				

OCUPACION (NOMBRE Y CODIGO) COL. (9)	NUMERO EMPLEADOS COL. (10)	NUMERO DE VACANTES COL. (11)	NIVEL REQUERIDO		PROVEEDOR DE CAPACITACION COLS. (14-18)	TIPO DE CAPACITACION COLS. (19-21)	PREFERENCIA POR EMPRESA COLS. (22-26)	PUEDEN CUMPLIR COL. (27)
			EDUC. C. (12)	DESTR. C. (13)				

CODIGOS PARA (12-13): NIVEL REQUERIDO DE EDUCATICN Y DESTREZA

Nivel de Education (12)

(1) Ninguno, no necesita saber leer o escribir
(2) Alfabetizado, pero sin ningún nivel de educación especifico
(3) Haber terminado algunos aNos de primaria
(4) Haber terminado sexto grado de primaria
(5) Haber terminado el nivel básico (3 año del ciclo básico)
(6) Hober terminado el ciclo diversificado (Bachiller, Perito Contador, Secretaria, etc.)
(7) Haber terminado algunos ciclos universitarios
(8) Haber terminado el nivel universitario
(9) Otro, especifique: _____(Explicar en la Sección de COMENTARIOS.)

Nivel de Destreza (13)

(1) Sin destreza o capacitación especifica
(2) Semi-experto, conocimiento rudimentario o con alguna capacitación o entrenamiento
(3) Semi-experto, con <u>más</u> que un conocimiento rudimentario, pero no completamente experto y/o con experiencia plena para el puesto
(4) Certificado de entrenamiento vocacional recibido
(5) Experto, con pleno conocimiento y experiencia

CODIGOS PARA 19-21: TIPO DE CAPACITACION

(1) <u>Aprendizaje Formal</u>: Capacitación patrocinada por el patrono o un sindicato en la cual un empleado aprende un oficio o destreza práctico a través de una combinación de instrucción en el aula y capacitación por la práctica, supervisado por una persona cuyo nivel de capacitación y experiencia es ampliamente comprobada o certificada. El empleado asciende en salario y en su categoria de destreza a través del cumplimiento de una secuencia de normas de un programa establecido.

(2) <u>Aprendizaje Informal</u>: Capacitación patrocinada por el patrono o un sindicato en la cual un empleado aprende un oficio o destreza práctico a través de uno o más años de capacitación por la práctica, supervisado por una persona cuyo nivel de capacitación y experiencia es ampliamente comprobada o certificada. Esta capacitación podrá incluir a uno o más elementos del aprendizaje formal, pero no a todos.

(3) <u>Capacitación en el Trabajo</u>: El patrono patrocina capacitación en el lugar de su empresa, durante la cual el empleado recibe un salario mientras aprende las destrezas y conocimientos de un oficio en particular. Normalmente la capacitación está orientada especificamente hacia las necesidades de la empresa. Puede efectuarse a través de una instrucción formal o informal.

(4) Capacitación Adicional: Es capacitación proporcionada o patrocinada por el patrono para mejorar o actualizar las destrezas o conocimientos de un empleado con el propósito de ascenderlo a un puesto superior o adaptarlo a nuevas necesidades de la empresa (por ejemplo, por la adquisición de nuevo equip, etc.). Puede llevarse a cabo en la empresa y/o en una institución de capacitación.

(5) Capacitación Institucional: Capacitación formal de aula, sin el elemento de capacitación en servicio, pagado por un patrono o no, a través de la cual una persona aprende las destrezas de una ocupación u oficio en particular.

(6) Capacitación Institucional con Práctica Organizada: La capacitación recibida por un individuo en una ocupación u oficio en particular la que combina instrucción formal de aula y la práctica (capacitación en el trabajo) en una o más empresas. El individuo recibe un salario nominal.

(7) Internado: Incluye capacitación en el trabajo como una parte de un programa institucional organizado. Usualmente, los periodos de capacitación no son largos y no son pagdos.

(8) Otros: Incluye cualquier otro tipo de capacitación. Especifique en la sección de COMENTARIOS el tipo y naturaleza de esta capacitación.

(28a) Cree usted que su personal necesitará capacitación dentro de los próximos dos años?

(1) Sí (2) No (3) No sabe

(28b-f) (Entrevistador: Si respondió afirmativamente en pregunta No. 28a, pregunte:) ?Para cuáles ocupaciones anticipa usted la necesidad de capacitación en los próximos dos años?

[Refiérase a los códigos en la hoja adjunta de ocupaciones.]

_____ _____

_____ _____

(29a-b) Actualmente invierte o estaría dispuesto a invertir fondos adicionales a los que paga a INTECAP para mejorar o actualizar a su personal? ?Para entrenar a aspirantes (futuros empleados) para posiciones dentro de su empresa?

(29a) Mejorar/actualizar	(29b) Capacitar a aspirantes
(1) Sí, invierto	(1) Sí, invierto
(2) Sí, invertiré	(2) Sí, invertiré
(3) No	(3) No
(4) Indeciso	(4) Indeciso

(30) (Entrevistador: Muestre Tarjeta No. 4.)
Si una organización de capacitación necesitará recursos adicionales para el entrenamiento de su personal de esta empresa, ?Como estaría usted dispuesto a contribuír para este propósito, según el contenido de esta tarjeta?

(01) Facilitar local.
(02) Facilitar equipo.
(03) Materiales y suministros.
(04) Pagar instructores.
(05) Pagar desarrollo curricular.
(06) Permitir al personal capacitarse en horas de trabajo.
(07) Proveer transporte si fuera necesario para su personal.
(08) Pagar el salario completo al
(09) Otro, especificar: _____

_____

(10) Nada.

(31a) Tiene la empresa alguna necesidad de capacitación que no pueda satisfacer en Guatemala en el momento actual?

(1) Sí (2) No - [Salte a pregunta 32.] (3) No sabe

(31b) Para cuál o cuáles ocupaciones necesitan la capacitación?

_____ _____

_____ _____

(32a) Ha colaborado usted en alguna oportunidad con instituciones u organizaciones proveedoras de capacitación?

(1) Sí - [Siga pregunta No. 32b.] (2) No - [Salte a pregunta 33a.]

(32b) **(Entrevistador: Muestre Tarjeta No. 5.)** ?En cuál o cuáles de las actividades que muestra esta tarjeta, ha colaborado usted o su empresa, con instituciones u organizaciones proveedoras de capacitación? **[Anote el o los códigos de estos proveedores según lista adjunta.]**

Actividad	Proveedor de Capacitación
(1) Contratar graduados de éstas	____ ____ ____ ____ ____
(2) Participar en comites asesores de curriculum	____ ____ ____ ____ ____
(3) Presentación en escuelas o centros de capacitación	____ ____ ____ ____ ____
(4) Contratarlos para capacitación a corto plazo.	____ ____ ____ ____ ____
(5) Contratar instuctores para capacitación en su empresa	____ ____ ____ ____ ____
(6) Proporcionarles (Suministros, equipos, fondos etc.)	____ ____ ____ ____ ____
(7) Otras, Especificar:_____	____ ____ ____ ____ ____
(8) Ninguna	

(33a) Ha contemplado la expansión o diversificación que no ha podido llevar a cabo?

(1) Si (2) No - **Salte a pregunta 34.** (3) No sabe

(33b) Por qué no se ha podido?

(1) Está en proceso de estudio
(2) Falta de personal capacitado
(3) Falta de financiamiento/ capital/ fondos
(4) Por regulaciones del estado
(5) Por falta de tiempo
(6) Otros: _____

_____

(34) Exporta algo de lo que produce?

(1) Si
(2) No - **Salte a pregunta 37.**

(35) Qué proporción de lo que produce exporta?

(1) Menos de 10 %
(2) Entre 10 % y 25 %
(3) Entre 25 % y 50 %
(4) Entre 50 % y 75 %
(5) Entre 75 % y 100 %

(36) A qué paises?

(1) paises centro americano
(2) EE.UU.
(3) de America del Sur
(4) de europa
(5) del oriente
(6) medio oriente
(7) Africa
(6) otro, especifique: _____

(37) Agradeceríamos comentarios adicionales o sugerencias, para mejorar las oportunidades de capacitación en su empresa. (Anótelos en el espacio continuación.)

COMENTARIOS: _____

_____

_____

_____

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_____

Firma por la Empresa: _____ _____
FECHA

Firma del Entrevistador: _____ _____
FECHA

Firma del Supervisor: _____ _____
FECHA

TARJETAS 1 - 5 PARA MOSTRAR EL PATRONO

NINGUNO, NO NECESITA SABER,
LEER O ESCRIBIR

ALFABETIZADO, PERO SIN NINGUN
NIVEL DE EDUCACION ESPECIFICO

HABER ESTUDIADO ALGUNOS AÑOS
DE PRIMARIA

HABER TERMINADO SEXTO GRADO
DE PRIMARIA

HABER TERMINADO EL NIVEL
BASICO (3 AÑOS DEL CICLO
BASICO)

HABER TERMINADO EL CICLO
DIVERSIFICADO (BACHILLER,
PERITO CONTADOR, SECRETARIA, ETC.)

HABER TERMINADO ALGUNOS
CICLOS UNIVERSITARIOS

HABER TERMINADO EL
NIVEL UNIVERSITARIO

SIN DESTREZA O CAPACITACION ESPECIFICA

CON CONOCIMIENTO RUDIMENTARIO O ALGUNA CAPACITACION O ENTRENAMIENTO BASICO O EXPERIENCIA

SEMI-EXPERTO, CON MAS QUE UN CONOCIMIENTO RUDIMENTARIO, Y/O CON EXPERIENCIA PLENA PARA EL PUESTO

CERTIFICADO DE ENTRENAMIENTO VOCACIONAL O TECNICO RECIBIDO

EXPERTO, CON PLENO CONOCIMIENTO Y EXPERIENCIA

APRENDIZAJE FORMAL

APRENDIZAJE INFORMAL

CAPACITACION EN EL
TRABAJO

CAPACITACION ADICIONAL

CAPACITACION INSTITUCIONAL

CAPACITACION INSTITUCIONAL
CON PRACTICA ORGANIZADA

INTERNADO

PAGAR EL SALARIO COMPLETO AL PERSONAL A CAPACITARSE
FACILITAR LOCAL
FACILITAR EQUIPO
PROVEER MATERIALES Y SUMINISTROS
PAGAR INSTRUCTORES
PAGAR DESARROLLO CURRICULAR
PERMITIR AL PERSONAL CAPACITARSE EN HORAS DE TRABAJO
PROVEER TRANSPORTE SI FUERA NECESARIO PARA SU PERSONAL

PRESENTACION EN ESCUELAS
O CENTROS DE CAPACITACION
CONTRATAR A ELLOS, PARA
CAPACITACION A CORTO PLAZO
CONTRATAR INSTRUCTORES PARA
CAPACITACION EN SU EMPRESA
DONAR (SUMINISTROS, EQUIPOS,
FONDOS, ETC.) A ELLOS
CONTRATAR GRADUADOS DE ESTE
PARTICIPAR EN COMITES
ASESORES DE CURRICULUM

EXECUTION OF EMPLOYERS SURVEY

INFORME SOBRE EL DESARROLLO DE LA ENCUESTA "PRIVATE SECTOR SKILLS TRAINING NEEDS ASSESSMENT (520-0000.3)

PRESENTADO POR ENCARGO DE:
ACADEMY FOR EDUCATIONAL DEVELOPMENT
(AED)

GUATEMALA, ABRIL DE 1988.

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I N D I C E

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I. GENERALIDADES SOBRE EL ESTUDIO

1.1 OBJETIVO:

Obtener información de empresas Pre-Seleccionadas basada en la actividad económica que realicen, sobre la situación actual y las necesidades de capacitación de sus empleados en la República de Guatemala.

1.2 SECTORES BAJO ESTUDIO:

- INDUSTRIA
- AGRO-INDUSTRIA
- CONSTRUCCION (VER PUNTO No.7)

1.3 CUANTIFICACION DEL UNIVERSO BAJO ESTUDIO (N) Y FECHAS DE INICIO Y FINAL:

De acuerdo con el convenio suscrito entre las firmas ARAGON & ASOCIADOS (A & A), subcontratista, y la ACADEMIA PARA EL DESARROLLO EDUCATIVO (AED), contratista, se establece:

a) Fecha de inicio: 5 de febrero de 1988.

b) Fecha de Final: 31 de marzo de 1988.

c) Universo Bajo Estudio (N) : Un mínimo de 850 entrevistas.

Se solicitaron cambios al convenio original por medio de la carta S-127-88 firmada por el Licenciado Aragón y dirigida a la señora Sheila Rabaglia (AED-WASHINGTON) con fecha 15 de febrero de 1988. Dichos cambios se concretaron en un nuevo convenio firmado el 25 de febrero de 1988 y entre otras, establece:

a) Fecha de Final: 9 de abril de 1988.
Fecha que en la sesión semanal en las oficinas de DATAPRO, celebrada el 5 de abril de 1988, y estando presentes el Doctor Méndez (AID), Bruce Newman (DATAPRO), Licenciada Ingrid Klanderud (AED) y el Señor Ricardo Lima (A&A), se acordó modificarla para el 12 de abril de 1988.
(VER MINUTA No.7)

b) Universo Bajo Estudio (N):

Un total de 850 entrevistas.

1.4 METODOLOGIA Y PROCEDIMIENTO

EL INSTRUMENTO:

Fue proporcionado por AID a través de su experta Doctora Carole Massey, fue revisado y ajustado por Aragón & Asociados para el contexto nacional. La Doctora Massey lo readecuó cuando regresó de A&A.
(MODIFICACIONES VER PUNTO No.5)

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EL METODO:

El método utilizado fue por medio de la entrevista "Cara a Cara"; con un instrumento a base de preguntas cerradas y abiertas.

UNIDAD DE MUESTREO:

La fabrica o empresa, para los sectores Industriales y Agro-Industriales. Y para el Sector construcción: El Ingeniero Encargado, El Maestro de Obras y las empresas Sub-Contratistas o Proveedoras.

SELECCION DE LA MUESTRA:

Estuvo a cargo de DATAPRO y se realizó en base a los listados proporcionados por el Instituto Guatemalteco de Seguridad Social (I.G.S.S.), que contenían la información de las empresas suscritas a esa institución.

CONTACTO CON LA EMPRESA:

Se realizó bajo dos modalidades:

- Cita telefónica previa
- Contacto Directo

Se contó con el apoyo de las Cámaras de Comercio, Industria, Del Agro y Construcción, cuyos directores fueron contactados por Klanderud (AED) y proporcionaron cartas dirigidas a sus afiliados solicitando su colaboración (VER COPIAS EN APENDICE), las Cámaras facilitaron sobres con membrete y la correspondencia fue distribuída por medio de mensajeros contratados por Aragón & Asociados, debido a la poca confiabilidad del servicio de correos nacionales. Se realizaron aproximadamente 500 entregas.

Al personal de Campo le fueron proporcionadas copias de las cartas otorgadas por las cámaras privadas; además utilizaron copias de cartas eleboradas por la misión AID - Guatemala y A&A como respaldo y presentación.
(VER CONCLUSIONES)
(VER APENDICE DE CARTAS).

SUJETO IDONEO:

Se estableció el nivel o cargo necesario para que la información fuera útil. Dentro del instrumento existían preguntas que requerían un nivel de "Decisión Dirigencial o Conocimiento de las Políticas de la Empresa". Los cargos requeridos fueron:

1. Presidente, Gerente General o Gerente de Personal, Gerente de Planta o Producción.

2. Propietario (En caso de empresas pequeñas).

3. Contador General, Gerente Administrativo. (En caso de haber sido delegado por sus superiores).

ENTRENAMIENTO DEL PERSONAL DE CAMPO:

El entrenamiento se realizó en tres fases:

a) Previo a Prueba Piloto:

Se dió a cuatro entrevistadores por la Doctora

Massey (AED), la Licenciada Klanderud (AED), Licenciado de Aragón y el Licenciado Cifuentes (A&A). El 1ro. de febrero en las oficinas de Aragón & Asociados, la Doctora Massey revisó los cambios efectuados por A&A y continuó el entrenamiento.

b) Inicial:

Se dió a trece entrevistadores por la Licenciada Klanderud (AED) y el Licenciado Cifuentes A&A en las oficinas de Aragón & Asociados, el día 10 de febrero de 1988.

c) Al personal que se integró en el transcurso del estudio:

Se realizó durante las sesiones semanales los viernes 19 y 26 de febrero y 4 y 8 de marzo. Durante estas sesiones se chequeó el funcionamiento del instrumento por medio de las visitas efectuadas conjuntamente por la Licenciada Klanderud de AED y el entrevistador designado de A&A; como resultados de estos chequeos surgieron modificaciones que se adoptaron con la aprobación de la Doctora Massey (VER PUNTO No.5)

Este entrenamiento le fue dado a 11 personas en las oficinas de ARAGON & ASOCIADOS por el Licenciado Cifuentes y el Señor Ricardo Lima, conforme a la integración de este nuevo personal en el estudio.

El entrenamiento consistió en la lectura secuencial de cada una de las preguntas hasta su comprensión general. Posteriormente se instruyó sobre técnicas de presentación y manejo práctico del instrumento, por medio de simulaciones supervisadas. Se clarificó la situación de las instituciones involucradas. (VER LISTA DE PERSONAL Y DETALLES EN APENDICE)

SUPERVISION, VALIDACION Y CODIFICACION:

Los supervisores designados por ARAGON & ASOCIADOS, inicialmente fueron:

El Licenciado Alejandro Cifuentes y la Señorita Jenniffe Dardón, de comprobada expreriencia en trabajos de campo. En fecha 8 de marzo, el Señor Ricardo Lima sustituyó al Licenciado Alejandro Cifuentes, con la aprobación de la Licenciada Klanderud. El Señor Lima fue propuesto por el Licenciado Aragón, como medida de refuerzo al personal en el Estudio, por ser una persona de entera confianza y capacidad técnica para esa responsabilidad. A la Señorita Dardón, se le asignaron otras funciones, de control interno, no directamente relacionada con el Estudio.

LA SUPERVISION CONSISTIO EN:

a) Entrenamiento del Personal de Campo, según el procedimiento descrito en la Pag. 4.

b) Revisión del 100% de las entrevistas efectivas, es decir, revisión de todas las preguntas del cuestionario, para detectar errores o inconsistencias.

c) Revisión una vez por semana con todo el personal de campo, con el fin de conocer el proceso general, dificultades surgidas, así como su solución.

d) Recolección de entrevistas 2 veces por semana y Reportes de Trabajo, fuente principal de información para nuevas asignaciones y constatación de empresas caídas.

e) Discusión de casos, directrices y Lineamientos, para clarificar cambios en el instrumento y forma de enfrentar dificultades específicas. Además de charlas motivacionales.

VALIDACION DE ENTREVISTAS:

Fue realizada constantemente por el Señor Rigoberto Hernández el Señor Ricardo Lima (A&A), en por lo menos un 20% de las entrevistas, se utilizó la vía telefónica y en casos que ameritaron la visita personal. (Casos de falta de sello de la empresa o no tener teléfono).

La validación es un procedimiento que permite fehacientemente, corroborar la información plasmada en el cuestionario; consiste en constatar primordialmente al sujeto idóneo entrevistado, su cargo y repreguntarle

alternativamente el cuestionario para determinar la consistencia del mismo. En este Estudio, se hizo más énfasis en las preguntas que determinaban el "Número de Empleados", los "Puestos Distributivos", las "Instituciones Proveedoras de Capacitación", las "Necesidades Reportadas" y; "Nombres Comerciales y/o Legales de las Empresas". (VER CONCLUSIONES DEL SUPERVISOR).

Se requirió el sello de la empresa entrevistada para su constatación y efectividad de la visita. (VER CONCLUSIONES DEL SUPERVISOR).

CODIFICACION DE PUESTOS:

Este proceso fue asignado según contrato inicial a ARAGON & ASOCIADOS. Se nombraron como responsables al Señor Rigoberto Hernández y la Señorita Doris Saravia. El procedimiento fue el siguiente:

a) Se decidió en sesión del 10 de febrero de 1988, (VER MINUTA No.1) se contó con la presencia de el Doctor Méndez de (AID), el Señor Bruce Newman (DATAPRO), la Licenciada Klanderud (AED), y el Licenciado Alberto de Aragón (A&A). Utilizar la lista de ocupaciones de INTECAP con algunas correcciones básicas, al determinarse que la lista utilizada en los Estados Unidos no era aplicable y la de O.I.T. no contaba con codificación.

b) Los cuestionarios una vez revisados y validados eran entregados a los encargados de Codificación, quienes procedían a poner las etiquetas (en los casos de existir), re-escribir el código patronal y el de Actividad Económica (CIIU) y cotejaban y escribían los códigos de los puestos en su casilla respectiva.

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c) Concluído este proceso se procedió al envío de los cuestionarios a las oficinas de DATAPRO.

RENDIMIENTO SEMANAL:

1ra. SEMANA (15 - 20 FEBRERO)	159	ENTREVISTAS EFECTIVAS
2da. SEMANA (22 - 26 FEBRERO)	153	ENTREVISTAS EFECTIVAS
3ra. SEMANA (29 FEB. - 5 MAR.)	109	ENTREVISTAS EFECTIVAS
4ta. SEMANA (7 - 11 MARZO)	144	ENTREVISTAS EFECTIVAS
5ta. SEMANA (14 - 19 MARZO)	108	ENTREVISTAS EFECTIVAS
6ta. SEMANA (21 - 26 MARZO)	148	ENTREVISTAS EFECTIVAS
7a. SEMANA (4 - 9 ABRIL)	54	ENTREVISTAS EFECTIVAS

LAS FECHAS Y CANTIDADES ENTREGADAS DE CUESTIONARIOS A AED:

25	DE FEBRERO:	83	REGION I		
8	DE MARZO:	140	REGION I		
14	DE MARZO:	136	REGION I		
16	DE MARZO:	46	REGION I	Y 73 INTERIOR	
21	DE MARZO:	101	REGION I	Y 34 INTERIOR	
24	DE MARZO:	49	REGION I	Y 2 INTERIOR	
29	DE MARZO:	81	REGION I	Y 7 INTERIOR	
5	DE ABRIL:	49	REGION I		
11	DE ABRIL:	17	REGION I		56 CONST.
T O T A L E S		702	REGION I	116 INTERIOR	56 CONST.

De estos totales se anularon 8 de las filiales

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que conforman La Cámara Del Agro y 2 anulada en Proceso de validación. El total entregado es 864 entrevistas efectivas.

Las entrevistas del Sector Construcción fueron devueltas por la Licenciada Klanderud, para mecanografiar los comentarios incluídos en los mismos y se le retornaron en fecha 21 de abril de 1988.

RENDIMIENTO SEMANAL POR ENTREVISTADOR

Se computaron siete semanas en trabajo de campo, habiéndose logrado los siguientes índices en el promedio diario por entrevistador:

PRIMERA SEMANA:	2.44	ENTREVISTAS DIARIAS
SEGUNDA SEMANA:	2.52	ENTREVISTAS DIARIAS
TERCERA SEMANA:	1.8	ENTREVISTAS DIARIAS
CUARTA SEMANA :	2.5	ENTREVISTAS DIARIAS
QUINTA SEMANA :	2.36	ENTREVISTAS DIARIAS
SEXTA SEMANA :	2.78	ENTREVISTAS DIARIAS
SEPTIMA SEMANA:	2.35	ENTREVISTAS DIARIAS
PROMEDIO DEL ESTUDIO:	2.39	ENTREVISTAS DIARIAS

2. PRUEBA PILOTO:

En fecha 29 de febrero de 1988, recibieron entrenamiento 4 entrevistadores de ARAGON & ASOCIADOS, dado por la Doctora Massey y la Licenciada Klanderud (AED) y el Licenciado Alberto de Aragón y el Licenciado Alejandro Cifuentes (A&A); (VER APENDICE DE PERSONAL PARTICIPANTE).

La prueba consistió en verificar la adecuación del cuestionario en empresas seleccionadas y los resultados fueron:

- 5 Entrevistas realizadas, donde por problemas se debió re-adecuar el instrumento.

- 1 Entrevista realizada, devuelta a la Doctora Massey, y con el instrumento re-adecuado, dos entrevistas más.

La prueba se efectuó del 3 al 9 de febrero.

3. SELECCION Y REEMPLAZO DE EMPRESAS:

La selección de empresas fue realizado por DATAPRO, de un Universo de empresas contribuyentes al Instituto Guatemalteco de Seguridad Social (I.G.S.S.) y consistió en una selección selectiva de acuerdo a la actividad económica de las mismas para la conveniente representatividad de dicha actividad en el Estudio.

EL listado inicial de empresas pre-seleccionadas fue entregado a Aragón & Asociados en fecha 15 de febrero de 1988 y contaba con 720 nombres en la Región I y 151 en el interior.

El proceso de reemplazo de empresas, se realizó con el propósito de obtener nuevas pre-seleccionadas con la misma metodología, para cubrir el porcentaje de las que no pudieron realizarse por diversas razones. (VER LISTADO EN APENDICE CON DESCRIPCION,RAZONES Y TOTALES). Se proporcionaron en 5 listados, un total de 274 empresas.

El listado de empresas del interior de la república, fue proporcionado con un total de 151 nombres; de las cuales fueron efectivas un total de 116. (VER LISTADOS EN APENDICE, PARA DISTRIBUCION Y DETALLES).

En el trabajo para el interior se visitó únicamente cabeceras y donde existía carretera; con la autorización de la misión AID de Guatemala,se autorizó a realizar una sóla visita a las empresas seleccionadas en el interior y se aceptó como bueno, el resultado que se lograra. Esto por razones de costos, tiempo y distancia. Se visitaron en total 13 departamentos, 4 ciudades importantes (no cabeceras) y dos departamentos comprendidos dentro de la Región I, que son Chimaltenango y Sacatepequez.
TOTAL: 15 departamentos.

4. <u>TRABAJO DE CAMPO:</u>

Esta función es la recopilación de la información, conducida por los entrevistadores, en el trabajo de campo. El proceso de supervisión puede apreciarse en las páginas 6 y 7.

a) La asignación de las empresas se realizó en primera instancia, por la mayor facilidad de contacto con la persona a entrevistar, ya que el entrevistador conocía a dicha persona o empresa. En segunda instancia, por zonas y sectores geográficos, para optimizar recursos de transporte y tiempo. Los reemplazos se asignaron de acuerdo al rendimiento y efectividad evidenciado en las entregas de cuestionarios y reportes semanales de trabajo.

El interior de la República fue asignado a un equipo conformado por cinco entrevistadores de entera confianza y larga experiencia en Aragón & Asociados; se les proporcionó medio de transporte y todas las facilidades.

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c) El personal participante puede apreciarse en el apéndice (REPORTE DE PERSONAL INVOLUCRADO). Total de entrevistadores: 24, Promedio semanal: 13, No continuaron con el Estudio:9. La experiencia de nuestra empresa en este estudio indicó, que por el grado de dificultad y por el nivel de los entrevistadores, su participación durante el mismo no es muy prolongado (3 semanas promedio); lo cual debe tomarse en cuenta anticipadamente para sostener un promedio semanal constante. El comportamiento del personal fijo de A&A no es de esta forma. En todo caso, esto es considerado "Normal" en nuestro medio.

5. INSTRUMENTO Y CAMBIOS EFECTUADOS:

El instrumento fue proporcionado y diseñado por la Doctora Carole Massey y sufrió algunos cambios, consultados y aprobados por ella.
(VER MINUTA No.3, PARA MAS DETALLES).

- PREG. No.4:

El número de empleados no fue obligatorio que coincidiera exactamente con el total de Preg. No. 10; sólo en casos que la diferencia fuese significativa, se procedería a su validación.

- PREG.Nos.14-18:
  El código para identificar INTECAP, fue invariablemente (Sin importar la localización) aceptado con el código No.10.

- PREG.Nos.19-21:
  El tipo de capacitación podía tener varios códigos como respuesta.

- La lista de Cámaras y Gremiales no estaba completa. Se convino en anotar las no existentes en la lista bajo el código No.23. cuando la compañía no pertenezca a ninguna, DATAPRO la codificará como 00.

- PREG.Nos.22-26:
  Se dividió en dos partes ya que la Preg.No. 27 era útil para una única respuestas cuando en Preg. No.22 - 26 podían anotarse diversos proveedores de capacitación. Con esto se particularizó y se evitó la respuesta generalizada y muchas veces inconsistente. En caso que no se pudiera definir el proveedor de capacitación, se anotaría Código No. 99.

- PREG.Nos.30 y 32b.:
  La tarjeta No.4 fue cambiada de su diseño circular a uno en columnas, debido a la dificultad reportada en su lectura.

- Para el nivel de educación, la persona pendiente de exámenes de graduación, sería codificado como grado universitario y quienes tengan un grado técnico (3 años de estudios), se codificarán como con algunos ciclos universitarios.

- La Doctora Massey informó que para este estudio no iban a tener ningún interés los puestos Administrativos o Gerenciales. La Doctora consideró que el tener un grado universitario, identificaría y separaría los mandos altos. Sin embargo, en Guatemala, los puestos administrativos y gerenciales no requieren necesariamente educación universitaria. Por ejemplo, un entrevistado es a su vez, dueño, presidente y su educación es de tercero prevocacional. Los entrevistadores habrían de anotar únicamente los nombres de dichos puestos, cuántas personas los ocupaban y cuántas vacantes existian.

- PREG. No.22 - 26 y 27:

  Los entrevistadores debieron preguntar a la persona entrevistada por la preferencia sobre alguna institución proveedora de capacitación para cada uno de los puestos descritos, y también si dicha institución es capaz de cumplir con sus requerimientos a la fecha. La columna 22-26 fue dividida para poder aceptar ambas respuestas.

- PREG. No.32b:

  Se anotará el No.7 correspondiente a "Otras formas en que la Compañía ha colaborado con Instituciones proveedoras de capacitación". El Señor Newman sugirió establecer una opción que incluya de alguna forma la cooperación bilateral.

6. RESULTADOS DEL TRABAJO DE CAMPO

6.1 Efectivas (Región I): 702

6.2 Caídas (Región I): 237
No utilizadas: 11

6.3 Efectivas (Interior): 116

6.4 Caídas (Interior): 35

(VER CODIGOS Y RAZONES EN APENDICE)

7. SECTOR CONSTRUCCIÓN:

Este sector se documenta como un punto particular ya que su estudio no puede identificarse con las características de los otros bajo estudio.

Fueron: (VER METODOLOGIA PROPUESTA POR LA LIC. KLANDERUD MARZO 17, APROBADO POR LA MISION, MARZO 18, EN MINUTA No.6)

7.1 Empresas Bajo Estudio: 8
- Ingenieros : 6
- Maestros de Obra : 8
- Sub-Contratistas : 42

(VER DETALLES, COMPAÑIAS, NOMBRES, ETC. EN APENDICE)
12 Sub-Contratistas no dieron información.

7.2 La forma como fueron entregadas las empresas o personas a visitar, fue de acuerdo a las entrevistas realizadas por la Licenciada Klanderud de AED a los Presidentes o Gerentes de las 8 Compañías seleccionadas para la muestra del sector construcción. Los personeros de las Compañías proporcionaron los

Nombres y formas de contactar a los ingenieros encargados de ese proyecto, el de los maestros de obra y el de las Compañías Sub-Contratistas o proveedoras. Además entregaron notas de presentación o autorización para facilitar la obtención de la información directamente en las obras. La primera entrega se efectuó con fecha 24 de marzo de 1988.

7.4 Debido a las características particulares que presentó este sector, se hizo necesario la re-adecuación del instrumento, para la conveniente captación de la información. Las re-adecuaciones fueron las siguientes:

a) Para los Ingenieros encargados no se hizo necesario la utilización de la Preg. No.8 y el número de empleados anotados fueron únicamente los que estaban a su cargo.

b) Para los Maestros de Obra no se utilizaron las Preguntas No.8,29a-b, 30, 31a., 31b., 32a., 32b., 33a., 33b., 34, 35, y 36. Se juzgó que la información más interesante estaba plasmada en la pregunta 37, de comentarios.

c) Para el caso de las Compañías Sub-Contratistas se autorizó a realizar la entrevista orientándola específicamente a la obra en la que participó; en caso de dificultarse el requerimiento anterior, se solicitó la información correspondiente a toda la Compañía.

8. CONCLUSIONES DEL SUPERVISOR:

8.1 Las cartas proporcionadas por las Cámaras de Industria, Comercio, Agro y Construcción, además de las firmadas por AID y A&A, fueron de especial importancia para respaldar la seriedad del estudio, ya que en Guatemala, generalmente el empresario no está anuente a proporcionar este tipo de información si no va debidamente avalada por entidades que garanticen su utilización para los propósitos establecidos. El resultado de la utilización de dichas cartas se concretó en la realización con menores dificultades y en más corto tiempo, de las entrevistas; los contactos directos fueron altamente efectivos

8.2 El requisito de proporcionar el sello de la empresa fue muy importante para la garantía fehaciente de la visita, las compañías en general lo proporcionaron sin dificultad, salvo muy pocos casos tipificados como:

a) No autorizados a ponerlo.
b) NO desear compromisos.
c) No poseer sello o no tenerlo a disposición.

En estos casos se solicitó la razón manuscrita del entrevistado y su firma; en todos los casos se procedió a validar la información.

8.3 Las personas contactadas para validación de cuestionarios, colaboraron con amabilidad para el propósito. La detección de inconsistencias fue mínima, aproximadamente 20 casos que representan el 2.3% del porciento total de entrevistas logradas y la corrección de errores también. Durante todo el estudio únicamente fueron anuladas por Aragón & Asociados, dos encuestas; detectadas una con sesgos en la información, y la otra por no tener sello y ser muy difícil su obtención. La utilización de corrector en los cuestionarios es un procedimiento común, verificado por el supervisor para:

a) Validación (Correcciones)
b) Presentación.
c) Corrección de información vertida en la misma entrevista.

En los casos menos presentables, se rehizo la hoja por el supervisor.

8.4 El concepto general obtenido durante el estudio, a manera de opinión personal, es la importancia y necesidad de este tipo de investigaciones, demostradas por un gran número de compañías entrevistadas, además indican lo imprescindible de llevar a cabo acciones correctivas y prácticas.

El interés manifestado por las compañías entrevistadas fue grande y se evidencía por: su interés en conocer el resultado de este estudio, solicitando su publicación o envío; de la misma forma patentizaron su disposición a cooperar en lo que sean

requeridos. Como una muestra y satisfacción para nuestra firma, hemos recibido llamadas telefónicas y visitas personales de Ejecutivos representantes de Empresas tanto de la capital como del interior, positivamente impresionados por las características y la forma en que se condujo el estudio.

APENDICE DE CARTAS

aragón & assoc.

Investigación de Mercado y Asesoría Empresarial

S-127-88
Guatemala, 15 de febrero de 1988

Ms. Sheila Rabaglia
ACADEMY FOR EDUCATIONAL DEVELOPMENT
1255, 23rd. Street, N.W.
Washington, DC 20037
U.S.A.

RE: CONTRACT NO. LAC-0000-C-00-6074-00
CAEFTS PROJECT, T.S.O. NO. 36
PROJECT NO. 122636

Dear Ms. Rabaglia:

Thank you very much for your letter dated february 10, 1988, and the sub contract regarding reference matter.

First of all, I am very honored to have been selected, once more, to conduct a job in cooperation with The Academy. I take this as an indicator of your satisfaction derived from the previous study conducted in Honduras.

Again, we are facing some difficulties to get the project going and with some details of the contract that I would like to make clear for the records.

In order to make it easier, I will proceed in the same order of the agreement.

.... /2/

7a. Ave. Plaza 6-26, Zona 9 Oficina 1008. Teléfono: 314926, Guatemala, C. A.

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.... /2/

B. SCOPE OF WORK

1. Due to local circunstances, we could only complete 8 interviews for the pilot test. Most companies granted appointments for the week after. This effort was achieved by 5, trained interviewers.

2. The post office service in Guatemala is not reliable. That is why we have been forced to make 1000 deliveries by messenger which created a serious increased in our cost and time estimates.

Also, during a meeting with representatives of all the parts involved in the study, we agreed not to mention the INTECAP project unless this is called to our attention by the participantes.

ARTICLE IV - AGREEMENT PERIOD AND DELIVERIES

As of today, we have not been able to commence interviewing. We will hopely be in the field tomorrow because of reasons beyond our control.

The original estimate of 4 completed contacts per day, per interviewer, based on a preliminary instrument that could not be properly analized, does not seem realistic now. We are estimating an optimistic 2.5 completed interviews per interviewer, per day, but can not guarantee this until the first interviewing week is completed.

During the previously mentioned meeting, we agreed to wait until the first week of interviewing was completed in order to produce a realistic time estimate.

Therefore, we can not accept the dead line stated in your contract of March 31.

Also, during our first meeting with Mr. Morris Allen, and Dr. Chuck Green, we quoted US $. 12.00 per interview based on n 1000, assuming a natural mortality of 15%. Mr. Allen's interpretation was that we quoted US $. 12.00 per 850 interviews, although I was told that I would not be forced to mantain my first estimate What followed was a fixed contract by US $. 10,000.00.

The original estimate, was that n was going to be distributed 90% in the capital a 10% in other nearby cities.

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aragón & assoc.

The listings of the selected companies (That does not include the names of the directors which makes our effectiveness more difficult) shows 80% in the capital city and the remaing 20% in cities not as close to the capital as originaly expected. This, of course, is also different than originaly discussed, and a serious effect in the out of pocket expenses.

We were ready to complaint about all the above and to decline the invitation for the conduction of the F.W. But were asked for c cooperation and understanding for the benefit of the study. As you know, we have proven our disposition to cooperate with similar situations in the past.

Nevertheless, it is worthwhile to mention that, with these changes, our contribution to the project will be not less than $. 3,000.00.

For all the above, the sample should be changed to a total of n 850, but not a "Minimun of 850 interviews". Furthermore, as soon as we reach 850, we will stop interviewing.

A. FIXED PRICE

Although we believe it to be just, we also understand that changing a fixed price contract is difficult, for we might have to live with this. However we will be somehow more confortable if we did not, in addition to a cash contribution, need to finance the project.

Therefore, we are making two requests regarding the payment schedule:

A.1 While this contract is revised, please make the first deposit in my Miami account of US $. 3,000.00. By this time, the training, pilot test and some interviewing will be already satisfied.

A.2 Second payment sould be done upon completion of 425 interviews (Not 500), and Academy for Educational Development AED acceptance of the same.

.... /4/

.... /4/

I am confident that you will solve the above mentioned details. While you do it, be sure that the study will be going as fast as our capabilities and the local market pecularities, will allow.

It is indeed a pleasure working for you again.

Sincerely yours,

Lic. Alberto de Aragón
President

AA/sgb

c.c. Ms. Liliana Ayalde AID
Mr. Gilberto Méndez AID
Dr. Chuck Green AID
Ms. Beverly Jones AED
Mr. Morris Allen AED
Ms. Ingrid Klanderud AED
File

aragón & assoc.

Cámara de Industria de Guatemala

RUTA 6, 9-21 ZONA 4 · AP. POSTAL 214 · TELS. 317069 Y 317369 · CABLES. CAMINGUA

TELEX 5402 CAMIND GU

PRESIDENCIA

Guatemala, 9 de febrero de 1988

Estimado Asociado:

Como es de su conocimiento muchas de las necesidades de capacitación de la fuerza laboral de las empresas del sector productivo, no son satisfechas por las instituciones que han sido creadas para ese fin, la cual representa un problema serio para las empresas al tener que obtener estos servicios de otras fuentes o bien laborando con personal que no está capacitado adecuadamente.

La empresa Aragón y Asociados ha sido seleccionada por la Agencia Internacional para el Desarrollo (AID) para llevar a cabo una encuesta sobre las necesidades de capacitación y hasta que punto éstas no son satisfechas actualmente. El objetivo del estudio es evaluar la factibilidad de un proyecto de ayuda en el área de capacitación por parte de la AID.

Por contar esta encuesta con la confianza de la Cámara de Industria, le estamos solicitando su colaboración para que atienda a los entrevistadores y proporcione la información que le sea requerida.

Agradeciendo de antemano su colaboración, aprovechamos la oportunidad para saludarle.

Atentamente,

CAMARA DE INDUSTRIA DE GUATEMALA

Ing. Juan Luis Bosch
Presidente

JLB/amv
Ref.: 181-88

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CAMARA DE COMERCIO DE GUATEMALA

188/88

Guatemala, 5 de febrero de 1988

Estimado Asociado:

Por este medio, me es grato comunicar a ustedes que la firma ARAGON Y ASOCIADOS, con la asistencia de la Agencia Internacional para el Desarrollo (A I D), desarrollará una encuesta sobre Las Necesidades de Capacitación Técnica y Vocacional de la Fuente Laboral que presta sus servicios al Sector Privado de Guatemala. Asimismo, que el Sector Productivo Organizado, después de analizar esa Encuesta, estima que la misma será de beneficio para nuestro país.

En vista de ello, rogamos a usted prestar su valiosa colaboración para la realización del estudio a que se ha hecho referencia.

De usted, con toda consideración, atento servidor,

CAMARA DE COMERCIO DE GUATEMALA

Lic. Jonás Vásquez A.
GERENTE

CAMARA DE COMERCIO GUATEMALA
GERENTE

10a. CALLE 3-80, ZONA 1 - TELEFONOS 82681 AL 85 - TELEX 5478 CAMCOM GU - GUATEMALA, C.A.

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USAID GUATEMALA

AGENCY FOR INTERNATIONAL DEVELOPMENT
UNITED STATES A. I. D. MISSION TO GUATEMALA

USAID/GUATEMALA
APO MIAMI 34024
or
c/o American Embassy
Guatemala City, Guatemala, C.A.

3 de marzo de 1988

Señores

ATTN: Gerencia General
Gerencia de Personal

La Agencia para el Desarrollo Internacional (AID) es una entidad dedicada a apoyar programas de desarrollo en países como Guatemala.

Con el objeto de evaluar la factibilidad de un proyecto de ayuda en el área de capacitación, se está conduciendo un estudio (15 de febrero al 31 de marzo), sobre las necesidades de capacitación técnica o vocacional de la fuerza laboral que presta sus servicios en empresas del Sector Privado de Guatemala.

La empresa ARAGON & ASOCIADOS ha sido seleccionada por AID para llevar a cabo la encuesta sobre las necesidades de capacitación que existen en Guatemala.

Por tal razón, rogamos su ayuda y cooperación a la realización del estudio al que se ha hecho referencia, proporcionando la información que le sea requerida por parte de los funcionarios de ARAGON & ASOCIADOS. Los empresarios serán los principales partícipes del beneficio que se logre obtener.

Atentamente,

Gilberto Méndez
Oficina de Desarrollo de
Recursos Humanos

CAMARA DEL AGRO DE GUATEMALA

LIC CESAR BUSTAMANTE ARAUZ
GERENTE GENERAL

Guatemala, [illegible] de Febrero de 1988.

Entidades que integran la
CAMARA DEL AGRO.

Respetable Asociado:

La Junta Directiva de esta Cámara en su sesión celebrada el día de ayer conoció la Encuesta que realizará la Empresa Aragón y Asoc., considerando que la misma podrá dar resultados favorables al sector privado, por lo que no encuentra ninguna objeción para que si usted lo tiene a bien responda a las preguntas que las personas encargadas de dicha Encuesta le plantearán.

Sin más que agradecer su atención a la presente, aprovechamos la ocasión para reiterarle las muestras de nuestra consideración.

CAMARA DEL AGRO DE GUATEMALA

CAMARA DEL AGRO DE GUATEMALA

CBA/evag
26/88.

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aragón & assoc.

Investigación de Mercado y Asesoría Empresarial

S-075-88
Guatemala, 11 de Febrero de 1988.

Señores

ATTN: Gerencia General o Gerencia de Personal

Nuestra firma ha sido contratada por la entidad Academy For Educational Development de Washington, D.C., la cual, con fondos y asistencia de "La Agencia Para El Desarollo Internacional" (AID), está conduciendo un estudio sobre las necesidades de capacitación técnica o vocacional de la fuerza laboral que presta sus servicios en empresas del sector privado de Guatemala.

Para obtener la información requerida para este estudio, se ha seleccionado un grupo de empresas, entre las cuales se incluye la que usted representa, cuyos directores son considerados capaces en sus respectivos ramos.

En breve serán visitados por alguno de nuestros funcionarios, quién platicará brevemente con ustedes sobre el tópico antes señalado.

En nombre de "La Agencia Para El Desarrollo Internacional" (AID), "Academy For Educational Development" (AED) y el nuestro le damos gracias anticipadas por su valiosa cooperación, de la cual nuestro país será el primer y mejor beneficiado.

Atentamente,

Lic. Alberto de Aragón
Presidente

7a. Ave. Plaza 6-26, Zona 9 Oficina 1008. Teléfono: 314926, Guatemala, C. A.

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Minutes (February 10, 1983)

1. On February 10 the first meeting of the Private Sector Skills Training Needs Assessment Study, with all the involved parties, took place. For AED: Morris Allen and Ingrid Klanderud For AID: Doctors Gilberto Mendez and Chuck Green. For DATAFRO: Bruce Newman. For Aragon y Asociados: Lic. Aragon and Alejandro Cifuentes.

   It was decided that a weekly meeting with the involved parties was vital for the project's successful development. The meetings will be held on Tuesdays at 8:30 a.m., at DATAFRO. These meetings will be attended by: For AED: Ingrid Klanderud, who will be the representive of AED in the absence of Mr. Morris Allen. For AID: Gilberto Méndez. For DATAFRO: Bruce Newman. For Aragón y Asociados: Alejandro Cifuentes and Lic. Aragón, when feasible.

2. A report on the contacts and letters requested from the Chambers of Construction, Industry, Agro, and Commerce was presented by Ingrid Klanderud. The only pending letter is the one from Agro.

3. The supervision systems were discussed.
   a. Aragón y Asociados has designated Alejandro Cifuentes and Geneif Dardón to supervise their procedures.
   b. Aragón y Asociados will be in charge of the coding of the occupational codes. They have suggested to have one person in charge.
   c. Aragon's supervisors will check completion of all answers on the questionaire. They will also spot check on their interviewrs (10 to 20 %).
   d. The supervisors will validate answers over the phone. In some cases a second visit to the companies might be necessary.
   e. The supervisors are aware that they have to keep a record of the companies that fall out of the sample in order to get a replacement from AED.
   f. The supervisors will send interviews to Datapro to be checked by AED and Datapro twice a week.
   g. Aragón y Asociados were made aware that the AED representative (Ingrid Klanderud) will accompany them in their initial visits to be able do help in the documentation of the interviewing processes.
   h. AED will also spot check on some of the answers provided by the accepted questionaries.A record of discrepancies and concurrences will be kept.
   i. It was agreed that a double letter by the Chambers asking for the cooperation of their associates even when they had already been visited by INTECAP was not necessary.
   j. Aragón y Asociados will be in charge of sending the two letters, one written by the Chambers and their own, by messanger. These letters will be sent to the companies prior the telephone contact.

4. Aragón y Asociados presented some of the problems they might incur in when trying to have the interviewing processes completed by March 31. It was pointed out that the last week in March is not a working week in Guatemala, because of Easter. Dr. Mendez and Mr. Allen were to discuss that afternoon the feasibility of an extension on the deadlines. Dr. Newman for Datapro, and Ingrid Klanderud for AED informed that they would not in the country during Easter week, either.

Aragón y Asociados will be paid upon completion of 425 questionaries, which are acceptable to AED and Datapro. AED, Washington, will be informed of the completion and Dr. Mendez (AID) will be notified, too. Aragón's last payment will come after the acceptance of 850 interviews and the same procedure will be followed. Lic. Aragón commented on the fact that up to that day he had not yet received the authorized and approved copy of his contract.

Aragón y Asociados has set a realistic number of completed interviews per interviewer. An average of 2.5 interviews per day was set. He has planned on having 10 to 14 people out in the field. However, he has pointed out that he will be able to have an exact number of interviews completed per week at the end of the first week.

5. Bruce Newman presented the problems that were found when trying to come up with a logical system of coding the occupations. The three possible options were reviewed. Using the USA Bureau of Labor coding systems has the problem of translation and relevance to the Guatemalan context. The OIT (Organización Internacional del Trabajo) handbook, although in Spanish is not a working system of coding. Finally, it was decided to utilize the INTECAP list of occupations with some basic corrections. A meeting with INTECAP'S authorities was to be set to check whether they had any system which generated the numbers on the occupations' list and if a grouping system already existed.

Bruce Newman presented the technical issues at hand. It was determined that the consultants, Saavedra and Massey, who are to utilize the information, have to come up with a system of grouping the INTECAP 'S list of occupations into logical categories. Bruce Newman had contacted Saavedra and Massey the day before and saw the need of them coordinating efforts. It was determined that it is of vital importance to know what the consultants will require for their recomendations in order to have the data generated in ways which fits their needs.

6. Mr. Morris Allen informed that the calendarization for the next months would be discussed with AID authorities that afternoon. He was to give a copy of it to the person left incharge by the Academy for Educational Development (Ingrid Klanderud). Mr. Allen will be leaving the country on Saturday, February 13. His next visit has not yet been scheduled.

[illegible]

On April 5, the 7th. meeting of the [illegible] Training [illegible] Assessment Study, with all the involved parties being present, took place. For AED, Ingrid Klanderud; for ATI, Gilberto Mendez; for DATAPRO, [illegible] Newman, and for ARAGON Y ASOCIADOS, [illegible]. Alberto Aragón could not be present.

The next meeting will take place on April the 12 th.

2. The state of the interviewing process was presented by Lima. [illegible] interviews have been completed within region one, 136 have been completed in the other "departamentos", and 33 out of more or less 70, in the construction sector are the completed ones. Lima was asked what would happen if the total number of questionnaires surpassed the 850, when the construction sector were to be completed. Lima said that he did not see any problem with doing a few more. However, he was to check with Alberto Aragón.

Lima was also reminded of the report that Aragón y Asociados is to present commenting at length what the methodology and the different set backs and efforts were during the whole process. This report would have to include the specific reasons for the fall outs not wanting to provide information, with their CIIU codes and with their "número patronal". At the same time a list of the REPLACEMENTS which were not utilized has to be received by DATAPRO. Lima will be presenting the index of the report they have to prepare during the next team meeting. April 12, 1988. This report has be handed to the AED representative for her approval . A definite date for this report to be completed was not set, however, Friday, April 15 was discussed as feasible.

The deadline for Aragón y Asociados was moved two days, mainly, because of the difficulties that the construction sector and its different strategy has presented. The agreed deadline, thus for has been established for Tuesday, April 12.

3. Klanderud informed that 7 out of the 8 "Gerentes or Presidentes" that she was to interview had been contacted. The last interview would take place that same day at 11:30 a.m. The following table was presented, too..

C a.	Gerente	Ing.	Maestro de Obra	Sub-contratistas
1. Fapco	✓		✓	2/8
2. I.Sta. Clara	- - - - - - - -	✓	✓	2/13
3. Cyasa	✓			
4. Aicsa	✓		✓	3/8
5. Prodisa	✓	✓	✓	3/5
6. A.C. de Guate.	✓	✓	✓ ✓	5/7
7. Comosa/P.Aragón	✓	✓	✓	0/9
8. Icogua	✓	✓	✓	3/3

28/

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4. The way to handle and to write up the construction results will be established after having received and examined the information coming from the field.

5. Baeza from INTECAP was contacted that same day. He informed Newman that in order for him to provide us with the information on 3 sectors ("Turismo, Comunicaciones y Transporte) a letter addressed to the Gerente General, Arq. Hugo Rosal, was needed. DATAPRO would also be sending the disks. Méndez suggested that we should also ask for the information that they have on the Construction sector. A letter would be written by Klanderud and with the Missions' approval it would be sent as soon as possible.

6. Newman and Klanderud asked Méndez what the Mission had established as feasible times for the different consultants and the Chief of party to return to the country. Newman was particularly concerned , because DATAPRO will have to be processing 3 different types of data at the same time, Intecap's, the whole Encuesta and the construction sector. More so, because, in INTECAP'S case we do not know when the information is to come and, what kind of data we will be receiving. It was established that the consultants would require the complete the set of tables.

Méndez commented that the Mission had not established any definite dates, however, they had an idea of what the time requirements for the different consultants would be in order to be able to assess what has to be assessed and write their different sections, and at the same time have the whole team work together in the writing up of the report.

a. Morris Allen, Chief of Party	5 weeks
b. Saavedra	3 weeks
c. Massey	2 weeks
d. Martinez	1 week

Méndez , also pointed out to the importance of allowing for a time overlap that would assure having Morris Allen, Chief of Party, and the representative from AID/ Washington, probably David Evans, in the country at the same time.

Nothing definite was established regarding future dates and visits. May 23 was suggested as an option for Mr. Allen's visit. One Guatemalan official holiday,(30 de junio) and the 4th. of July (American official holiday) ought to be considered for the final schedule of all the visits and deadlines.

APENDICE DE REPORTES

REPORTE DEL PERSONAL INVOLUCRADO EN EL TRABAJO DE RECOPILACION DE EL ESTUDIO PARA AID

REPORTE DEL PERSONAL INVOLUCRADO EN EL TRABAJO DE RECOPILACION DE INFORMACION DE EL ESTUDIO PARA AID

Viernes 29 Enero de 1988

Recibieron entrenamiento con Carole B. Massey e Ingrid Klanderud:

DE COLE EMMY
DE GARCIA MARIA ANTONIETA
DE LEON MELVA
VIELLMAN LUCRECIA

En este entrenamiento estuvieron presentes el licenciado Alberto de Aragón y Alejandro Cifuentes en representación de ARAGON & ASOCIADOS.

Los 4 entrevistadores que recibieron el entrenamiento el día viernes 29 de enero, fueron los que participaron en la prueba piloto. (Del 3 al 9 de febrero).

Durante la primera semana del mes de febrero se llevó a cabo dos reuniones en las oficinas de DATAPRO (Zona 9) con las Licdas. Carole B. [illegible] e Ingrid Klanderud, para discutir experiencias y problemas detectados durante la prueba piloto a la cual asistieron:

LIC. ALBERTO DE ARAGON	(ASISTE A UNA)
ALEJANDRO CIFUENTES	
RICARDO LIMA	(ASISTE A UNA)
LUCRECIA VIELLMAN	
MELVA DE LEON	
ANTONIETA GARCIA	
ABRAHAM CHAVES	
VERONICA RAMAZZINNI	(ASISTE A UNA)
EMMY DE COLE	(ASISTE A UNA)

Entrenamiento en ARAGON & ASOCIADOS el día 10 de febrero e inicio del trabajo de campo el día 16 de febrero con el siguiente grupo de entrevistadores:

1. AVILA ULISES
2. CHAVES ABRAHAM
3. DE LA CRUZ ROGER
4. DE LEON MELVA
5. DE GARCIA TONY
6. LIMA RICARDO
7. MAZARIEGOS JORGE
8. MURGA JORGE
9. PACHECO EMILIO
10. RAMAZZINNI VERONICA
11. TARACENA PATRICIA
12. TUNAY AMILKAR
13. VIELLMAN LUCRECIA

Listado de entrevistadores que se han unido al grupo inicial, con sus respectivas fechas:

1.	BUCH JORGE MARIO	2 DE MARZO
2.	CARROLL LUCIA	24 DE FEBRERO
3.	CHANQUIN FREDDY	1 DE MARZO
4.	ESCOBAR RAUL	1 DE MARZO
5.	GIL MAYRA	10 DE MARZO
6.	GONZALEZ EFRAIN	2 DE MARZO
7.	MORALES JORGE	24 DE FEBRERO
8.	RODRIGUEZ JOSE A.	17 DE FEBRERO
9.	SAMBUEZA ANDRES	24 DE FEBRERO
10.	SANTOS CARLOS	2 DE MARZO
11.	YURRITA EDUARDO	1 DE MARZO

Listado de entrevistadores que por varias razones no continuaron en el proyecto:

1.	CARROLL LUCIA	(POR MOTIVOS DE ESTUDIOS)
2.	CHAVES ABRAHAM	(*)
3.	DE COLE EMMY	(OBTUVO EMPLEO FIJO)
4.	MORALES JORGE	(RAZONES PERSONALES)
5.	RAMAZZINNI VERONICA	(OBTUVO EMPLEO FIJO)
6.	SAMBUEZA ANDRES	(NO PUDO ASISTIR A UNA REUNION)
7.	SANTOS CARLOS	(POR ACUERDO CON LICDA. KLANDERUD)
8.	VIELLMAN LUCRECIA	(OBTUVO EMPLEO FIJO)
9.	YURRITA EDUARDO	(RAZONES PERSONALES)

* SE LE ENVIO COPIA A LA LICDA. INGRID KLANDERUD SOBRE ESTAS RAZONES.

REPORTES DE NUMEROS PATRONALES Y CIIU DE EMPRESAS QUE NO EXISTEN O SE CAMBIARON DE DIRECCION O NO DIERON INFORMACION EN LA CAPITAL

NOMENCLATURA
(RAZON)

A. NO EXISTE *
B. NO QUIZO DAR INFORMACION
C. SE VISITO MAS DE TRES VECES
D. DEVOLVERIAN LLAMADA PARA CITA
E. DIRECCION INCORRECTA
F. NO TIENEN TIEMPO PARA ATENDER
G. NO LES INTERESA LA ENCUESTA
H. NO SE UTILIZARON
I. EMPRESA REPETIDA.

Una empresa es calificada como NO EXISTE, cuando la dirección reportada para su ubicación, no correspondía o simplemente, no se encontraba en ese lugar. De cualquier forma, se procedía a investigar en las vecindades, direcctorio telefónico, o la gremial correspondiente en caso de pertenecer a alguna; si después de estas investigaciones, la compañía no era ubicada, se calificava bajo este renglón.

REPORTE DE NUMEROS PATRONALES Y CIIU DE EMPRESAS QUE NO PUDIERON ENTREVISTARSE EN LA CAPITAL
(POR ACTIVIDAD ECONOMICA)

2010 PREPARACION DE CARNES:

No. PATRONAL	RAZON
485	F
22955	A

2030 ENVASE Y CONSERVACION DE FRUTAS Y LEGUMBRES:

No. PATRONAL	RAZON
33424	C
24925	D
51806	A
4667	A
42083	C
49203	A
26111	D

2040 MANUFACTURA DE PRODUCTOS DE MOLINO:

No. PATRONAL	RAZON
51360	A

2060 MANUFACTURA DE PRODUCTOS DE PANADERIAS:

No. PATRONAL	RAZON
4736	C
2871	B
1188	C
48801	A
48314	A
14286	B
26632	

2070 INGENIOS Y REFINERIAS DE AZUCAR, TRAPICHES:

No. PATRONAL	RAZON
25584	C
3893	H

2080 FABRICACION DE CACAO, CHOCOLATE Y CONFITURAS:

No. PATRONAL	RAZON
45935	A
90	B
456	D

263

2091 OTRAS INDUSTRIAS DE PRODUCTOS ALIMENTICIOS:

No. PATRONAL	RAZON
33500	[redacted]
17913	A
25179	D
12348	D
15798	C

2110 DESTILACION, RECTIFICACION Y MEZCLA DE BEBIDAS ESP.:

No. PATRONAL	RAZON
50 *	C

2140 FABRICACION DE BEBIDAS NO ALCOHOLICAS Y AGUAS GASEOSAS:

No. PATRONAL	RAZON
321	C
41555	G
252	C
40808 *	B

2210 FABRICACION DE CIGARRILLOS:

No. PATRONAL	RAZON
1328	A

* NO SE DISTINGUE EL No. PATRONAL.

264

2310 HILADO, TEJIDO Y ACABADO DE TEXTILES:

No. PATRONAL	RAZON
51660	A
46833	A
48299	A
38998	A
48875	A
35945	A
49787	A
51585	C
28152	C
22984	A
21268	D
31307	B
46215	A
2107	H
50157	H
46631	D

2320 FABRICA DE TEJIDOS DE PUNTO:

No. PATRONAL	RAZON
30291	G
20152	G
21277	B
48277	B
13797	B

2410 FABRICACION DE CALZADO, EXCEPTO CALZADO DE GOMA:

No. PATRONAL	RAZON
49930	C
5645	G
44295	A
39479	A
51597	B
40280	B
34868	A
12151	C
15480	D
51036	A
49272	A
50118	A

2420 FABRICACION DE PRENDAS DE VESTIR, EXCEPTO CALZADO:

No. PATRONAL	RAZON
51333	B
51999	A
33377	C
48224	A
43513	A
22482	G
50268	A
52443	A
48978	A
35747	G
32525	B
50829	A
6480	B
38261	A
47705	H
51839	H

266

2430 ARTICULOS CONFECCIONADOS CON MATERIALES TEXTILES, EXCEPTO PRENDAS DE VESTIR:

No. PATRONAS	RAZON
47708	C
33460	D
37110	A
46899	A
16575	A

2500 INDUSTRIAS DE LA MADERA Y DEL CORCHO EXCEPTO MUEBLES:

No. PATRONAL	RAZON
40517	B
48545	B
40012	B

2600 FABRICACION DE MUEBLES Y ACCESORIOS:

No. PATRONAL	RAZON
52509	A
7917	A
41883	A
51828	A
24920	A
30521	D
10631	A
26142	A
46701	A
8247	A

2710 FABRICAS DE PAPEL CARBON:

No. PATRONAL	RAZON
51817	B
45410	B

2720 FABRICACION DE ARTICULOS DE PULPA DE MADERA, PAPEL Y CARTON:

No. PATRONAL	RAZON
17875	A
32817	A
51533	B
15563	A

2800 IMPRENTAS, EDITORIALES E INDUSTRIAS CONEXCAS:

No. PATRONAL	RAZON
13746	B
43508	A
5947	A
49320	A
42179	A
39588	A
44549	A
25921	A
34474	A
39417	A
51157	B
43952	A
15444	B
37317	A
52252	A
37749	A
37751	H

2920 MANUFACTURAS DE ARTICULOS DE CUERO, EXCEPTO CALZADO Y PRENDAS DE VESTIR:

No. PATRONAL	RAZON
14162	A
48981	A

3000 FABRICACION DE PRODUCTOS DE CAUCHO:

No. PATRONAL	RAZON
47027	B
16246	B
40338	A
10719	D

3100 FABRICACION DE SUSTANCIAS Y PRODUCTOS QUIMICOS:

No. PATRONAL	RAZON

3110 PRODUCTOS QUIMICOS, NO ESENCIALES, INCLUSIVE FERTILIZANTES:

No. PATRONAL	RAZON
46612	G
31894	B
29116	A
48746	C
45616	C
52055	A
34389	A
25265	G
51389	B
49754	B
12956	A
11220	I

3120 PIROTECNIA:

No. PATRONAL	RAZON
23189	A
43561	H

3130 ACEITES Y GRASAS VEGETALES Y ANIMALES:

No. PATRONAL	RAZON
20650	A
95	A

3140 PRODUCTO QUIMICO-FARMACEUTICOS:

No. PATRONAL	RAZON
48275	H
37871	A
5707	B
35088	C
45749	A
40051	C
48825	A
29354	B
22906	C
52106	A
48498	B
45748	C
21789	A
52263	B
32776	B
51336	D

3150 FABRICACION DE JABONES Y CANDELAS:

No. PATRONAL	RAZON
50052	E
30477	A
29398	C
5673	B

3190 OTRAS INDUSTRIAS QUIMICAS:

No. PATRONAL	RAZON
17379	C
49056	C
31427	B
37223	D

3310 FABRICACION DE PRODUCTOS DE ARCILLA PARA CONSTRUCCION:

No. PATRONAL	RAZON
50566	H

3320 VIDRIO Y PRODUCTOS DE VIDRIO:

No. PATRONAL	RAZON
42276	A
18651	B

3330 FABRICACION DE CERAMICA, LOZA Y ALFARERIA:

No. PATRONAL	RAZON
27502	B
49633	A

3340 PRODUCCION DE CEMENTO:

No: PATRONAL	RAZON
271	A

3350 FABRICACION MOSAICOS, AZULEJOS, LADRILLOS CEMENTO:

No. PATRONAL	RAZON
20118	B
15665	A
1125	A
37012	B
43268	B

3390 FABRICACION PRODUCTOS MINERALES NO METALICOS:

No. PATRONAL	RAZON
36652	D

3400 INDUSTRIAS BASICAS DE HIERRO Y ACERO:

No. PATRONAL	RAZON
32263	B
29015	C

3510 HERRERIAS, PLOMERIAS Y HOJALATERIAS:

No.- PATRONAL	RAZON
29874	H
52572	A
31899	D
45077	A
36288	A
51559	C
36819	B
38908	A
51350	B

3590 FABRICACION DE OTROS ARTICULOS DE METAL:

No. PATRONAL	RAZON
37759	C
45847	B
16586	A
52558	H

3600 CONSTRUCCION DE MAQUINARIA, EXCEPTO MAQUINA ELECTRICA:

No. PATRONAL	RAZON
17204	A
28690	A

3700 CONSTRUCCION DE MAQUINA, APARATOS, ACCESORIOS Y ARTICULOS ELECTRICOS:

No. PATRONAL	RAZON
38514	A
51069	A
32823	B
7746	A
42307	A
46120	C
31505	A
25389	C
32967	A
16784	D
46242	A

3830 REPARACION DE VEHICULOS, AUTOMOVILES Y BICICLETAS:

No. PATRONAL	RAZON
51430	A
13022	A
35386	A
22323	A
16304	A
6405	B
47156	B
49023	B
37186	A
32295	A
22417	A
34250	B
34679	B
29113	B
27759	B
36224	B

275

3930 FABRICACION DE JOYAS Y ARTICULOS CONEXOS:

No. PATRONAL	RAZON
36571	A
34328	C

3940 FABRICACION DE INSTRUMENTOS DE MUSICA:

No. PATRONAL	RAZON
36450	A

3990 INDUSTRIAS MANUFACTURERAS NO CLASIFICADAS:

No. PATRONAL	RAZON
49388	A
28712	A
99844	A
38615	A
26778	A

9999 SIN CLASIFICACION, SIN NOMBRE LA ACTIVIDAD:

No. PATRONAL	RAZON
99906	B
99901	A
99912	A

REPORTE INTERIOR DE LA REPUBLICA

REPORTE INTERIOR DE LA REPUBLICA

	MUESTRA TOTAL	EFECTIVAS	NO EXISTE	NO DIO INFORMACION
EL PROGRESO	3	2	1	--
ZACAPA	9	8	--	1
JALAPA	3	3	--	--
JUTIAPA	3	3	--	--
SANTA ROSA	6	5	1	--
QUEZALTENANGO	41	31	4	6
SUCHITEPEQUEZ	12	11	--	1
RETALHULEU	5	4	1	--
HUEHUETENANGO	5	3	2	--
ALTA VERAPAZ	10	6	1	3
IZABAL	12	10	1	1
TOTONICAPAN	4	2	--	2
ESCUINTLA	28	18	2	8
TOTALES	141	116	13	22

REPORTE DE EMPRESAS RECHAZADAS CON NUMERO PATRONAL, CODIGO CIIU Y RAZONES.

	No. PATRONAL	CODIGO CIIU	RAZON
EL PROGRESO	52148	2030	NO EXISTE
ZACAPA	7291	2110	INFORMAN EN LA CAPITAL
SANTA ROSA	19678	2710	NO EXISTE
QUEZALTENANGO	26211	2320	NO EXISTE
QUEZALTENANGO	1621	2910	NO EXISTE
QUEZALTENANGO	1434	2910	NO EXISTE
QUEZALTENANGO (COATEPEQUE)	50572	2050	NO EXISTE
QUEZALTENANGO	1324	2040	DIERON CITA OTRO DIA
QUEZALTENANGO	2010	2040	SE NEGO A DAR INFORMACION

QUEZALTENANGO	8118	2120	DIERON CITA OTRO DIA
QUEZALTENANGO	1179	2310	DIERON CITA OTRO DIA
QUEZALTENANGO	32168	2310	ERA LA MISMA FAB. EL ZEPPELIN
QUEZALTENANGO/(COMEPEQUE)	30468	2310	SE NEGARON A DAR ESTA INFORMACION.
SUCHITEPEQUEZ	45969	2140	LA MISMA EMBOTELLADORA DEL PACIFICO
RETALHULEU	45944	3700	NO EXISTE
HUEHUETENANGO	24953	3990	NO EXISTE
HUEHUETENANGO	12400	2040	NO EXISTE
ALTA VERAPAZ	49326	3350	NO EXISTE
ALTA VERAPAZ	52598	2060	QUEDABA LEJOS (SEBOL)
ALTA VERAPAZ	15018	2050	NO SE ENCONTRO AL ADMINISTRADOR
ALTA VERAPAZ	52093	2040	ANDA DE VIAJE EL PROPIETARIO
IZABAL	51733	3830	NO EXISTE
IZABAL	48330	2060	LA MISMA SUPER TIENDA REGIA
TOTONICAPAN	45269	2420	ANDA DE VIAJE EL PROPIETARIO
TOTONICAPAN	31028	3330	LA MISMA QUE TALLER DE ALFARERIA SIN NOMBRE
ESCUINTLA	36104	2060	CITA OTRO DIA
ESCUINTLA	52422	3400	NO SE ENCONTRABA ABIERTO EN LA TARDE
ESCUINTLA	51172	3130	HABIA QUE HACER CITA
ESCUINTLA	1504	2070	QUEDABA MUY RETIRADO
ESCUINTLA	29486	3510	LA MISMA QUE TALLER LAS FLORES
ESCUINTLA	16420	2110	EL REPRESENTANTE ANDA EN REUNION
ESCUINTLA	47958	2140	CITA PARA OTRO DIA
ESCUINTLA	33030	2000	DAN INF. EN CAPITAL
ESCUINTLA	1493	3350	NO EXISTE-
ESCUINTLA	45281	2060	NO EXISTE

REGION I

SACATEPEQUEZ	49042	2500	SE NEGO A DAR ESE TIPO DE INF.
SACATEPEQUEZ	45632	2310	NO LE INTERESA LAS ENCUESTAS
SACATEPEQUEZ (SANTIAGO)	51561	2010	HABIA QUE PEDIR CITA
SACATEPEQUEZ	24147	2500	NO EXISTE
SACATEPEQUEZ (SAN LUCAS)	45956	3110	NO EXISTE
SACATEPEQUEZ (SAN LUCAS)	42688	3590	NO EXISTE

RECAPITULACION

TOTAL ENTREVISTAS EFECTIVAS	116
NO EXISTE	13
NO DIERON INFORMACION	22
T O T A L	151

CONSIDERADAS DENTRO DE LA REGION I

	MUESTRA TOTAL	EFECTIVAS	NO EXISTE	NO DIO INFORMACION
SACATEPEQUEZ	23	17	3	3
CHIMALTENANGO	13	13	--	--
TOTALES	36	30	3	3

REPORTE INTERIOR DE LA REPUBLICA

REPORTE INTERIOR DE LA REPUBLICA

	MUESTRA TOTAL	EFECTIVAS	NO EXISTE	NO DIO INFORMACION
EL PROGRESO	3	2	1	--
ZACAPA	9	8	--	1
JALAPA	3	3	--	--
JUTIAPA	3	3	--	--
SANTA ROSA	6	5	1	--
QUEZALTENANGO	41	31	4	6
SUCHITEPEQUEZ	12	11	--	1
RETALHULEU	5	4	1	--
HUEHUETENANGO	5	3	2	--
ALTA VERAPAZ	10	6	1	3
IZABAL	12	10	1	1
TOTONICAPAN	4	2	--	2
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QUEZALTENANGO	1324	2040	DIERON CITA OTRO DIA
QUEZALTENANGO	2010	2040	SE NEGO A DAR INFORMACION.

QUEZALTENANGO	8118	2120	DIERON CITA OTRO DIA
QUEZALTENANGO	1179	2310	DIERON CITA OTRO DIA
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QUEZALTENANGO/(COMITEPEQUE)	30468	2310	SE NEGARON A DAR ESTA INFORMACION.
SUCHITEPEQUEZ	45969	2140	LA MISMA EMBOTELLADORA DEL PACIFICO
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TOTONICAPAN	31028	3330	LA MISMA QUE TALLER DE ALFARERIA SIN NOMBRE
ESCUINTLA	36104	2060	CITA OTRO DIA
ESCUINTLA	52422	3400	NO SE ENCONTRABA ABIER TO EN LA TARDE
ESCUINTLA	51172	3130	HABIA QUE HACER CITA
ESCUINTLA	1504	2070	QUEDABA MUY RETIRA[illegible]
ESCUINTLA	29486	3510	LA MISMA QUE TALLER LAS FLORES
ESCUINTLA	16420	2110	EL REPRESENTANTE ANDA EN REUNION
ESCUINTLA	47958	2140	CITA PARA OTRO DIA
ESCUINTLA	33030	2000	DAN INF. EN CAPITAL
ESCUINTLA	1493	3350	NO EXISTE
ESCUINTLA	45281	2060	NO EXISTE

REGION I

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TOTAL ENTREVISTAS EFECTIVAS	116
NO EXISTE	13
NO DIERON INFORMACION	22
T O T A L	151

CONSIDERADAS DENTRO DE LA REGION I

	MUESTRA TOTAL	EFECTIVAS	NO EXISTE	NO DIO INFORMACION
SACATEPEQUEZ	23	17	3	3
CHIMALTENANGO	13	13	--	--
TOTALES	36	30	3	3

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ANNEX E

ADDITIONAL INDUSTRIAL SECTOR DESCRIPTIONS:

Construction
Tourism
Transportation

CONSTRUCTION

EXPLORATORY STUDY ON

THE GUATEMALAN CONSTRUCTION SECTOR

By Ingrid Klanderud
Consultant

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EXECUTIVE SUMMARY

The Guatemalan construction sector was explored utilizing the case study methodology to assess training needs in the sector that might be hindering economic growth. The information, although not statistically representative, "enables the reader to test assumptions about specific training needs and possibilities in the future."

The study concludes that there are unmet training needs in the construction sector. However, these needs, aside from the training of the master mason, are not perceived as needs by the employer or the employee. There are specific variables that influence this general lack of awareness and have to be taken into consideration if a training intervention is to be undertaken.

The study identified the following key variables that could hinder future training efforts: a) the "nomadic" characteristics shown by the construction work force, b) the organization and staffing of typical construction companies and construction projects, c) the lack of incentives for training because training is not perceived as cost effective by either the employer or the employee, d) the lack of flexibility and responsiveness characteristic of current training providers.

The study shows that if a training intervention is to succeed it must have the full support of the Guatemalan private sector. It would have to start by educating the employers on the cost effectiveness of training as it affects productivity.

After briefly considering the current training providers for the construction sector, the study identifies the Guatemalan Construction Chamber as the potential institution to carry out a training intervention. The Construction Chamber includes 92 percent of all construction and construction-related companies in the country. For the past six months, its leadership has shown serious interest in training issues and their impact on productivity. Their training initiatives have just started, and technical assistance is urgently needed, if these efforts are to yield any results.

The Guatemalan Construction Chamber is self-supportive. However, it needs technical expertise in the design of its programs. It offers the major advantage of being a guest at Chamber of Commercial, Industrial and Financial Associations' (CACIF's) table as well as at the government's because it has abstained from aligning itself with either force.

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INTRODUCTION

Construction is said to be a booming sector in the Guatemalan economy. The top authorities of the Guatemalan Construction Chamber reported that for this year the Government has allocated 460 millon Quetzales in construction and the private sector some 30 million. In 1987, the Guatemalan Construction Chamber had 196 affiliates; by May 1988 there were 424 members, and there will be 500 members by the end of June 1988 without any recruiting. Chamber authorities see this as a sign of the growth the entire sector is now experiencing. Unmet training needs, therefore, could be a constraint to this growth.

The training needs in the Guatemalan construction sector should not be assessed in the same way as those in the industrial sector. A questionnaire designed to detect gaps between demand and supply in the training programs, and satisfaction with actual training, could not be applied to a construction site where the workers stay for a month or for as long as their nomadic working life and the type of job allows.

It would also be wrong to assess training needs based on figures that represent needs in a given time and place, because they change. Therefore, the first step in trying to come up with recommendations regarding training needs is to have a basic understanding of how the sector operates and who suffers from the lack of trained workers.

The construction sector is characterized by a set of factors that make it unique. Such complexities range from the type of labor force it utilizes to the way a construction company is organized. For Guatemala, a construction "firm" is often formed for the purpose of bidding on a single contract and serves as the major contractor for the project until it is complete, at which time the firm is dissolved. Many such firms are included in the June 1987 Social Security Institute (IGSS) list from which our sample was drawn.

But if one is to be concerned with the lack of training as a possible constraint on the growth of the construction sector, the place to be explored is the actual " established construction company" -- a company that has been in charge of different construction projects, that handles significant sums of money, and that at different points in time can generate as many as 400 (temporary) jobs or as few as 3 (permanent) ones. The right people to interview about training needs, therefore, are those who hire construction workers on a regular basis and those who could actually detect differences between the availability and efficacy of training programs.

METHODOLOGY

This report will discuss the complexities found in the Guatemalan construction sector that will have to be taken into account in developing a feasible training program. In order to get an adequate picture of the sector and identify hindrances to potential training interventions, experts in the area were contacted. These experts suggested studying a representative number of construction firms.

Eight companies with specific ongoing projects were identified, and their top management was asked to cooperate with the study. The companies' managers provided information on their concerns and perceptions regarding training; these perceptions are discussed under major findings. Top management also provided a list of all subcontractors involved in the construction projects and a total of 42 subcontractors were visited.

To facilitate the identification of the firms, the construction sector was divided into four major areas. This division was considered valid for the purposes of the study by the experts who collaborated in the design. The four major areas were: a) residential projects (companies handling popular tract house developments); b) public works, (companies developing projects under a government contract); c) commercial development (companies in charge of the erection of buildings designed for commercial activities); and d) industrial development (companies handling the construction of factories and other projects related to industry). With the sector thus defined, companies with ongoing projects in the different areas were identified and asked to cooperate.

Once the companies were selected, the case study method was used (more information on the case study approach is included as Annex 1). This method allowed for a relatively accurate depiction of how construction firms are organized, how a construction project is carried out, what kinds of workers stay with a construction firm long enough to obtain training, and which of the building trades benefit most from worker training programs.

The data gathered provided a clear picture of what the individuals who comprise the construction sector thought about training and training needs. Information on the current training programs that are supposed to fulfill the training needs in the construction sector was also briefly reviewed. It is, however, necessary to look at the training institutions in a more detailed and organized fashion.

Taking the experts' commentaries and basic information on what is currently offered as training in the market, it was possible to come up with conclusions and recommendations for future training interventions which could, if further studied, have some degree of success. However, this report is just a first step in the process of developing a successful intervention.

LIMITATIONS OF THE STUDY

1. The construction sector was inadequately defined.
2. The number of companies surveyed was limited.
3. The survey questionnaire was inadequately tailored to the different groups of respondants.
4. Not all subcontractors agreed to be interviewed.

Definitional Problems

The construction sector was divided into four major areas. The area representing companies handling public works was thought of as comprising builders of hospitals, bridges, schools, roads, and culverts under a government contract. The grouping was probably too broad. A fifth area of the construction sector should have been created, composed of companies in charge of public works projects such as roads, bridges and airfields, as differentiated from companies specializing in the building of schools and hospitals. This fifth area would also include companies encharged with the maintenance and repair of this class of public works projects. Comprised of such occupations as bulldozer operator, pay loader, and patrol operators, the construction maintenance and repair field has potential training needs that should be assessed and examined in a future study. Adequate training in this particular area could be a major money and time saver.

Limited Size of the Sample

The number of cases considered for this study was limited to eight. (Information on the sample is included as Annex 2).

Limitations of the Survey Questionaire

The manpower specialist, Dr. Massey, left the country during the first week of February before the problems surfaced on including the construction sector in the general survey. The construction case study approach was proposed by AED and approved by USAID/Guatemala in March. Because of serious time constraints, the questionnaire used in the general survey was also used to interview construction sector representatives, such as the engineers and the master masons. The questionnaire was adapted somewhat by eliminating some of the questions.

Incomplete Information

Not all the subcontractors agreed to be interviewed by field personnel. There were several reasons for this: some subcontractors did not want to collaborate with USAID/Guatemala; some did not have the time or the interest; and some were reluctant to give information. Nevertheless, 42 out of 55 subcontractors were interviewed.

MAJOR FINDINGS

Lack of training as a constraint on economic growth in the construction sector can best be investigated within established construction firms. For the purposes of this study, an established construction firm is defined as a company that has been in charge of different construction projects, and that handles significant sums of money. At different points in time, such firms can generate as many as 400 temporary jobs on just one project, or as few as three jobs on a permanent basis.

Top management (private sector) was identified as the key player in any future training intervention, because it decides if there is a need for training, if training can be cost effective, who is to provide training and at what cost, and who is to receive the training and when, etc.

Along with top management, middle and low managerial levels are important players too, because it is these managers who hire or fire the construction worker, train the unskilled workers (who constitute the largest group in a construction project), and deal on a day-to-day basis with an unskilled labor force.

Information on the problems and needs the three managerial levels perceive and their general attitudes toward training has been organized in order to provide the reader with an informed notion of what the "players" see as the current "construction game." In addition to the commentaries provided by the three managerial levels, other experts in related fields were asked to contribute their perceptions.

Summary of Major Findings

1. Employers perceive a shortage of both skilled and unskilled workers in the construction sector. They offer a variety of conflicting explanations for this, however, so these preceptions should be examined critically.

2. There is a general staffing pattern in a typical construction company -- a very small permanent work force and a very large temporary one. Thus, employers seldom see training as cost effective, although they will invest resources in training the master masons and other core personnel.

3. There is a typical organization pattern in a construction project in Guatemala, which relies on hiring workers in the open labor market. There is no procedure by which the master mason (who hires and fires the workers) can assess the skill level of an applicant. This pattern does not contribute to the accessibility of training.

4. There are general training needs expressed by the three managerial levels.

5. There are common circumstances that could be potential hindrances in a training intervention. These are:

   a. Major current training providers (Technical Institute for Training and Productivity, Guatemalan Construction Chamber) require an ongoing employer/employee relationship.

   b. There is no immediate gain for the employer or employee as a result of having received training. There isn't a mechanism by which to certify that a worker has been trained.

   c. An organized curriculum that follows a model does not exist in the training institutions.

   d. Master masons are not trained to become trainers, even though they are expected to perform as such.

6. Subcontractors are an important component in the construction sector. A list of the participating subcontractors is included as Annex 3.

Shortage of Skilled and Unskilled Workers in the Construction Industry -- Structure of the Sector and its Labor Force

In January 1988, a tripartite commission was called together by the Ministry of Labor. This commission was to establish a new minimum wage for construction workers. Two representatives from the construction company owners and two representatives from the labor force, along with the government representative, who chairs the commission, set the daily salary at Q4.24 for assistant masons. The assistant manager of the Construction Chamber commented that the two representatives from the work force were randomly selected by the company owners, because there does not exist any kind of formal or informal construction guild or association that can represent the work force.

As of mid 1988, however, a new minimum wage for assistant masons had been established and approved by the Government. It just needs be published in the Diario de Centro America to be in effect. This new salary was set at Q4.78 a day.

The Construction Chamber reported that its members, particulary those working on government projects, were pleased with this increase. They were having to pay Q5.00 a day to hire workers, and the Government does not recognize more than the minimum wage when establishing overhead costs. In this way, the employer's uncompensated costs have been reduced.

This increase, however, will not solve the problem of the shortage of workers in the construction sector. Even with this increase, the minimum wage is lower than the one set for the agricultural workers. If workers are to choose between agriculture and construction, the salaries ought to be comparable. Aside from the minimum wage, there are other reasons that can account for a shortage in the work force. These are:

a. The nature of the work presents tougher working conditions than jobs in industry and agriculture.

b. The type of job requires some degree of dexterity and stamina. A mason erecting a wall ought to keep the same quality from the first brick laid to the last one. At the same time, productivity is required. Few workers can keep up quality and productivity. Individuals who might be willing to work for the current minimum wage lack the necessary training and skills.

c. The type of job this sector offers is not attractive to the urban worker, who will probably have a higher degree of education than most construction workers. Workers in the construction sector are often from rural areas. In order to be hired as an assistant mason, the person need not know how to read or write.

Today, however, individuals from rural areas may not find the minimum wage attractive enough to leave their towns, or if they come to the city they might rather work as street vendors.

Engineer Rolando Chinchilla, who is in charge of the largest ongoing construction project in the country (the second tower of the Geminis 10 building, with an estimated cost of 22 million quetzales) commented that they have initiated a monetary-incentives program to increase the minimum wage for assistant masons and the unofficial established salary of masons. He reported that the program has not been too successful, because the job is in itself demanding and workers are contented to make the minimum wage without having to stress themselves trying to get a bonus. If this is the case, however, one ought to consider the possibility that the bonus is not large enough to attract the

worker, and therefore, that the incentives program is not really an option for increasing a low minimum wage.

When asked why construction firms do not pay more to make the job attractive to towns people, the managers answered that when in need, they do offer more money. A minimum wage of Q6.00 a day may solve the "shortage" of unskilled workers.

People involved in construction activities in the country said that migration from the rural areas would result in more unskilled workers. It is the Construction Chamber's opinion, however, that what they need to do is to upgrade the workers who are already involved in the construction sector to make them more productive, instead of having a greater number of workers.

d. The construction firms cannot ensure a secure job for more than the duration of project. This lack of a secure working relationship with an employer has resulted in a nomadic work force in the construction sector.

After considering the different factors, it is difficult to establish if there is a real shortage of unskilled workers -- it may be that the employers are not willing to pay higher salaries. At the same time, one can say that the employers would want construction workers to have better skills and higher levels of productivity. However they are not really convinced that they should pay for training and that it would be a cost-effective investment.

General Staffing Patterns of Typical Construction Companies in Guatemala

Construction companies in general keep a very small number of permanent workers (this is true for companies in all four areas). Their permanent labor force consists of the core administrative personnel: the engineer, the secretary, and the accountant.

It was also found that construction firms try their best to retain low-level managers, including warehousemen, payroll officers and master masons. The companies train their own low-level managers in the particular ways of the company. Company heads referred to their master masons as "jewels." It is the master mason who does all the on-the-job training and supervises work at the construction site. Depending on the size of the construction project, a master mason can be responsible for the work of as many as 400 masons and assistant masons (this is the case, for example, for Mr. Daniel Fernando Muñoz, master mason for the second tower of the Geminis 10 Building project.)

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The engineers who directly supervise the construction projects tend to stay with a company for a shorter time. Many engineers who have gone through six to seven years of university training will only stay in the construction field for a few years. The salaries offered by industry are much higher than what an engineer can make working for the Government on an "obra pública" (public work). A young engineer working for the "Roads and Highways Department," for example, currently earns Q700.00 a month (280 US/dollars).

Company heads, therefore, do not consider their young engineers as indispensable as their master mason. University students in their junior and senior years are hired as "auxiliares de Ingenieria" (Assistant Engineers). Company heads said they were satisfied with the university personnel they have hired.

The most important finding regarding training needs in the construction sector is that the employers are interested in training and would pay for the training of their core personnel; they see this investment as being cost effective, particularly their master masons. The interviewees commented on the bargaining power that the master masons have in negotiating their salaries because of the high demand for masters in Guatemala. Master masons in these companies earn between Q20.00 and Q25.00 a day.

Aside from these core personnel, however, the construction company heads are not interested in investing money in training. Masons and assistant masons will leave the company when the project is completed. They are trained on the construction site by the master mason, and the training does not last for more than two days. Thus, employers do not see it as a cost-effective investment, because they would be training workers to the benefit of another employer.

The construction workers, with a very few exceptions, are hired by "trato." This means that they are hired to complete a specific job, and their labor relation ends when the job is completed. One expert commented that in his 28 years as an engineer he has never finished a project with the same people with which it was initiated; only 10 percent of the workers stay for as long as the project lasts. It is important to realize that the "trato" type of contract makes it impossible for workers to seek up-grading by an institution like Intecap, which requires an ongoing employer/employee relationship.

Typical Organization of a Construction Project

In general, when a construction company is assigned a project it handles the components such as building the foundation, erecting the shell, and applying the exterior masonry and finishes. The rest of the work is handled by subcontractors, specializing in plumbing, electrical work, air conditioning systems, etc. (A list of the types of subcontractors participating in the eight projects is included in Annex 3).

It is important to note that when a construction company undertakes a construction project, it will hire its personnel in the open labor market. This is usually done by advertising job openings on the fences surrounding the site or by asking some key core employees to act as "contractors."

Company heads handling some of the largest construction projects in Guatemala, like the Geminis 10 and the Antigua Hospital, reported that they are relying on this strategy to recruit their personnel; the former employs some 400 masons and assistant masons, the latter about 300.

The only type of "qualification" the master mason will ask to see when hiring a mason is his tool box. One of the interviewees reported that he has had many incidents concerning stolen or borrowed tool boxes, which means that time and money have been wasted on the hiring and firing of unskilled workers. An alternative to this "tool box" procedure was commented on as a need -- there is no process like an on-the-job skills test by which the master mason can assess the skill level of an applicant.

In addition, the interviewees were unanimous in characterizing laborers in the construction sector as nomads--they come, and they go.

Training Needs as Described by the Three Managerial Levels

- Employers will not invest money in the training of their nomadic workers and are even less likely to invest resources in the training of potential workers. Top management officials, however, reported that they would invest in training the master masons. This was cost effective, they felt, because master masons are loyal to their companies.

  In the case of the two companies in charge of two major housing projects, whose labor force tends to be more stable, the employers mentioned that they would have to send the workers during working hours if they were to be trained. That would signify a loss of productivity for the company.

- In addition, top management mentioned that their warehousemen need to be trained on computer usage as a way of administering a warehouse.

- The engineers in charge of specific construction projects--the middle management level -- were in general not aware of whether the people under them had received training or not, or whether there was a training institution that could handle the job. Three engineers mentioned Intecap and the University of San Carlos as potential sources of training.

- Master masons mentioned Intecap as being the main training institution and two of them had in fact been trained at Intecap. They thought Intecap and Instituto Técnico Vocational should be in charge of the training.

- In the eight companies visited no one at any of the three managerial levels reported the need to train personnel outside of the country at the present moment or in the future. Middle- and low-level management expressed a need for trained masons and upgraded master masons.

Potential Hindrances to Training Interventions

a. **Employers feel that Intecap receives a substantial sum of money from the construction sector, yet does an inadequate job of training workers.** According to the law, 1% goes to Intecap and is taken directly from the payroll as a Social Security deduction (IGSS - Instituto Guatemalteco de Seguridad Social). The construction firms are under considerable pressure to have their IGSS payments up to date. When a construction company wants to participate in the a bidding for a project (for public construction), they have to present their updated IGSS reports. Since the Government is sponsoring 85% of the construction work in the country, one can accurately conclude that Intecap does receive "a good share of its funds from the construction sector.

In order to request training from Intecap, the employer has to act as the intermediary, and a "relación laboral" (employer/employee relationship) has to exist. But in the construction sector there is a serious problem in having to rely on a employer/employee relationship in order to be trained. Workers are not allowed by the companies to obtain training while they are working, because this represents a loss of productivity for the employers. However, once they have the time to be trained, they are not working for an Intecap-paying employer or for a Construction Chamber member, thus they cannot be granted training.

Intecap, however, has an ongoing "open program" to train masons. After two and a half years a worker qualifies as an "urban master mason," and because this program is an "open" one, individuals who are not part of an employer/employee relationship can participate. This program has only enrolled 14 participants, however, who attend classes two afternoons a week.

Since, the construction firms are paying for training provided by Intecap, creating many "open programs" will not make them happy. Some interviewed employers stressed the fact that Intecap should do the training, since it is being funded by the companies. They argue that there should be a way to make Intecap's offerings available to a larger number of current or former employees of these contributing firms.

b. The way training is organized at Intecap, and how the employers feel about training current workers, does not help the prospective trainee. In addition, there is no imminent gain for the trainee because he has received training.

The construction sector has a major advantage over the other sectors because there is room for upper mobility.

An individual without any training will start his construction career as an assistant mason and after 2 or 3 years on the job can qualify as a second order mason. Promotion to mason and master mason is possible following intervals of one year.

The problem construction workers encounter is not, therefore, an ill-defined job ladder, but the lack of a recognized mechanism that allows the master mason, who hires the workers, to assess when a worker has gained greater skills, either on the job, or by taking extra courses. There are no upgrading or on-the-job training options to help acknowledge that a construction worker has become more skilled, and thus should be able to move forward on the ladder. Since there is no certification system, the master masons do not have any objective and technical way by which to assess the expertise of the applicants.

c. General courses at Intecap and at the Cámara de la Construcción do not follow an organized curriculum. A training model taking the individual from where he is to where he should be to qualify as a trained construction worker does not exist.

An individual can spend three years attending different short courses organized by the Chamber and in the end will not have a recognized certificate qualifying him as an "upgraded" worker. In addition, he is not automatically assured that his next position will be as a mason.

Licenciado de León, who is in charge of planning the training courses at the Chamber, revealed that he does not have any experience in either training or in planning, or in curriculum development and implementation. The other engineers affiliated with the "Junta de Capacitación" are also inexperienced in the design and implementation of training programs.

d. The master masons are the direct supervisors and trainers on the construction site. The training that is available to master masons includes upgrading of technical skills, which is useful. **However, neither Intecap, nor the Construction Chamber have even considered training the master masons to be trainers,** much less as the trainers of trainers, even if they are to perform as such. One of Intecap's instructors commented that the master masons, who work all day and take courses at night, would not have the time or the interest in receiving training in supervisory and teaching techniques.

COMMENTARIES ON EXISTING TRAINING PROGRAMS

This study briefly reviewed existing training programs for construction workers. Special attention was given to the Guatemalan Construction Chamber, because it was identified as the best option when considering a potential training provider that could include on-the-job training, an upgrading system, and a certifying system. However, they need to be assisted if their effort and interest are to show any positive outcome.

Camara de la Construccion

The Guatemalan Construction Chamber covers 92% of all the construction-related companies since most become members of the Chamber itself, or of one of the two gremiales (guilds). The Gremiales are Anacovi - Asociacion Nacional de Constructores de Vivienda and the Asociacion Guatemalteca de Constratistas de la Construccion. The Chamber includes members who are related to construction in the following ways.

a)	INDUSTRY	makes the Construction materials
b)	COMMERCE	distributes these materials
c)	SERVICES	installs equipment
d)	CONSULTANTS	
e)	REAL ESTATE DEVELOPERS	
f)	INDEPENDENT BUILDERS	

The main objective of the Chamber is to have a consolidated organization that can represent and defend the interests of all those related to the construction industry in Guatemala.

The Chamber charges a monthly fee to its members, the amount of which is negotitated with each company. As a trade association, the Chamber is an excellent way for the companies to promote themselves, and through membership of the Board of Directors of the Chamber, individual company heads may become eligible to join other boards in any of the governmental institutions.

A year ago, the Board of Directors established a permanent commission. This commission is known as Junta de Capacitacion. The commission has recognized that there is a need for training at the three managerial levels. Their objective is to increase

the productivity of construction workers, which will bring benefits to all of those involved in the process. The commission is aware that the employers have to be the first to be educated on the benefits involved in productivity.

The Junta de Capacitacion published a study on the actual work yielded by the labor force in Guatemala, entitled Rendimientos de la Mano de Obra, (Productivity of the Labor Force) Guatemala, February, 1988. This study tries to ascertain the productivity of construction workers at the various job levels.

After obtaining its results, Lic. Eduardo de León, assistant manager of the Chamber, created a series of courses that were to make the workforce employed by the Chamber's affiliates more productive through training. Although De León is working with the best intentions and is following a common sense approach, he himself has never received a course on training or in teaching or planning techniques. Thus, the courses being currently offered by the Chamber cannot be seen as part of a systematic curriculum designed to increase productivity through upgrading workers skills.

Intecap

Ing. Guirola is the head of the construction section at Intecap. He is in charge of the coordination of programs and instructors hiring.

One of the instructors for the masonry and master masons' program commented on different aspects of the training. The ongoing program for master masons is one of Intecap's "Short-term Technical Degrees." This degree currently takes two and a half years, and the participants attend classes twice a week, from 4:00 to 7:00 p.m. The instruction they receive is technical, because "there is not enough time to provide them with concepts like evaluation, teaching and training techniques, and other non-technical matters."

The instructor complained that this degree was not accepted at the University of San Carlos, even when the trainees had more practical knowledge than the average first-year applicant. This commentary was perceived as an interesting one because, on the other hand, the vocational schools offer high school diplomas that allow for the graduate to go on to the university. As a result of this policy, 70 percent of vocational school graduates never practice the trade in which they were trained. Experts were asked to comment on this issue (see Annex 4).

Another course offered for construction workers is organized differently. Companies, which generally have one or two masons on staff, are asked to send them to take courses at Intecap for a full day every week. The participants attend classes from 7:00 a.m. to 4:00 p.m.

The creator of the "Short-term Technical Degrees" at Intecap commented that these technical upgrading courses had been designed to last for just one year. He thinks that a two-and-a-half-year period is too long for a master mason to invest in being upgraded. He mentioned that the original idea that had inspired the creation of Intecap in the early 1960s was productivity, however, the interest shifted toward training in the mid-1960s. Productivity and training should both concern Intecap.

KINAL and FUNTEC

KINAL is a Catholic-sponsored organization offering some self-improvement courses for girls and women. FUNTEC is the Technology Foundation.

Neither of these foundations have any ongoing training programs for construction workers. However, Fernando Pullin, currently manager of Funtec, expressed strong interest in having Funtec as a potential training provider for construction workers. He mentioned that Funtec would need to rely on an expert on technology transfer. Kinal's training models stress the importance of providing the trainee with traditional Catholic moral values.

University of San Carlos

The University of San Carlos offers some courses for construction workers. One of the engineers (Ingeniero Rodas), who collaborated in planning the courses, mentioned the need to provide the master masons with some basic human resources management techniques and training on how to handle quality-control procedures on the construction site.

CONCLUSIONS

1. The employer does not perceive training as being cost effective, however, a successful training program has to have the employer's support. It is vital to have the employer involved in any alternate training intervention. Employers need to realize the overall benefits for them of an increase in productivity. The Guatemalan Construction Chamber, if provided with technical assistance, would be the best option in considering future training interventions.

2. Initial training efforts should be targeted at the upgrading of the master masons, and should aim at making them effective trainers. Employers will invest in training their permanent work force, especially in the case of master masons, because employers recognize their importance.

3. Accessibility to training is problematic when the major training institutions (Intecap and the Guatemalan Construction Chamber) require the existence of an ongoing employer/employee relationship in an enviornment where the work force is largely nomadic. A working system which would allow nomadic workers to receive training and upgrading needs to be implemented.

4. Key people in the planning and curriculum development offices of the training institutions lack knowledge of different teaching methodologies and the learning process. Instructors have no teacher training.

In addition, key people in the training institutions often lack the capacity to:

a. Ascertain the degree of effectiveness of a program-- there is no formal evaluation process.

b. Assess alternate teaching strategies tailored to the audience and the expected outcome -- training schemes lack flexibility.

c. Improve on what has worked and discard what has not worked -- planning ability is limited.

d. Train their own instructors -- there is insufficient manpower.

In sum, an "instructor as a trainer of future trainers" strategy needs to be implemented.

5. A new way of training construction workers has to be seriously considered, and could include on-the-job training, an upgrading system, that takes into account experience gained while working, and a certification system that would be acknowledged by the employers. There is a need for a system that will allow workers to receive training after having been part of an employer/employee relationship. (A coupon system -- granting a coupon "cashed" -- would allow workers to seek training when they have the time or are not employed.

RECOMMENDATIONS

The following recommendations are to be taken into account by any institution or organization that would aim at assisting in the training of construction workers.

1. Consider collaborating and providing assistance to the existing training institutions that are training construction workers by sponsoring an expert in teaching methodologies, learning techniques, and evaluation and who could train the planning officials. The expert ought to understand the complexities of the construction sector in the Guatemalan context. The ongoing initiative and interest of the Guatemalan Construction Chamber ought to be capitalized on.

2. Help training institutions in assessing their teacher quality and upgrading their instructors. The German teacher training project in Mazatenango (discussed at length in Dr. Saavedra's report) could be a component in a program that aims to assist instructors of technical skills on the implementation of alternate teaching techniques and methodologies.

3. Consider the possibility of sponsoring a commission conposed of experienced Guatemalan master masons. Provide the commission with technical assistance in the development and implementation of a curriculum that would stress "hands on" job training as well as technical knowledge for the skilled construction worker of the future. Funtec, for example, with feedback from employers affiliated with the Construction Chamber could, with USAID/Guatemala funding, get this commission organized.

4. Sponsor, through an organization like AGG (Guatemalan Managers Association), a seminar to enlighten construction company owners on the benefits to productivity of trained personnel. Company heads need to be made aware of the cost effectiveness of investing in training and of the importance of abiding by a certification process, as well as cooperating with on-the-job training initiatives and programs to upgrade skills.

THE CASE STUDY METHOD

The case study method was suggested as an appropriate approach to gathering data on the state of training in the construction sector. To conduct the study, a three-stage evaluation process was followed, which included:

1) an exploratory search -- usually involving observations and informal interviews -- for common or salient issues or incidents;

2) a more direct and intensive inquiry into selected issues; and

3) a search for underlying principles and patterns leading to the construction of an explanatory framework.

I interviewed the top management officials in the eight selected companies. A detailed, guided interview was conducted with each gentleman.

The engineers and the master masons supervising the specific projects were interviewed by personnel from Aragón y Asociados, who handled the interviewing process for the whole study. The questionnaire was a modified and adapted version of Massey's format.

In this report, it is assumed that the training situations mentioned by the eight companies' representatives are transferable to the whole sector. Detailed information establishing the reliability of the sample is included as Annex 2.

GENERAL INFORMATION ON THE COMPANIES STUDIED

The objective of this study was to determine if unmet training needs are in any way hindering the growth of an economic sector that has the potential to provide a great number of jobs. As such, it was vitally important to select active and healthy companies that nonetheless could be experiencing meaningful unmet training needs in the labor force they hire in the open market and that could be in a position to do something to alleviate these needs. Furthermore, the companies selected had to be able to provide us with information on future gaps between what will be required in the way of trained personnel and what will be available.

The eight companies selected were chosen by experts in the Guatemalan Construction Sector as having the necessary requirements to qualify as representatives of a "growing construction sector." All of the companies were willing to cooperate. The companies chosen for the study shared the following characteristics:

A. They are involved in large construction projects involving substantial sums of money.
B. The number of jobs they provide at a given point in time is large.
C. They have a track record as established construction companies.
D. They are based in Guatemala City, with projects spread throughout the country.

Size of the Contracts

The eight companies surveyed, in eight different construction projects, are handling or will be handling in the future a gross figure of Q276,100,000.00. The financing will come from private banking institutions, private investors, the Government and the national central bank, and, in one case, the AID Mission.

Aside from the eight ongoing projects, which the top officials of the surveyed companies were asked to comment on, these companies have some 24 other projects covering the five areas of the construction sector discussed earlier. These construction projects are distributed across the whole country. The amount of money involved in these eight projects, together with the number of projects the companies are currently handling makes them active participants in the present and future growth the construction sector in Guatemala.

Job Creation

For just seven out of eight of their projects, the companies are in the position to offer some 1100 jobs. A large majority of these positions are temporary and directly related to actual building. Aside from these job openings, the two major construction projects reported the need to hire 250 more employees (masons and assistant masons). If so many jobs are being offered in just seven projects, one could easily infer that at least some 4,000 workers will be necessary to fill jobs in the other 23 ongoing construction projects. The number of job openings around the country that these companies are in the position to offer makes them pillars of the construction sector in Guatemala.

Number of years as Established Construction Companies

The eight selected companies have an average of 16 years of experience as competitive local construction firms.

Five of the companies were established in the early 70's, and all of them went through the construction boom of 1976-1978, which came as a result of the earthquake. Most importantly, however, they were all able to survive during the extremely hard times of the early 1980s, when the construction sector went through a severe recessionary period. The owners of these companies should be considered veterans in the field.

Capital-based Companies

The eight construction companies are located in the capital, however, six of them have ongoing projects outside the department of Guatemala, and all of them have projects outside the city limits. So one could say that the eight companies represent construction training needs in the whole country. Moreover, when asked where the labor force would come from when building in the different departments, the employers replied that most would be local workers. Personnel from the city would include the master mason or the "bodeguero," which composes the small core staff of the construction companies.

SUBCONTRACTORS SURVEYED

The following list includes all the types of subcontractors mentioned in the eight case studies.

a. block, concrete slab, and asphalt laying
b. sheet metal work (aluminum, window framing, false ceiling)
c. iron working (iron-works, metallic structures, metallic doors)
d. carpentry
e. plumbing
f. flooring
g. elevator installation
h. wells
i. walls and drainage
j. air conditioning and refrigeration, extraction of gases, pumping equipment
k. excavation, heavy machinery operation
l. electrical
m. freight hauling

SHOULD THE PROSPECTIVE TRAINED CONSTRUCTION WORKER HAVE THE OPTION TO GO ON TO THE UNIVERSITY?

Regarding the instructor's complaint that the university does not recognize the diploma that Intecap gives his master masons, an expert in training was asked to comment. He explained that to have the university recognize Intecap's diploma would be a great mistake, because the construction sector would be losing a trained worker to the university.

When asked to comment further on the subject, he pointed out how the vocational schools make a terrible mistake by spending money on vocational training, but providing the students with a Bachelor's Degree, which makes them leave the labor force for the more glamorous world of the university. Instead of having a good worker, Guatemala ends up having just another individual who never finishes a career or works in his area of expertise.

He stressed that although the individual has the right to choose what to study and to pursue a university education, if he takes the place and uses the resources that could be available to someone who has the desire and vocation to be a good worker, he should not go to a vocational school.

TOURISM

GIUSTI & MARCUCCI
INVESTIGACION DE MERCADO Y PUBLICIDAD - CONSULTORES DE MERCADEO
MARKET AND ADVERTISING RESEARCH - MARKETING CONSULTANTS

EXPLORATORY STUDY OF PERSONNEL TRAINING NEEDS IN THE PRIVATE TOURISM SECTOR OF GUATEMALA

ACADEMY FOR EDUCATIONAL DEVELOPMENT
UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

JUAN CARLOS MORALES MARCUCCI
JUNE 10, 1988

20 CALLE 16-39 ZONA 10, GUATEMALA CITY, CENTRAL AMERICA TEL 682216

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I.EXECUTIVE SUMMARY

IN 1979 TOURISM BECAME THE SECOND LARGEST SOURCE OF FOREIGN EXCHANGE (AFTER COFFEE) BRINGING A LITTLE OVER TWO HUNDRED MILLION DOLLARS TO GUATEMALA. DUE TO POLITICAL UNREST IT DECLINED GRADUALLY AND REACHED ITS LOWEST LEVEL IN 1984. SINCE 1985 IT HAS BEEN GROWING AT A STEADY PACE: IN 1987 ALONE, REVENUE DERIVED FROM TOURISM ROSE BY 32% FROM THE PREVIOUS YEAR. IF THE TREND CONTINUES THERE WILL BE A LARGE DEMAND FOR TRAINED PERSONNEL. CURRENTLY MOST OF THE TRAINING IS DONE IN-HOUSE WITH THE HELP OF SOME COURSES OFFERED BY THE "INSTITUTE FOR TECHNICAL TRAINING AND PRODUCTIVITY" (**INTECAP**). THE MAIN PROBLEM WITH **INTECAP** IS THAT IT OFFERS ONLY A TOURIST GUIDE PROGRAM AND THE REST ARE ONLY INDEPENDENT COURSES WHICH ARE AT BEST ONLY A COMPLEMENT TO IN-HOUSE TRAINING. BESIDES **INTECAP**, THERE IS NOT A SINGLE INSTITUTION IN GUATEMALA OFFERING FUNCTIONAL TRAINING PROGRAMS FOR THE TOURISM TRADE.

ALMOST ALL OF THE INTERVIEWERS EXPRESSED THEIR BELIEF IN THE NEED FOR TOURISM TRAINING PROGRAMS. THEY TEND TO DISAGREE AT WHICH LEVEL OF OPERATION SUCH PROGRAMS SHOULD FOCUS UPON, BUT IT IS THE OPINION OF THIS CONSULTANT THAT THE NEED EXISTS AT ALL THREE LEVELS: EXECUTIVE, SUPERVISORY AND OPERATIVE.

THE "GUATEMALAN TOURIST COMMISSION" (**INGUAT**) IS CONSIDERING TWO OPTIONS FOR THE CREATION OF A TRAINING ESTABLISHMENT: A REGIONAL TRAINING CENTER WHICH WAS PROPOSED AT THE LAST MEETING OF THE "CENTRAL AMERICAN SECRETARIAT FOR TOURISTIC INTEGRATION" (**SITCA**) OR ESTABLISHING A GUATEMALAN TRAINING CENTER. CURRENTLY THERE ARE TWO FACILITIES AVAILABLE WHICH COULD HOUSE EITHER OPTION.

GOING OVER THE MATERIAL PRESENTED HERE, THE READER WILL ARRIVE AT THE CONCLUSION THAT THE NEED FOR TRAINING EXISTS. WHETHER SOMETHING IS DONE DEPENDS ON THE POLITICAL, THE FINANCIAL SITUATIONS AND OTHER CONSIDERATIONS NORMALLY ATTACHED TO ANY PROJECT, BUT ONE THING MUST BE REMEMBERED AT ALL TIMES: REGARDLESS OF THE AVENUE CHOSEN (IF ANY) IT MUST INCLUDE NOT ONLY THE INPUT BUT MUST ALSO HAVE THE APPROVAL OF THE PRIVATE TOURISM SECTOR (THROUGH THE GUATEMALAN CHAMBER OF TOURISM—**CAMTUR**) ELSE IT WILL INDUBITABLY FAIL.

II.RESEARCH OBJECTIVE

The main objective of this exploratory study was to determine and identify general personnel deficits and training needs in the tourism industry and to recommend training interventions which can help to correct them.

III. RESEARCH SCOPE

The study focuses on all levels of operations: executive, supervisory, and operative; and it covers all activities related to the private sector of the tourism industry, namely, transportation, hotel and food service, information services, and tour arrangements. The study also includes an overview of the formal tourism training available in the area.

This study covered the most visited areas of Guatemala: Guatemala City, Antigua, Lake Atitlan, Chichicastenango, Tikal and its surroundings, and Quezaltenango. Such a geographical area was chosen because of the heavy concentration of touristic activity and the time constraints of this study (see section V). For further information see Appendixes b and c.

IV. METHODOLOGY

A convenient way to obtain information for an exploratory study is to discuss the problem with various experts. Such discussions are very informal and a flexible questionnaire is used. An expert is defined in this context as anyone with knowledge relevant to the problem under consideration. This technique is called "EXPERT OPINION SAMPLING", and it was the main source of information for this study. Experts from each tourism activity (see section III above) were selected and interviewed, and their opinions relating to the personnel needs from each activity were consolidated and are included in separate sections of this report.

SAMPLE SELECTION:

Experts were selected from a membership list which the Guatemalan Chamber of Tourism (CAMTUR) provided. Such selection was not made on a random basis, but on the basis of their known expertise.

SAMPLE SIZE:

No more than six experts from each tourism activity were interviewed. Such a number is considered to be optimum, since it allows for a good cross section of ideas and minimizes the risks of relying too heavily on few opinions.

Short case studies are included when appropriate to help illustrate the personnel needs and the level of skill available in the market.

To further validate the experts' opinions, short questionnaires were designed and distributed among employees to determine their current educational level, their tourism education (if any), their language skills, etc. Such questionnaires were distributed by and with the approval of participating tourism experts. Note that this was a convenience sample, the data was not subjected to any statistical analysis except for simple tabulation. The results are compared to the experts' opinions and to some of the secondary information available. The sample has sixty eight questionnaires. Such an arbitrary number was picked because participation was subject to approval and on a voluntary basis.

V. RESEARCH LIMITATIONS

The only major limitation this study had was the short time available to conduct it, since the whole project—which covered a large geographical area—had to be completed within 19 days.

VI. RESULTS

6.1. TRAINING INSTITUTIONS

6.1.1. Guatemalan Tourist Commission (INGUAT)

INGUAT has offered few tourism related courses in the past but they have been sporadic. There are rumors that INGUAT may start a training school with the cooperation of the European Economic Community, but the current "Treaty for Technical Assistance" does not include anything related to the training of tourism personnel. The beforementioned treaty contains only assistance related to tourism administrative issues.

According to Arq. Julio Fonseca, (Assistant Director of INGUAT) INGUAT has been looking into several possibilities for establishing a training school for the tourist trade. There have been talks with the government of West Germany, who is studying the project. Another option was brought up in the last meeting of the Central American Secretariat for Touristic Integration (SITCA) who is studying the possibility of opening a Central American training center. If this idea carries through, such a school would be located in Honduras because they already have the facilities available. Such facilities were built, but they were never habilitated. According to this source, if the Honduran project does not come through, INGUAT will start its own project in a facility located near the town of Amatitlán (not to be confused with Lake Atitlán).

INGUAT is very conscious of the need for trained personnel because they know that besides INTECAP (see sub-section 6.1.2) there is not a single program to train personnel for the trade they represent.

6.1.2. INSTITUTE FOR TECHNICAL TRAINING AND PRODUCTIVITY (INTECAP)

INTECAP is a governmental institution whose main function is to train technical personnel. Its funding comes from the 1% payroll tax specifically created to fund the institution. INTECAP offers several courses in many disciplines. Courses are offered at the request of an employer or trade group and they average forty hours. They also offer short technical careers, only one of which is related to tourism (tourist guides). They offer several tourism courses to train waiters, receptionists, bartenders and kitchen staff. Out of twenty experts interviewed who mentioned INTECAP as a source of training currently available, fifteen consider the contents and quality to be adequate. The main problems they see with INTECAP are the fact that the courses can only be used as a complement to in-house training, and they are only available close to urban areas. The quality tends to vary depending on the teachers, whose pay is oftentimes lower than average. Nevertheless, INTECAP courses are almost the only source of institutional training available these days and they are widely used. Each sub-section (6.2, 6.3, 6.4 and 6.5) includes a "Source of Training" table and the "Combination" column shows the number of employees which have been trained with a combination of in-house and institutional training. In most cases (at least 90%) such institutions was INTECAP, which proved that the courses offered are acceptable to the trade, at least as a complement to in-house training.

6.1.3. RAFAEL LANDIVAR UNIVERSITY

Landivar University, the Jesuit university of Guatemala, started its Tourism Technician and its Bachelor in Tourism programs (3 and 5 years long respectively) in the late seventies at the peak of the tourism boom. They started phasing them out in 1984 when tourism as an economic activity had already declined significantly (see appendix a) and the programs' recruitment dropped. Out of the few experts who mentioned it (4) all of them claim that the programs were inadequate. The curriculum focused too much on the humanities and too little on the practical side of tourism. According to Mr. Arnoldo Escobar, former dean of the School of Humanities and founder of the program, since its inception the program made little emphasis on the administrative areas and it was never upgraded. Most of the programs' graduates work either in non-tourism related fields or they have posts within INGUAT. The whole idea can be best exemplified by a conclusion found in a group study (thesis like) done as a graduation requirement, quote: "3. The fundamental objective of the University (Rafael Landivar) is to form professionals who can work as planners conscious of the evolution and development of tourism for the advantage of Guatemala. The reality of the current situation is not consistent with such a fundamental objective."[1]

[1] PLACE OF THE TOURISM TECHNICIAN WITHIN THE TOURISTIC ACTIVITY, 1984. RAFAEL LANDIVAR PRESS

6.1.4. FEMININE INSTITUTE OF HIGHER STUDIES (IFES)

IFES is a higher education institution affiliated to a conservative religious group called "Opus Dei". They offer technical and bachelor degrees in Domestic Sciences (3 and 5 years respectively) which would be somewhat equivalent to hotel and institutional management. Some of their programs—including the two already mentioned—are accredited by the State School System, who is in charge of granting accreditation to the institutions of higher education in the country.

IFES' programs were mentioned only by four of the individuals interviewed, two of which had heard of them but did not know much about them. Of the other two, only one of them rated them as adequate in content and quality, while the last one rated the programs as inadequate, particularly in terms of convenience. The main problem with this institution is the great gap which exists between the social class of its students and the low social status and pay for the entry level positions available in the hospitality industry. The institution can not offer much of a scholarship program since the group which runs the school still has its financial commitments tied up with the facility which houses IFES, hence people without financial resources are not able to attend this school.[1]

[1] SOURCE: MARIA E. AMADO PH.D., DIRECTOR, IFES

6.2. TRANSPORTATION

The headquarters of the tourism related businesses are heavily centralized in Guatemala City. This can be easily understood considering that in 1987 alone 48% of the tourists entered through the capital's airport[1] and in the same year 90.98% of them visited Guatemala City (see Appendix c). Most modes of local transportation, tours and even provincial hotel accommodations are arranged at the capital, which explains why, with the exception of the provincial hotels, most of the interviewing took place in Guatemala City.

Seven transportation companies participated in this study: 4 airlines and 3 car rental services, ranging from 53 to 17 employees. All the experts interviewed agreed on the need to establish a tourism training program. They differ at the level(s) which such an establishment should cover, but most of them agree it should cover the supervisory and the operative level, and three of them believe it should cover all levels of operation, including executive training. Six of them would let their employees participate if new training programs were created and four of the experts believed their companies would pay for the training costs involved, at least partially.

Occupation	Total Number of:		Source of Training		
	Employees	Jobs*	In House	Institution	Combination
Luggage Handlers	11	11	9		2
Passenger Service	28	43	28		-
Sales	28	28	16		12
Middle Management	14	29	14		-
Reservations	6	6	6		-
Rental Agents	23	23	15		8
Maintenance	39	39	39		-
Bookkeeping	12	27	12		-
Other	7	7	5		2

Table 6.2: **SOURCE OF TRAINING BY OCCUPATION**
*Includes Vacancies and New Positions

[1] SOURCE: GUATEMALAN IMMIGRATION SERVICE. DATA PROVIDED BY INGUAT'S STATISTICAL DEPT.

A good portion of the recruiting is done by word of mouth, but they also use newspaper ads and employment agencies.

Knowledge of a second language is required for most positions (except for luggage handlers and maintenance) as well as a high-school degree.

The great majority of the persons interviewed did not know much about their personnel turnover. Also notice that since most of the training is done either in-house only or combined with another institution (mainly INTECAP) the quality of the training was rated as adequate. The same applies for sections 6.3, 6.4 and 6.5. Keep in mind that this is an exploratory study, and the data provided does not represent but a portion of the tourism industry.

6.3. HOTEL AND FOOD SERVICES (GUATEMALA CITY)

The needs for trained personnel tend to vary from the capital to the provincial areas, that is why a separate sub-section deals with hotels and food services outside Guatemala City.

Six hotels participated in this study, ranging from 520 to 85 employees. All of the experts interviewed agreed on the need to establish a tourism training program. Two of them believe it should cover all levels of operation (executive, supervisory and operative). What most of them (5) agree is that such a program must cover at least the operative level, and four of the experts believe the program should include the supervisory level. All of them indicated that is such a program was started they would allow their employees to participate and the hotels would cover the costs at least partially (meaning the employee would pay for the remaining portion).

Occupation	Total Number of:		Source of Training		
	Employees	Jobs*	In House	Institution	Combination
Kitchen	208	275	49		159
Waiters & Restaurant	301	593	144		157
Bar Tenders	25	-	-		25
Bell Boys	25	31	25		
Cashiers	16	33	16		-
Receptionists	90	130	44		46
Sales	7	9	7		-
Stewards	161	204	66		95
Laundry	37	-	19		18
Maintenance	275	329	122		153
Middle Management	37	-	23		14
Other	50	52	41		11

***TABLE 6.3*: SOURCE OF TRAINING BY OCCUPATION**
*Includes Vacancies and New Positions—Incomplete (Half of the participants did not provide this information.)

Recruiting methods: Newspaper ads and word of mouth.

English is a requirement for employment for all jobs which have contact with the customer. A high-school degree is also required for most jobs.

6.4. HOTEL AND FOOD SERVICE IN PROVINCIAL AREAS

Ten provincial hotels participated in this study, ranging from 141 to 13 employees. All ten individuals interviewed believe there is a need for a tourism training program. Five of the "experts" agree that such a program should cover mainly the operative level and four of them believe it should cover all levels of operations. All ten of them would also allow their current employees to participate in the program and their businesses would cover the costs at least partially. It is important to notice that at least five of the ten individuals interviewed are not only managers of the firm, but they also own the facilities. In the province, the corporate ownership tends to fade and so does the existence of professional managers.

Occupation	Total Number of:		Source of Training		
	Employees	Jobs*	In House	Institution	Combination
Kitchen	93	124	74		19
Stewards	64	77	57		7
Receptionists	54	58	52		2
Waiters & Restaurant	129	187	101		28
Bar Tenders	32	47	20		12
Maintenance	69	70	65		4
Bell Boys	18	20	18		-
Security	20	22	20		-
Bookkeeping	37	38	33	4	-
Sales	16	16	16		-
Laundry	17	22	17		
Reservations	4	4	4		-
Tel. Operators	3	3	3		-
Middle Management	32	32	32		-
Other	18	19	16	2	-

***TABLE 6.4*: TYPE OF TRAINING BY OCCUPATION**

*Includes Vacancies and New Positions

In provincial areas most recruiting is done by word of mouth. The only positions recruited through newspaper ads and/or employment agencies are the managerial positions.

The only position where a second language (English) is always required is receptionist; even though knowledge of another language is desirable for many other positions, it can not be a job requirement because of the scarcity of bilingual personnel. Previous experience is oftentimes a job requirement.

Turnover in provincial areas seems to be a lot lower than the turnover in Guatemala City. (This does not apply to Antigua, perhaps because of its proximity to the capital.) Availability of personnel for this industry is so low that some hotels prefer to rotate personnel from one post to another rather than firing them. Motivation of provincial personnel is also a hard task (see Appendix e).

There are two first class hotels being built in the Tikal area. One of them is part of Camino Real Hotels (Westin) and because of its affiliation it should not have any trouble training its personnel (scheduled to open towards the end of 1989.) The other hotel, "Villa Maya", is scheduled to start operations

at the end of 1988. According to the manager of the Hotel Maya International—Mr. Hector Moscoso—also the regional manager of Servicios Turisticos del Peten (which owns both hotels), the Villa Maya project includes a small training facility, even though they are not sure where the trainers will come from.

6.5. TOUR ARRANGEMENTS

Six agencies participated in this study, ranging from 60 to 6 employees. There is some duplication here, because two of them are not structurally separate from hotels; in both instances the hotels and the tour services do not operate independently from each other.

Five of the individuals interviewed believe that there is a need for a training establishment for the tourism trade. All of them would allow their current employees to participate in the programs offered by such an establishment and five of them would help to cover the costs of such training at least partially if not totally. It is the opinion of three of them that the establishment should offer programs at all levels of operations, while two of them said the programs they need the most would be at the operative level.

Occupation	Total Number of:		Source of Training		
	Employees	Jobs*	In House	Institution	Combination
Receptionist	7	9	7		
Guides	23	46	-	20	3
Sales & Ticketing	23	26	-		30
Bookkeeping	18	21	18		
Middle Management	3	4	3		-
Other	24	27	23		1

***Table 6.2*: SOURCE OF TRAINING BY OCCUPATION**
*Includes Vacancies and New Positions

Recruiting is mostly done by word of mouth, though some newspaper advertising is also used.

Job requirements are good knowledge of a foreign language and a high school degree. Guides are required to have undergone tourism guide training (INTECAP) and to be registered at INGUAT (sometimes) besides the knowledge of at least one foreign language.

6.6. INFORMATION SERVICES

All of the tourism information services are administered by the Guatemalan Tourist Commission. (INGUAT) which has twelve information centers throughout the country. Their staff is at least bilingual, but they oftentimes speak several languages. This study does not include INGUAT's training needs because INGUAT is a governmental institution, while this study deals exclusively with the needs of the tourism private sector.

Even though private institutions are not formally in charge of providing information, their employees do what they can to assist tourists when information is requested. Normally, these employees have had little or no training to provide general tourism information. Case study 2 illustrates what a local hotel is doing about this problem (see Appendix f).

6.7. SUGGESTIONS

The "Experts" questionnaire recorded the suggestions they had to offer. This sub-section includes those which were mentioned most often and those which the consultant considers most relevant (not presented in any particular order.)

- If a training program is to be effective, it must reach the provincial areas.

- Training programs for current employees must be flexible, during off-peak ours, and during off-peak season. Many employees earn tips. *No work, therefore no tips, therefore no interest in courses.*

- Train trainers.

- Most trainers which come from abroad to INTECAP are European while the second largest group of tourists come from the United States (first are Latin Americans). The needs from European to American tourists vary greatly.

- Training should be kept up-to-date.

- Training programs should include human relations and cultural aspects of Guatemala

- Training programs should include not only theory but also a lot of practice.

- Trainees should be taught how to become *more aggressive and more nationalistic.* This would help tremendously when selling their "product".

- A tourism personnel bank would be of great help to the industry.

- There must be communication between training institutions and the tourism industry as a whole.

- Training programs must include foreign languages, for example: The Japanese tourism market—large and affluent—is completely unexploited due to the lack of Japanese speaking personnel.

6.8. EMPLOYEE QUESTIONNAIRE

The questionnaires were passed to employees working at supervisory and operative levels (see section IV) and they were answered voluntarily. The return rate was less than expected since less than half of them were returned. The total number of questionnaires answered was 68. Keep in mind that this was a convenience sample from where no statistical representation can be inferred, but the result can help to provide a better picture of the educational level of current employees.

n=68

Grammar school completed:		61	(89.7%)
High-school or equivalent completed:		41	(60.3%)
Four years of college completed:		2	(2.9%)
Good knowledge of:	English	33	(48.5%)
	Italian	6	(8.8%)
	French	3	(4.4%)
	German	2	(2.9%)
Hotel, tourism, transportation courses taken:		37	(54.4%)

According to statistics provided by INGUAT's Statistical Department in 1987 more than eighty five thousand people came from the United States, 11,402 came from Germany and 10,451 came from Italy,[1] those being the non-Spanish speaking countries where most tourists come from. If one compares the results from the questionnaires and the data provided above, it becomes a possibility that foreign languages should be included as part of the training programs. (Remember that the sample was not random and it is not statistically representative.)

[1] SOURCE: TOURISTS ACCORDING TO NATIONALITY, 1986-1987. INGUAT

VII. CONCLUSIONS AND RECOMMENDATIONS

A look into "Appendix a" provides a clear picture of the growth tourism has experienced in the past years. If the trend continues, there will be an increase in the demand for trained personnel, and at present time there are not functional training programs for the trade. The fact that most of the training was rated as adequate is rather meaningless, because most of it is provided in-house (by the interviewees themselves in many instances) with some technical assistance provided by INTECAP's courses. In reality, the kind of service provided varies greatly and can even be poor, especially at the smaller firms and in provincial areas.

The need for specialized training clearly exists, and even though the experts did not agree at which level of operation, this consultant believes that such training is necessary at executive, supervisory and operative levels.

What can be done? A possible solution would be to fund programs such as INGUAT's or IFES' (mentioned in sub-section 6.1.). Another solution would be to provide trainers for INTECAP. Rafael Landivar University is currently considering the reactivation of its programs where they could definitely use a lot of technical assistance. Scholarships abroad are yet another possibility, but their cost is usually high and it can only benefit a few.

There are many options, but regardless of the one(s) chosen, the tourism private sector must be allowed to provide its input, and the execution of programs must count with its approval, else the projects will indubitably fail. (This was also one of the conclusions in a similar study conducted by A. Gonzales Duperly in 1984 titled "Education, Employment and Tourism" sponsored by the Organization of American States. This consultant chose not to use it as reference because it was done in 1984 when tourism reached its lowest level in the past 10 years. See Appendix a.)

Appendix a

Chart Nº 13*

Income Derived from Tourism
Years 1980—1987

YEAR	NUMBER OF TOURISTS	INDEX 1980=100.0	INCOME (in millions of US$)	INDEX 1980=100.0
1980	466,041	100.0	183.5	100.0
1981	328,878	70.6	131.2	71.5
1982	233,881	50.2	86.6	47.2
1983	235,166	50.5	61.7	33.6
1984	191,934	41.2	56.6	30.8
1985	251,946	54.1	67.2	36.6
1986	287,460	61.7	76.9	41.9
1987	352,741	75.7	102.0	56.1
Total	2,348,027		766.6	

SOURCE: NUMBER OF TOURISTS, GUATEMALAN IMMIGRATION SERVICE;
INCOME, STATISTICS DEPT. INGUAT

Appendix b

1. Guatemala City
2. Antigua (28 miles)*
3. Lake Atitlan (91 miles)
4. Chichicastenango (90 miles)
5. Tikal (329 miles—commercial flights available)
6. Quezaltenango (127 miles)

* All approximate distances measured from Guatemala City

Appendix c

From Chart 15*

Places visited by tourists
(1987)

Places Visited	Number of Tourists	Percentage of Total
1. Guatemala City	320,934	90.98%
2. Antigua	143,467	40.67%
3. Lake Atitlan	99,731	28.27%
4. Chichicastenango	55,357	15.69%
5. Tikal	43,403	12.30%
6. Quezaltenango	30,604	8.68%
7. Rio Dulce	20,922	5.93%
8. Huehuetenango	13,984	3.96%
9. Other Places	82,834	23.48%

* Source: Statistical Department "Guatemalan Tourist Commission" (INGUAT)

Appendix d

EXPERTS INTERVIEWED

TRAINING RELATED INSTITUTIONS

- Mr. Horacio Paganini, Dept. Chief, INTECAP.
- Mr. Arnoldo Escobar, Former Dean, School of Humanities, Rafael Landivar University
- Mr. Angel Velasquez, Rafael Landivar University
- Ms. Maria E. Amado, PHD, Director IFES

TRANSPORTATION

- Mr. Manuel Guerrero, District Manager, SAHSA & President of the Local Airline Asoc. (ALA)
- Ms. Isabel Arenales , TACA AIRLINES
- Ms. Liliana Guardallo, Personnel Manager, IBERIA
- Mr. Rene Debroy, General Manager, AEROQUETZAL
- Ms. Lyn Rogers, Personnel Manager, HERTZ
- Ms. Elena Campollo, Dollar Rent-A-Car
- Mr. Fernando Rodriguez, General Manager, National Car Rental

HOTEL AND FOOD SERVICE

- Ms. Anabella Solares, Public Relations, Hotel El Dorado
- Ms. Iliana Orellana, Personnel Manager, Hotel El Dorado
- Mr. Bernard Caprez, General Manager, Hotel Camino Real (Westin)
- Ms. Maria Sosa, Personnel Manager, Hotel Camino Real (Westin)
- Mr. Byron Medina, Acting Personnel Manager, Hotel Conquistador (Sheraton)
- Ms. Aminta Salazar, Assistant Manager, Hotel Panamerican
- Mr. Carlos Mendizabal, Personnel Manager, Hotel Guatemala-Fiesta
- Mr. Romeo Tello, Assistant Manager, Hotel Del Centro
- Mr. Hugo R. Tun, Manager, Hotel Jungle Lodge
- Mr. Hector Moscoso, General Manager, Hotel Maya Intl
- Mr. Alfonso Zetina, Owner-Manager, Hotel Tzquina-Ha
- Mr. Franz Ippisch Beyer, Gral. Manager, Hotel Del Lago (Biltmore)
- Mr. Guillermo Leon, Manager, Hotel Del Campo

Appendix d (continued)

- Mr. Jorge Bonifaz, General Manager, Pension Bonifaz
- Mr. Enrique Magermans, General Manager-Owner, Hotel Santo Tomas
- Mr. Marvin Giron, Assistant Manager, Hotel Mayan Inn
- Mr. Gustavo Samayoa, General Manager, Hotel Antigua
- Mr. Guillermo Bonifaz, Assist. Manager, Hotel Ramada

TOUR ARRANGEMENTS

- Mr. Guiseppe Caneba, President, ECA TOURS
- Ms. Maria Fernandez, General Manager, Viajes Tivoli & President of Travel Agents Asociation
- Ms. Suzanne Rogers, General Manager, Clark Tours
- Ms. Rosa Marroquin, Personnel Manager, PANAMUNDO
- Mr. Hector Moscoso, Servicios Turisticos del Peten
- Mr. Hugo Tun, Jungle Lodge Tour Service

INFORMATION SERVICES

- Arq. Julio Fonseca, Assistant Director, INGUAT

OTHER

- Ms. Iris M. Reyes, Administrative Manager, CAMTUR

Appendix e

Case Study 1

"MOTIVATION OF EMPLOYEES FROM RURAL AREAS." COURTESY OF HOTEL DEL LAGO—BILTMORE, ATITLAN.

Hotel del Lago is a first class hotel, operated by Biltmore International, located in the little town of Panajachel, which is on the north shore of Lake Atitlan. The hotel employs seventy-three full time and thirty temporary employees, most of whom come from Panajachel and its surrounding rural areas. In the highlands of Guatemala, where most of the indian population still lives, the family units normally cultivate a plot where they get corm and beans. They raise their own chickens and pigs, hence loosing a job means only lost income which does not equate to the lose of the means for survival, as it would in the city.

Hotel del Lago pays all of its employees higher than minimum wages, but even this proved not to be an incentive. In a place where employees are scarce, if they prove not to be efficient in the initial posts assigned to them, management prefers to rotate them rather than to fire them, since the replacement and training period would be too long.

To create a feeling of belonging, management studied the option presented to them by the Guatemalan Workers Solidarity Union and proceeded to start the Workers Solidarist Association. It operates as an employee cooperative with its own employee board of directors, which manages the assets of the association. They run a cooperative savings and loan program, funded through a 5% paycheck deduction and matched with the same amount by the Hotel del Lago. They also have a coop store (they obtain wholesale prices from industries affiliated to the solidarist movement) and are able to sell the products to themselves well under retail prices at a profit to the association. They have started a small corn mill operation which also makes money by milling to outsiders, and work is under way to start commercial pig breeding.

After only five months of operation 95% of the employees belong to the association and the feeling of belonging it created has brought turnover down to zero (except for the few who are fired for major faults, i.e. stealing)

Appendix f

Case Study 2

"LACK OF GENERAL CULTURAL BACKROUND AMONG TOURISM PERSONNEL."

COURTESY OF HOTEL EL DORADO, GUATEMALA CITY.

Hotel El Dorado is a five star hotel, formerly a part of the "Americana" chain. It is the second largest tourism institution with over four hundred fifty employees.

One of the functions of the person in charge of public relations and concierge services is to provide general information to tourists who request it. The person in charge of this office, Ms. Anabella Solares, noticed that the needs for information went beyond the time she had available. She also noticed that tourists would ask any other employee for information when she was not around. She learned from the tourists themselves that they were often misinformed, which did not only fail to satisfy the guests' needs, but was also creating a bad image: Guatemalans who do not know about Guatemala. When Ms. Solares presented her budget for 1988 she included a training program for employees who have direct contact with the tourists. The program was approved and eighty people have been participating in the program on a voluntary basis.

The program has included lectures and talks in history, art, folklore and general culture. It has included group visits to Antigua, Atitlan, Chichicastenango and Guatemala City. In the latter, they have visited consulates, banks, museums, theatres and other points of interest. The program also included a complete tour of their own facility in order to get to know the different departments and services the hotel provides. Some other visits to places like Tikal are being planned.

The employees will be tested to measure the efficiency of the program, and the results will be reviewed by management in order to justify further commitment of funds.

TRANSPORTATION

Educational Programs:

It is advisable that education and any other available resources be within reach of all those involved in the process of exportation. This is in order, not to diminish the recognition the present educational programs deserve, but to suggest that they should be complemented with the following programs:

1. Program to Train Truck Drivers

It is recommended that a school for Guatemalan truck drivers be established in Guatemala City. This should be a program of cooperation among truck companies in Guatemala, truck makers, and a training agency such as USAID. The goal of the school would be to produce drivers conscious of the role they play in the trucking industry, and of how appropriate driving habits can improve the use of the equipment. Those who graduated would receive a diploma which would be accepted as advanced training. The cost of such a school would greatly depend on how much assistance it would receive from large manufacturers of equipment. The Guatemalan Transportation Association tried to establish such a program on its own. They would be the ideal candidates to lead a new version of their plan.

2. Program to Train Mechanics

It is recommended that a school for mechanics be established in Guatemala City with the same arrangements as for the driving school. The objective of the course would be, not only to teach the mechanics the details about fixing and keeping-up heavy equipment, but also to show them how to recognize and measure the results of a successful maintenance program. Again, the graduates would receive a competency diploma.

The cost of buying equipment and of establishing such a school could easily amount to $2 million, but, as well as with the driving school, there is assistance available from the equipment manufacturers. Assisting INTECAP would be the best way to conduct this program.

3. Program for Training Administrators of Trucking Companies

It is recommended that arrangements be made to hold a series fo seminiars for the administrators or future administrators of trucking companies. The goal of the seminars would be to introduce ideas to improve the efficiency of operations. In the long run, it is expected that such classes, correctly thought of and conducted, could eliminate empty return trips and thus cut in half the cost of transportation by truck. A more realistic estimate would be 15% reduction in truck costs through generally improved administrative practices. The presenters would have to be well-known experts in that field and obviously should be able to present in Spanish. A yearly budget of $75,000 would be sufficient for six lecturers per year. If the lecturers could visit more than one country, the cost per country would be less. Following this same concept, a training program for port supervisors could be held. Probably INCAE could be responsible for both the national and regional versions of this program.

ANNEX F

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Institutions and Persons Consulted

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- David Evans

USAID/Guatemala
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- Paul White, NDIR
- Sam Skogstad, OEPA
- Mary Ott, OEPA
- Alfonso Martinez, OEPA
- Liliana Ayalde, OHRD
- Gilberto Mendez, OHRD
- Charles Green, OHRD
- Felipe Manteiga, PSPO
- Rubin Mejia, PSPO
- Guillermo Matta, PSPO
- Tom Kellerman, PRM
- Richard Burke, PRM
- Christina Schoux, PDSO
- Joe Lombardo, PDSO
- Richard Steelman, PDSO
- Harry Wing, ORD

U.S. Embassy/Guatemala

- Patricia Parrin, Labor Attache
- Nick Noyes, Ecomonic Officer

Government of Guatemala

Ministerio de Educacion, GOG
- Amilcar Estrada
- Eliseo Lopez Merida
- Max Castaneda Mayorga
- Omero Jerez
- Maria del Carman Stella Riviera A.

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- Amilcar Estrada
- Reht Suasnavar Garcia-Salas
- Olga M. Hernandez de Leon
- Olga Diaz de Ortiz

Ministry of Labor
- Oscar Chacón, Departamento de Salarios
- Waleska de García, Departamento de Estadistica del Trabajo

Bank of Guatemala

Manuel Cetina Puga, Subdirector Servicio de Estudios Económicos.
Guido Rodes, Jefe de Sección de Cuentas Nacionales.
Gustavo Arqueta
Israel Valenzuela

National Statistical Institute
María Elena Sandoval, Jefe del Departamento de Computación y Cálculo Estadístico

Guatemala's Institute for Social Security (IGSS)
César Diaz Paiz, Director Jefe de Estadística

Guatemala's Tourist Commission (INGUAT)
Julio Fonseca, Assistant Director
Mr. Abraham Cintora, Chief, Statistical Department

Instituto Tecnico de Capacitacion y Productividad (INTECAP)
Juan Migual Orriols
Luis Valiente
Carlos G. Aldana G., Coordinador, Cooperacion Tecnica Internaciónal
Horacio Paganini M., Director, Mercadeo, y Servicios
Alberto Gonzales, Director, Adiestramiento Industrial
Friedel R. Pena, Assistant, Planificacion
Jose Fernando Davila
Pedro Ramos
Estuardo Aguilar Vandemberg
Servio E. Alvarez
Carlos E. Matute
Hector Murga
J. Gallardo Flores
Mario Rosal Garcia, Managing Director
Sergio Enriquez, Jefe, Planificacion
Raul Salazar Z., Director, Estadistica
Ingenéiro Guiròla, Director, Construcion

INTECAP- Chiquimula
Arturo Dardora
Bladimiro Moreno

Schools

Instituto Tecnico Vocacional Dr. Imrich Fischmann
Julio Cesar Valdez

Colegio San Juan Bosco
P. Gervasio Acomazzi

Salesiano Parroquia La Divina Providencia
P. Mario Fiandri

Instituto Industrial Central "G. Lazaro Chacon G."
Arturo Monzon Corado

Instituto Tecnico Femenino
Graciela Aqueche de Fuentes

Instituto Femenino de Estudios Superiores
Maria E. Amado, Director

Centro de Usos Multiples, Zona 7
Aida Almazon

PEMEM "Nueva Montserrat."
Amilcar Aguilar

Centro de Usos Multiples, Zona 5
Victorio Mendez Garrido

PEMEM
Carlos Federico Mora

Instituto Tecnico Vocacional de Quetzaltenango
Herbert N. de Leon Ovalle

Instituto Tecnico Vocacional"Emiliani"
Consuelo de Espell

Centro de Usos Multiples, Zona 5
Gustavo Adolfo Crocker Sagastume
Alberto Reyes Aguilar

Instituto Tecnico Industrial "Georg Kerschensteiner"
Jorge Amilcar Tercero

Instituto Industrial El Progreso
Luis Rodolfo de Paz A.

Universities

Universidad Rafael Landivar
Daniel Borja
Arnoldo Escobar, Former Dean, School of Humanities
Angel Velasques

Industry and Business Associations

Camara Empresial (CABM)
Otto Becker, Gerente General
Guillermo, Rodriquez, Coordinador de Exportaciones

Camara de Industria
Juan Luis Bosch, President
Victor Suarez, Vice-President
Jorge Santizo, Gerente

Camara de la Construccion
Carlos E. Corado L., President
Eduardo de Leon, Assistant Manager

Gremial de Exportadores de Productos no tradicionales

Haraldo Zaldivar, Sub-Gerente
Irma Yolanda Calvillo de Arias, Jefe, Capacitacion y Asistencia Tecnica

Camara de Comercio
Jonás Vásquez A., Gerente
Edgar Heinmam

Camara del Agro
Dieter Keller, President
Cesar Bustamante Arauz, Gerente General

Colegio de Ingenieros
Luis Eduardo Perez

CAMTUR (Chamber of Tourism)
Iris M. Reyes, Administrative Manager

Private Companies

Aeeros Arquiteetonicos
Julio A. Rivera E., President

A.C. de Guatemala

AICSA

Banvi
Soria Ramiro

Best Manufacturer's
Humberto Teos

Cardiz
Carlos Eduardo Dias, General Manager

Pedro Aragon (Comosa)

Cyasa

Empacadero Industrial
Carlos Caballer

Extruduplast
Cesar Osorio

Fapco

IBM
Herbert R. Fleischer

J & R Ropa Desportiva Femenina
Rudy Gradys
Frances McCall

Icoqua

I. Santa Clara

Prodisa

Transportation

Mr. Manuel Guerrero, District Manager, SAHSA & President of the Local Airline Asoc. (ALA)
Ms. Isabel Arenales, TACA Airlines
Ms. Liliana Guardallo, Personnel Manager, IBERIA
Mr. Rene Debroy, General Manager, AEROQUETZAL
Ms. Lyn Rogers, Personnel Manger, HERTZ
Ms. Elena Campollo, Dollar Rent-A-Car
Mr. Fernando Rodriguez, General Manager, National Car Rental

Hotel and Food Service

Ms. Anabella Solares, Public Relations, Hotel El Dorado
Ms. Iliana Orellana, Personnel Manager, Hotel El Dorado
Mr. Bernard Caprez, General Manager, Hotel Camino Real (Westin)
Ms. Maria Sosa, Personnel Manager, Hotel Camino Real (Westin)
Mr. Byron Medina, Acting Personnel Manager, Hotel Conquistador (Sheraton)
Ms. Aminta Salazar, Assistant Manager, Hotel Panamerican
Mr. Carlos Mendizabal, Personnel Manager, Hotel Guatemala-Fiesta
Mr. Romeo Tello, Assistant Manager, Hotel Del Centro
Mr. Hugo R. Tun, Manager Hotel Jungle Lodge
Mr. Hector Moscoso, General Manager, Hotel Maya Intl
Mr. Alfonso Zetina, Owner-Manager, Hotel Tzquina-Ha
Mr. Franz Ippisch Beyer, Gral. Manager, Hotel Del Lago (Biltmore)
Mr. Guillermo Leon, Manager, Hotel Del Campo
Mr. Jorge Bonifaz, General Manager, Pension Bonifaz
Mr. Enrique Magermans, General Manager-Owner, Hotel Santo Tomas
Mr. Marvin Giron, Assistant Manager, Hotel Mayan Inn
Mr. Gustavo Samayoa, General Manager, Hotel Antigua
Mr. Guillermo Bonifaz, Assistant Manager, Hotel Ramada

Tour Arrangements

Mr. Guiseppe Caneba, President, ECA TOURS
Ms. Maria Fernandez, General Manager, Viajes Tivoli & President of Travel Agents Association
Ms. Suzanne Rogers, General Manager, Clark Tours
Ms. Rosa Marroquin, Personnel Manager, PANAMUNDO
Mr. Hector Moscoso, Servicios Turisticos del Peten
Mr. Hugo Tun, Jungle Lodge Tour Service

Private Volunteer Organization (PVOs)

ASINDES. (Asociacion de Entidades de Desarrollo y de Servicio no Gubernamentales de Guatemala).
Oscar Manuel Osorio

ASIES (Asocicion de Investigaciones y Estudios Sociales)
R. Amilcar Burgos S.

FUNTEC (Fundacion Tecnologica)
Juan Niemann, President
Francisco Aguirre, Director
Frenando Pullin, Executive Director

KINAL Foundation
Armando Secaira
Jorge Sittenfield, Vice-President

JUNKABAL
Coralia F. M. Coronado

Business and Professional People

Ana del Rosario Rodríguez de Cuevas - Consultora

Dr. Francisco Beltranena - Politicologo

Edward Greenberg - Agro-industrial

Luis Felipe Escobar - Agro-industrial

Technical Assistance Mission of West Germany - Francise Huber

Rotary Club
Luis F. Valenzuela