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COLOMBIA'S SERVICIO NACIONAL DE
APRENDIZAJE (SENA):

A QUALITATIVE ANALYSIS OF A
TECHNICAL TRAINING SYSTEM

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TABLE OF CONTENTS

ACKNOWLEDGMENTS

EXECUTIVE SUMMARY

	<u>Page</u>	
Chapter I	BACKGROUND AND PURPOSE OF STUDY	1
	Scope of Study	1
	Evolution of SENA	3
	Elements of SENA's Success	4
	Organization of Report	6
Chapter II	ADMINISTRATIVE AND MANAGEMENT SYSTEMS	9
	Organization of SENA	9
	National Level	9
	Regional Level	12
	Decision-Making Process	13
	Personnel Procedures	16
	Hiring and Recruitment	17
	Instructor Training	19
	Salaries and Incentives	20
	Highlights	21
Chapter III	FINANCIAL SYSTEMS	22
	Sources of Financing	22
	Financial Management	23
	Collection of Contributions	23
	Budget	24
	Purchasing	25
	Difficulties in Financial Management	27
	Tax Evasion	27
	Government Measures	28
	Highlights	29
Chapter IV	TRAINING PROGRAMS AND CURRICULAR METHODS	31
	Participants	31
	Modern Sector Training	33
	Identifying Training Needs	33
	Types of Programs	35
	Summary	38
	Informal Sector Training	39
	Types of Programs	39
	Outreach Effort	43
	Social Action Programs	44

Table of Contents .../...

	<u>Page</u>
Curriculum Development	45
Permanent, Individualized, Modularized Instruction (PIM)	45
Integral and Ethical Training	50
Highlights	52
Chapter V SENA AND THE PRIVATE SECTOR	54
Background	54
SENA's Programs for the Private Sector	55
Technical Consulting and Training Services for Firms	55
Middle Management and Supervision Training and Development	57
Integrated Technical Assistance to Small- and Medium-Size Manufacturing Firms	57
Integrated Services for Small- and Medium- Size Firms	58
Entrepreneurship Training	58
Summary	59
Collaboration with Other Private and Public Agencies	61
Current Dilemma in Meeting Private Sector Training Needs	62
Chapter VI INDICATORS OF SUCCESS	64
Quantitative Measurements	64
Economic Rates of Return for SENA Training	64
Participant Hour of Instruction Costs	66
Employment Rates of SENA Graduates	67
Comparative Salaries	69
Ratio of Capital Costs to Recurrent Expenditures	70
Ratio of Administrative to Instructional Staff	72
Follow-Up Studies of Graduates: Use of Findings	73
Qualitative Factors	74
Decentralized Administration	76
Independent Source of Financing and Collection of Revenue	76
Consistent and Effective Leadership and Management	77
Strong Private Sector Linkages	78
Commitment to Change and Innovation	78
Focus on Client Participation in the Design and Delivery of Services	79
Strong Public Relations Effort	79
Successful Adaptation of International Technical Assistance	80
Conclusion	82

Table of Contents .../...

	<u>Page</u>
Chapter VII CONCLUSIONS	83
Lessons for Other Countries	83
Identification of Training Needs	84
Curriculum Development and Instructional Strategies	85
Diversity in Training Programs	86
Characteristics of Staff and Trainees	87
Costs of Training	88
Decentralized Administration	88
SENA's Ability to Meet Training Demands	89
Modern Private Sector Demand	89
Social Demand	90
Recommendations	90
Future Directions	91

LIST OF FIGURES

	<u>Page</u>
Figure 1: Organizational Structure	10
Figure 2: Map of SENA Regional Offices	14
Figure 3: International Technical Cooperation Provided to SENA by Donor Country	81

LIST OF TABLES

	<u>Page</u>
Table 1: SENA Employees	17
Table 2: SENA Financing	22
Table 3: 1986 SENA Budget	26
Table 4: 1986 Modern and Informal Training Participants by Economic Sectors	31
Table 5: Number of Students and Percent of Total Budget Per Type of SENA Training Program	39
Table 6: SENA Training and Consulting Services to Firms by Economic Sector: 1982 - 1985	60
Table 7: Participant Hour of Instruction Costs	66
Table 8: Employment Rates of SENA Graduates by Sector of Economic Activity and Mode of Instruction	68
Table 9: Comparative Salaries of SENA Graduates with Other Employees with Similar Backgrounds	70
Table 10: SENA's Capital and Recurrent Costs	71
Table 11: SENA Employees	72

LIST OF APPENDICES

- Appendix I: Issues of Interest to USAID/LAC Missions and Team's Response
- Appendix II: Responsibilities of SENA Offices
- Appendix III: SENA Job Announcement
- Appendix IV: SENA Apprentice Contract
- Appendix V: Apprenticeship Programs and Requirements
- Appendix VI: Major Areas of Training for Industrial Chemistry
- Appendix VII: Example of "Management by Project" for Industrial Chemistry
- Appendix VIII: List of 1985 Agreements (Convenio)
- Appendix IX: Calculating Participant Hour of Instruction Costs

EXECUTIVE SUMMARY

Contracted for by the Colombia Mission of the U.S. Agency for International Development, this study provides an overview of Colombia's national vocational/technical training system, Servicio Nacional de Aprendizaje (SENA). The purposes of the study are to:

- o Identify important factors in SENA's organization and programs which contribute to the success of SENA's operations.
- o Examine SENA's linkages with the private sector, both in terms of the design of training programs and of the employment histories of its graduates.
- o Isolate particular aspects of SENA's programs and operations that are suitable for replication or adaptation in other countries of the Latin American and Caribbean Region.

The Checchi and Company team of two researchers conducted a broad examination of SENA's systems for administration, decision-making, personnel management, and financial operations; its training programs for both the modern private sector and the informal sector; its curricular design and instructional strategies; and its linkages with the private sector. The team also investigated the impact of recent government measures which have restricted SENA's budgetary autonomy by freezing its hiring of new personnel and capital investment. The team met with a wide range of Colombians involved with SENA -- administrators and instructors, employers, students and graduates. The team also visited SENA's national headquarters and several of its regional centers.

FINDINGS

SENA is considered to be one of the most developed and organizationally complex institutions in Colombia, a country of almost 30 million people. It has the reputation both inside and outside Colombia of being a well-financed, well-managed, and stable organization. In 1986 SENA will provide training to 600,000 students, employ 8,000 instructors and administrators, and serve 2,200 firms directly. It is a highly structured and complex system.

Currently SENA's programs include basic skills training, skills upgrading, traditional apprenticeship training, and specialized technical training. SENA also offers management development and technological advisory services to small- and medium-scale enterprises, farms, and cooperatives. SENA now operates in all economic sectors through a network of 19 Regional branches (coinciding with national regional boundaries) covering the entire country. These branches operate 76 fixed training centers, 61 mobile programs that reach into isolated rural and marginal areas, as well as many in-plant training courses and integrated community development programs.

SENA's historical success in achieving its mission is reflected in such factors:

- The social rate of return to investment for SENA training is 14% for workers in Bogota, exceeding the rate of return to capital investment in Colombia.
- Annual participant completion and retention rates are nearly 90%.

- Eighty-five percent of graduates from SENA training programs are economically active. The other 15% include members of the informal sector who received basic training for community involvement, not for employment.
- The average participant hour of instruction costs \$1.70, as compared to \$3.50 in the United States and over \$2.00 in most other Latin American and Caribbean training programs.
- The average tenure of a SENA professional staff member is 12 years. There is a high sense of collegiality, loyalty, and dedication to SENA's mission among its staff members.
- SENA has developed a set of mechanisms to link it closely to employers in the private sector. These mechanisms include:
 - Private sector representation on SENA's National and Regional Boards of Directors;
 - Use of trade advisory committees;
 - Periodic follow-up studies of graduates by field of work;
 - In-depth studies of specific trades or industries to assess training needs;
 - Technical assistance and consulting services to firms.
- In its informal sector programs, SENA has developed techniques to greatly extend its outreach. These techniques include:
 - Training of local trainers;
 - Design and support of integrated community development projects;
 - Use of correspondence and extension courses.
- SENA stresses client participation in all program activities from the initial identification of needs to the final evaluation of the training delivered.

Critical to SENA's success is its decentralized administration. Planning, programming, and budgeting functions are based in the Regions. SENA programs are designed to meet the training needs of specific trades, firms, communities, or locales. Its teaching-learning strategies also focus on meeting the requirements of different groups of students through the use of individualized and competency-based instructional techniques. SENA is considered a pioneer in Colombia in developing effective responses to the training needs of a wide range of clients. In particular, SENA has developed specifically-tailored services for firms in the modern private sector.

SENA's long history of decentralization offers a valuable model to other countries which are seeking to expand education and training opportunities in the face of severe financial constraints. SENA is an example of how significant community and private sector involvement in decision-making at the local and regional level can result in more efficient use of resources and improved quality of education.

SENA's record of successfully meeting Colombia's training needs as they evolved over the thirty years of SENA's history qualifies it to play a major leadership role in the Latin American and Caribbean Region. SENA is committed to collaboration with its neighbors and has recently opened a new bilingual training center to serve as an observation and training site for vocational/technical training specialists from the region. SENA's experience offers many valuable lessons for similar training systems in other countries.

Chapter I

BACKGROUND AND PURPOSE OF STUDY

Chapter I

BACKGROUND AND PURPOSE OF STUDY

SCOPE OF STUDY

The U.S. Agency for International Development (AID) contracted with Checchi and Company to conduct a qualitative analysis of the Servicio Nacional de Aprendizaje (SENA), the official vocational/technical training system of Colombia. The analysis called for an overview of all SENA operations, its pedagogical methodology, and general training programs, as well as a description of SENA's private sector programs and employment linkages. The scope of work was a collaborative effort between SENA and USAID/Colombia. A two-person team conducted the field work during a five-week period in April - May 1986.

The focus of the study was to examine the programmatic and organizational/institutional characteristics and practices of SENA and its long history of close collaboration with the private sector. USAID/Colombia was specifically interested in identifying those characteristics and practices which have contributed to SENA's success. Moreover, the study would suggest what other countries might learn from SENA's experience by identifying practices that could be replicated or adapted in other countries, especially in Latin America.

At the onset of the project, USAID/Colombia requested other Latin American and Caribbean (LAC) USAID Missions to submit suggestions for areas of interest to include in the analysis. Eight LAC Missions responded with a variety of issues. The Missions' requests for detailed information on a broad spectrum of issues regarding SENA were incorporated in the final design of the Scope of Work. (See Appendix I for summary of cables and team's response to issues.)

The overview of SENA thus is intended to provide USAID with an objective analysis of the strengths and limitations of SENA and a broad examination of its general financial, managerial, and technical methodologies. Because of limitations in funds and scope, the study is not meant

to be a comprehensive evaluation of SENA per se; rather, its purpose is to enrich USAID's understanding of SENA's development and practices, to provide a case study of a large and efficient public vocational/technical training system, and to isolate those factors that contribute to its effectiveness.

Although a number of evaluations on SENA have been conducted recently, most involve economic analysis of specific programs alone. None deal with the vast array of issues raised by USAID/Colombia and other Missions. To respond adequately to the needs expressed, a two-phased program including a two-person team was contracted to carry out the analysis.

During Phase I, the principal investigator collaborated with USAID/-Colombia and SENA representatives to design a detailed scope and program of study. This phase lasted ten working days. Phase II consisted of two coordinated analyses: one dealing primarily with SENA's programs for the private sector and employers' needs and perceptions of SENA, and the second involving a broad descriptive analysis of the actual training methodologies and general programs in the sectors of commerce, industry, and agriculture. The results of both these investigations were incorporated in the final report.

SENA is considered to be one of the most developed and organizationally complex institutions in Colombia, a country of almost 30 million people. It has the reputation both inside and outside Colombia of being a well-financed, well-managed, and stable organization. In 1986 SENA provided training to 600,000 students, employed 8,000 instructors and administrators, and served 2,200 firms directly. It is a highly structured and complex system. This study provides a broad overview of SENA and general verification of the major components, characteristics, and elements of its effectiveness.

The Checchi team gathered pertinent information at SENA's National headquarters in Bogota and obtained supplementary data through direct visits to SENA's Bogota, Baranquilla, and Pereira Regional Offices. The team conducted structured interviews with key SENA administrators, with

private sector representatives including employers and trade association members, with SENA instructors, and with many students and graduates. The team also relied on various forms of archival data including project files, previous evaluations and follow-up studies, financial records, memoranda and technical reports. Additional interviews were conducted with representatives from other agencies, firms, and projects related to SENA; these interviews solicited respondents' perceptions and opinions about the effectiveness of SENA's services.

EVOLUTION OF SENA

The National Vocational Training Service (SENA) is the main source of vocational and technical training in Colombia. Legally established in 1957 by the same law (Decreto 118) which initiated the country's social benefits program (Bienestar Social), SENA was founded as a semi-autonomous, privately-funded public institution assigned to the Ministry of Labor and Social Security.

The creation and design of SENA was a collaborative effort of the labor movement, the private sector, and the government in response to a recognized need to ensure the availability of a skilled and motivated work force as Colombia shifted to an import-substitution economy in the early 1950s. Faced with the need to industrialize the country, labor and private sector representatives requested technical assistance from the International Labor Organization (ILO) in establishing a national manpower training system. With ILO assistance, Colombian representatives visited and studied SENAI (Servicio Nacional de Aprendizaje Industrial de Brasil), which was also created under guidance from the ILO. In many respects, SENA's model was a hybrid, patterned after other ILO-influenced technical training systems established in Argentina (1944) and in Brazil (1942). The SENA model benefited from the experience of previous efforts, adapting the most appropriate structures and practices to fit the unique needs of Colombia.

SENA's original role was to complement the formal education system by concentrating on non-degree, directly job-related training of workers employed in the formal industrial, commercial, and agricultural sectors.

As the Colombian economy evolved, SENA's mission was progressively broadened to provide training to all sectors of the economy, both the formal and informal. Because of its ability to grow and respond to the varied and changing needs of the economy, SENA has been recognized as playing a major leadership role in the country's social and human development over the last thirty years.

Currently, SENA's programs include three-to-six month courses for adults in basic skills training, skills upgrading, traditional apprenticeship training, and specialized technical training. SENA also offers management development and technological advisory services to small- and medium-scale enterprises, farms, and cooperatives. SENA now operates in all economic sectors through a network of 19 Regional branches (coinciding with national regional boundaries), covering the entire country. These branches operate 76 fixed training centers, 61 mobile programs that reach into isolated rural and marginal areas, as well as many in-plant training courses and integrated community development programs.

In the area of international technical cooperation, SENA provides technical assistance to over twelve Latin American countries. In addition, SENA is also currently providing training to a number of large firms including multinationals such as Exxon and Occidental, as well as Avianca, the official airline of Colombia. For the last twenty years SENA has received technical assistance from the ILO, Germany, the Netherlands, Spain, France, Switzerland, Belgium, Israel, Japan, and Canada. With almost 30 years of experience in technical training, SENA can play a major leadership role for other Latin American and Caribbean countries by providing observation and training sites for their technical training specialists and managers. SENA is committed to this type of collaboration and has recently developed a bilingual center (English and Spanish) on the island of the San Andres to address the training needs of its neighbors.

ELEMENTS OF SENA'S SUCCESS

AID's interest in SENA is in its demonstrated success in targeting resources for the development of both the modern and informal sectors,

while playing a major role in the country's social and human development. This study began with the assumption supported by previous economic evaluations that SENA is successful in fulfilling its Mission (Jimenez, Kugler and Horn, 1986). Success is indicated by such representative factors as:

- Annual participant completion and retention rates are nearly 90%.
- Eighty-five percent of graduates from SENA training programs are economically active. The other 15% include members of the informal sector who received basic training for community involvement, not for employment.
- The average participant hour of instruction costs \$1.70, as compared to \$3.50 in the United States and over \$2.00 in most other Latin American and Caribbean training programs.
- The average tenure of a SENA professional staff member is 12 years. There is a high sense of collegiality, loyalty, and dedication to SENA's mission among its staff members.
- A recent World Bank study estimated the social rate of return to investment for SENA training is 14% for workers in Bogota, exceeding the rate of return to capital investment in Colombia.
- SENA has developed a set of mechanisms to link it closely to employers in the private sector. These mechanisms include:
 - Private sector representation on SENA's National and Regional Boards of Directors;
 - Use of trade advisory committees;
 - Periodic follow-up studies of graduates by field of work;
 - In-depth studies of specific trades or industries to assess training needs;

- Technical assistance and consulting services to firms.
- In its informal sector programs, SENA has developed techniques to greatly extend its outreach. These techniques include:
 - Training of local trainers;
 - Design and support of integrated community development projects;
 - Use of correspondence and extension courses.
- SENA stresses client participation in all program activities from the initial identification of needs to the final evaluation of the training delivered.

ORGANIZATION OF REPORT

Each chapter of the report presents a different aspect of SENA's organization and mission. Chapter II describes SENA's administrative and management systems, focusing on SENA's principle of decentralized management. The Regional Offices, rather than the National Office, have significant responsibility for identifying training needs and planning programs, budgeting, hiring personnel, and maintaining contact with the different segments of the local labor markets.

Chapter III investigates SENA's financial systems, which also are based in the Regions. Funding for SENA comes from a 2% payroll tax, collected at the Regional level by a private, independent tax-collecting agency (Cajas de Compensacion). Recent government measures which have seriously affected SENA's financial well-being are discussed.

Chapter IV introduces the broad range of training programs SENA offers for both the modern private and the informal sector. SENA's instructional methodologies incorporate training for the development of the whole person, not just the teaching of technical skills. SENA has made significant progress in the transformation of its curriculum development and instructional methodologies through the introduction of individualized and competency-based training. SENA is considered a pioneer in Colombia in

developing effective responses to the training needs of a wide range of institutions and communities - from large multinational firms to rural farmers and the victims of recent natural disasters. In all its programs SENA stresses client participation in the design and delivery of training.

Chapter V focuses on SENA's relationship with the modern private sector. Historically SENA's mission was to serve the training needs of this sector in order to assure the availability of trained manpower for modern industrial and economic development. SENA currently provides a broad range of technical assistance and training services to modern firms. Recently, during times of recession and budgetary austerity, conflicts have arisen between the needs of the modern private sector for advanced technical training and the needs of the informal sector, in which unemployment is high, for basic skills training.

Chapter VI discusses the indicators of SENA's success. Both quantitative and qualitative indicators are presented. While traditional quantitative measures of success are important for evaluating the cost-effectiveness and efficiency of SENA's programs, certain qualitative elements are essential for determining the effectiveness and relevance of its programs. In this context, the report examines the importance of SENA's decentralized administration, its philosophy of commitment to the client, and its willingness to adapt and change programs in response to changing needs.

Finally, Chapter VII examines SENA in light of the lessons it can offer to other countries of Latin America and the Caribbean region. These lessons fall into the following major categories:

- Identification of training needs;
- Curriculum development and instructional strategies;
- Diversity in training programs;
- Characteristics of staff and trainees;
- Costs of training;
- Decentralized administration.

Appendices that illustrate specific items discussed in the text are included with the report. Numerical information presented in tables throughout the report was drawn directly from SENA materials.

Chapter II

ADMINISTRATIVE AND MANAGEMENT SYSTEMS

This chapter introduces SENA's administrative, management, and decision-making processes at both the national and the regional levels. SENA's personnel systems are discussed and the outstanding features of SENA's structure highlighted.

ORGANIZATION OF SENA

Colombia's Servicio Nacional de Aprendizaje (SENA) - National Vocational/Technical Training Service - is a central government institution assigned to the Ministry of Labor and subject to the laws and audits of the public sector. SENA operates on a decentralized basis, however, which allows a significant degree of local control for responding to local training needs. With an annual budget of over one hundred million dollars and nearly 8,000 employees, SENA trains over 600,000 participants annually at an average cost of about \$185 per trainee.

National Level

SENA is under the administration of a National Director, who is named by the President of Colombia. The National Director is assisted by a General Secretary; an Office of International Technical Assistance; and four Sub-Directors, who manage the Offices of Planning, Technical and Pedagogic Affairs, Social Policy, and Administration. Figure 1 summarizes this organizational structure (see Appendix II for additional information on the functions of each office).

SENA's National Director is a nonvoting member of SENA's Board of Directors, which monitors and approves SENA's budget and operational policies. SENA's Board has 10 voting members who are appointed to two-year

Figure 1

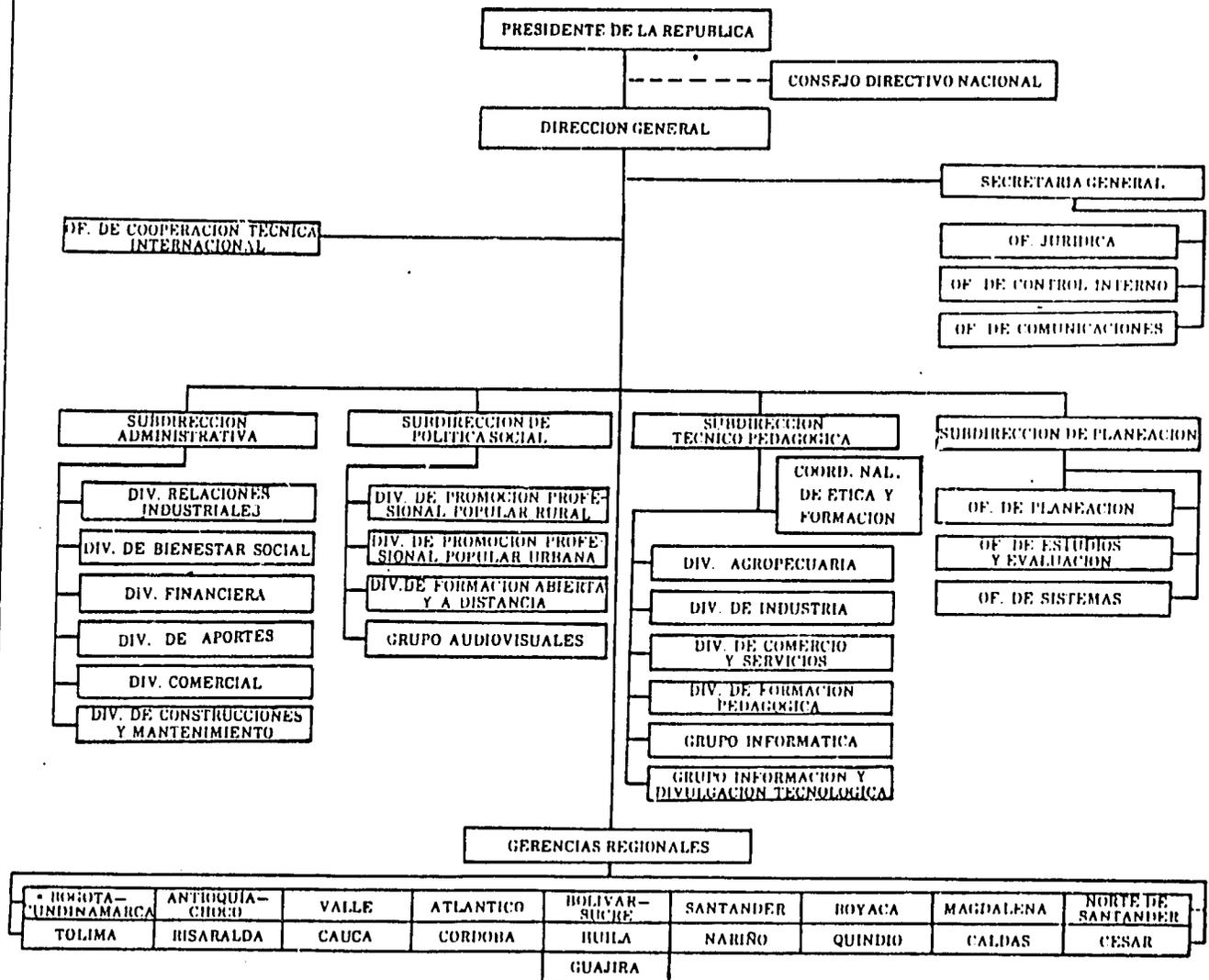
ORGANIZATIONAL STRUCTURE

SERVICIO NACIONAL DE APRENDIZAJE
MINISTERIO DE TRABAJO Y SEGURIDAD SOCIAL



Estructura Orgánica
Acuerdo N° 1 de 1983

Cuadro A3



* Comprende además Meta y Territorios Nacionales.

terms and can be reappointed for unlimited subsequent terms. Board members include four (4) public sector officials, four (4) private sector representatives, one (1) labor representative, and one (1) representative from the church.

The four (4) public sector representatives include the Minister of Labor, who chairs the Board, the Director or a delegate of the National Planning Department, and the Ministers or delegates of the Ministries of Education and Agriculture.

The four (4) private sector members are appointed by the institutions they represent: the National Industrialists' Association (ANDI), the National Federation (Chamber) of Commerce (FENALCO), the Colombian Association of Small Industries (ACOPI), and the Colombian Farmers' Association (SAC). The labor representative is appointed by whichever labor union has the largest number of members, and the representative from the church is named by the Episcopal (Catholic) Conference.

SENA's General Secretary reports directly to the Director and manages the Legal, Internal Control, and Communications Offices. The four Sub-Directors establish norms and provide technical assistance to SENA's 19 Regional Offices.^{1/}

The Administrative Sub-Director's office responds to the administrative needs of the National Office and provides technical guidance for the 19 Regional Offices. The Sub-Director manages the Divisions of Industrial Relations (personnel), Social Welfare (employee benefits), Finance, Contributions, Commerce, and Construction and Maintenance.

1/ Further discussions of the contributions of the National and Regional Offices to SENA's development will be found in subsequent sections of this study. See also Appendix II for more detailed descriptions of Sub-Directors' responsibilities and the Divisions they manage.

The Sub-Director of Planning manages the Divisions of Planning, Studies and Evaluations, and Systems. These Divisions provide evaluative information and projections, which are used for making administrative and policy decisions in the National and Regional Offices.

The Sub-Director for Technical-Pedagogical Affairs responds to the modern or formal economic sector's training needs. This office establishes instructional norms, policies, and strategies and consists of the Divisions of Agriculture, Industry, Commerce and Services, Instructor Training, and the Coordinator for Integral and Ethical Training.

The Sub-Director for Social Policy is assigned the responsibilities of establishing the norms, policies, and strategies for training in the informal sector of the economy. The office is made up of the Divisions of Popular Professional Promotion for Rural Areas (PPPR), the Division of Popular Professional Promotion for Urban Areas (PPPU), and the Division of Open and Extension Instruction.

Regional Level

SENA operates in all economic sectors through a network of 19 regional branches which coincide with national regional boundaries and cover the entire country. (See map of SENA's Regional Offices in Figure 2.) These branches operate 76 fixed training centers, 120 small community centers, and 61 mobile programs that reach into isolated rural and marginal areas, as well as many in-plant training courses and integrated community development programs.

The National Director of SENA and his staff of approximately 570 employees provide technical and policy orientation to the 19 Regional Managers, who are named by the National Director and are responsible for the execution of annual plans and activities. Each Regional Manager is assisted by an Assistant Manager in the smaller Regions and by several Assistant Managers in the four areas of Planning, Technical-Pedagogical Affairs, Social Policy, and Administration in the larger Regions. In addition, each Regional Office has a Regional Board of Directors with members from the

same institutions which have representation on the National Board of Directors.

DECISION-MAKING PROCESS

While operational norms and policies are established by the National Director and Board of Directors, Regional Offices define local training needs and priorities and conduct training through fixed training centers, in-plant training programs and technical assistance, community centers, and mobile training and extension programs. As a result of SENA's decentralization of operations, the Regional Offices are responsible for:

- The collection of contributions from the public and private sectors;
- The identification of local training needs and priorities;
- The execution of Regional budgets and work plans;
- The hiring and supervision of Regional personnel.

Regional budgets and annual work plans are prepared on the basis of local needs and priorities. The National Director reviews the 19 Regional plans and prepares a global plan and budget based on Regional desires and national policies. The plan and budget are then submitted to the National Board of Directors for approval.

Upon obtaining the approval of the National Board of Directors, the annual plan and budget are submitted to the Ministry of Finance (Hacienda) to assure that the budget is in harmony with public administrative and budgetary norms.

The efficiency of SENA's decentralized system depends largely on the effectiveness and assertiveness of the individual members serving on the various Boards of Directors. It is their role and responsibility to represent and negotiate in the interests of the various sectors to insure that

Figure 2
MAP OF SENA REGIONAL OFFICES

Gráfica 1-a

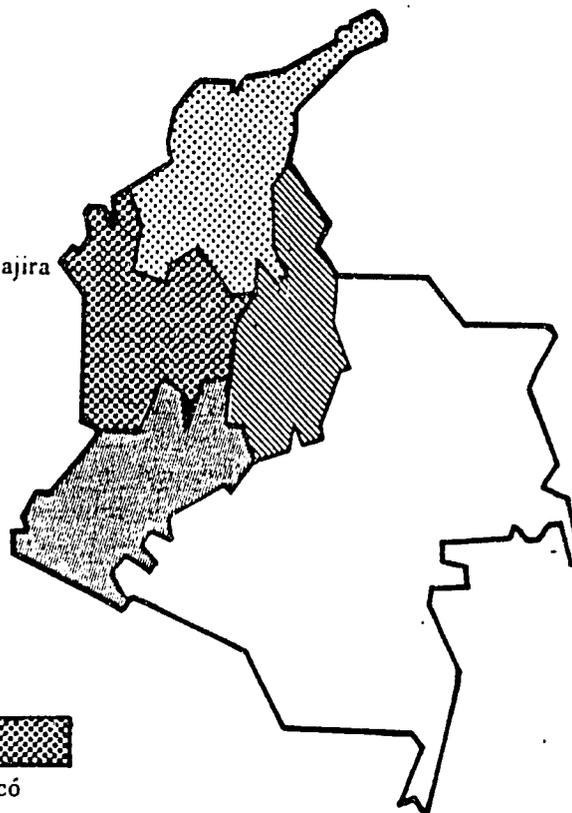
SENA
ZONAS Y REGIONALES

ZONA I: SUR OCCIDENTAL 

- Regional del Valle
- Regional del Cauca
- Regional de Nariño
- Regional Tolima

ZONA II: NORTE 

- Regional Atlántico
- Regional Bolívar y Sucre
- Regional Córdoba
- Regional Magdalena y Guajira
- Regional del Cesar



ZONA III: OCCIDENTAL 

- Regional Antioquia y Chocó
- Regional Caldas
- Regional Risaralda
- Regional Quindío

ZONA IV: CENTRO ORIENTAL 

- Regional Bogotá y Cundinamarca
- Regional Boyacá
- Regional Santander
- Regional de Norte de Santander
- Regional Huila

NOTA: Los Territorios Nacionales son atendidos por la Regional de Bogotá.

SENA's services are responding appropriately to the needs of the economy and the labor market. The formal and informal structures are available to allow and facilitate the National and Regional Boards of Directors to be involved in shaping and approving annual plans and budgets.

Ideally the system is designed to solicit input from the representatives of the private sector through their participation in the Regional Boards and other informal committee structures. In one of the Regions visited (Atlantic), the team observed a well-functioning Regional Board and attended a number of active smaller sector-specific advisory committees, where private sector members from both the formal and informal sectors actively participated in various identification and planning tasks to insure that training efforts were consistent with the demands of the market. According to various employers, the success of these structures in this Region was due largely to the effective leadership of the young and charismatic Regional Director and his staff and the pro-active and healthy competitive spirit and commitment on the part of the business community to improve the economic viability of the Region.

As with any large system, however, there are instances in which these Boards and mechanisms to obtain input from labor and the private sector are not fully utilized either at the National or the Regional levels. For example, while the National Board of Directors has the authority to make changes in SENA's annual plan and budget and the private sector would like to reduce SENA's emphasis on some Social Policy activities, the Board has found it difficult to oppose programs which have strong popular and political support. Similarly, while the Regional Boards of Directors should be involved in approving annual plans and budgets on the Regional level, these Boards are being circumvented by some of the Regional Offices.

Under these circumstances, when both the National and Regional Boards of Directors are not fulfilling their responsibilities, the National Director and his Regional Managers have been able to control the decision-making process for allocating resources and setting policies in ways which their respective Boards of Directors have not always supported.

This is not unlike what often occurs in similar decentralized systems such as the U.S. educational system. Local school board members are often perceived as ineffective, powerless, and disinterested because of their inability to affect the system. A number of studies have shown that the problem usually lies in the fact that board members are poorly trained for their jobs as policy makers and negotiators. Strong and avid superintendents - or directors as in the case of SENA - can and sometimes do control the amount and kind of information presented to the members of the Board, seriously hampering their ability to make informed decisions regarding educational programs.

According to a number of trade association executive members, SENA used to provide seminars on an irregular basis to members of the various organizations representing different business sectors. As a result of the unrest and frustration recently expressed by some members of the National Board, SENA is planning a retreat for members of the Board to review and discuss the Operations and Training Plan for 1987. Evaluation of such efforts has been mixed. Some private sector National Board representatives indicated that it would be more useful if a third party, such as a university or community agency, provided seminars and training specifically designed to increase the effectiveness of Board members as policymakers.

To insure the effective functioning of such decentralized systems, outside agencies and/or trade associations should provide training for Board members in such skills as policy development, conflict resolution, and negotiation. USAID participant training funds could perhaps be utilized for sending private sector representatives to the United States to observe similar Boards in action and receive training in the areas cited.

PERSONNEL PROCEDURES

SENA employs nearly 8,000 people. Its National Office has 570 employees, and the remainder are assigned to the 19 Regional Offices. As shown in Table 1 below, the ratio of administrative personnel to instructors is .6 to 1, which is higher than the .4 to 1 ratio in the United States but

lower than that in many public sector nonformal vocational training programs in other Latin American countries.

Table 1
SENA EMPLOYEES

Personnel	National Office	% of Total	Regional Offices	% of Total	Combined Total	% of Total
<u>Instruction</u>						
Instructors	21	3.7%	4,084	55.8%	4,105	52.0%
In-Plant Technical Advisors	150	26.1	445	6.1	595	8.0
Sub-Total:	171	30	4,529	62	4,700	60
<u>Administration</u>						
Directors of Depts. Administrative Personnel	129	22.5	448	6.1	577	7.3
Technicians *	51	8.9	505	6.9	556	7.0
Lower-Level Employees**	53	9.2	851	11.6	904	11.5
Sub-Total:	403	70	2,788	38	3,191	40
TOTAL:	574	100%	7,317	100%	7,891	100%

* Computer programmers, mechanics, etc.

** Cleaning, lower-level maintenance and security.

Hiring and Recruitment

A "career ladder" approach with preference for promotions within SENA is used whenever possible. This provides an important incentive to employees to stay with the institution and has contributed to an average tenure of 12 years for SENA employees. Hiring from outside of the institution is done only when existing employees cannot fill a vacancy or when there is interest in hiring someone from outside for comparative and evaluative purposes.

Many people interviewed both inside and outside the institution indicated that the long tenure of SENA employees contributes significantly to the success of SENA. Throughout the interviews, the team was consistently struck by the loyalty, high morale, and commitment to excellence which the SENA staff exhibited. The team concluded that this was one of the most outstanding features of the organization. Regardless of the shifts in the political priorities of the various administrations over the past decade, the professionalism and camaraderie of SENA employees have sustained the broader mission of the organization - the economic and social development of Colombia - above all else. The clarity with which the staff perceive this overriding mission clearly enhances the quality of service they provide to their students and ultimately to the employers that support them.

Each position in SENA is defined in terms of its responsibilities and the experience and general educational background required. When an opening occurs, it is publicized first within SENA; applications are accepted, the experience and educational qualifications of applicants evaluated, aptitude tests and examinations related to the specific skills and knowledge required for the position are administered, and personal interviews conducted. The applicant with the highest evaluation then is hired (see Appendix III for a representative announcement of a position opening at SENA).

The limited political nature of appointments is demonstrated by the fact that even at the highest level, only four people have held the position of National Director from 1957 to 1986, and several served through different presidential administrations. At the highest Regional level, 15 of the 19 current Regional Managers were named from within SENA. Similarly, positions below the National Sub-Directors and Regional Assistant Managers are virtually all filled on the basis of the guidelines outlined above.

In a few Regional Offices, however, there have been difficulties with politically appointed Managers who have attempted to circumvent established hiring policies. This has caused serious administrative problems in a

few cases, but this has not been the norm in SENA on the operational level of the institution.

In conclusion, the team observed that norms and traditions have been institutionalized in most of the Regional Offices over the past 30 years. Internal regulations do not encourage or facilitate political intervention in the hiring of technical or operational personnel. Administrative personnel, however, sometimes do obtain positions through political means.

Instructor Training

SENA provides a six-month introductory training course which focuses on the PIM system (Permanent, Individualized, and Modularized) with instructors "learning to learn, to do, and to be" through the training they receive. (See the section on curriculum development in Chapter IV for a thorough discussion of the PIM system.)

While the PIM system is a very important innovation, it is not imposed upon instructors. Each instructor takes responsibility for his/her own training through the PIM methodology. After completing the six-month training program, instructors are assigned to Regional training centers where they restructure the curriculum by adapting the PIM methodology to their courses and making use of the innovations in harmony with local realities.

In addition to the initial training program for instructors, SENA's instructional personnel receive a 7-week pedagogical upgrading course every five years. This course also emphasizes the PIM curricular methodology.

Finally, SENA sponsors short courses on the National and Regional levels which focus on the use and development of audio-visual materials, computer applications, other technical areas, and pedagogical and administrative subjects.

Salaries and Incentives

While wages are low as compared to other training institutions in Latin America, salaries for both administrative and instructional personnel have remained relatively competitive within Colombia. Exceptions, however, are found in higher technology areas and in trades which are in great demand in the private sector; consequently SENA has lost some of its better trained employees to the private sector.

On the professional level, salaries compare favorably with other public sector institutions with an average of about \$600 per month. This wage, however, does not provide an incentive for encouraging private sector managers to seek employment with SENA.

On the technical/instructor level, salaries are generally competitive with those in the private sector, with the exception of some areas of high demand such as industrial mechanics and the higher technology areas. Salaries average about \$300 per month.

SENA also provides substantial non-salary employee benefits. In addition to social security and Cajas de Compensacion benefits, a medical plan covers all dependents. Sports and cultural activities are provided, along with subsidies for private sector instruction for employees and dependents in areas which range from chess and computers to swimming and football. A further incentive is a housing loan program, which made loans of \$7,500,000 during 1985 and has allowed 80% of SENA's employees to own their own homes. Few public or private institutions can match these benefits.

Employees also receive a Christmas and a mid-year bonus equal to 50% of their monthly salary. Employees receive further incentives for staying with SENA through annual salary increases which are equal to 50% of the employee's monthly wage if the wage is less than \$280 or 35% if the monthly salary is above this amount.

In summary, a career ladder system which provides possibilities for instructors to move up into administrative positions, relatively competitive salaries, and significant non-salary benefits all encourage SENA employees to stay with the institution. The average employee, thus, has been there for 12 years. Current austerity measures, however, could be counterproductive over the longer-term if SENA's well-trained and highly motivated operational personnel begin to seek employment in other sectors for economic reasons.

HIGHLIGHTS

- The key feature of SENA's administrative and management systems is its decentralization. The 19 Regional Offices, rather than the National Office, have responsibility for:

- development of annual plans and budgets;
- design and execution of training programs;
- collection of financial contributions; and
- hiring and supervision of personnel.

- Regional and National Boards of Directors include representatives from a broad array of public and private sector institutions, as well as the labor movement and the church. Thus, all major organizations involved in Colombia's economic and social development have a voice in policy formation for SENA's priorities and in resource allocation for its activities.

- SENA's personnel systems - which provide competitive salaries, generous benefits, and good promotion opportunities - have resulted in a loyal and motivated work force. The average tenure now of a SENA employee is 12 years.

Chapter III
FINANCIAL SYSTEMS

This chapter discusses SENA's sources of funding and its systems for financial management with information provided on SENA's 1986 budget - its income and its expenditures. SENA is currently experiencing certain problems in maintaining the independence of its financial systems, and the discussion relates these difficulties to broad national issues, as well as to internal practices. Finally, the unique strengths of SENA's financial situation are presented.

SOURCES OF FINANCING

SENA's total income for 1986 will be approximately \$107,000,000. Training expenses will be about \$93,500,000. The major source of funding is a 2% tax which is paid on the basis of the payrolls of private sector businesses. The government's semi-autonomous and decentralized institutions and government-owned businesses also pay a 2% payroll tax. Other public sector entities (ministries, municipalities, regional governments, and the national government) contribute a 0.5% payroll tax.

Table 2
1986 SENA FINANCING

Source	Colombia Pesos	U.S. Dollars *
Tax Income	P 16,779,000,000	\$ 90,697,297
Central Government	227,000,000	1,227,027
Interest Income	1,392,000,000	7,524,324
Other Income	1,423,000,000	7,691,891
Total:	P 19,821,000,000	\$107,141,539

* P 185 Colombia Pesos = \$1

SENA integrates production activities with instruction in several of its training centers, most notably at the Furniture Manufacturing Training Center near Medellin and to a lesser extent at the Colombo-Aleman Center in Barranquilla. The new Colombia-Italian Industrial Center in Bogota, which will provide training on numerically-controlled precision mechanics equipment, will also integrate production activities with instruction while developing and producing prototypes for private sector industries. Current income, however, from the production of goods and services provides a relatively small share of SENA's total income and accounts for less than 1% of the total. While formal and nonformal vocational training programs in other parts of Latin America recover a much more significant portion of recurrent training costs, SENA's public sector financial guidelines and traditions do not encourage higher levels of production.

FINANCIAL MANAGEMENT

Collection of Contributions

Payroll contributions are collected by 70 independent institutions (Cajas de Compensacion), which were formed in 1957 through the same law which established SENA. In addition to the 2% payroll tax for SENA, the Cajas de Compensacion also collect a 4% tax to provide social benefits above the normal level of social security provisions for employees of the modern sector of the economy. The Cajas de Compensacion have begun to collect an additional 2% payroll tax for daycare centers, the care of abandoned youth and orphans, and related activities (Bienesta Familiar). Altogether this amounts to an 8% payroll tax, from which SENA receives 2%.

While the collection system has been effective in unionized businesses and other modern sector employers, it has been much less effective in the informal and agricultural sectors of the economy. For employees in these sectors, basic social security protection is a much higher priority, and workers might jeopardize their employment through demanding the additional 8% contribution to the Cajas de Compensacion. Some employers have made financial agreements with employees to avoid these payments.

Although it has some deficiencies, the collection system does function effectively in the modern sector of the economy and has prevented the government from making ad hoc deductions from contributions as has been done in some other nations.^{1/}

Contributions from the public and private sectors are collected on the Regional level by the Cajas de Compensacion. Each Caja has 20 working days in which to turn these funds over to SENA's Regional Offices. Regional Offices keep 80% of this income and remit 20% to the National Office to be used to cover operational costs on this level and for subsidies of 10 to 70% of the budgets of 15 of the 19 Regional Offices.^{2/} These subsidies have to be approved by the National Board of Directors based on the budgets and plans developed by the Regional Offices.

Budget

For FY '86, SENA's budget reflects a number of priorities influenced by ex-President Belasario Betancourt's emphasis on a Social Development for Peace Plan (Plan Social para la Paz). As a result, the allocations for distance training and training for the informal sectors of the economy continued to grow over the levels of previous years. According to SENA's official operational Plan for 1986, these priorities have been integrated with the broader objectives and priorities that SENA has set for its own development over the rest of the 1980s. These include:

- The continued decentralization of administrative and operational functions;
- The deschooling of technical training (individualizing of instruction through PIM);

1/ Some national training programs have suffered from a significant loss of income, up to 70%, as a result of the diversion of funds for financing other government activities.

2/ While 4 of the 19 Regional Offices are economically self-sufficient, the remaining 15 Regional Offices receive subsidies from the 4 largest Regions through the National Office.

- The emphasis on training workers for productive employment through the use of state-of-the-art equipment and teaching technologies; and
- Professional training for increased social participation.

Table 3 on the following page summarizes SENA's global expenditures for 1986.

Purchasing

SENA has developed mechanisms for assuring that administrative units and training programs have the resources they require on hand and receive materials in a timely manner, although some training centers do experience difficulties in obtaining shop and other educational materials when needed. Purchases of basic materials are made annually by the National and Regional Offices based on annual work plans, with close monitoring of inventories to allow for purchasing additional materials when inventories fall below pre-established minimums (computerized inventory systems are used at the National Office and several Regional Offices). Rotating purchasing funds are also used which allow SENA to obtain public sector approval for some purchases on a retroactive basis.

Regional Managers and Board of Directors are authorized to make purchases of up to approximately \$100,000 which allow for timely execution of local budgets. In order to maintain positive relations with the private sector and assure the timely delivery of purchases, SENA has established the policy of paying its bills within 8 days after a purchase is made. Because SENA is a public entity, however, both the National and Regional Offices must follow time-consuming public sector administrative norms in purchasing, and the central government's Budget Office is present in each Regional Office.

Table 3
1986 SENA BUDGET

Expenditure	Millions of Pesos	*Thousands of U.S.\$	Percent of Total
Administration Totals	P 4,060	\$21,946	20.5%
Salaries	2,949	15,940	14.9
General Expenses	1,102	5,957	5.6
Debt Payment (AID)	9	49	**
Training Totals	P 9,182	\$49,632	46.2%
(Informal Sector Sub-total)	(P 3,456)	(\$18,680)	(17.4%)
PPP Rural	2,052	11,092	10.3
PPP Urban	936	5,058	4.7
Correspondence Courses	468	2,529	2.4
(Modern Sector Sub-total)	(P 5,726)	(\$30,952)	(28.8%)
In-Plant Training	434	2,346	2.2
Agriculture	1,152	6,227	5.8
Industry	2,321	12,547	11.7
Commerce & Services	1,694	9,157	8.5
Technical Information	125	692	0.6
Capital Investments	P 1,600	\$8,649	8.1%
Employee Benefits Total	P 2,493	\$13,475	12.6%
Housing Fund	1,523	8,232	7.7
Retirement Fund	595	3,216	3.0
Social Security	375	2,027	1.9
Law No. 55	P 2,486	\$13,438	12.5%
TOTALS	P19,821	\$107,141	100.0%

* P 185 Colombia Pesos = \$1

** less than 0.1%

DIFFICULTIES IN FINANCIAL MANAGEMENT

Tax Evasion

One of the major problems SENA experiences is in the collection of the 2% payroll tax. Virtually all modern sector firms with 20 or more employees and higher technology small businesses contribute to SENA, but it has been estimated that the overall national evasion rate may be as high as 40%. Some Regional Offices also estimate that the evasion rates of the transportation and agricultural sectors may be as high as 75%. There are a number of factors which contribute to these rates and make it difficult for SENA to enforce the 2% contribution in all sectors.

- Unlike other national vocational-technical training programs, SENA does not limit itself to taxing the payrolls of only larger businesses (normally a minimum of 6 to 10 employees). By law all businesses and employers with 1 or more employees are subject to the 2% payroll tax, but it would be difficult to establish a cost-effective collection system for many of the smaller employers.
- Payment is made on a Regional basis to independent institutions which provide worker benefits beyond basic social security (Cajas de Compensacion). Because micro-businesses and the agricultural sector rarely enroll employees in the Cajas de Compensacion, it has been difficult to collect from such employers.

Further, because wages in these businesses are lower than wages in the larger modern sector firms, the Cajas de Compensacion would have to reduce the benefits which are currently provided for existing, higher-salaried members in order to compensate for lower contributions from the informal sector. Consequently, current members of the Cajas de Compensacion would be opposed to enrolling these lower-paid employees.

- Employers in the informal sector often avoid the payment of most taxes, including the 2% SENA contribution. If the 2% contribution were collected from these firms, the informal sector would also have to pay a 6% tax for other Cajas de Compensacion uses (8% total) and would be drawn into the national tax system.

It has been estimated that taxing the informal sector could reduce the net incomes of many marginal businesses by up to 50% because it would make these entrepreneurs subject to other forms of taxation, and it is probable that a significant number of these businesses could not continue in existence.

- o The current government's hiring freeze and Public Law No. 55, which are discussed in the following section, provide disincentives for improving upon collection rates and increasing SENA's income.

Although these factors make the evasion issue a sensitive topic, an internal analysis conducted by the Director of Aportes estimated that SENA could obtain up to \$30,000,000 in additional income - a 28% increase - through improving the collection system and cross-referencing other tax and social security payments made by small businesses, the agricultural sector, and the informal sector in order to identify delinquents.

Government Measures

The recession of 1982 and the growing social unrest caused by economic hardship led ex-President Belisario Betancur to implement a number of austerity measures, including a freeze on hiring additional public employees and passage of Law No. 55 (summer 1985) aimed at counteracting the effects of special earmarked taxes. Early in his administration, legislative review of public sector budgets revealed that only two institutions, SENA and Bienestar Social showed excesses in their budgets. (The source and the collection of the tax to support these two institutions are the same and have been discussed earlier in this chapter.) The Betancur administration argued successfully that inequities in the tax system would be remedied by passing a law (No. 55) which would require SENA and Bienestar Social to grant their excess income to other public entities.

In the case of SENA, Law No. 55 requires it to contribute an increasing percentage of its budget to the Ministry of Education and to private voluntary organizations which are involved in vocational training programs. Beginning with a 10% (of its total budget) contribution in 1985

and increasing by another 10% each consecutive year until 1989, SENA's contribution ultimately would amount to 50% of its total budget. According to El SENA en Cifras '82-86, 16.2% of SENA's budget in 1985 was allocated to other public programs and 21.3% in 1986.

The impact of Law No. 55 has already been felt throughout SENA. Recurrent expenses, such as those for the replacement of supplies and transportation vehicles, have already been curtailed. Because of the hiring freeze, instructors and administrators are having to perform each other's functions when shortages of staff occur. In one region where there were insufficient instructional staff to teach courses for micro-businesses, administrators had to teach the classes. Supervision for the informal sector programs like Capacitacion para la Integracion y Participacion Comunitaria Urbana, (CIPACU), and Participatory Training for Campesinos, (CAPAÇA), is almost non-existent. Some instructional areas have been unable to upgrade equipment for meeting private sector training needs. If this continues, the relevance and quality of instructional programs will suffer significantly.

Because of its recent passage, interpretations of the actual effects of Law No. 55 on SENA varied; however, no one saw its impact as positive. Many SENA and private sector representatives anticipate that the hiring freeze, capital investment austerity measures, and Law No. 55 probably will be suspended under the new Barco government. The counter-productive impact of these government measures cannot be overstated. In effect, Law No. 55 punishes a relatively efficient public sector institution like SENA by mandating that it distribute the fruits of its management efficiency to less efficient public sector institutions. Similarly, one can question the purpose of freezing public sector hiring and capital investments when some of SENA's best-trained and most highly skilled instructors are being hired away from the institution and when additional human resource and capital investments cannot be made to meet private sector training needs.

HIGHLIGHTS

Two characteristics of SENA's funding have enabled it to maintain its programs to a large degree independent of government pressures:

- The 2% payroll tax has provided SENA with an independent source of funding.
- The payroll tax is collected at the regional level by a private, non-governmental institution with a percentage of regional funds forwarded to the national level to fund national activities.

Such independence from central government funding is a crucial factor in the strength and viability of SENA over the past three decades. The primacy of the Regions in maintaining SENA's financial health reinforces SENA's commitment to serving local regional needs.

Chapter IV

TRAINING PROGRAMS AND CURRICULAR METHODS

This chapter presents an overview of SENA's participants and the training programs it offers for both the modern private sector and the informal sector. Highlights include SENA's innovations in curriculum development and instructional methodologies.

PARTICIPANTS

In 1986 SENA is providing training to over 600,000 participants from the public and private, modern and informal, agricultural, industrial, and commerce/service sectors of the economy. Trainees must be at least 14 years of age, but there are no upper age limits. Education and experience requirements vary according to specific programs. In general, most of SENA's trainees for the modern sector of the economy are required to have several years of high school education. In SENA's informal sector programs, however, trainees are not required to have these levels of education, and training is open to virtually anyone who demonstrates a sincere interest in receiving the training and the basic ability to learn. Table 4 summarizes the types of training and numbers of participants who will receive instruction from SENA during 1986.

Table 4
1986 MODERN AND INFORMAL TRAINING PARTICIPANTS
BY ECONOMIC SECTORS

Area	Sector	Percent of Training Budget	Number of Participants	% of Total
Agricultural	Modern	13.0%	38,600	6.3%
Industrial	Modern	28.1	82,224	13.4
Commerce/Services	Modern	21.2	127,700	20.8
Modern Sub-Total:		62.3%	248,524	40.5%

Table 4 (cont.)

1986 MODERN AND INFORMAL TRAINING PARTICIPANTS
BY ECONOMIC SECTORS

Area	Sector	Percent of Training Budget	Number of Participants	% of Total
Agricultural	Informal	23.1%	226,400	36.8%
Industrial	Informal	7.1	66,276	10.8
Commerce/Services	Informal	7.3	73,900	12.0
Informal Sub-Total:		37.5%	366,576	59.6%
TOTALS:		99.8%	615,100	100.1%

During earlier periods SENA accepted students with lower academic backgrounds and then provided them with several months of education to upgrade their basic academic skills. Over the years, however, the formal academic educational system in Colombia has improved its quality and increased its extent, and today there are sufficient numbers of well-qualified applicants who have completed several years of high school. Trainees receive basic orientation and counseling when they enter; students who have difficulties in their studies are given additional attention to help identify the causes of their learning problems. These practices clearly contribute to SENA's low drop-out rates.

The higher educational requirements, coupled with a high demand for entrance into most SENA programs, allow the institution to choose participants who demonstrate a greater potential for success. In some programs, such as those offered by the Colombo-Aleman Center in industrial mechanics, there are as many as ten applicants for every course opening. As a result, SENA can choose those applicants who not only are better educated but also have the most appropriate aptitudes. These conditions undoubtedly contribute to SENA's high annual completion and retention rates of nearly 90% and an average rate of return on investment in training of 14%. As one study recently indicated, the highest rates of return on

investment in SENA training are associated with individuals who have completed high school (Jimenez and Kugler, 1986).

These dynamics alone are not sufficient to account for SENA's consistent history of effectiveness. A number of other critical factors, as will be discussed in Chapter VI, combine in a unique and powerful organizational context to insure that entering students are exposed to appropriate opportunities to maximize their potential and obtain employment.

MODERN SECTOR TRAINING

Identifying Training Needs

Several mechanisms are used by SENA for identifying training needs in the modern private sector and for assuring that training is in harmony with employers' training priorities. These include:

(1) In-plant technical analyses are used to identify specific training needs within an individual firm. These diagnoses are part of the technical assistance that SENA provides for the private sector.

(2) Follow-up studies of graduates provide information on training needs and changing employment trends. SENA has conducted major studies of this type for the evaluation of existing programs and for identifying training needs in new areas. The most recent major study of this type involved 28,000 interviews; it served as the basis for developing SENA's 1983-1987 Plan of Action.

(3) Major analyses of trade areas with surveys, studies, and the preparation of occupational profiles define the competencies required of a worker in a given trade. They also serve to identify new training priorities and areas in which SENA should increase its investments. Two SENA studies of this type in metal mechanics and industrial chemistry are currently nearing completion.

(4) Trade advisory committees advise the training centers on what should be taught in specific trade areas and also identify new training priorities on a continuing basis. SENA makes use of its trade advisory committees for major studies and analyses of trade areas (see no. 3 above).

(5) Each Regional Office has a Board of Directors with representatives from the private and public sectors who provide further direction and guidance to SENA. SENA's Regional Offices and training centers can also call upon the National Office, other Regional Offices, and SENA's more specialized training centers for assistance in revising training programs to help meet local training needs.

While not every mechanism is fully implemented by all the training centers and Regional Offices, a Regional Manager could not avoid serious criticism if that Region's training programs resulted in low job placement rates and discontent among employers. The more responsive Regional offices do use the variety of methods discussed, and most Regional Managers are alert to opportunities for assessing local needs and revising training requirements.

SENA's use of occupational analyses and surveys in the private sector as described above has worked quite well in providing periodic information on employment opportunities, new skills for the trade, and other adjustments which should be made in SENA training programs for a specific occupational area. SENA also involves instructors of the specific trade in the analysis. This has resulted in closer linkages between instructors and the private sector, and instructors also have become far more aware of private sector needs and technology changes in the trade. While SENA's follow-up studies of graduates are not executed on a continuing basis, they do provide immediate feedback on the quality and relevance of training so that

appropriate adjustments can be made in curricula based upon the observations of employers, supervisors, graduates, and their fellow workers.^{1/}

Types of Programs

In 1986 SENA is providing six types of modern sector training programs, including:

- Apprenticeship Programs
- Complementary Upgrading
- Technical Formation
- Specialization
- Supervisory Training
- In-plant Training and Technical Assistance.

Modern sector training participants account for approximately 40% of SENA's trainees and absorb 62% of the training budget. Training costs per participant in the modern sector are usually higher than in the informal sector because modern sector training programs are longer and the equipment and facility costs associated with more sophisticated technologies are higher. All modern sector training is under the general supervision of the National Sub-Director for Technical/Pedagogic Affairs.

Apprenticeships

SENA's apprenticeship program was the first training offered by the institution beginning in 1957. By law, all employers with over 20 employees are required to contract one apprentice for each 20 employees (see Appendix V for a copy of the apprentice contract).

1/ These types of studies are much easier to conduct and more reliable than traditional manpower projection exercises, which all too often prove to be off target in regard to the specific skills required in a trade and the number of people who should be trained in these skills. This is especially true when projections are made for a 5- to 10- year period.

Apprentices receive an average of 1,760 hours of instruction. While apprentices are learning a trade, they receive a minimum of 50% of the normal salary of the position for which they are being trained with semestral increments. The full wage is reached by the end of the apprenticeship. The current requisites for entering this program range from 5 years of primary instruction to 6 years of secondary schooling (see Appendix V).

Apprenticeships generally run from 24 to 36 months and are authorized by the Ministry of Labor (see Appendix V for a list of the apprenticeships available). Employers must provide appropriate practical experiences for the apprentices, while SENA provides theoretical and additional "hands-on" training experiences.

Trainees undergo one to two years of formal instruction in Centers combined with practical on-the-job training followed by 6 to 12 months of work experience. Upon completing their training, trainees take a formal examination. Throughout the program, a SENA job site coordinator serves as a liaison between trainers and employers. After the apprenticeship has been completed, the employer is required to hire the graduate for a period of three months at the full wage for the position. After this trial period, the employer can either continue to employ the person or terminate his/her employment, depending on the needs of the firm and the productivity of the apprentice.

The apprenticeship program has been a major vehicle for training new entrants to the labor force, and it served as the cornerstone of SENA's training programs for at least the first 15 years of the institution's existence. This mode of instruction clearly has made important contributions toward the development of skilled manpower in Colombia. It provides compensation for the employer, as the wages paid to the apprentice are significantly lower than those paid to a skilled worker. For the apprentice, this mode of instruction provides immediate employment and an income while learning a trade; it almost always assures full-time employment upon completion of the 24 to 36 month apprenticeship. Because of the close linkages with employers that are intrinsic in the program, the emphasis on the

apprenticeship model has forged and reinforced SENA's responsiveness to the private sector. This image has been maintained and strengthened in the recent years through the expansion of other programs.

The apprenticeship program is an important lesson for other nations and should be mentioned as a viable strategy for reducing opportunity costs for lower income sectors and providing an incentive for employers for participating in the program, with high job placement rates as an added benefit.

Complementary Training

This mode of instruction (Complementación) provides skill upgrading opportunities for semi-skilled and skilled workers who are currently employed. Instruction is based on modules which may be only a few hours in length, or training may include a number of modules which require several months to complete. The instruction is provided on an in-plant basis when there are sufficient numbers of employees who require training or in one of SENA's 76 training centers.

Technical Formation

This mode (Formación Técnico) differs from apprenticeship training in that technical formation is conducted solely in SENA's training centers, rather than mixing on-the-job training with SENA instruction as is the case with apprenticeships. Technical formation programs are also more advanced than apprenticeships. They have an average length of 2,500 hours of instruction and require up to three years of full-time study in a SENA training center.

Specialization

Specialization (Especialización) is available for only experienced and relatively skilled workers. Training varies in length and is based on a series of modules of instruction which the participant selects for improving his/her skills in a specific trade area. Within this mode, SENA offers specialized promotional training specifically geared to SENA apprenticeship graduates.

Supervisory Training

Supervisory training (Formación de Supervisores/Mandos) is also based on modules and consequently varies in length. Generally speaking, this is a 120-hour program with specially contracted, part-time instructors who are specialists in one or more of the six 20-hour training modules (human relations, human resource development, organization, time and costs, quality control, and safety). Instruction can be provided in SENA's training centers or on an in-plant basis.

In-Plant Training and Technical Assistance

In addition to the modern sector training programs described above, SENA also provides in-plant training and technical assistance. Most training is conducted in the late afternoons, evenings, or on weekends with SENA personnel receiving compensatory free time during the week for the hours worked on weekends or evenings. One SENA instructor attends to the training needs of 10 to 12 companies annually. Technical assistance and consulting services to firms vary according to the type and size of firm. These services are described in greater detail in Chapter V.

Summary

It was not possible for the study team to obtain actual numbers of trainees for the six modes of training described above. For statistical purposes SENA groups the numbers of trainees participating in these six modern sector training programs into two categories: Training in Centers and Training in Plants.

Table 5 shows that the total number of modern sector workers trained through these programs in SENA training centers has decreased by approximately 25% over the last three years as a result of the increased emphasis on social and informal programs and the portion of SENA's budget diverted by Law No. 55 to other public sector training programs. Private sector concerns regarding this decrease in modern sector trainees are discussed in the next chapter.

Table 5

**NUMBER OF STUDENTS AND PERCENT OF TOTAL BUDGET
PER TYPE OF SENA TRAINING PROGRAM**

<u>Type of Training</u>	<u>Number of Students</u>			<u>% of Total Budget</u>		
	1984	1985	1986	1984	1985	1986
Training in Centers	151,939	97,700	93,100	67.4	51.0	44.3
Training in Plants	54,616	103,200	111,500	6.1	4.0	3.7
Informal Programs						
Urban	77,363	62,902	108,300	14.9	18.0	17.6
Rural	149,013	157,700	230,700	6.7	6.9	8.0
Distance Training	47,909	70,900	71,400	4.9	3.9	4.0
Law No. 55				---	16.2	21.3

INFORMAL SECTOR TRAINING

Types of Programs

Training is provided through three programs which are executed on the Regional level under the guidance of the National Sub-Director for Social Policy. These programs are Urban Popular Professional Promotion (PPPU), Rural Popular Professional Promotion (PPPR), and Open and Extension Instruction. Altogether about 30% of SENA's budget is allocated for these programs. Each training program places special emphasis on developing human resources in an integrated manner to encourage the participation of each trainee in the identification, implementation, and resolution of specific interventions aimed at addressing the social, economic, and general development problems he/she faces in the informal sector of the economy.

Urban Popular Professional Promotion (PPPU)

When training programs for the informal sector of the economy were first developed, they were criticized because the training provided did not lead to the employment of participants. As a result, SENA discontinued its initial strategy of simply training individuals and began instead to focus on the training needs of micro-businesses, responding to their specific training needs and providing technical assistance for improving their productivity.

Another area of training under PPPU provides instruction for individuals and communities in housing construction. These programs have received considerable political support from the Congress. They are provided most often in response to requests from communities for this type of training. The training has resulted in the construction of over 70,000 homes at an average cost of \$2,162, which is approximately one-half of the cost of commercially built housing. The program has been criticized by the construction sector for encroaching on private enterprise, but it has successfully reached sectors of society which would not be able to afford to build homes through other means.

A third area of training grew out of the failure of a nutrition program, which had functioned in a manner similar to the U.S. food stamp program. Food certificates were provided to families with low incomes and levels of nutrition; many of the families did not use the certificates to obtain food but sold them and used the proceeds for other purposes. Faced with problems of this nature, SENA began working with small farmers to establish mobile and community markets and to improve the management of food marketing systems, as well as improving nutrition through lower food prices. Access to credit is obtained from other institutions, thus making larger purchases possible at reduced prices. SENA provides training for improvement in produce handling, storage, packaging, and sales techniques.

A final area of emphasis which is included in all PPPU programs is Training for Integration and Urban Community Participation (Capacitacion

para la Integracion y Participacion Comunitaria Urbana - CIPACU). This involves trainees and their communities in the diagnosis of problems, the identification of participatory solutions, and the reduction of paternalism in solving problems as trainees become actively involved in improving the quality of life in urban areas. Although CIPACU programs appear to have had positive results, there have been few evaluations of the value of the instruction, and it is estimated that SENA now can reach only 10% of the urban population which could benefit from this training.

The most outstanding example of SENA's work in the informal urban sector is in Ciudad Kennedy which extends beyond skills training to promote community participation in self-help housing and neighborhood improvement programs for drug abuse and aid for the aged. The success of this approach has encouraged SENA to take its social community action concept to national voluntary organizations like the Red Cross, Fe Y Alegria, cooperatives and other public sector funded service agencies.

Rural Popular Professional Promotion (PPPR)

SENA has been involved in technical training for rural areas with small farmers (campesinos) for over 20 years. Initially the programs were very expensive because instructors could reach only 40 persons per year based on the traditional practices of agricultural training programs and extension services.

In 1980 SENA began designing participatory development programs for rural areas with organizational, entrepreneurial, and technical instruction. Actual delivery of training began in 1983. Under this strategy a SENA instructor visits five similar communities. Each community elects three representatives to receive initial instruction from SENA. Since 1983, SENA has provided training to over 1,500 small rural communities. The leaders receive 40 hours of training in agricultural marketing, cost controls, the importance of the campesino in Colombian development, public and private sources of assistance for communities, and the preparation of community development plans.

These community leaders then become local instructors. They assist SENA personnel by providing a multiplier effect, thereby allowing one SENA instructor to reach 200 people annually. Once a community has prepared its "development plans" for the short-, medium-, and long-terms, SENA provides funding for the construction of a 200 square meter building. These centers have two shops for instruction, an office, and a general meeting room; the community provides the land and labor. SENA has established 120 of these small community training facilities. They provide specific technical and entrepreneurial training, and the local community leaders assist in instruction. It should be noted, however, that these community leaders are not considered employees of SENA; they receive minimal remuneration for their time and travel.

Similar to CIPACU for urban areas, SENA's PPPR integrates the Participatory Training for Campesinos (CAPACA) in all of its instructional programs. The rationale for this emphasis comes from the critical needs for: (1) having active community support and participation in SENA programs; (2) expanding the coverage of SENA personnel and achieving a multiplier effect; and (3) integrating theoretical instruction with more immediate practical applications to avoid paternalism and realize community development goals.

Each SENA instructor now reaches 200 rather than 40 people annually. This training has been responsible for 15 percent increases in production and market prices and 10 to 20 percent reductions in production costs through group purchases and improved agricultural techniques.

Because both CIPACU and CAPACA are relatively new programs (1983), a formal evaluation mechanism for determining the overall returns for investment in these programs is currently lacking. In specific training activities SENA can point to some very significant achievements, like those mentioned above, but the overall impact of the programs has not been demonstrated. New methods for measuring their impact will need to be utilized since their goal is broader social participation rather than specific job placement. Some of the private sector critics of these programs point to the lack of technologically-based training in these social action efforts and object strongly to SENA's role in providing a social service (versus a technical training) which could be met more appropriately by another government agency.

Open and Extension Instruction

This mode of instruction for the informal sector began on an experimental basis in 1976 with training in small business accounting and block making. In 1983 the Division of Open and Extension Training (Division de Formacion Abierta y a Distancia) was founded under the National Sub-Director for Social Policy.

Each Regional Office determines its own training needs and makes decisions about the types of instruction which will be provided. Instructional programs are currently available in sewing, sales, administration of cooperatives, accounting, communications and interpersonal relations, rural mechanics, construction, furniture making, agriculture, and micro-business management.

The training is quite flexible. It offers participants the option of selecting only the specific modules of instruction within a trade area which the trainee requires for upgrading skills or obtaining employment. Participants receive credit for each module successfully completed, rather than having credit tied to completion an entire course of study. Participants also are allowed to "challenge" a module of instruction through an examination; the trainee thereby has the opportunity to demonstrate his/her competency, skip over the module, and move on to the next unit.

This form of correspondence instruction with multi-media training materials and periodic meetings with SENA tutors (instructors) has allowed SENA to reach sectors of society and geographic regions where coverage had previously been very limited and to do so in a cost-effective manner. One SENA tutor works with approximately 300 students.

Outreach Effort

To increase its outreach and support the instructional delivery of its informal training programs, SENA has initiated a series of mass media programs in the last four years. These include:

- A radio program - "Colombia Escucha a Colombia" - a 22-minute educational and cultural program transmitted six days a week through Cadena Sutatenza structured to support SENA's distance learning programs.

- A television program - a 22-minute educational program aired twice weekly over a national education channel, designed to provide practical and basic technical information to support communities engaged in SENA's urban and rural development programs.

- A newspaper - SENA Comunitario - a 12-page monthly periodical with a distribution of 60,000 aimed at providing national coverage of success stories and linking communities involved in SENA's CAPACA, CIPACU, and distance learning programs (FAD).

SOCIAL ACTION PROGRAMS

In the last four years, Colombia has been plagued by a number of natural disasters, including the 1982 earthquake at Popayan that destroyed the city and most recently the volcanic eruption of Nevado del Ruiz that claimed the lives of over 22,000 Colombians. In addition, guerrilla activity by three major groups has increased in the rural areas and extended into urban centers, culminating in November 1985 with the assault on the Palace of Justice in Bogota.

Because of its record for effectiveness and ability to mobilize multiple resources to address major national human resource problems, SENA was asked to assist the nation in responding to these natural and social catastrophes. SENA led the reconstruction efforts at Popayan, and its accomplishments were received with national acclaim. It was, therefore, no surprise that SENA was called again to play a major role in mobilizing resources to respond to the disaster of Nevado del Ruiz. Within hours, SENA converted its training center in Ibague into an emergency hospital and relief center. Simultaneously, SENA realigned the entire training programs of its two nearest Regional Centers, Tolima and Caldas, to attend to the needs of the victims of the disaster.

SENA employed its participatory development programs (CIPACU and CAPACA) to involve the communities of the Ruiz disaster in identifying, planning, and implementing training programs and community service projects to address the multiple needs of the displaced citizens and labor force. By the end of January 1986, 3,000 victims had participated in or received training through SENA. Efforts continue in the area of home owner housing construction, small and micro-business development, and other programs which focus on the technological development of the disaster region.

The most controversial of SENA's recent social action programs has been that of providing special services and training to "zones of violence", rural areas plagued by concentrated guerrilla activity. Instructors and resources were dispatched to remote SENA centers to attend to the problem. In some instances, trainees were ex-guerrilla members who were supposed to be socially rehabilitated. According to reports given by SENA staff, the programs had little success and caused great distress. Many individuals, both inside and outside of SENA, criticized these "peace" efforts for compromising the professional integrity and neutrality of the institution beyond acceptable limits. Many believe this program will be one of the first to be discontinued by the new Barco administration.

CURRICULUM DEVELOPMENT

Some of the most exciting and promising innovations taking place at SENA are to be found in the areas of curriculum development and instructional strategies. These include a competency-based, modularized system of instruction, PIM, and a holistic approach to technical training, Integral Training.

Permanent, Individualized, and Modularized Instruction (PIM)

For over 20 years, SENA relied on a four-phase, lock-step traditional method of vocational instruction: (1) the instructor explains and demonstrates; (2) the instructor explains and the student demonstrates; (3) the student explains and demonstrates; and (4) the instructor evaluates. This form of instruction - known as "the banking concept", where the student (as

an empty receptacle) is filled with knowledge, memorizing set responses to each problem and then recalling the information for evaluations - did little to encourage development of individual initiative, creativity, or problem-solving abilities. By the late 1970s SENA was being criticized for its traditional educational strategies, which apparently were not fully meeting the nation's human resource development needs. While trainees mastered most of the specific technical skills required for a trade, they were not prepared to deal with issues in human relations, responsibility, ethics, or to solve technical problems when presented in different manners.

Both the private and public sectors called attention to these needs.^{1/} As a consequence, SENA began to evaluate more progressive educational strategies which might be adapted for meeting the needs mentioned above. Over the past six years SENA has been developing curricula and implementing a system for providing Permanent, Individualized, and Modularized instruction (PIM).

The PIM strategy encourages trainees to view the educational process as a life-long and permanent endeavor. The attention given to students while they are in training is individualized, with students accepting responsibility for their own progress. Trainees proceed at their-own pace. Curricula are modularized, so that trainees can select the specific modules they will require for seeking employment or upgrading their skills. They can also challenge a module if they already possess the skills in the module and can then move on to the next unit. (See Appendix VI for a summary of the major training areas for industrial chemistry, the various exit points for seeking employment, and additional "career ladder" opportunities for receiving further instruction.)

1/ It is interesting to note that private sector trade advisory committees in the United States and other nations have also identified the affective traits of creativity, responsibility, positive human relations, and related attitudes as being very important for obtaining employment. In some Central American countries, the private sector has rated these affective traits as even higher training priorities than technical skills (Cuervo, 1985; Hershback, 1986; van Steenwyk, 1982 and 1984).

PIM focuses on three learning areas:

(1) **Learning to learn** (aprender a aprender) -- The trainee learns how to use multi-media instructional materials and systems (videotapes, printed materials, filmstrips, slides, computerized instruction, etc.) and to take personal responsibility for the progress of his/her education. Through learning to learn, the trainee also obtains important skills for continuing his/her education after leaving SENA, keeping up-to-date in the specific skills of the trade, and continually growing as a person.

(2) **Learning to do** (aprender a hacer) -- The trainee learns technical skills for employment or for upgrading skills in a given trade area. Unlike more traditional vocational training, the participant is encouraged to be innovative in seeking solutions, demonstrating and developing personal initiative and personal responsibility. Training becomes more of a personal experience because the student is the master of the learning process.

(3) **Learning to be** (aprender a ser) -- Focuses on the full human resource development needs of the person, with moral, social, and civic education for encouraging the trainee to accept and participate in family, community, and national development efforts.

One of SENA's most interesting innovations is related to the emphasis on "learning to be" and "learning to learn". This goes beyond most U.S. and many other competency-based instructional systems, where a void is sometimes created by placing emphasis on only mechanical skills while neglecting the global, integrated development of the human being. Over time, the additional attention on "learning to be," with the integrated development of human resources by SENA, is likely to have an important impact on the progress of the Colombian nation itself.

SENA also recognizes that it alone cannot respond to all training needs in all trade areas for all sectors of society or even meet the tremendous "social" demand for training. But as the SENA trainee "learns

to learn," important skills are mastered which allow the SENA graduate to continue to learn and grow through self-directed instruction.

PIM has several important advantages over more traditional instructional strategies. The advantages of the system include the following:^{1/}

(1) Higher degrees of cost-effectiveness occur as optimal levels of utilization of training resources are made possible by an open-entry/open-exit system.

(a) Trainees can be admitted at any time of the year. As one trainee completes his/her training, a new trainee enters the program without having to wait for a new course to begin. In this way immediate training needs can be met in a more flexible manner, and all work stations and instructional resources can be used throughout the year at optimal levels.

(b) Participants who possess skills in a unit or module can challenge the unit through a pre-test. Upon passing the pre-test, they can proceed to the next unit or focus on only the skills in which they are deficient, rather than completing the full unit or module. This moves participants through the system faster and encourages better uses of training resources.

(2) A higher level of mastery of skills is encouraged through a competency-based and individualized approach to instruction. This allows time for trainees to master specific skills and abilities on a 100% basis, rather than training welders, mechanics, or secretaries who have mastered only 70% or 80% of the skills of the trade because of pressures for moving the full group along the learning path, without time to assure that each individual masters each specific skill.

1/ Similar individualized, competency-based instructional systems are in use in the United States in training institutions which range from Job Corp Centers to community colleges. SENAI in Brazil is also using individualized instruction with good results, and USAID is introducing similar instructional systems through human resource development projects in Jamaica and Honduras with positive results.

(3) Higher job placement rates are possible because there is a higher mastery of skills and trainees graduate from training programs throughout the year. Experience in other nations has shown that it is often much easier to place graduates when they are not entering the job market at the same time so that employers have a continuing source of new employees.^{1/}

As might be expected, all instructors have not fully understood or accepted the change in SENA's instructional system. PIM will not be fully implemented until 1990. This innovative educational philosophy is beginning to permeate many levels of instruction, and even the more traditional educators are beginning to integrate PIM concepts into their instructional strategies as larger numbers of instructors are taught how to use PIM through in-service courses that incorporate the process of "learning to learn, to do, and to be".

In order to assure the implementation of this system, SENA will need to improve certain aspects of its administrative system to provide instructors with appropriate shop and instructional materials in a more timely manner. Another area which may require further attention is the formulation of instructional objectives. SENA does not define performance objectives or occupational tasks with the same degree of specificity that is found in U.S. competency-based instructional materials (V-TECS and others). Similarly, some Latin American and Caribbean USAID vocational training projects are more specific in defining what a student must do, under what circumstances, and within more specific tolerances and time frames. This lack of specificity might limit the effectiveness of PIM, and higher levels of specificity should be encouraged to avoid problems in the evaluation of trainees and in meeting the more specific training needs of employers.

^{1/} Graduates who do not find employment after several months because of a job market saturated by the graduation of a large group of trainees in the same trade will often become frustrated and seek other employment; the investment in their training is thereby lost.

Integral and Ethical Training

SENA's Formacion Etica y Integral (Integral and Ethical Training) has been a standard requirement of all trainees participating in modern sector training programs since the beginning of the institution. In many respects it is PIM's antecedent in terms of establishing the development of the whole person (versus just technical competencies) as the overriding concern of all SENA programs. It is this emphasis on the total person that makes SENA's training programs unique among those of other similar institutions.

All trainees in SENA's longer programs - apprenticeship programs and technical formation, for example - are required to take the 20 modules of Integral and Ethical Training. The modules address the various dimensions of what it means to be a responsible, well-balanced, and integrated human being. The dimensions addressed through the modules include:

- Biological and physical aspects, focusing on personal well-being.
- Intellectual abilities, including the capacity to learn and think.
- Motivational attitudes, including self-determination and initiative.
- Affective components, including the ability to care.
- Social and civic aspects, including an individual's ability to relate to others and to contribute to a community.
- Ecological concerns related to the place of human beings within the ecosystem.
- Economic and labor realities within which an individual exists, emphasizing the possibilities available for improving one's socio-economic status through advancement in the labor market.
- Spiritual dimensions.

SENA has included a representative of the Church at the National and Regional levels since its beginning in 1957. The integration of humanistic social values with the general instruction reflects the priorities of a dominantly Catholic country. Integral Training was developed and continues to be directed by lay priests. The office is a sub-unit under the Division of Technical/Pedagogic Affairs (see organizational chart in Chapter II). This national office is staffed by a Director and three supervisor-consultants who set the policies and parameters for the instruction of Integral and Ethical Training and provide some supervision of regional instructors in this area. As part of their six-month instructor training courses, all SENA instructors are required to complete the Integral Training Program and to include its philosophy and concepts in whatever subject matter they teach.

Although SENA has not conducted any impact evaluations of this component of their training approach, employers' views of SENA graduates provide an indicator of the importance of this kind of training. If compared to non-SENA graduates, SENA graduates were characterized by many employers as:

- more disciplined,
- more responsible, and
- more loyal to the company.

In addition, they said SENA graduates had better problem-solving abilities and were generally more motivated to be self-starters at work.

Few training institutions have achieved such concrete results in areas generally thought to be outside the range of "teachable" traits. Repeatedly employers have indicated that attitudinal issues such as punctuality and loyalty are as important or more important than the technical competencies of the worker. (Hershback, 1985; Cuervo, 1985; van Steenwyk, 1982 and 1984). SENA has been addressing these issues successfully for almost thirty years.

In the team's opinion, SENA achieves these results in attitude formation through the following means:

- A strong emphasis on an inquiry (versus an indoctrination) approach to learning.
- An emphasis on student-initiated activities.
- Cooperative learning tasks structured to stress the importance of responsibility to self and others.
- Committed staff who are consistent and model the approach.

In sum, SENA's training programs successfully translate into action its philosophy of "learning to learn, to be, and to do." The PIM instructional system and the Integral Training Program seem to contribute significantly to the positive development of proper work ethics and civic attitudes. The combination of these approaches offers valuable lessons for other training programs in general.

HIGHLIGHTS

SENA'S training programs are designed not only to meet the needs of modern private sector employers, but also to address the human development issues of Colombia's work force as a whole. Participants learn specific job-related skills and general work ethics. SENA encourages its participants to take responsibility for their own life-long learning and for their involvement in community (be it a factory, business, farm, or neighborhood).

Highlights of SENA's training systems include the following aspects:

- Participants are carefully selected based on their levels of education and experience. Once enrolled, participants receive orientation and counseling; their needs and abilities are addressed on an individual basis. SENA training is characterized by low drop-out rates and high retention/completion rates.
- Working in concert with the private sector, SENA makes use of a well-developed set of mechanisms working to identify training needs and update its training programs. These mechanisms include follow-up studies

of graduates, trade and industry surveys, and trade advisory groups, among others.

- Training programs vary in level, length, and intensity to meet the needs of different employers. Training is offered at SENA training centers or on-site at factories, offices, and community centers.
- Training programs are carefully articulated with regional employment opportunities, resulting in an overall employment rate of 85%.
- Curricular and instructional methodologies for all training programs are based on the newly-developed PIM (Permanent, Individualized, Modularized) system. The PIM system stresses "learning to learn, to do, and to be." The PIM system allows trainees to begin at their own levels, proceed at their own rates, and select individually the skills to learn.
- SENA's programs for the informal sector exhibit flexibility and creativity in responding to the social welfare needs of both urban and rural communities. Training encompasses skill and attitude development in order to enable Colombia's citizens to actively seek solutions to their own problems.

Chapter V

SENA AND THE PRIVATE SECTOR

This chapter presents an overview of SENA's relationships with and services for the modern private sector. The importance of SENA's contribution is reflected in the fact that 10% of the urban labor force has taken at least one SENA course. The discussion emphasizes the variety of services and methods SENA uses to meet the needs of the private sector and to involve employers in planning and implementing training projects.

BACKGROUND

The government decree of 1957 which established SENA specified that its mission was to:

- Collaborate with employers and workers in establishing national apprenticeship and adult training systems appropriate to the country's national and regional needs;
- Maintain a link between vocational training and the needs of the Colombian economy;
- Coordinate policies and programs with other educational institutions to assure that human resource development supported economic growth; and
- Keep abreast of technological change and encourage scientific progress in Colombian industrial production.

As these objectives indicate, SENA was originally established to meet the training needs of the modern sector. Through its 2% payroll tax contributions, the private sector provides nearly 90% of SENA's current operating budget. The largest contributors are the commerce and service sector which accounts for 53% of the payroll contributions, the industrial sector which supplies 38%, and the agricultural sector which contributes 8%.

SENA'S PROGRAMS FOR THE PRIVATE SECTOR

SENA's services within the modern sector fall into three categories: (1) training programs for the skills required by firms, (2) technical assistance to develop and improve the production capacities of firms, and (3) management consulting services to improve the organization, productivity and efficiency of firms. SENA has developed five distinct types of consulting and training services to modern sector firms.

- Technical consulting and training services for firms;
- Middle management and supervisory training and development;
- Integrated technical assistance to small- and medium-size manufacturing firms;
- Integrated services for small- and medium-size firms (all sectors);
- Entrepreneurship training.

These services vary according to the economic sector and the size and type of firm. Such distinctions have contributed significantly to SENA's success in providing services to the private sector. SENA's programs do not promote one single methodology or approach. They demonstrate a method for developing training programs which takes into account the organizational context of the individual firm, its needs, problems, and projections in areas beyond training (e.g., management, production, equipment, safety, marketing). Each of these services is described in the following discussion.

Technical Consulting and Training Services for Firms (Asesoría de Empresas)

SENA provides a number of consulting and training services for firms. These services vary according to the size of firm. One common feature of SENA's work with all firms is an extensive self-diagnostic needs assessment process. This process involves key managers and supervisors in defining

their own problems and generating and implementing solutions. Some of the training problems identified are met by customized in-plant training courses.

A brief description of SENA's work with the various sizes of firms follows:

Large Businesses. When working with businesses which have more than 150 employees, SENA normally provides assistance and training in personnel management and industrial relations (wages, safety, contracting, etc.), training for supervisors, and assistance to the business for developing its own training programs and instructors. SENA begins by involving key managers in a self-diagnostic needs assessment process. The result of this three-month process is a set of training recommendations, some to be implemented in-plant with technical training provided if necessary at SENA centers.

SENA places special emphasis on training the employees of larger businesses to become in-plant trainers. SENA does not provide technical training in other areas on an in-plant basis for these firms. This policy has helped SENA avoid problems that training institutions with similarly limited resources have experienced in other countries when they attempted to meet the highly specific training needs of larger businesses. Instead, if larger companies have specific training needs, they have the option of sending employees to SENA training centers for complementary skills upgrading, specialization, or technical formation programs.

The rationale for providing only limited assistance to larger companies is that these firms usually have their own training departments and often have excellent training materials and other resources designed to meet the specific needs of the company.

Medium-Size Businesses. In selecting medium-size businesses to assist, SENA avoids firms which are involved in labor problems or are in danger of closing. Once a business has been approved for receiving assistance, the process begins with a diagnosis designed to identify problems.

When the diagnosis has been completed, and if company management agrees with the conclusions, training begins on an in-plant basis or in a SENA training center.

Training normally begins at the management level and then works down through supervisors, finally reaching lower-level employees. This system assures that new management or production systems will have adequate support on all levels of the company.

Small Businesses. Training on this level is much more specific and most often is in basic technical or administrative areas. Instruction is preceded by a diagnosis of the problems the business is encountering. Training is provided either in-plant or in a SENA training center.

Middle Management and Supervisory Training and Development

SENA's experience of working with thousands of firms has led them to offer supervisory and mid-level management training courses. Such courses are offered mostly in the firms rather than in SENA training centers. The training is usually offered as a result of the self-diagnostic in-plant needs assessment SENA conducts. The training includes six 20-hour modules dealing with the critical competencies of supervisors and middle managers, including quality control, human relations, programming, human resource development, time management, and administration. Depending on the needs of the firm, certain modules will be emphasized. In SENA's experience this is the program most firms request first. Once this course has been given, firms usually identify other problems and needs, and more specified services are requested.

Integrated Technical Assistance to Small- and Medium-Size Manufacturing Firms

Because of the special needs of small- and medium-size manufacturing firms, SENA begins with an internal diagnosis involving key representatives of the various levels of employees, including top management, supervisors, technicians, and operators. The major planning process which follows

results in short- and long-term action plans which are then implemented and evaluated.

As a result of an in-depth needs analysis of small businesses, SENA initiated two new services in 1985. These are:

Integrated Services for Small- and Medium-Size Firms

In response to a study conducted by the Asociacion Colombiana Popular de Industriales (ACOPI), which identified the need for coordination of services to small- and medium-size industries, SENA took the leadership role in establishing a forum to facilitate such coordination. Made up of over 15 public and private agencies and associations active in this sector, the forum will reduce duplication of services and promote business growth. At the time this study was conducted, only the structure and membership of the forum had been determined. The main thrust of this national forum will be to coordinate and integrate the priorities and services provided to this sector of the economy by the members of the forum.

Entrepreneurship Training (Formacion de Creadores de Empresas)

Designed and organized over the last two years, this new service will commence in 1986. The concepts and modules have been developed to respond to the need for creating viable, self-sufficient micro- and small-businesses in order to increase employment and stimulate the economy. Supported in part by a Dutch government loan, the program will focus primarily on selecting potential entrepreneurs from the ranks of SENA graduates and assisting them to formulate their business plans and secure needed capital.^{1/}

1/ This is one of the few areas in which SENA requested technical information or assistance. SENA expressed an interest in obtaining training and materials on successful U.S. models of entrepreneurship training, as well as in management and organizational development.

Summary

For statistical purposes, SENA's specific consulting and training services to modern private sector firms are grouped under one category: Asesoría a las Empresas. These SENA services are extremely popular to the private sector, but the process of working with individual firms is often long and costly. In spite of severe program cutbacks that have reduced its staff by at least one-third over the last five years, SENA still served 2,476 firms in 1985. In all the cases reviewed by the team, at least one or two SENA consultants were involved for over a year-and-a-half with each firm. Exact costs, not to mention results, were difficult to obtain. Table 6 on the next page shows by sector the number of firms served and hours of services received over the last four years.

Besides its training and consulting services, in the past two years SENA has added two new features to their portfolio of services to the private sector:

Technological Bulletins (Divulgación Tecnológica). Published quarterly, these eight-page bulletins provide information on state-of-the-art production technology and equipment for firms. These are aimed at improving production and assisting in the transfer of technology and the dissemination of technical information important to the development of the private sector.

Management by Projects (Trabajo por Proyectos). To avoid over-bureaucratization and to encourage more efficient decentralized use of its varied regional resources, SENA has implemented a new systems management approach called Trabajo por Proyectos. Currently, all of SENA's major work has been organized into 329 projects. (See Appendix VII for a sample project.) Many of these projects are specific to just one region, but some, like the metal mechanics and industrial chemistry projects, are national in scope and are designed to address all of the technical training needs of each of those industrial sectors in a comprehensive and integrated

Table 6
SENA TRAINING AND CONSULTING SERVICES TO FIRMS BY ECONOMIC SECTOR
1982 - 1985

=====												
Sector:												
Agriculture												
Industry												
Commerce												
National Totals												
Year	<u>N.F.*</u>	<u>H.S.</u>	<u>P.S.</u>	<u>N.F.</u>	<u>H.S.</u>	<u>P.S.</u>	<u>N.F.</u>	<u>H.S.</u>	<u>P.S.</u>	<u>N.F.</u>	<u>H.S.</u>	<u>P.S.</u>
1982	242	24,041	601	761	70,061	3,223	557	61,260	4,004	1,560	155,362	7,828
1983	303	34,612	--	776	69,644	--	521	66,920	--	1,600	171,176	9,642
1984	303	34,296	--	990	60,856	--	663	66,253	--	1,956	161,405	17,634
1985	142	26,306	1,587	1,737	80,570	6,017	597	62,071	6,269	2,476	168,947	13,873

* Key: N.F. = Number of Firms
H.S. = Hours of Service
P.S. = Participants in Seminars

manner. Each project design is based on a national trade area survey or job task analysis. The surveys result in occupational profiles which define the competencies required of a worker in a given trade. By providing information on training priorities, they serve as guides for adjusting and writing curricula that meet employers' needs. SENA uses information gathered through the surveys, trade advisory committees, and follow-up studies of graduates to put together comprehensive programs to meet the needs of each sector.

COLLABORATION WITH OTHER PRIVATE AND PUBLIC AGENCIES

Besides the services it offers to private sector businesses, SENA provides training services to many public and private agencies in Colombia that are working to promote economic growth, increase exports, improve agricultural productivity, and enhance rural development. For example, SENA is working with the Artisans of Colombia (Artesanias de Colombia), a government-sponsored program to promote traditional handicrafts production and to strengthen the marketing of products. In Barranquilla, SENA is working with the largest free trade zone in Colombia to assist zone officials and businesses in creating a training center. For years, SENA has been working with the Coffee Growers Federation to improve farm practices in coffee growing zones, as well as helping farmers diversify their farm businesses. In addition, SENA has worked closely with INCORA (Instituto Colombiano Para Reforma Agraria), the national land reform agency, to train its staff and to provide SENA instructors for courses organized by INCORA for recipients of redistributed land.

SENA's collaborative relationships with such organizations are formalized by means of official agreements called "convenios". These specify each party's roles and responsibilities and services to be rendered. "Convenios" are managed by supervising committees made up of representatives from the various private and public entities involved. "Convenios" prescribe SENA's relationship with national public and private agencies receiving training or technical assistance from SENA, with government agencies receiving funds from SENA as a result of public Law No. 55, and

with international donor agencies providing assistance to SENA. Currently, SENA has formal "convenios" with:

- o 27 national public (a few are private) agencies or associations;
- o 6 government agencies (as a result of Law No. 55);
- o 8 industrialized countries.

A complete list of SENA's "convenios" for 1985 is provided in Appendix VIII.

CURRENT DILEMMA IN MEETING PRIVATE SECTOR TRAINING NEEDS

SENA was originally established to meet the training needs of the modern private sector. For the past twenty years, however, SENA's role in providing training for the informal sector has expanded significantly. Since the mid-1970s, because of SENA's effectiveness, the government has used SENA to meet a growing number of informal sector and social needs. At first, SENA's resources were sufficient to address the training needs of both sectors, but, as a result of recent government austerity measures -- such as Law No. 55 -- which have reduced SENA's budgetary flexibility and imposed freezes on hiring and capital investment, SENA now is experiencing difficulties in meeting the training needs of both sectors. Consequently, the private sector has begun to oppose some of the informal sector programs.

Training programs for the informal sector of the economy and micro-businesses are less expensive, less sophisticated, and of shorter duration than the training provided for the modern sector of the economy. This allows SENA to reach approximately 50% more trainees in the informal sector than it can reach in the modern sector with the same amount of funding. Because training often deals with strategies for improving the quality of life in urban and rural areas or with preparing people for taking charge of their own development, these programs do not always impact directly on employment and are not easily evaluated. For example, training often has little to do with preparing people for employment or increasing their

productivity in the work place. As a consequence, employment rates of trainees are often much lower than those associated with training for the modern sector of the economy, and other types of evaluative criteria must be developed for measuring the impact of this training. Although it is often difficult to quantify the results of some of the training for the informal sector, the general consensus is that the training does meet development needs.

As long as Colombia's modern sector cannot absorb much more than 50% of the work force that currently is facing a high rate of unemployment, and as long as over 40% of new employment opportunities are found in the informal sector, training for the informal sector will continue to be an important element of SENA's mission. Any weakening of the informal sector will cause additional social problems, higher unemployment, and discontent. In a nation with serious social problems, increasing unemployment, and a strong guerrilla movement which has capitalized on Colombia's economic recession, a reduction in training and other activities for the informal sector of society cannot easily be justified. Further, if SENA can strengthen the informal sector through training and technical assistance, then the modern sector also will benefit from larger numbers of more affluent customers and a more stable society.

Some Colombians argue that since 90% of SENA's funding comes from the modern private sector of the economy, the priorities of this sector should be met before those of the informal sector. But others argue that the informal sector should be given priority since the general public eventually pays for SENA as the 2% payroll tax is included in production costs which are passed on to the consumer. The real issue for most Colombians is not whether the informal sector should receive training, but how SENA can best allocate its resources for optimal impact while meeting both modern and informal sector training and technical assistance needs.

Chapter VI

INDICATORS OF SUCCESS

This chapter discusses a range of variables important in assessing the cost-effectiveness, efficiency, and relevance of SENA training programs. Both quantitative and qualitative indicators are presented. Quantitative measures include economic rates of return on investment in training, participant hour of instruction costs, employment rates and salaries of trainees, as well as consideration of the ratio of capital investment to recurrent costs. The ways in which SENA makes use of findings in its follow-up studies of graduates are explained.

On the qualitative side, the study looks at key organizational and management characteristics of SENA which relate to its operational philosophies and procedures. Again, SENA's decentralization of operations and its independence of central government financing are stressed. SENA is able to respond to local needs in cost-effective, flexible, and innovative ways. It is well-known and well-respected throughout Colombia. This chapter explores the reasons for SENA's respect and success.

QUANTITATIVE MEASUREMENTS

A number of quantifiable indicators have been identified to assess and plan effective vocational/technical training programs (Zymelman, 1978; Hershback, 1985). Primarily, planning for vocational training must be based on systematic analysis of labor market demand. The efficiency of training, thus, is measured by how adequately the training system is meeting that demand and by analyzing the economic and social rates of return based on the costs of the program. A review of such indicators demonstrates the efficiency of SENA.

Economic Rates of Return for SENA Training

A recent economic evaluation by the World Bank of SENA's training programs concluded that the social and private rates of return for SENA training are high at 14% and 36%, which surpass the overall rate of return

for capital investment in Colombia (Jimenez, Kugler, and Horn 1986). These rates also surpass estimates of the rates of return to secondary-level academic education and prevocational training in diversified schools. The study also showed that significantly higher social rates of return were associated with courses of study which were at least 600 hours in length, that rates of return were higher for participants who had previous work experience in the trade and had completed high school, and that the highest rates of return (29%) were associated with training programs of 2 or more years in length. Jimenez, Kugler and Horn (1986) also found that some of SENA's courses for older students compared favorably with the rates of return for higher education. For example, promotional courses had a rate of return of 29%, which is higher than that estimated for engineering of 25% and the overall rate for higher education of 18%.

Other countries, however, should not assume that longer training courses will necessarily provide higher rates of return in their societies. Other studies in Peru and Brazil have shown that short courses have higher rates of return than longer courses (Metcalf, 1985). An earlier study in Colombia in the 1970s also concluded that shorter courses had higher rates of return than longer training programs. Other studies have concluded that rates of return for participants with only primary education are higher than for those who have completed high school.

Different societies with different levels of development and different training needs will have different rates of return for different training programs. As a consequence, local studies should be used to suggest the most cost-effective use of resources for training rather than assuming automatically that longer-term training programs will always provide higher rates of return than shorter courses.

In most Latin American nations one can assume that training will generally be more cost-effective in well-managed, nonformal training institutions than in technical high schools, and that rates of return will increase as class size increases (as long as instructional quality and relevance are maintained.) The Jimenez and Kugler 1986 study cited above also noted that social returns to training were increased considerably through

increasing course size to 25 or 30 participants, and that the quality of instruction was not substantially affected by the larger number of participants. Therefore, the SENA model suggests that many vocational training programs in other nations may have reduced their cost-effectiveness -- and, thereby, their rates of return -- by limiting class size to 12 to 15 participants.

Participant Hour of Instruction Costs

If SENA's contributions to other institutions through Law No. 55 are excluded, the average participant hour of instruction cost is about \$1.70.^{1/} Table 7 summarizes these costs by sector for the year 1984. This

Table 7

PARTICIPANT HOUR OF INSTRUCTION COSTS

Sector	Hours of Instruction*	No. of Participants	No. of Courses	Participant-Hour Costs
Agriculture	1,510,792 (40%)	98,435 (24%)	5,325 (28%)	\$1.52
Industry	1,215,548 (32%)	130,834 (32%)	6,629 (35%)	\$1.85
Commerce/ Services	1,043,612 (28%)	176,132 (43%)	6,852 (36%)	\$1.82
TOTALS:	3,769,952	405,401	18,806	\$1.72

* Hours of instruction provided by SENA instructors.

1/ Participant hour of instruction cost, or the cost of providing one hour of instruction for one student, is the most appropriate manner of comparing instructional costs in different training institutions. Training institutions should be encouraged to use this system of calculating training costs rather than calculations of costs per student, per course, or per instructor hour of instruction because these calculations do not compensate for courses of different lengths and different numbers of students.

measure is useful for comparing SENA's instructional costs and levels of cost-effectiveness with similar training institutions in other nations. (See Appendix IX for a simple method of calculating participant hour of instruction costs and other factors which contribute to the cost-effectiveness of training.) More detailed and reliable systems can be developed by using interactive computerized record-keeping with the advantage that costs can be monitored on a continuing basis.

Table 7 shows that agricultural instruction is the lowest cost training which SENA provides, at \$1.52 per participant hour of instruction. Training costs for the industrial and commercial/service sectors are almost equal, at \$1.85 and \$1.82 respectively. These costs are quite low, compared to costs of about \$3.50 in the United States and \$2.00 or more in most of the other nonformal vocational training institutions in Latin America and the Caribbean.

Factors which help keep costs below \$2.00 per participant hour of instruction at SENA include the following items. (1) Average instructor wages are only about \$300 monthly, while many other nations pay comparatively higher salaries. (2) Dropout rates at SENA are very low, only 10.5% annually; this low rate allows SENA to make more rational use of its training resources than many other countries do. (3) Average class size at SENA is about 20 participants; most other similar institutions have notably fewer trainees per instructor, and consequently their costs increase.

Employment Rates of SENA Graduates

SENA's training also has resulted in high employment rates, with a national average of 85% for modern sector training programs. In contrast, the average U.S. job placement rate for vocational/technical education graduates is only 65%. In many other Latin American and Caribbean countries it is even lower.

Table 8 shows that there are significant differences among employment rates for different Regions. The training provided by some Regions, in some modes and sectors, has not been well-articulated with private sector

Table 8

EMPLOYMENT RATES OF SENA GRADUATES BY SECTOR OF
ECONOMIC ACTIVITY AND MODE OF INSTRUCTION

Mode of Instruction and Sector	Highest Regional Employment Rate	Lowest Regional Employment Rate	Mean Averages of Regions		
			Employed	Unemployed	Inactive*
<u>Apprenticeships</u>					
Industry	92.0%	83.0%	88.0%	8.4%	3.6%
Commerce	94	81	85.6	4.9	9.5
Services **	92	90	91.0	2.5	6.5
Agriculture	98	12	74.8	7.8	17.4
Sub-Total:	94	66.5	84.8	5.9	9.3
<u>Technical Formation</u>					
Industry	97.0%	84.0%	90.0%	5.5%	4.5%
Commerce	92	90	91.3	1.0	7.7
Sub-Total:	94.5	87	90.6	3.2	6.1
<u>Complementation</u>					
Industry	99.0%	23.0%	82.8%	9.1%	8.1%
Commerce	94	62	84.8	9.2	6.0
Sub-Total:	96.5	42.5	83.8	9.1	7.0
<u>Short Courses</u>					
Industry	94.0%	55.0%	80.4%	8.0%	11.6%
Commerce	80	57	72.6	8.4	19.0
Agriculture	100	80	90.0	3.0	7.0
Sub-Total:	91.3	64.0	81.0	6.5	12.5
<u>Informal Sector</u>					
PPPU	71.0%	26.0%	48.7%	11.3%	40.0%
PPPR	75	50	71.2	9.9	18.9
Sub-Total:	73.0	37.7	61.9	10.6	29.5

* Inactive = not seeking employment: housewives, invalids, retired, etc.
** Hotel and restaurant services.

training needs, and some Region's record employment rates as low as 23% for specific programs. Each Region has recorded both high and low employment rates, which suggests that deficiencies lie within specific courses rather than in the general operation of a Region. Some of the low employment rates may not have anything to do with the relevance or quality of training, but are related to economic difficulties in certain sectors, factors which are beyond the control of SENA.

Highest rates were recorded most often by the Bogota Regional Office, which accounts for approximately 40% of SENA's trainees. Other Regional Offices, however, recorded higher employment rates than Bogota in the areas of commercial and services apprenticeships, short courses in services, and informal sector programs -- PPPU and PPPR.

PPPR and PPPU appear to be the least efficient training programs in terms of preparing people for employment. It should be noted, however, that many of the PPPU and PPPR courses are not designed for that end and are often provided for housewives or others who are not seeking employment. Instruction is designed to improve the quality of life in urban or rural areas or to encourage communities to take charge of their local development needs. After the "inactive" population has been accounted for, unemployment among the PPPR and PPPU trainees is indeed relatively low at 9.9% and 11.3% respectively. This is especially noteworthy when one considers that a great deal of this training is provided for young people from the informal sector of the economy and from marginalized sectors of society.

Comparative Salaries

While not all SENA graduates receive wages which are substantially above those of other workers in the same occupation, there are several employment areas in which the average wages of SENA graduates are significantly higher than those of workers who are not SENA graduates. Table 9 below shows the comparative wages of SENA graduates to non-SENA graduates in certain occupations. The difference in salaries in these occupations ranges from a high of 32% to a low of 9%.

Table 9

COMPARATIVE SALARIES OF SENA GRADUATES WITH OTHER
EMPLOYEES WITH SIMILAR BACKGROUNDS *

Code Number**	Occupation	Difference in Salaries
81	Wood Workers	32.6%
21	Managers	31.5
42	Directors of Sales and Purchasing	31.0
90	Rubber and Plastics Workers	29.3
30	Office Chiefs	26.8
03	Engineering Technicians	22.4
83	Metal Workers	20.1
43	Commercial Representatives and Technical Sales	19.5
33	Bookkeepers and Cashiers	17.6
39	Unclassified Administrative Personnel	16.7
32	Secretaries	16.5
87	Plumbers and Boiler Workers	13.2
85	Electricians	9.8

* Non-SENA graduates surveyed had the same trade, sex, academic background, and years of experience in the trade as did the SENA graduates.

** International Occupational Code.

A study of SENA's apprenticeship programs (Puryear, 1979) found that SENA training provided entree to the larger and higher-paying firms. In most cases, SENA rather than the trainees located modern sector sponsors for the 2-3 year apprenticeships. SENA clearly functioned as a link for its students to modern sector firms. SENA training assured the apprentices of access to suitable work experiences and communication networks for upward mobility.

Ratio of Capital Costs to Recurrent Expenditures

Funds for recurrent expenditures are necessary to achieve and maintain quality training programs. Buildings and equipment are not sufficient to

insure the quality of on-going programs. Funds for such recurrent expenditures as staff salaries, supplies, and maintenance costs must be sufficient to retain staff, support instruction, and maintain instructional shops. Experts recommend that funding for recurrent expenditures at the minimum should be ten percent of capital investment per year (Hershback, 1985).

SENA's capital depreciation costs and new capital investments together are less than 10% of the total costs of instruction, with a ratio of capital costs to recurrent costs of about 1 to 11 as shown in Table 10 below.

Table 10
SENA'S CAPITAL AND RECURRENT COSTS

Expense	Thousands of U.S. Dollars	Percent of Total
Depreciation of Capital Investments	\$ 7,900	8.5%
Administrative Costs	27,400	29.5%
Instructional Costs	57,700	62.0%
TOTAL:	\$93,000	100%

Other countries should consider the high recurrent costs of vocational training. Establishing training programs with the assistance of an international donor should not be encouraged unless the country is prepared to finance recurrent costs as SENA has done, at sufficient levels to assure an acceptable rate of return on training investments. If host countries cannot allocate funds for salaries, supplies, and equipment maintenance, the original capital investment may be lost.

Ratio of Administrative to Instructional Staff

SENA employs nearly 8,000 people. The National Office has 570 employees, and the remainder are assigned to the 19 Regional Offices. As shown in Table 11 below (presented already as part of the discussion of SENA's personnel systems in Chapter II), the ratio of administrative personnel to instructors is .6 to 1, which is higher than the .4 to 1 ratio in the United States but lower than that of many public sector nonformal vocational training programs in Latin America.

Table 11
SENA EMPLOYEES

Personnel	National Office	% of Total	Regional Offices	% of Total	Combined Total	% of Total
<u>Instruction</u>						
Instructors	21	3.7%	4,084	55.8%	4,105	52.0%
In-Plant Technical Advisors	150	26.1	445	6.1	595	8
Sub-Total:	171	30	4,529	62	4,700	60
<u>Administration</u>						
Directors of Depts.	129	22.5	448	6.1	577	7.3
Administrative Personnel	170	29.6	984	13.4	1,154	14.6
Technicians *	51	8.9	505	6.9	556	7.0
Lower-Level Employees**	53	9.2	851	11.6	904	11.5
Sub-Total:	403	70	2,788	38	3,191	40
TOTAL:	574	100%	7,317	100%	7,891	100%

* Computer programmers, mechanics, etc.

** Cleaning, lower-level maintenance and security.

While the ratio of administrative employees and support personnel to instructors is somewhat high, one must also consider the cost-effectiveness of SENA and the rates of return on its training before reaching conclusions

in regard to the number or classification of employees in SENA. As discussed in other sections of this chapter, the rates of return on investment in SENA training are excellent; SENA appears to be a cost-effective institution. Vocational training institutions in other nations, however, should be cautioned against using SENA's personnel ratio as a guideline. More effective ratios (higher numbers of instructors in relation to other personnel) probably could lower costs and provide higher rates of return in most countries.

Follow-Up Studies of Graduates: Use of Findings

Frequent assessment of graduates is a key to maintaining program quality. As already discussed in Chapter IV, SENA conducts periodic follow-up studies of graduates which provide important information on the relevancy of instruction and on areas in which training should be improved, expanded, or discontinued. In conducting these studies, SENA develops a representative sample of graduates. Interviews with graduates, their employers, and fellow workers provide information which is used to determine the extent to which the training has met job market opportunities and training needs.

If results show that only low numbers of graduates from a particular course are able to find employment, that salaries for the trade are declining, and that the area is not expanding, then SENA will either discontinue the course or limit the number of participants who can enter the course. SENA thus attempts to achieve a closer balance between the supply of skilled and semi-skilled workers and demand for the particular skill.

In contrast, when a follow-up study shows that salaries are increasing, that 90% or more of the graduates have found employment, and that the market demands more workers with the skills taught in the course, then the course is opened up to additional participants.

In some cases, follow-up studies may show that there is a demand for employees in a particular trade and that salaries are increasing for people

who possess the skills of the trade, but that only a low percentage of SENA graduates obtain employment. In such cases, it is evident that the skills being taught by the course are not in harmony with the training priorities of employers. Interviews with graduates, employers, and fellow workers identify weaknesses in the training provided; appropriate adjustments are then made.

These types of follow-up studies should be an integral part of any vocational training system if instruction is to be in harmony with job market opportunities and employers' needs. Unfortunately few training institutions in Latin America conduct these studies on a continuing basis. SENA itself does not conduct follow-up studies on a regular basis for all occupations. Several areas of instruction are in need of updated follow-up studies to evaluate whether or not specific training programs are in harmony with private sector training needs. In areas such as PPPR and PPPU where training is not always geared to preparing people for employment, different criteria should be developed to evaluate the impact of these activities and to assure that SENA is making rational uses of its resources.

Other vocational training programs in Latin America and the Caribbean should be encouraged to conduct follow-up studies for evaluating training programs, identifying problems in training, and assuring that instruction is in harmony with employers' training needs.

QUALITATIVE FACTORS

Vocational/technical programs involve complex organizational structures and management tasks at the institutional, departmental, and instructional levels because of the variety of human and physical resources involved. The effectiveness and flexibility of such a large and complex training system as SENA cannot be explained simply in quantitative terms. Recognizing this dilemma, the study team intentionally aimed at identifying the qualitative elements that have contributed to in SENA's success.

For guidance in this process the team reviewed the literature and found only one study to date (Hershback, 1985) which specified the qualitative variables involved in assessing vocational training programs. According to Hershback, management styles and structures, incentives, and collaborative relationships are the cornerstones of successful training programs. In addition to Hershback's guidelines, this study borrowed from organizational theories (Drucker, 1974; Beckhard, 1984; Litwin, 1984) and effective schools research in the United States (Neufeld, Farrar, and Miles, 1983; Purkey and Smith, 1982) to identify other key organizational characteristics which should be considered in a qualitative analysis of this type. For example, it is generally accepted that organizational climate, change and innovation strategies, and client orientation are essential elements to consider in assessing institutional effectiveness. As a result, the team identified a number of critical issues and processes that have significantly contributed to SENA's success. These are:

- o Decentralized administration
- o Independent source of financing and collection of revenue
- o Consistent and effective leadership and management
- o Strong private sector linkages
- o Commitment to change and innovation
- o Focus on client participation in the design and delivery of services
- o Strong public relations effort
- o Successful adaptation of international technical assistance.

Each of these factors has been elaborated on in other sections of this report. Therefore, the discussion that follows is not meant to be extensive; rather its purpose is to show the importance of these factors to SENA's overall success. In addition, this list is not meant to be exhaustive, and in no way should it suggest that these qualitative factors outweigh the importance of the quantitative indicators discussed in the first section of this chapter. What the study team stresses is that none of the

factors alone -- quantitative or qualitative -- can account for SENA's long history of effectiveness.^{1/} It is the combination of the various elements that has resulted in the successful functioning of SENA.

Decentralized Administration

Since its beginning in 1957, SENA has been organized as a decentralized system in order to respond to the specific needs of the 19 geographical regions of the country. The decentralization of operations, including the collection of taxes and the preparation of regional budgets, has allowed SENA to maintain a strong record of providing training services based on local needs and priorities. Through its various mechanisms for community and private sector involvement, SENA has fostered a collective and participatory sense of ownership in the institution that has contributed to its high public image in Colombia.

SENA's strength clearly lies in its diversity. Each Regional Office or training center is uniquely situated to respond to the particular needs of the area it serves. In recognition of the importance of this, SENA's 1986 Plan calls for further decentralization of Central Office functions.

SENA's long history of decentralization offers a valuable model to other countries which are seeking to expand education and training opportunities in the face of severe financial constraints. SENA is an example of how significant community and private sector involvement in decision-making at the local and regional level can result in more efficient use of resources and improved quality of education.

Independent Source of Financing and Collection of Revenue

SENA is funded by a 2% payroll tax which is collected by a private agency. This guaranteed source of income and privately-run collection

^{1/} The assessment of the relative value of one factor over another was not within the scope of the analysis.

system have helped to insure SENA's financial viability and relative independence from governmental budgetary interference. Unlike similar training institutions in other countries, SENA had more than sufficient resources to expand and improve its services until the passage of Law No. 55 (discussed in Chapter III).

SENA is accountable to the employers who support it. Its measures of success are highly qualified graduates, improved technical training services, and record fiscal efficiency, which is unmatched by any other public agency in Colombia.

Consistent and Effective Leadership and Management

In the almost 30 years of SENA's history, only four people have held the position of National Director. Two of the National Directors account for 24 years of that history. This continuity of leadership has contributed significantly to limiting the politicization of the institution and insuring a continuity in provision of services.

A large part of SENA's success is attributed by Colombians to the effective and charismatic leadership of SENA's first director, Dr. Martinez Tono. For the first 18 years of its development, SENA benefited from the consistency of his management, which has been characterized as "visionary", "powerful" and "100% apolitical." As one of the original designers of SENA, Tono is noted for his expertise as a manager and professional educator, who maintained the integrity of the institution in the face of a multitude of political agendas. Over half of all current SENA employees began work under Tono; they attribute much of their collegiality, loyalty, and high standards of professionalism to his leadership and the systems he put in place.

The current director, Dr. Alberto Galeano has served the second longest. Although criticized for infusing too many of Betancourt's political objectives into SENA's program priorities, Galeano's leadership is responsible for launching a massive reorganization and modernization plan

for SENA, which has resulted in such accomplishments as the PIM instructional system, the functional management system by projects, the San Andres Center for Latin American and Caribbean training, and the modernization of equipment at all major SENA centers. Galeano's commitment to innovation and change forced SENA to move out of the static phase it was in from the late 1960s to the mid-1970s into a decade of continual improvement.

Strong Private Sector Linkages

It is generally accepted that technical training programs which have strong connections with employers are more effective than programs without such connections. Effective linkages are characterized by the following conditions:

- o Sufficient number of trainees are being supplied to meet the needs of the labor market.
- o Trainees are adequately trained to perform at requisite skill levels.
- o On-going working relationships exist between employers and trainers (Hershback, 1985).

SENA meets these conditions through a variety of mechanisms which involve employers at all levels of program design, delivery, and evaluation. These mechanisms have been discussed in detail throughout the report.

Commitment to Change and Innovation

Organizations that manage change effectively are perceived to be dynamic and adaptable. SENA has remained flexible and responsive to the changing demands of the labor market. It has grown to meet the needs not just of the productive sectors, but it has also developed expertise in and models for integrated rural and community development. This ability to innovate is most recently evident in SENA's implementation of the PIM instructional system and in its reorganization of its traditional vertical management structure to a systems approach. This approach -- known as

"management by projects" -- allows for a response to specific needs which integrates resources across departmental and divisional lines. The projects in Metal Mechanics and Industrial Chemistry mentioned in Chapter V are examples of this new management structure.

Focus on Client Participation in the Design and Delivery of Services

SENA'S emphasis on participatory development is most evident in its informal sector programs (CAPACA and CIPACU) and in its consulting and in-plant training services in the modern sector. In both instances the SENA model stresses the participation of trainees in identifying problems, generating solutions, and implementing the interventions needed for resolving the problems. SENA staff view themselves as change agents who work as facilitators to empower clients to plan and direct their own progress. SENA admits that the focus on participatory development evolved from its own failures with more traditional forms of technical assistance which imposed solutions on clients.

This focus on involvement and participation promotes a sense of community, ownership, commitment, and responsibility for the results of the SENA intervention. Through this approach, SENA creates a multiplier effect. Once sufficient local or in-house experts have been trained to continue the program, SENA withdraws its services. As a result of early participation in the technical assistance process, community members and/or private sector firms become committed to the intervention, and there is a greater likelihood of the program's continuation over time.

Strong Public Relations Effort

At SENA, collaboration and coordination with employers has been facilitated by formalized structures, policies, and procedures to guide the participation of employers and trainers; clear rules and guidelines for making decisions; organizational networks that allow different groups to work as a unit to address common problems; and, most importantly, a concerted effort to maintain good lines of communication with businesses and communities through strong public information and public relations efforts.

One of the major accomplishments of SENA's Office of Communications has been to build a basic public image which conveys the impression that SENA -- since it is responsible for human resource development -- is critical to the ultimate prosperity of Colombia. SENA capitalized on its first 15 years of success and fostered public awareness through publications and multi-media aids which tie SENA's contributions directly to the economic growth Colombia experienced in the 1960s and early 1970s. In the recession of the early 1980s, SENA's programs were used to provide solutions to many of the country's social and economic problems and natural disasters. Again, success built on success. Also, against a backdrop of other struggling public institutions, SENA earned the respect and confidence of its supporters through its financial efficiency and industrious graduates. As a result, most Colombians hold SENA in such high esteem that one gains the impression that "What is good for SENA is good for Colombia."

Successful Adaptation of International Technical Assistance

International technical cooperation has played an important role in SENA's growth. Over its thirty-year history, SENA received and successfully adapted technical assistance from eleven industrialized nations and international donor agencies, including the World Bank and the United Nations. SENA credits various countries for their unique contributions to the development of various SENA programs. Figure 3 on the next page presents the programmatic contributions of donor countries. In turn, SENA has provided consulting services and training to twelve Latin American countries.

SENA is sharing its expertise for receiving, managing, and adapting donor assistance with its neighbors in the LAC region. The SENA model for receiving international assistance was presented in May 1986 at a CINTERFOR conference in Brazil. It is a unique negotiating process -- fashioned after SENA's experience in participatory development -- which calls for the recipient institution to identify the problem and solicit and select the types and terms of technical assistance most appropriate to the specific economic and social needs of the institution and the nation. It also calls

Figure 3

INTERNATIONAL TECHNICAL COOPERATION PROVIDED
TO SENA BY DONOR COUNTRY

<u>Country</u>	<u>Type of Technical Assistance</u>
Belgium	o Hotel and tourism
Canada	o Marine exploitation o Woodworking o Furniture making o Reforestation
England	o In-plant technical assistance and training services o Textile industry o Foundry o Training for operators of marine motors o Aviation mechanics
FAO	o Food services
France	o Supervisory skills training o Marine exploitation o Electricity and initiation into electronics
Germany	o Training for industrial technicians, especially in metal mechanics o Graphic arts o Technical assistance and assessment of needs for the metal mechanics industries
Holland	o Metal construction o Cattle raising o Flowers o Animal husbandry o Manpower studies and projections
Israel	o Cooperatives
Italy	o Shoe industry
Japan	o Fishery
Massey Ferguson	o Agricultural mechanization
Switzerland	o Watchmaking
United Nations	o Technical assistance to small- and medium-size industries
United States	o Baking

for the use of advanced institutions in the LAC region to play a leadership role in tripartite relationships in order to facilitate more responsive delivery of services, to increase collaboration among countries in the region, and to reduce the costs of technology transfer and development. Through funds provided by Germany, the Netherlands, the ILO, and the IDB, SENA is providing training scholarships for participants from 19 LAC countries to observe and attend programs at the Colombo-Aleman Center in Barranquilla, the San Andres Center in the Caribbean, and the Wood and Furniture Making Center in Cali.

For the past three years, SENA has also contributed special funds, which average 37 million pesos annually, to the social and technological development of the Central American and Caribbean region. El Fondo del Caribe provides full tuition and living expenses for participants from this region to study at SENA for up to one year. To further enhance regional collaboration, SENA recently inaugurated a bilingual center on the island of San Andres to provide training and technical assistance to the English-speaking Caribbean, as well as to its Central American neighbors.

CONCLUSION

Assessment of both the quantitative and qualitative factors has demonstrated SENA's success in becoming an efficient and effective institution. Its leaders are dynamic and its programs versatile. SENA has been able to mobilize its resources to address Colombia's changing needs for human resource development over time. SENA is now in an excellent position to offer a number of its programs and methods as outstanding examples for potential adaptation by other similar training systems in Latin America. The next chapter will discuss specific areas in which SENA's experience and expertise are appropriate to other countries.

Chapter VII

CONCLUSIONS

This chapter summarizes SENA's accomplishments in light of the lessons it can offer to other countries in Latin America and the Caribbean. The study team makes concluding comments on SENA's ability to meet the demand for training in Colombia and on SENA's future directions, given anticipated changes in the government's national priorities.

LESSONS FOR OTHER COUNTRIES

While SENA has developed over the past thirty years in response to conditions in Colombia, its experience offers valuable lessons for the design and management of public vocational/technical training systems in Latin America. The issues raised by the LAC USAID Missions have been addressed throughout the report but will be highlighted once more here. These issues fall into six major categories:

- Identification of Training Needs
- Curriculum Development and Instructional Strategies
- Diversity in Training Programs
- Characteristics of Staff and Trainees
- Costs of Training
- Decentralized Administration

SENA has succeeded in achieving a high rate of return on investments in its programs because training is designed to meet the specific employment requirements of each Region. Its graduates are active in the fields for which they were trained.

Identification of Training Needs

As described in Chapter IV, SENA makes use of a variety of means to identify training needs and obtain input from employers. These include follow-up studies of graduates by field of work, major analyses of trade areas, in-plant technical analyses, and the use of trade advisory committees. Private sector representatives belong to the Regional and National Boards of Directors.

SENA has found occupation-specific and plant-specific studies to be useful in identifying training needs, evaluating training programs, and making adjustments in training format and content. Other nations should bear in mind that conducting such analyses requires personnel qualified in the design and implementation of surveys. Not all vocational training systems in Latin America and the Caribbean have survey experts on their staff. In addition, employers must appreciate the value of training in order to spend the time necessary for completing survey questionnaires accurately and completely. SENA has built strong relationships with the private sector which enable it to receive quality input from employers, who recognize the importance of SENA's mission. Such major studies, however, as those being conducted now in metal mechanics and industrial chemistry do divert funds and personnel from other kinds of research or training activities.

Other nations would find SENA's use of trade advisory committees a valuable model. Representative employers and skilled workers are selected to provide guidance for specific training programs and to review instructional curricula. The competencies identified by the advisory committee are then validated by a larger group of employers and skilled workers. In this manner, the larger population of employers and workers, who are normally targeted for studies and surveys, do not have to be involved in the entire process but only in the final validation of the competencies identified.

Follow-up studies of graduates should be an integral part of any vocational training system to assure that instruction is in harmony with

job market opportunities and employers' needs. These studies prove especially useful when instructors themselves are directly involved in their conduct. Such studies should be conducted on a regular basis if they are to be truly effective tools for identifying new skills that require instruction and for making adjustments in existing instructional materials. SENA has not been able to update its studies of graduates since 1983, which may affect the quality and relevance of instruction.

In summary, each of the means used by SENA to obtain job market and occupational data may be useful to other nations. The use of follow-up studies and trade advisory committees will probably prove to be the most cost-effective and reliable methods for other vocational training systems. In all cases, such information should be cross-referenced with local labor statistics.

Curriculum Development and Instructional Strategies

While SENA's development of curriculum is based on assessment of specific labor market needs at the Regional and local levels, its approach to instruction is equally specific. Its new instructional system - Permanent, Individualized, and Modularized (PIM) - promises to be a stimulating and effective innovation. PIM focuses on three areas: "learning to learn, to do, and to be". Inherent in all of SENA's training is its concern with the development of the whole person, not merely the development of technical skills. Rather than just learning to "do" vocational skills, participants also "learn to learn", so that they can continue their education in a self-directed manner after graduation. Through "learning to be," SENA emphasizes the global development of human resources, instead of just teaching the skills and technical knowledge of a trade or occupation.

The PIM model offers valuable lessons to other nations in terms of its cost-effectiveness, relevance, and impact. PIM has enabled SENA to achieve higher levels of cost-effectiveness in training and higher job placement rates; its students achieve higher levels of skill mastery. Employers consistently praised the work attitudes of SENA graduates, characterizing

them as more dependable, loyal, and able to solve problems than non-SENA graduates.

Since SENA's curricula are organized by modules, they can be used in a highly flexible manner. Trainees can select the modules they wish to study, and firms can select the modules most appropriate to their needs. Even though the modules are competency-based, SENA does not identify competencies or tasks as rigorously as do competency-based instructional materials from the United States and other countries. In making use of the PIM model, other vocational training systems should strive for greater specificity in defining skill levels and tasks.

Diversity in Training Programs

SENA's programs range in length from a few weeks to three years. Training is offered at SENA's training centers, in plants and firms, in rural community centers, or through extension and correspondence courses. Training modes are diverse, because training is designed to meet the needs of specific occupations, employers, communities, and trainees. SENA provides training for modern private sector industries and trades, as well as micro-businesses in the informal sector. Its clients range from multinational firms to rural farmers.

Of especial interest to other nations is SENA's apprenticeship program, which allows participants to earn an income while learning a trade. Apprenticeships last 2 to 3 years and are available in a wide variety of fields. The program offers considerable advantages to the employer and the apprentice; it lowers training costs and increases the employability of youth in a society where unemployment among young adults is high.

SENA offers in-plant technical assistance and training services to modern sector firms; its services vary by size of firm. SENA diagnoses management problems, offers appropriate training, and trains company employees as instructors in such areas as supervision, quality control, personnel management, and industrial relations. SENA has avoided the

problem faced by some vocational training systems in other countries of attempting to meet all training needs of all modern sector firms. With large firms, it concentrates its services on the training of trainers.

SENA's training programs for the informal sector - both urban and rural programs - stress attitude development, in addition to skill development, in order to enable participants to become actively involved in improving their quality of life. Through innovative techniques - such as the training of local community leaders as instructors and the use of correspondence courses - SENA has greatly extended its outreach to all geographic regions and economic sectors of society in Colombia.

Whether in modern firms or rural communities, SENA involves participants in the identification of problems, design of solutions, and implementation of interventions. This participatory management style increases the client's sense of ownership of and commitment to changes undertaken through training.

Characteristics of Staff and Trainees

SENA staff are highly loyal, dedicated, and professional. SENA's hiring policies and incentives for instructors have assured that many employees stay with the institution throughout their careers, with an average tenure of 12 years for SENA employees. Hiring policies also discourage political intervention at the operational level, although there appear to be more political interests involved in hiring administrative personnel. While the institution has become subject to higher levels of political intervention over the past decade, SENA has maintained relative autonomy in its personnel procedures.

SENA staff also provide effective models for trainees in terms of operationalizing the PIM philosophy - "learning to learn, to do, and to be". SENA graduates are known for their self-initiative, their ability to solve problems, their loyalty, and their responsibility.

SENA has fairly high educational requirements for many of its modern sector training programs. Such programs may require several years of high school education. While high levels of trainee education help assure participant success, other nations might not be able to demand such high levels. Educational requirements must be in harmony with local educational realities.

SENA currently has a total of almost 7,900 employees - some 3,200 administrative and support personnel and 4,700 instructors and in-plant technical advisors/trainers. Its ratio of administrative to instructional personnel is .6 to 1. Other nations would probably find a lower ratio (fewer administrators relative to numbers of instructors) more conducive to achieving better rates of return on training.

Costs of Training

The average participant hour of instruction cost at SENA is \$1.72, which compares very favorably with the cost of \$3.50 in the United States and \$2.00 in most Latin American training systems. SENA achieves this lower cost through efficiency in the use of its resources. A low level (10%) of its trainees fail to complete training. Class size has been increased to 25-30 participants, rather than the 12-15 students typical of many other training systems. Finally, instructor salaries - while competitive in Colombia - are generally lower than in other Latin American countries.

SENA has achieved very favorable rates of return on its training - an overall rate of 14% which exceeds the rate of return on capital investment in Colombia. For longer training programs rates increase to 29%.

Decentralized Administration

SENA's decentralized administration allows a high degree of flexibility in responding to Regional and local training needs. Planning and budgeting are carried out by the 19 Regional Offices, but plans and budgets are subject to final approval by the National Board of Directors. Its tradition of decentralized administration has enabled SENA to maintain a

higher degree of autonomy than most public institutions. Many nations could use this model for improving education and training services and the relevancy of training on the local level.

The 2% payroll tax which supports SENA is collected on the Regional level by an independent tax-collection agency. While the national government has appropriated 20% of SENA's income over each of the past two years, this is a relatively low proportion compared to countries where up to 70% of training funds may be appropriated for other government purposes. More traditional means of tax collection may be more appropriate to other nations; what is important is that the training system is assured of its receiving its funding.

SENA'S ABILITY TO MEET TRAINING DEMANDS

SENA was established in 1957 to provide training for the private modern sector of the economy. During the past 30 years the institution has also expanded its services to the informal and public sectors. The demand for training is high, but because of the government's austerity measures and budgetary interference some training needs are not being met.

Modern Private Sector Demand

Training needs are generally being met, but there are deficiencies, especially in higher technology areas, because of a shortage of instructional personnel and budget constraints on capital investment and hiring. One should note, however, that SENA's total income would probably suffice for meeting these training needs and making additional capital investments in higher technology areas. With a new government taking office in August, there is the expectation that SENA's full income will be restored and the hiring and capital investment austerity measures lifted, so that SENA will be able once more to meet the specific training needs of the modern private sector in a flexible manner.

Social Demand

In a developing country with serious social problems, SENA has budgeted about 30% of its total income for meeting rural and urban informal sector training needs. These programs are generally less sophisticated, of shorter length, and less costly than modern sector training per participant. While this training has generally obtained positive results, SENA estimates that it can reach only 10% of the urban population which could benefit from this training and only 30% of the rural population. There are still substantial needs in these areas, but SENA cannot be expected to increase its funding for informal sector training while the needs of the modern private sector are not being met.

There is also a tremendous social demand for training on the part of young people and adults who would like to enroll in SENA. Additional enrollments could be accepted in many areas and allow SENA to make better use of its resources which are not being used to full capacity, but the hiring freeze also prevents the institution from expanding many of its training services.

Further, there is the concern that if SENA responds to the general training demands of the public rather than responding to the specific training needs of employers, the job market could easily become saturated with SENA graduates in many trade areas. Providing additional training opportunities under these circumstances would be hard to justify.

Recommendations

SENA must be allowed to use its income for meeting the more specific and higher technology training needs of the modern private sector of the economy. Meeting social needs for training should continue but within realistic budgetary constraints, so that SENA can fulfill its original mandate for providing training services to the modern private sector. Training young people and adults for jobs which do not exist should be discouraged, and priority should be given to training in areas which show the highest returns on training investments.

FUTURE DIRECTIONS

SENA finds itself now at a critical juncture in its development. SENA was originally established to meet the training needs of the modern private sector of the economy. Over the past decade, increased emphasis has been placed on meeting the needs of the informal sector of the economy as well. While important training needs exist in each area and SENA has demonstrated its ability to provide effective and efficient training, the private sector is concerned that the institution might lose sight of its original mandate.

The private sector is facing training needs in high technology areas that SENA cannot meet. Government austerity measures, including a freeze on hiring and capital investment, have severely hampered SENA's ability to design new training programs for the high technology fields critical to modern economic development. Furthermore, the passage of Law No. 55 has diverted 20% of SENA's income for each of the past two years to other public sector institutions. SENA needs to establish authority over its budget again. With the new administration of President Barco, many observers expect the government to remove the austerity measures and SENA's obligations under Law No. 55.

While the change in administration is expected to bring positive results to SENA financially, it is also expected to result in a change of leadership. The current director, Dr. Alberto Galeano, was closely identified with Betancourt's policies and priorities that moved SENA further in the direction of social action and informal sector training. Observers anticipate that a new National Director of SENA will soon be appointed.

Major internal changes will soon take place at SENA, since half of the staff are approaching retirement age. SENA will have to train significant numbers of new staff and give attention to building the morale and commitment of a whole new generation of personnel.

In conclusion, the team stresses the critical juncture which SENA now faces. Through its shift in level of effort from the modern private sector

to the informal sector, SENA is experiencing a loss of faith from its original long-term supporters. SENA needs to reaffirm its commitment to the modern private sector. If it cannot do so in tangible ways, conflicts between training for the modern private sector and the informal sector, which is politically vocal and strong, will increase, and the two sectors will become further polarized. This polarization would damage SENA's reputation and its ability to serve the best interests of Colombian society.

REFERENCES

- Beckhard, Richard (1975) "Planned Change and Organizational Development," in Organizational Psychology, Kolb, D., Rubin, Irwin, and McIntyre, J.; eds. Englewood, New Jersey: Prentice-Hall.
- Cuervo, Amalia (1985) Employer Based Training in Panama. United States Agency for International Development.
- Drucker, Peter (1974) Management: Tasks, Responsibilities, Practices. New York: Harper and Row.
- Ducci, Maria Angelica (1983) Vocational Training: An Open Way. Montevideo, CINTERFOR, 1983.
- Escobar, Ernesto Parra (1984) Microempresa y Desarrollo. Bogota: El Servicio Nacional de Aprendizaje.
- Farrar, Eleanor, Neufeld, B. and Miles, Matthew (1983) Review of Effective School Programs: Implications for Policy, Practice and Research (Vol. III) Washington: National Institute of Education.
- Galbraith, Jay (1982) "Designing the Innovating Organization" in Organizational Dynamics, Winter, 1982 AMACOM, American Management Association.
- Galeano Ramirez, Alberto (1982) Hacia una Revolucion Educativa. Bogota: SENA.
- Hershback, Dennis (1985) Linking Training and Employment: An Emerging Perspective. Report to Office of Education, Bureau for Science and Technology. Washington: United States Agency for International Development.
- Jimenez, E., Kugler, B. with Horn R. (1986) An Economic Evaluation of a National Job Training System: Colombia's Servicio Nacional de Aprendizaje (SENA). Discussion Paper Education and Training Series Report 24. Washington: The World Bank.
- Kugler, Bernardo and Alvaro, Reyes (1978) "Financing of Technical and Vocational Training in Latin America," in The Financing of Education in Latin America. InterAmerican Development Bank and the Government of Mexico.
- Litwin, George H. (1968) "Climate and Motivation: An Experimental Study" in Organization Climate: Explorations of a Concepts.; Renato Tagiuri and George H. Litwin, eds. Boston: Harvard University.
- Metcalf, David (1985) The Economics of Vocational Training: Past Evidence and Future Considerations. World Bank Study Working Paper No. 713. Washington: The World Bank.

- Pinto, Juan Alfredo and Arango, Juan (1986) La Pequeña y Mediana Industria en Colombia: Situación y Perspectiva. Bogotá: JUNAC-ACOPI Universidad Externado de Colombia.
- Puryear, Jeffrey (1977) Estudio Comparativo de la Formación Profesional en Colombia. Montevideo: El Servicio Nacional de Aprendizaje.
- SENA (1978) 20 Años del SENA en Colombia 1957-1977. Bogotá.
- SENA (1982) 25 Años del SENA: Legislación Sobre el SENA. Bogotá.
- SENA - Holanda (1982) Sistema de Planeación de Recursos Humanos. Bogotá: Ministerio de Trabajo y Seguridad Social Servicio Nacional de Aprendizaje SENA.
- SENA (1984) Education, Formación Profesional y Empleo. Bogotá: Ministerio de Trabajo y Seguridad Social.
- SENA (1984) El SENA en Cifras. Bogotá, Colombia.
- SENA (1984) Plan 1984, Bogotá.
- SENA (1985) Formación Profesional Para La Organización Social y Productiva de la Población Campesina. Oficina de Estudios y Evaluación, Bogotá, Colombia.
- SENA (1985) Banco Popular: Informe Sobre un Caso de Formación en La Empresa. División de Comercio Y Servicios. Bogotá, Colombia.
- SENA (1986) El SENA en Cifras 1982 - 86, Bogotá, Colombia.
- SENA (1986) Plan 1986, Bogotá.
- SENA (1986) Normas: Unidad Técnica, Bogotá.
- SENA (1986) Proyecto Metalmeccánico, Bogotá.
- SENA (1986) Proyecto Químico Industrial, Bogotá.
- van Steenwyk, Ned (1982) Effective Demand Survey for the Workforce Productivity Project. Panama: United States Agency for International Development.
- _____ (1984) Vocational Education in Honduras. Tegucigalpa, USAID.
- Zymmelman, Manuel (1978). The Economic Evaluation of Vocational Programs. World Bank Staff Occasional Paper No. 21. Washington: The World Bank.

Appendix I

**ISSUES OF INTEREST TO USAID/LAC
MISSIONS AND TEAM'S RESPONSE**

AID/CHECCHI ANALYSIS OF SENA

BOGOTA 03192 - CIRCULAR CABLE TO ALL LAC USAID MISSIONS - SENT
OCTOBER 24, 1985

SUBJECT: ANALYSIS OF VOCATIONAL TRAINING INSTITUTE - SENA
REQUEST FOR INDICATION OF AREAS OF INTEREST

RESPONSES RECEIVED FROM THE FOLLOWING MISSIONS:

BRASILIA 10/30/85	No particular Interest but would Appreciate receiving a copy of final report.
KINGSTON 11/01/85	Linkages with support of private sector, Manpower Requirements - Flexibility of Curricula and Competence - Occupational Guidance and Counseling Programs - Placement Procedures for SENA Graduates
QUITO 11/05/85	Involving Private Enterprise Employers in Training Process - Curriculum Develop- ment and Training level - Methodologies - Instructional Support Systems.
BRIDGETOWN 11/06/85	Sources of Funding for SENA Activities Mechanisms for Obtaining Such Funding
TEGUCIGALPA 11/07/85	Design and Methodology of follow-up Studies of Graduates - Comparison of SENA's Training Costs and Degrees of Cost effectiveness including: Student/Hour of Instruction Cost Number of Participants Trained Annually Number of Student/Hours of Instruction Number of Instructors Retention and Job Placement Rates Trainee Selection Criteria Total Budget and Estimates by Trade Area Total number of Administrative and support personnel
PANAMA 11/08/85	SENA's relationship with Private Sector Services provided to Private Sector Training Services Offered to New Firms and to Foreign Firms to improve productivity.

SANTO DOMINGO
11/20/85

Modi Operandi in: Determination of Areas
in Labor Market where there is demand for
trained personnel - Methods used to update
manpower requirements - Free and/or
industrial trade zones and linkages used.
Placement Mechanisms

LIMA
11/21/85

Means or instruments used to remain responsive
to client employers and how to avoid inter-
ference from Politicians and Bureaucratization
How to determine private sector needs and
standards of specialization
Curriculum Design - Job Placement.

SALVADOR
11/27/85

How does SENA Graduates Compare to Rest of
labor force - How is SENA Financed -
Methodologies - Linkages with Private
Sector - SENA's Role in Analyzing manpower
requirements - Flexibility of Curricula in
in relation to market's changing demand.

All of above Missions are very much interested in receiving a copy of
the completed report.

0446

SPECIAL AREAS OF INTEREST FOR USAID MISSIONS IN LATIN
AMERICA AND THE CARIBBEAN

Determination of Demand for Trained Personnel

SENA completed a major follow-up study of graduates (23,000 interviews) in 1983, with cross references to other statistical data for projecting demands and for preparing SENA's 1983-1987 Work Plan. The institution also conducts studies in occupational clusters which include interviews, on-site observations, and trade advisory committee guidance. Two major occupational cluster studies for metal mechanics and industrial chemistry are near completion and will also be used for planning training programs.

Trade advisory committees for SENA's 76 training centers and private sector representatives on the National and Regional Boards of Directors also provide orientation for training priorities.

Other nations and training institutions might find that more frequent (representative) follow-up studies involving the instructors who conduct the training, the cross referencing of labor statistical data with these studies, and trade advisory committees could provide more rapid and cost-effective guidance for determining training needs.

Methods for Updating Manpower Requirements

(Same as above). Tracking new social security enrollments and noting increases in high growth areas, with follow-up studies of graduates and cross referencing with labor

statistic data, and trade advisory committees would probably be more efficient than traditional manpower projections.

Placement Mechanisms

SENA has no formal placement mechanisms but employers regularly contact the institution for skilled workers. SENA provides lists of trainees and advises graduates of openings. The latest major follow-up study (1983) concluded that SENA has had average job placement rates of 35%. Job placement levels, however, may be slightly lower for 1986 because of the nation's economic problems, open unemployment which has increased to 15%, and the failure to conduct additional follow-up studies on graduates after 1983.

Relationships with the Private Sector

The institution was originally formed to provide technical training for employees and future employees from the private sector. Since 1957 when the institution was founded, private sector control of the institution has diminished. The private sector, however, still has four representatives on SENA's National and Regional Boards of Directors and serves on trade advisory committees for SENA's training centers.

SENA's Direct Services for the Private Sector

In-plant training and technical assistance are provided, and SENA apprentices are employed in businesses with more than 20 employees.

Training Services for New Firms and Foreign Firms in Export Industries/SENA's Linkages with Industrial Trade Zones

In addition to in-plant training and technical assistance for firms with less than 150 employees, SENA can sign contracts with larger firms for the specific training or

technical assistance required. Most multi-national companies, however, have their own training materials and SENA only trains company employees as instructors in most cases.

Instruction in SENA's training centers provides a manpower base which firms in trade zones can draw upon. Industries in trade zones, particularly apparel industries, have also received training programs from SENA.

Programs to Improve Productivity

SENA provides in-plant diagnoses of problems and training needs, with subsequent training in supervision, quality control, personnel management, industrial relations and technical areas. Technical assistance in these and other areas are also provided on an in-plant basis.

How do SENA Graduates Compare with the Rest of the Labor Force/Comparative Productivity of SENA and non-SENA Workers

Surveys have shown that most employers prefer to hire SENA graduates rather than workers without SENA training. A significant number of SENA graduates from various trade areas also receive higher salaries than non-SENA graduates.

Studies have also determined that the average return on SENA training has been 14%, and up to 29% for trainees with at least 600 hours of instruction.

Selection of Trainees

Several years of high school are usually required for apprenticeships and other modern sector training programs. In-plant training responds to the training needs of employees, and PPPU, PPPR, and correspondence courses are open to almost anyone.

SENA Financing

SENA is financed by a 2% payroll tax all private sector employers, state owned businesses, and semi-autonomous institutions. The central government, regional and municipal governments pay a 0.5% payroll tax.

Could the Payroll Tax Result in Lower Wages and Higher Unemployment than in its Absence?

The 2% tax is generally passed on to the consumer, as a consequence the tax's effect on wages is probably minimal. There is no evidence to suggest that the tax has resulted in higher rates of unemployment, but a substantial number of informal sector businesses do not pay the tax and bringing marginal businesses, which are not currently paying this tax or many other taxes, could reduce the net income of these small businesses by up to 50% and have a negative effect on employment.

Might a Similar Subsidy (In Place of the 2% Tax) for Subsidizing On-the-Job Training of Apprentice Programs be More Effective?

Some national training systems do offer payroll tax deductions for employer initiated training, but there have been abuses on the part of employers and the monitoring of the system has been difficult and expensive.

Employers of SENa apprentices do receive a form of compensation for employing an apprentice, wages for apprentices are only 50% of the normal wage for the position.

Flexibility of Curricula and Competency Based Curriculum for Responding to the Market's Changing Demand for Skilled Manpower

Curricula are not particularly flexible but are organized in modules to allow trainees or companies to use only the modules which are required to meet a firm's training needs.

Competency based instruction is included in SENA's PIM curricular methodology but the defining of performance objectives and occupational tasks is not as specific as tasks defined by V-TECS or other U.S. competency based materials.

How has SENA Avoided Interference from Politicians and Bureaucrats?

As a public sector institution with nearly 3,000 employees and an annual budget of over \$100,000,000 it has been difficult for the institution to avoid this type of interference. Since 1976 SENA has become increasingly subject to political influences but internal regulations, traditions, and the decentralized administration give SENA a higher degree of autonomy than most public institutions.

Program Planning on the Local Level

Planning is done by 19 Regional Offices with Regional Boards of Directors who are to approve the Regional work plan and budget. These plans and budgets, however, are subject to the National Director and the National Board of Directors and must be in line with SENA's national policies.

Unique Features which could be Used for Improving Training Systems in other Nations

Decentralized administration, apprenticeships, relatively high private sector involvement in Boards of Directors and trade advisory committees, follow-up studies of graduates, and curricular strategies (PIM).

Total Budget and Breakdowns by Trade Area

\$107,000,000 for 1986, see Table 2 for further details.

Participant Hour of Instruction Costs

\$1.72 average; \$1.52 for agricultural instruction, \$1.85 for industrial sector training, and \$1.82 for commerce/services.

Numbers of Administrative and Support Personnel

SENA has a total of 7,891 employees; 4,529 instructors and in-plant trainers/technical advisors. The remaining 3,191 are administrative and support personnel (ratio of 1 administrative/support to 1.4 instructors).

Retention and Job Placement Rates

10.5% annual retention/completion rates, and an average job placement rate of 85% (see Table 6 for further details).

Appendix II

RESPONSIBILITIES OF SENA OFFICES

Responsibilities of SENA Offices

Sub-Director for Administration

The Sub-Director for Administration manages six Divisions which provides administrative services for the National Office and technical assistance for the 19 Regional Offices.

1. The Division of Construction and Maintenance provides technical assistance in maintenance, construction, and building design for Regional Offices.
2. The Division of Industrial Relations (Personnel) establishes national hiring guidelines, contracting procedures, and provides a series of examinations which are used on the Regional level for contracting personnel.
3. The Division of Social Welfare manages a medical program for the dependents of employees from the National Office, sponsors and coordinates sports and cultural activities for the dependents and employees of the National Office, and manages a housing program for SENA employees on the National and Regional level.
4. The Division of Finances executes the budget for the National Office and coordinates Regional budgets, collects Regional contributions to the National Office, and distributes subsidies to Regional Offices.
5. The Division of Commerce provides purchasing, printing, and inventory services for the National Office and assistance in these same areas for the Regional Offices when it is warranted (large purchases of equipment which several Regional Offices will require).
6. The Division of Contributions assures that contributions from the private and public sectors are paid to SENA's Regional Offices and provides assistance for making collections.

Sub-Director for Planning:

The Sub-Director for Planning manages the Divisions of Planning, Studies and Evaluations, and Systems.

1. The Division of Studies and Evaluations conducts follow-up studies on graduates, investigating the value and relevance of the training provided, recording employment rates and evaluating training programs on the basis of costs and benefits.
2. Information from the Division of Studies and Evaluations is processed and stored by the Division of Systems which is computerized for storing, processing, and retrieving information on students, graduates, etcetera.

The computer system is interactive, allowing SENA to use stored data for evaluating training program impact, costs and benefits, and identifying alternatives and resources for planning and policy making. The division also provides computer services for other offices.

3. The Division of Planning prepares SENA's annual plans based on the information gathered by the Division of Studies and Evaluations.

Sub-Director for Technical-Pedagogical Affairs

The Sub-Director for Technical-Pedagogical Affairs manages the three Divisions (Agricultural, Industry, and Commerce-Services) which establish norms and guidelines for curriculum development, instructor training, and assure that training is in harmony with the needs and priorities of the modern sector of the economy.

The Coordinating Unit for Ethical and Integrated Formation is responsible for guiding and coordinating instruction in ethics and social areas.

Sub-Director for Social Policy

The Sub-Director for Social Policy manages three Divisions which provide training and technical assistance for the informal sector of the economy.

1. The Division of Popular Professional Rural Promotion (PPPR) establishes norms and provides guidance for the Regional Centers in regard to training strategies, extension services, and technical assistance in agriculture and entrepreneurial skills for rural areas.

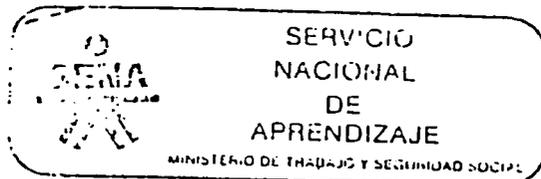
2. The Division of Popular Professional Urban Promotion establishes norms and provides guidelines for the Regional Centers for providing training, extension services, and technical assistance for the urban, informal sector of the economy.

3. The Division of Open-Extension Training establishes norms and guidelines for Regionally executed correspondence courses.

Appendix III

SENA JOB ANNOUNCEMENT

Best Available Document



CONVOCATORIA A CONCURSO DE PERSONAL

Nº 09
FECHA 18 de Abril de 1986
REGIONAL: Bogotá y Cundinamarca

CARACTERISTICAS DEL CARGO			
VACANTES UNA	DENOMINACIÓN PROFESIONAL ASESOR	GRUPO 36	PERIODO DE PRUEBA 18 meses
DEPENDENCIA Dpto. Recursos Didácticos		SITIO DE TRABAJO BOGOTA	

- ### FUNCIONES Y OBSERVACIONES
1. Dirigir, coordinar y controlar la reproducción de medios audiovisuales de acuerdo a la programación previamente establecida.
 2. Elaborar programa para la reproducción de medios audiovisuales, teniendo en cuenta demanda y necesidades de los Centros.
 3. Planear, organizar y controlar el trabajo del personal a su cargo.
 4. Atender solicitudes de préstamos de material audiovisual de otras dependencias teniendo en cuenta la programación de cursos de las diferentes regionales, centros y/o programas de Formación Profesional.
 5. Participar en el comité de producción con los conceptos técnicos de su área para la planeación y desarrollo de programas de medios audiovisuales.
 6. Solicitar oportunamente los materiales accesorios y equipos necesarios para la producción de fotografías e imágenes cinematográficas.
 7. Responder por el inventario de elementos a su cargo y controlar el mantenimiento preventivo de los mismos.
 8. Rendir informes periódicos al superior inmediato sobre el desarrollo de sus funciones.
 9. Coordinar con laboratorios el revelado de películas fotográficas o cinematográficas.
- Las solicitudes de traslado se estudiarán hasta el día 13 de Mayo de 1986.

CARACTERISTICAS DEL CONCURSO			
OBJETIVO PROVEER ANTE <input checked="" type="checkbox"/>	CONFORMAR LISTA DE ELEGIBLES <input checked="" type="checkbox"/>	PARTICIPAR EN CURSO DE BUCARNO <input type="checkbox"/>	
CLASE DE CONCURSO INTERNO <input checked="" type="checkbox"/> EXTERNO (Vinculación) <input type="checkbox"/>	COBERTURA REGIONAL <input type="checkbox"/> NACIONAL <input checked="" type="checkbox"/>		LUGAR DONDE SE REALIZARA BOGOTA
INSCRIPCIONES del 20 de Abril 1986 AL 13 de Mayo 1986		DIRECCIÓN Cra. 13 65-10 Pisos 13	
COMUNICACION RESULTADOS DE INSCRIPCION 16 de Mayo 1986		PERIODO DE PRUEBA -----MESES	

INSTRUMENTOS DE SELECCION				
(El porcentaje mínimo requerido para aprobar un concurso será del 50%)				
NOMBRE	FECHA DE APLICACION	CAHACTER	GRUPO APLICACION	PERCENTAJE
Análisis Antecedentes	14-15 Mayo	Clasificatorio		15%
Evaluación Actitudes	27 de Mayo	Sumatorio		30%
Evaluación Teórica	29 de Mayo	Eliminatorio	30/100	40%
Entrevista	10 de Junio	Sumatorio		15%

REQUISITOS MINIMOS	
ESTUDIOS	EXPERIENCIA
Grado Universitario en COMUNICACION SOCIAL y cursos de especialización en fotografía, cine, sonido y televisión.	Doce (12) meses en labores relacionadas con la producción de medios audiovisuales.

[Firmas y sellos de autoridades]

Nydia Carrero de Navarrete
Dpto. Relaciones Institucionales

Rodrigo Páez de Arango
Jefe Grupo Personal

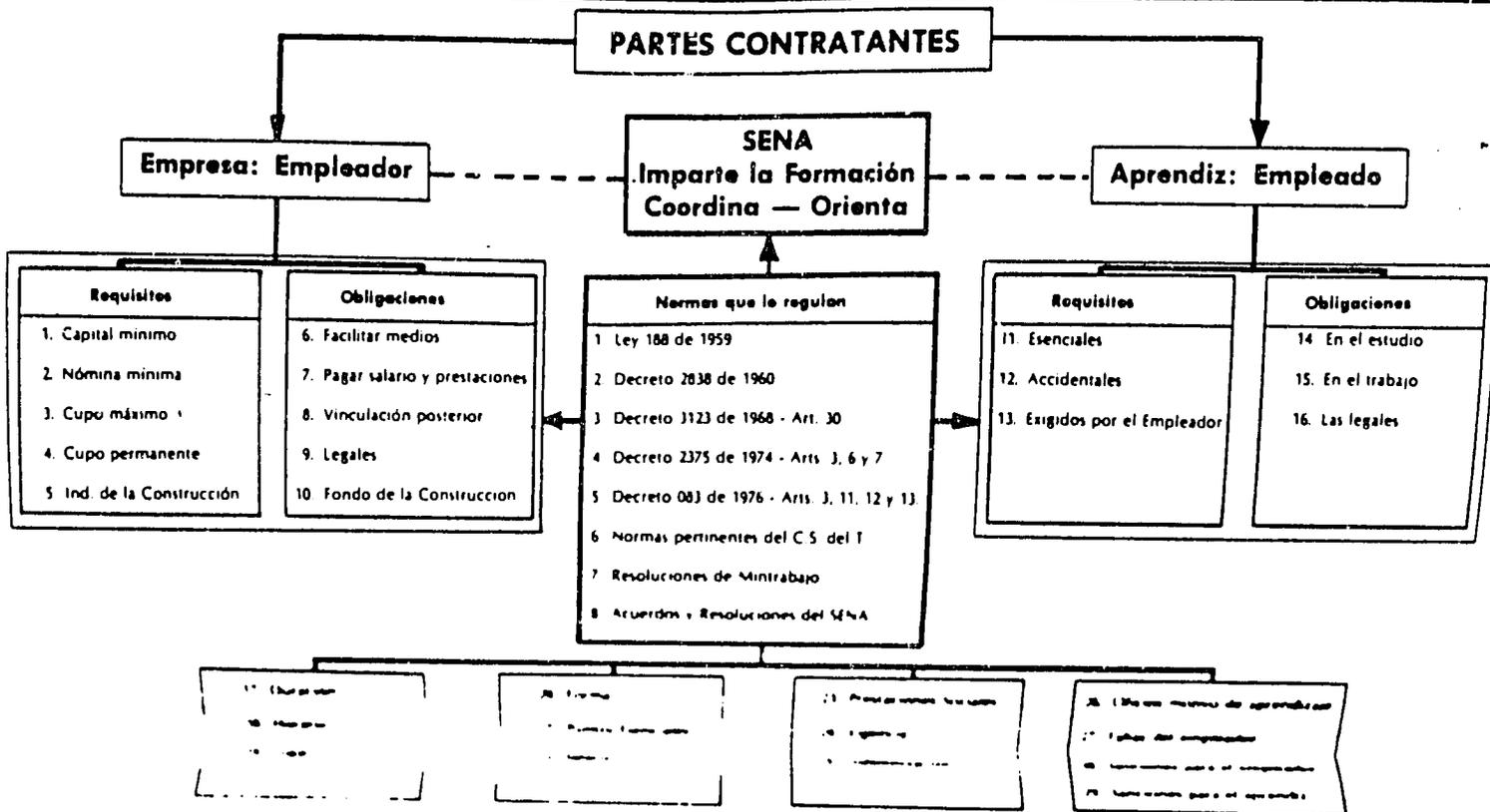
Appendix IV

SENA APPRENTICE CONTRACT

EL CONTRATO DE APRENDIZAJE

QUE ES? Es un contrato de trabajo con una modalidad especial, a saber: La Formación Profesional metódica y completa del aprendiz en un oficio determinado.

OBJETO: Formación de trabajadores aptos en ocupaciones calificadas, para cubrir las necesidades inmediatas o futuras de mano de obra, ocasionadas por retiros, traslados, pensiones, etc. de trabajadores o por expansión territorial o aumento en la producción de las mismas empresas.



1. Tener \$ 100.000 no o más de capital.
2. Tener 20 o más trabajadores permanentes.
3. El número de aprendices no puede exceder de 5% del personal de trabajadores de la empresa.
4. El cupo fijado mediante resolución expedida por el SENA, es permanente.
5. El empleador de esta industria no está obligado a contratar aprendices. En su lugar debe aportar al Fondo de la Construcción creado con ese fin.
6. Facilitar el aprendiz todos los medios para que reciba formación profesional metódica y completa.
7. Pagarle el salario pactado en las etapas lectivas y productivas del contrato.
8. Preferir al aprendiz para llenar las vacantes que se le presenten, cuando termine su aprendizaje.
9. Todas las del Código del Trabajo, de la Convención o del Laudo Arbitral.
10. Es manejado por el SENA. El constructor debe aportar un salario mínimo por cada 40 trabajadores, o proporcionalmente por fracción de 40.
11. Ser mayor de 14 años y tener una formación primaria completa o equivalente.
12. Formación hasta 40, o 60 de Bto. (en oficios de comercio) y no ser mayor de 21 años, según Reglamentos del SENA.
13. Para vincular su personal (exámenes médico, psicotécnico, documentos, etc.)
14. Cumplir las normas del SENA y procurar el mayor rendimiento en sus estudios.
15. Cumplir las obligaciones contraídas con la Empresa (horarios, reglamentos, etc.)
16. Las demás del C.S.T. (el respectivo contrato, reglamento de trabajo, artículos 58 y 60 del C.S.T.).
17. Hasta tres (3) años. Si se pacta por tiempo superior, el excedente se rige por las normas generales del contrato de trabajo.
18. Tiempo completo salvo las restricciones del C.S.T. (edad, trabajo nocturno, trabajos peligrosos, etc.).
19. En los respectivos Centros del SENA (Etapa Lectiva) y en la Empresa (Etapa Productiva) en periodos alternos, sucesivos e iguales.
20. Por escrito. En caso contrario, se regulará por las normas del contrato ordinario de trabajo.
21. Debe contener: los nombres de las partes; edad y datos personales del aprendiz; oficio, programa y duración del contrato; obligaciones y derechos de las partes; salario y escala de aumentos; condiciones, horarios, vacaciones y etapas; indemnización (cláusula penal); firmas de las partes o sus representantes.
22. a) El inicial no puede ser inferior al 50% del mínimo convencional o del establecido en la empresa para el mismo o equivalente oficio.
b) Aumentos progresivos hasta llegar en la última etapa, cuando menos, al mínimo convencional o el del respectivo oficio.
c) Respetando dichos mínimos, la empresa puede pagar al aprendiz el salario que crea conveniente.
23. Todas las legales y convencionales.
24. INICIACION: cuando el aprendiz empieza la formación profesional en el SENA (Etapa Lectiva).
PERIODO DE PRUEBA: los tres (3) primeros meses del contrato.
25. En caso de incumplimiento del contrato por una de las partes, ésta pagará a la otra la indemnización expresamente pactada. Si no se ha pactado, se aplicará la indemnización de los contratos de trabajo a término fijo.
26. Los incluidos en las listas publicadas periódicamente por Mintrabajo, con base en las recomendaciones técnicas dadas por el SENA (se han expedido hasta la fecha 13 Resoluciones).
27. a) No pago del Subsidio Familiar, los aportes al SENA, ni las cuotas destinadas al Fondo de la Construcción.
b) La no contratación de los aprendices asignados por el SENA, ni el pago de sus salarios.
28. a) Multas de \$ 5.000,00 a \$ 10.000,00 impuestas por Mintrabajo.
b) No expedición del Paz y Salvo por parte del SENA.
29. a) La indemnización indicada en el No. 25, si se pactó.
b) La terminación del contrato con justa causa por parte del Empleador.
c) La cancelación de la matrícula por parte del SENA.

Bogotá, agosto de 1980

Appendix V

APPRENTICESHIP PROGRAMS AND REQUIREMENTS

**CONTRATO DE APRENDIZAJE
MODELO DE CONTRATO UTILIZADO POR EL SENA
REGIONAL BOGOTA**

EL EMPLEADOR Nit.
REPRESENTANTE LEGAL
CARGO C.C.
EL APRENDIZ
de años de edad, identificado como aparece al pie de la firma.

CLAUSULAS

PRIMERA: Normas Aplicables. Ley 188 de 1959, Decreto 2838 de 1960, Decreto 3123 de 1968, Decreto 2375 de 1974, Decreto 083 de 1976, Reglamento del SENA para los Trabajadores-Alumnos, Reglamento Interno de Trabajo de la correspondiente Empresa y las Normas pertinentes del Código Sustantivo del Trabajo.

SEGUNDA: Naturaleza del Trabajo. Aprendiz de de acuerdo con la Formación que en tal oficio imparte el SENA y la aplicabilidad que el mismo tiene en la Empresa.

TERCERA: Duración, Etapas y Remuneración Mínima. El Aprendizaje tiene años de duración comprendidos entre el fecha de iniciación del curso y el fecha de terminación del mismo, tiempo que se encuentra distribuido en período (s) Lectivo (s) y período (s) Productivo (s), alternados, durante los cuales la Empresa pagará al Aprendiz, como mínimo, los porcentajes del salario mínimo a continuación anotados:

- 1ª Etapa Lectiva de 12 meses en el SENA con el 50%
- 1ª Etapa Productiva de 6 meses en la Empresa con el 65%
- 2ª Etapa Lectiva de 6 meses en el SENA con el 65%
- 2ª Etapa Productiva de 12 meses en la Empresa con el 100%

PARAGRAFO. "El salario inicial de los aprendices no podrá ser en ningún caso inferior al cincuenta por ciento (50%) del mínimo convencional o de que rija en la respectiva Empresa para los Trabajadores que desempeñen el mismo oficio u otros equivalentes o asimilables a aquel para el cual el aprendiz recibe formación profesional en el Servicio Nacional de Aprendizaje SENA.

Esta remuneración deberá aumentarse proporcionalmente hasta llegar a ser, al comenzar la última etapa productiva del Aprendizaje, por lo menos igual al total del salario que el inciso anterior señala como referencia".

Los períodos de pago serán los que el Reglamento interno de la Empresa fije para tal efecto.

PARAGRAFO 2. El presente Contrato rige a partir del y terminará el No obstante el Empleador podrá darlo por terminado antes, conforme a la Ley, o cuando el SENA, habido consideración del comportamiento del Aprendiz y del rendimiento en sus estudios o en sus prácticas, considere conveniente su terminación de acuerdo con el Reglamento existente para los Trabajadores-Alumnos.

CUARTA. El Empleador pagará al Aprendiz los salarios y todas las prestaciones sociales que le corresponden legalmente en su calidad de Trabajador, a partir de la fecha en que se inicia el presente Contrato.

PARAGRAFO 1. El Empleador reconocerá al Aprendiz, tanto en las Etapas Lectivas como en las Productivas, el **Auxilio de Transporte** consagrado por la Ley, si a él tiene derecho, cuando ni el SENA ni la Empresa presten directamente este servicio.

PARAGRAFO 2. El Empleador deberá cumplir con la obligación legal de afiliar al Aprendiz al Instituto Colombiano de Seguros Sociales (ICSS) desde el momento de vigencia del presente Contrato, o cubrir satisfactoriamente los riesgos asumidos por esa Entidad, cuando el Aprendiz lo necesite, si en la localidad no funcionan dependencias del I.C.S.S.

PARAGRAFO 3. El Empleador dará al Aprendiz las **vacaciones** que establece la Ley para todos los trabajadores, sin afectar el tiempo de Etapas a realizar dentro del SENA, y además, en las Etapas productivas, le concederá un permiso remunerado el último sábado de cada mes, en horas de la mañana, para que concurra al Centro respectivo a las reuniones programadas por el SENA para los Trabajadores-Alumnos, como parte de su formación.

QUINTA: Período de Prueba. Los tres (3) primeros meses del presente Contrato se considerarán como período de prueba, durante el cual se apreciarán por el Empleador y el SENA, de una parte, la adaptabilidad, el rendimiento en sus estudios y el comportamiento del Aprendiz, lo mismo que sus aptitudes y cualidades para el oficio; y de otra parte, la conveniencia para el Trabajador-Alumno de continuar el Aprendizaje.

PARAGRAFO. Este Contrato de acuerdo con el Artículo 9º de la Ley 188 de 1959 no podrá tener una duración mayor de tres (3) años. El tiempo que exceda este término se regirá por las normas del Contrato Ordinario de Trabajo contenidas en el Código Sustantivo del Trabajo.

SEXTA: Jornadas de Trabajo y de Estudio. La jornada de trabajo del Aprendiz durante las Etapas Productivas será la establecida en el Código del Trabajo según su edad y la labor a realizar, en concordancia con el horario de trabajo existente en la respectiva Empresa. Durante las Etapas Lectivas se aplicará el horario que cada Centro del SENA tiene establecido para los Trabajadores-Alumnos.

SEPTIMA: Obligaciones del Empleador. Son obligaciones especiales del Empleador, además de las estipuladas en el Código Sustantivo del Trabajo y en el Reglamento Interno de Trabajo de la Empresa en concordancia con el respectivo Reglamento de Alumnos del SENA, las siguientes: a) Facilitar todos los medios al Aprendiz para que, tanto en las Etapas Lectivas en el SENA como en las Productivas en la Empresa, reciba Formación Profesional metódica y completa en el oficio materia del presente Contrato. b) Pagar al Aprendiz, como mínimo, los salarios pactados en la Cláusula Tercera de este Contrato y las prestaciones sociales, legales y extralegales que le correspondan como trabajador, tanto en las Etapas Lectivas como en las Productivas. c) Cumplido satisfactoriamente el Aprendizaje, preferir al Aprendiz ante cualquier otro aspirante para vincularlo definitivamente a la Empresa; en el respectivo oficio. d) Reemplazar al Aprendiz por otro cuando el presente Contrato termine por cualquier causa.

OCTAVA: Obligaciones del Aprendiz. El Aprendiz, además de las obligaciones establecidas en el Código Sustantivo del Trabajo, en el Reglamento Interno de Trabajo de la Empresa y en el Reglamento de Alumnos del SENA, tendrá principalmente las siguientes: a) Concurrir puntualmente a las clases durante las Etapas Lectivas para así recibir la Formación Profesional a que se refiere el presente Contrato, someterse a los Reglamentos y normas establecidas por el respectivo Centro de Aprendizaje del SENA y poner toda diligencia y aplicación para lograr el mayor rendimiento en sus estudios. b) Concurrir puntualmente al lugar de trabajo y prestar sus servicios al empleador durante las Etapas o Períodos Productivos, desempeñando dentro de la Empresa el trabajo correspondiente a la especialidad de su Aprendizaje y someterse a los Reglamentos Internos de éste. c) Preferir, al terminar el Aprendizaje, su vinculación definitiva con el Empleador que en la fecha lo contrata.

PARAGRAFO. El Empleador podrá dar por terminado con justa causa el Contrato, cuando, además de los casos establecidos en la Ley y en el presente Contrato, existan razones valederas para ello desde el punto de vista docente o disciplinario, previo estudio del caso en asocio con el SENA, o cuando esta Entidad lo considere conveniente por existir justa causa para tal determinación.

NOVENA. El Empleador tendrá derecho a visitar al Aprendiz en el respectivo Centro del SENA, y el SENA el de supervisar al Aprendiz en la Empresa para que sus labores en las Etapas Productivas correspondan al programa de la Especialidad para la cual fue contratado y en la cual está recibiendo Formación.

Appendix VI

MAJOR AREAS OF TRAINING FOR INDUSTRIAL CHEMISTRY

OFICIOS MOTIVO DE APRENDIZAJE

1. APROBACION DE OFICIOS MOTIVO DE APRENDIZAJE

* 4221 D.L. 2838/60, Art. 4o. El Consejo Directivo Nacional del Ser-

vicio Nacional de Aprendizaje podrá solicitar al Ministerio de Trabajo modificaciones o revisiones de las listas de oficios u ocupaciones sujetos al Aprendizaje, y de la duración de los respectivos contratos.

* 4222

OFICIOS MOTIVO DE APRENDIZAJE (SECTOR AGROPECUARIO)

No.	OFICIO	APROBACION		Duración Años	NIVEL DE INGRESO		MESES ETAPAS		OBSERVACIONES
		Res. Mintrabajo	Acuerdo		Mínimo	Desado	Lectiva	Productiva	
1	Patrón de Pesca Auxiliar	1952/71	39/71	2	5o. Prim.	1o. Bto.	1a. : 12	1a. : 12	Denominación adoptada por Res. Mintrabajo 02173/74 y Ac. 11/74
2	Trabajador Agropecuario Calificado (Caja Agraria)	2329/72	69/72	2	6o. Bto.		1a. : 12	1a. : 12	
3	Trabajadora Calificada en Especies Menores y Artesanías Caseras	1878/72	28/72						
4	Trabajador Calificado en Agricultura.	1952/71	39/71	2	3o. Prim.	5o. Prim.	1a. : 12	1a. : 12	
5	Trabajador Calificado en Ganadería	1952/71	39/71	2	3o. Prim.	5o. Prim.	1a. : 12	1a. : 12	
6	Trabajador Calificado en Especies Menores	1952/71	39/71	2	3o. Prim.	5o. Prim.	1a. : 12	1a. : 12	
7	Trabajador de Agricultura Mecanizada.	1952/71	39/71	3	5o. Prim.	1o. Bto.	1a. : 12 2a. : 6	1a. : 16 2a. : 12	Por Acuerdo 98/76, se reduce a un año la etapa Lectiva.
8	Trabajador Calificado en Industria Animal.	1952/71	39/71	3	5o. Prim.	1o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	Por Acuerdo 98/76, se reduce a un año la Etapa Lectiva.
9	Trabajador Calificado en Zona Cafetera	1952/71	39/71	3	5o. Prim.	1o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	Por Acuerdo 98/76, se reduce a un año la Etapa Lectiva.
10	Parcelero Calificado.	1952/71	39/71	2	3o. Bto.	5o. Prim.	1a. : 12	1a. : 12	
11	Tractorista Calificado.	1952/71	39/71	2	5o. Prim.	1o. Bto.	1a. : 12	1a. : 12	

2. OFICIOS MOTIVO DE APRENDIZAJE
(SECTOR AGROPECUARIO)

No.	OFICIO	APROBACION		Duración Años	NIVEL DE INGRESO		MESES ETAPAS		OBSERVACIONES
		Res. Mintrab.	Acuerdo		Mínimo	Desiredo	Lectiva	Productiva	
12	Reparador de Maquinaria Agrícola	1952/71	33/71	3	5o. Prim.	1o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	Por Ac. 98/76 se reduce a un año la Etapa Lectiva
13	Mecánico Rural.	1952/71	39/71	3	5o. Prim.	1o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	Por Ac. 98/76, se reduce a un año la Etapa Lectiva.
14	Carpintero Naval.	1952/71	39/71	3	5o. Prim.	1o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	Por Ac. 98/76, se reduce a un año la Etapa Lectiva.
15	Trabajador Calificado en el Cultivo Comercial de Hortalizas.		28/75	2	5o. Prim.		1a. : 12	1a. : 12	
16	Trabajador Calificado en el Cultivo Industrial de Flores de Corte		28/75	2	5o. Prim.		1a. : 12	1a. : 12	
17	Mecánica Naval.		28/75	3	1o. Bto.		1a. : 18	1a. : 18	Por Ac. 98/76, se reduce a un año la Etapa
18	Trabajador Calificado en Refrigeración Pesquera		28/75	3	2o. Bto.		1a. : 18	1a. : 18	Por Ac. 98/76, se reduce a un año la Etapa Lectiva
	* Aprobado por Ac.								

* 4223

OFICIOS MOTIVO DE APRENDIZAJE (SECTOR INDUSTRIAL)

No.	OFICIO	APROBACION		Duración Años	NIVEL DE INGRESO		MESES ETAPAS		OBSERVACIONES
		Res. Mintrab.	Acuerdo		Mínimo	Desiredo	Lectiva	Productiva	
1	Ajustador de Troqueles.	02166/74	38/74	3	4o. Bto.		1a. : 12 2a. : 12	1a. : 6 2a. : 6	
2	Instrumentista Industrial.	02655/71	84 815/71	2	4o. Bto.		1a. : 12	1a. : 12	Denominación adoptada por Res. Mintrabajo 01960/74 y Ac. 27/74
3	Modelista de Calzado.	04218/73	100/73	3	1o. Bto.		1a. : 12 2a. : 6	1a. : 6 2a. : 12	
4	Montador Terminador de Planta.	04218/73	100/73	3	4o. Bto.		1a. : 12 2a. : 6	1a. : 6 2a. : 12	
5	Trabajador Calificado de Explotación de Minas.	03665/73	88/72	2	5o. Prim. o Equival.		1a. : 12	1a. : 6	
6	Instalador Reparador de Redes Telefónicas.	00324/73	113/72	3	2o. Bto.		1a. : 12 2a. : 6	1a. : 6 2a. : 12	
7	Mecánico de Aeronaves.	02329/72	75/72	3	4o. Bto.		1a. : 12 2a. : 6	1a. : 6 2a. : 12	
8	Electricista de Aeronaves.	02329/72	75/72	3	4o. Bto.		1a. : 12 2a. : 6	1a. : 6 2a. : 12	
9	Electrónico de Aeronaves.	02329/72	75/72	3	4o. Bto.		1a. : 12 2a. : 6	1a. : 6 2a. : 12	
10	Mecánico de Planta.	02329/72	75/72	3	4o. Bto.		1a. : 12 2a. : 6	1a. : 6 2a. : 12	
11	Operador de Motores Marinos	01976/72	39/71	2	1o. Bto. *	2o. Bto. *	1a. : 12	1a. : 12	

* La edad fue cambiada desde 16 hasta 25 años, por el Acuerdo 3 de 1981

3. OFICIOS MOTIVO DE APRENDIZAJE (SECTOR INDUSTRIAL)

No.	OFICIO	APROBACION		Duración Años	NIVEL DE INGRESO		MESES ETAPAS		OBSERVACIONES
		Res. Mínimo	Acuerdo		Mínimo	Desado	Lectivo	Productivo	
12	Dibujante de Artes Gráficas.	01976/72	38/71	3	2a. Bto.	2a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
13	Mecánico de Mantenimiento de Artes Gráficas.	01976/72	38/71	3	2a. Bto.	3a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
14	Confeccionista Industrial.	00380/72	1/72	2	6a. Prim.		1a. : 12	1a. : 12	
15	Ebanista.	00380/72	1/72	2	1a. Bto.		1a. : 12	1a. : 12	
16	Mecánico de Máquinas de Confección Industrial.	00380/72	1/72	2	1a. Bto.		1a. : 12	1a. : 12	
17	Operador de Planta de Refinación.	02655/71	84 BIS/71	2	4a. Bto.		1a. : 12	1a. : 12	
18	Laboratorista Químico de Refinación.	02655/71	84 BIS/71	2	4a. Bto.		1a. : 12	1a. : 12	
19	Mecánico de Mantenimiento de Plantas Retroquímicas.	03655/71	84 BIS/71	3			1a. : 12 2a. : 6	1a. : 6 2a. : 12	
20	Operador de Máquinas Herramientas.	1952/71	39/71	3	1a. Bto.	2a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
21	Mecánica de Mantenimiento.	1952/71	39/71	3	1a. Bto.	2a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
22	Trabajador en Lámina (Chapistería).	1952/71	39/71	3	1a. Bto.	2a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	

No.	OFICIO	APROBACION		Duración Años	NIVEL DE INGRESO		MESES ETAPAS		OBSERVACIONES
		Res. Mínimo	Acuerdo		Mínimo	Desado	Lectivo	Productivo	
23	Soldador de Soplete y Arco	1952/71	39/71	2	1a. Bto.	2a. Bto.	1a. : 12	1a. : 12	
24	Mecánico de Refrigeración y Climatización.	1952/71	39/71	2	1a. Bto.	2a. Bto.	1a. : 12	1a. : 12	
25	Mecánico de Talleres.	1952/71	39/71	3	1a. Bto.	2a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
26	Mecánico de Máquinas de Tejido de Punto.	1952/71	39/71	3	1a. Bto.	2a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
27	Moldeador de Fundición	1952/71	39/71	3	1a. Bto.	2a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
28	Modelista de Fundición.	1952/71	39/71	3	3a. Bto.	4a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
29	Mecánico Reparador de Automotores.	1952/71	39/71	3	1a. Bto.	2a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
30	Reparador de Motores Diesel.	1952/71	39/71	2	1a. Bto.	2a. Bto.	1a. : 12	1a. : 12	
31	Electricista de Instalaciones y Mantenimiento.	1952/71	39/71	3	1a. Bto.	2a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
32	Electromecánico.	1952/71	39/71	3	1a. Bto.	2a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
33	Electricista de Redes.	1952/71	39/71	3	1a. Bto.	2a. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	

No.	OFICIO	APROBACION		Duración Años	NIVEL DE INGRESO		MESES ETAPAS		OBSERVACIONES
		Res. Mintrab.	Acuerdo		Mínimo	Desado	Lectivo	Productiva	
34	Reparador de Radio y T.V.	1952/71	39/71	3	2o. Bto.	3o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
35	Auxiliar Reparador de Equipos Electrónicos.	1952/71	39/71	3	2o. Bto.	3o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
36	Compositor Mecánico.	1952/71	39/71	3	2o. Bto.	3o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
37	Compositor Tipográfico.	1952/71	39/71	3	2o. Bto.	3o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
38	Impresor Tipográfico.	1952/71	39/71	3	2o. Bto.	3o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
39	Impresor Offset.	1952/71	39/71	3	2o. Bto.	3o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
40	Fotomecánico.	1951/71	39/71	3	2o. Bto.	3o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
41	Fotografador.	1952/71	39/71	3	2o. Bto.	3o. Bto.	1a. : 12 2a. : 6	1a. : 6 2a. : 12	
42	Oficial de Obra Negra.	1952/71	39/71	2	5o. Prim.		1a. : 12	1a. : 12	
43	Oficial de Obra Blanca.	1952/71	39/71	2	5o. Prim.		1a. : 12	1a. : 12	
44	Piomero de Construcción.	1952/71	39/71	2	5o. Prim.		1a. : 12	1a. : 12	

No.	OFICIO	APROBACION		Duración Años	NIVEL DE INGRESO		MESES ETAPAS		OBSERVACIONES
		Res. Mintrab.	Acuerdo		Mínimo	Desado	Lectivo	Productiva	
45	Carpintero de Construcción.	1952/71	39/71	2	5o. Prim.		1a. : 12	1a. : 12	
46	Pintor.	1952/71	39/71	2	5o. Prim.		1a. : 12	1a. : 12	
47	Metalista.		26/75	3 *	2o. Bto.		1a. : 12 2a. : 6	1a. : 6 2a. : 12	
48	Operador de Estaciones de Oleoductos.		26/75	2 *	5o. Bto.		1a. : 12	1a. : 12	
49	Dibujante Técnico Mecánico Industrial.		26/75	2 1/2	4o. Bto.		1a. : 12 2a. : 6	1a. : 6 2a. : 6	
	* Aprobado por Ac.								

OFICIOS MOTIVO DE APRENDIZAJE (SECTOR DE ADMINISTRACION, COMERCIO Y SERVICIOS)

* 4224

No.	OFICIO	APROBACION		Duración Años	NIVEL DE INGRESO		MESES ETAPAS		OBSERVACIONES
		Res. Mintrab.	Acuerdo		Mínimo	Desado	Lectiva	Productiva	
1	Auxiliar de Contabilidad.	03448/77	9/76	2	4o. Bto.	6o. Bto.	1a. : 12	1a. : 12	
2	Auxiliar Bancario.	03448/77	9/76	2	4o. Bto.	6o. Bto.	1a. : 12	1a. : 12	
3	Secretaria General.	03448/77	9/76	2	4o. Bto.	4o. Bto.	1a. : 12	1a. : 12	
4	Vendedor General.	03448/77	9/76	2	4o. Bto.	6o. Bto.	1a. : 12	1a. : 12	
5	Secretaria Auxiliar Contable.	03448/77	9/76	2	4o. Bto.	6o. Bto.	1a. : 12	1a. : 12	
6	Dibujante Publicitario.	03448/77	9/76	2	6o. Bto.		1a. : 12	1a. : 12	
7	Auxiliar de Enfermería.	03448/77	9/76	1 1/2	2o. Bto.	4o. Bto.	1a. : 12	1a. : 6	
8	Cocinero.	03448/77	9/76	2	1o. Bto.	2o. Bto.	1a. : 12	1a. : 12	
9	Mesero.	03448/77	9/76	2	1o. Bto.	2o. Bto.	1a. : 12	1a. : 12	
10	Panadero - Pastelero.	03448/77	9/76	2	1o. Bto.	2o. Bto.	1a. : 12	1a. : 12	
11	Cortador y Procesador de Carnes.	03448/77	9/76	2	1o. Bto.	2o. Bto.	1a. : 12	1a. : 12	

4. OFICIOS MOTIVO DE APRENDIZAJE
(SECTOR DE ADMINISTRACION, CO.
MERCIO Y SERVICIOS)

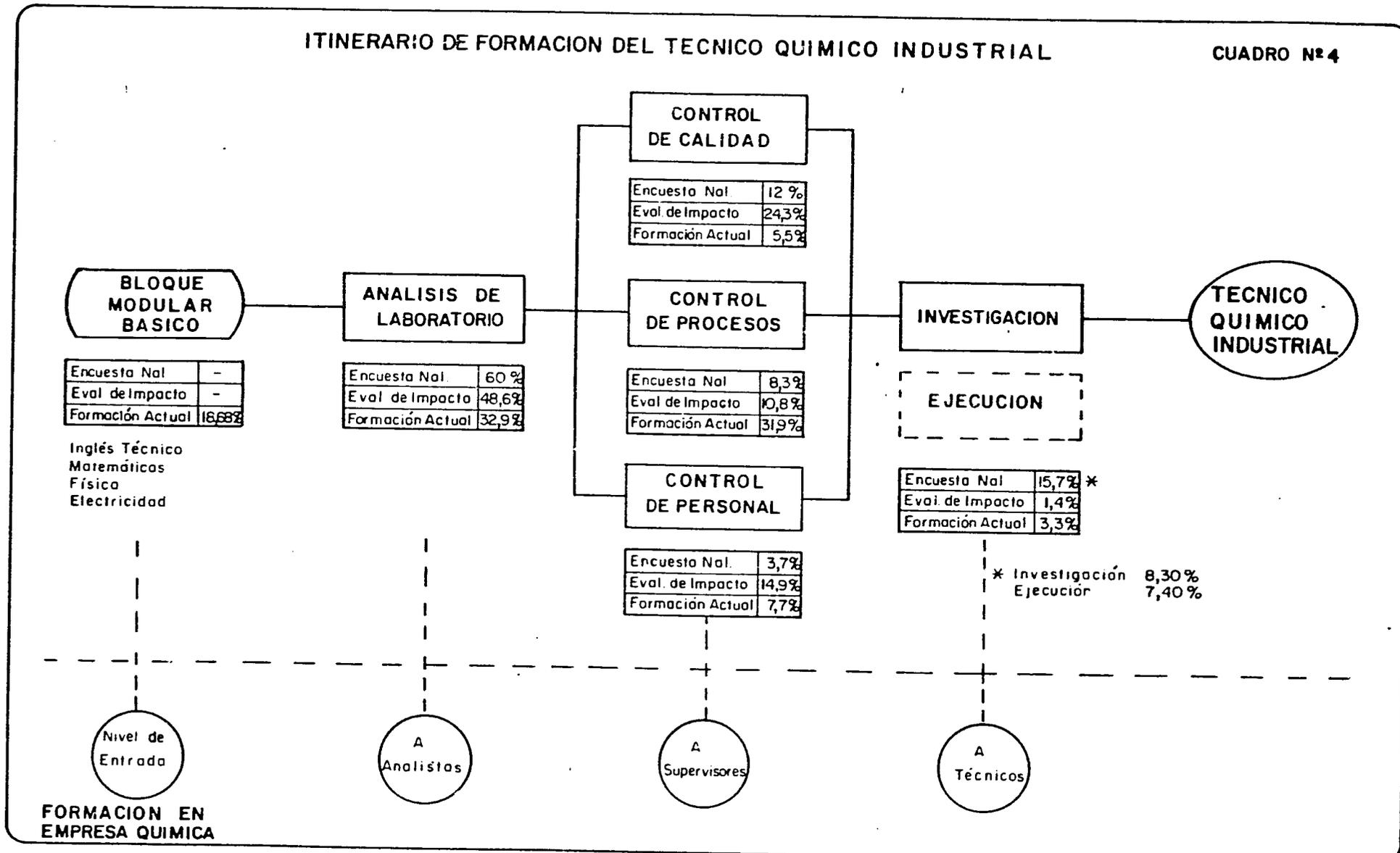
No.	OFICIO	APROBACION		Duración Años	NIVEL DE INGRESO		MESES ETAPAS		OBSERVACIONES
		Res. Mintrab.	Acuerdo		Mínimo	Desado	Lectiva	Productiva	
12	Secretaria Auxiliar de Ventas.		26/75	3	4o. Bto.		1a. : 12 2a. : 6	1a. : 6 2a. : 12	
	* Aprobado por Ac.								

Appendix VII

EXAMPLE OF "MANAGEMENT BY PROJECT" FOR INDUSTRIAL CHEMISTRY

ITINERARIO DE FORMACION DEL TECNICO QUIMICO INDUSTRIAL

CUADRO N° 4



Appendix VIII

LIST OF 1985 AGREEMENTS (CONVENIO)

**DIAGNOSTICO CONSOLIDADO DE PUESTOS DE TRABAJO
Y AREAS DE TRABAJO**

CUADRO N° 1

AREAS DE TRABAJO		ANALISIS DE LABORATORIO					CONTROL DE CALIDAD				CONTROL DE PROCESOS			EJECUCION		INVESTIGACION			CONTROL # PERSON.	TOTAL
PUESTOS DE TRABAJO	TAREAS INDUSTRIALES	Análisis Químicos TT6, TT7, TT9.	Análisis Industrial TT1, TT2, TT3, TT4, TT5.	Análisis Físico TT8	Análisis Físico-Químico TT10, TT11, TT12, TT14, TT15, TT16, TT37, TT38	Análisis Microbiológico TT13	Muestra TT40	Interpreta e Informa TT41, TT17	Estadística TT18	Inspección de Pro- ducto Terminado TT19	Control Procesos TT20, TT21, TT25	Supervisa Procesos TT22, TT23, TT24 (TT27)	Operación (TT36, TT38)	Formula Producción TT35	Preparador de Pro- ceso TT34	Operación de Planta Piloto TT30, TT31, TT32	Desarrolla Nuevos Procesos TT29	Desarrolla Nuevos Productos TT33	Manejo de Personal TT26, TT28	Frecuencia
		Analista de Laboratorio (1,2, 4, 8, 13, 17, 20, 23, 25)		2	13	2	17	2	2	1						2			3	
Técnica Química de Planta (3, 10, 18, 21, 22, 26)		2	4		13	1	1	2	1	2	4	1	1	2	2	1	1		3	43
Operador de Planta (5, 9, 11, 12, 19)								1		1				3						5
Ayudante de Laboratorio (7)			2		3	1		1									1			8
Técnico en Investigación (14)																	1			1
Técnico Inspector (16)			1				1				1									3
Jefe de Laboratorio (24)		1	1					1											1	4
TOTALES	TAREAS BLOQUE	5	21	2	33	4	4	6	1	2	3	5	1	1	7	2	1	6	4	108
	PORCENTAJE	60%					12%				8,33%			7,4%		8,33%			3,7%	100%

Nota: Ver cuadro

Puestos de Trabajo VS. Areas de Trabajo
Técnico Química

CONVENIOS VIGENTES 1985

Cuadro N° 2.15

NOMBRE	OBJETIVO
I. Por Ley 55 de 1985	
1. SENA-Instituto Colombiano de Reforma Agraria, INCORA.	Programas de capacitación y desarrollo socio-económico en las dos entidades.
2. SENA-Servicio Nacional de Empleo, SENALDE.	Desarrollo conjunto de las políticas de empleo, formación profesional, productividad y tecnología.
3. SENA-Instituto Colombiano Agropecuario, ICA.	Mutua colaboración para desarrollar labores en el campo de la investigación en cuanto a metodologías de capacitación al campesinado.
4. SENA-Centro Latinoamericano de Informática (Departamento Administrativo de la Presidencia de la República).	Proyectos que permitan mayor capacidad técnica y elementos de orientación para la política de informática del país.
5. SENA-Ministerio de Educación Nacional	Políticas, planes y programas para el desarrollo de la Educación Técnica, acordes con las necesidades del país en lo relativo a formación integral.
6. SENA-Artesanías de Colombia S.A.	Planeamiento, organización y ejecución de programas de capacitación para artesanos, y de asistencia técnica y asesoría a empresas y asociaciones artesanales para incrementar el empleo.
II. Con Instituciones -Nivel Nacional-	
7. SENA-Unión Cooperativa Nacional de Crédito.	Desarrollo de los recursos humanos, y fortalecimiento de las Cooperativas de Ahorro y Crédito.
8. SENA-Corporación Nacional de Turismo	Desarrollo turístico mediante asesoría a las empresas.
9. SENA-INTERCOR	Formación técnica conjunta a través de programas de nivelación en diferentes especialidades.
10. SENA-INCOMEX	Diseñar y desarrollar conjuntamente programas de formación profesional, actualización de normas técnicas y procedimientos de importación y exportación.
11. SENA-Departamento Administrativo de Aeronáutica Civil.	Asesoría en planes de capacitación y desarrollo de recursos humanos.
12. SENA-Registraduría Nacional del Estado Civil	Modernizar la estructura, organización y funcionamiento, mediante planes de capacitación.
13. SENA-ASOBANCARIA	Capacitar los empleados bancarios.
14. SENA-Contraloría General de la República	Formación Profesional para lograr la eficiencia de los mecanismos fiscales y de control.
15. SENA-MinEnergía-CARBOCOL-ICFES	Asesoría y asistencia técnica de acuerdo con el establecimiento de bases y procedimientos para las acciones de divulgación, capacitación, seguridad, higiene y salvamento minero.
16. SENA-Ministerio de Obras Públicas y Transporte.	Diseñar y ejecutar sistemas y mecanismos de formación.

NOMBRE	OBJETIVO
17. SENA-CORELCA	Mutua cooperación y participación, a través de los servicios del SENA.
18. SENA-COLGAS-CONFEDEGAS	Identificar y desarrollar mecanismos de formación.
19. SENA-Banco Popular	Definir sistema de Desarrollo Gerencial y Formación de Mandos, y actualización de los planes y programas del Sector Financiero.
20. SENA-Zona Franca Industrial y Comercial de Cartagena.	Realizar estudios socio-económicos que permitan crear un centro de capacitación en la Zona Franca.
21. SENA-FASECOLDA	Definir y ejecutar mecanismos de formación profesional.
22. SENA-Cámara Junior de Colombia	Formación Empresarial a la pequeña y mediana empresa.
23. SENA-TELECOM	Capacitar en computación, informática y tecnología de comunicaciones.
24. SENA-Superintendencia de Industria y Comercio	Promover el desarrollo y aplicación de normas de control de calidad de los productos y servicios ofrecidos por los empresarios.
25. SENA-Corporación Financiera Popular	Promover la participación activa de organizaciones empresariales privadas y del Estado en la formación, ejecución y evaluación de proyectos regionales.
26. SENA-FEDECAAO	Mutua cooperación técnica institucional.
27. SENA-COLPUERTOS	Capacitar personal de COLPUERTOS y propiciar la participación de entidades nacionales e internacionales relacionadas con actividades portuarias.
28. SENA-CORNICAL	Capacitación y asesoría a empresas de calzado.
29. SENA-ACOPI	Experiencia piloto para desarrollar procesos y contenidos en: Gestión en la Tecnología, Organización y manejo de la información técnica y aplicación del computador.
30. SENA-PROSOCIAL	Formación Profesional, del personal vinculado.
31. SENA-Ministerio de Salud-Fondo Nacional Hospitalario	Establecer bases para la capacitación del personal vinculado, definir y ejecutar mecanismos de formación profesional.
32. SENA-Procuraduría General de la Nación	Asesoría y asistencia técnica a través de planes operativos de capacitación.

NOMBRE	OBJETIVO
33. SENA-I.S.S.	Ejecución de programas de desarrollo de personal y de un sistema operativo para diagnóstico de necesidades de capacitación y formulación de planes para la modernización de la estructura institucional.
III. Cooperación Técnica Internacional	
34. SENA-INTRA-ISRAEL	Asignar funcionarios con formación en la actividad del transporte automotor y fortalecer el sistema de información en la operación, mantenimiento, costos y seguridad vial.
35. SENA-Agencia Canadiense para el Desarrollo Internacional -ACDI-	Organización y operación de un centro de formación dentro del modelo de formación-producción.
36. SENA-Reino Unido-ODA (Administración para el Desarrollo de Países de Ultramar)	Capacitación del personal del Centro Minero del SENA y de las empresas.
37. SENA-Suiza (Federación de Relojeros -ETA-)	Actualización anual sobre reparación de relojes.
38. SENA-ITALIA	Transferencia de tecnología para el diseño de proceso y fabricación de productos metalmecánicos.
39. SENA-República Federal de Alemania GTZ/GOPA (Sociedad Alemana de Cooperación Técnica /Ingenieros Consultores).	Fomento de la pequeña y mediana empresa del Valle del Cauca en desarrollo tecnológico.
40. SENA-República Federal de Alemania-DSE (Fundación Alemana para el Desarrollo Internacional)	Transferencia de tecnologías avanzadas en mantenimiento electrónico de máquinas industriales.
41. SENA-República Federal de Alemania (Voluntarios Alemanes de la ciudad de ULM).	Dotación de un centro de la parroquia del Buen Pastor con materiales y herramientas para la formación profesional de jóvenes.
42. SENA-BRASIL-SENAI (Servicio Nacional de Aprendizaje Industrial).	Transferencia de tecnología en mantenimiento de microprocesadores e instrumentación y control de la producción.
43. SENA-Japón	Actualización de docentes y mejoramiento tecnológico de las agroindustrias de granja.
44. SENA-Japón-JICA (Agencia de Cooperación Internacional del Japón)	Apoyar los programas del área de Alimentos del Centro Nacional de Hotelaría.
45. SENA-Japón-JICA (Agencia de Cooperación Internacional del Japón).	Montar, dotar y operar un Centro de Formación Profesional en tecnologías de pesca industrial.
46. SENA-Holanda-Berneveld College	Formación de Docentes y Empresarios del SENA, del país y de Latinoamérica en: Cunicultura, Avicultura, Porcicultura y Capricultura.
47. SENA-EE.UU./Wheat Associates	Entrenar mano de obra del país y Latinoamérica y extender variedad y calidad de alimentos procesados y derivados del trigo.

Appendix IX

CALCULATING PARTICIPANT HOUR OF INSTRUCTION COSTS

Calculating Participant Hour of Instruction Costs

The practice of calculating instructional costs on the basis of costs per course, per student, and per graduate can be very helpful for cost-benefit evaluations of different training alternatives. These calculations, however, do not permit one to compare training costs with other courses which have varying numbers of students or hours of instruction. Similarly, these calculations do not easily lend themselves for comparing the costs of different modes of instruction.

As a consequence, participant hour of instruction costs are often used for these types of comparisons and can be particularly valuable for evaluations of both instructional costs within an institution and for comparing the costs of formal, semi-formal, and nonformal instructional programs in a number of different institutions.

Participant Hour of Instruction Costs

ANNUAL BUDGET	+	DEPRECIATION	=	PARTICIPANT HOUR OF
-----		-----		INSTRUCTION COSTS
HOURS OF		NO. OF STUDENTS AT THE		
INSTRUCTION	X	END OF THE YEAR OR		
IN THE COURSE		COMPLETING THE COURSE		

For example, a small nonformal training center which only offers training in carpentry has instructional costs of \$1.35 per participant hour of instruction as calculated below.

(ANNUAL BUDGET)		(DEPRECIATION)*		
\$14,000	+	\$3,280	\$17,280	
-----		-----	-----	= \$1.35
800 HOURS OF		16 STUDENTS COMPLETE	12,800	
INSTRUCTION IN		THE COURSE AT THE		
CARPENTRY**		END OF THE YEAR***		

*DEPRECIATION can be calculated relatively easily at the rate of 12.5% of the total capital investment (building, equipment, and tools). To simplify calculations, the depreciation of land is not included because it normally remains the same or increases in value.

**HOURS OF INSTRUCTION should be calculated on the basis of 60 minutes per hour rather than periods of instruction which are often less than 60 minutes.

***STUDENTS who complete the course or finish the school year should be used rather than initial enrollments. In this manner the retention rate of the training program is also a factor in the calculation and a measure of cost-effectiveness in relation to the use of training resources.

The same type of calculation can be made for a vocational high school which offers 12 hours of formal vocational instruction and 28 hours of academic training weekly.

*(PORTION OF BUDGET UTILIZED FOR VOC.ED.)	DEPRECIATION		
\$80,000	\$26,330	\$106,330	
-----		=	----- = \$1.55
** 12 HOURS X 29 WEEKS X 200 STUDENTS		69,000	

*BUDGET or portion of the institution's global budget which is used for vocational education. These costs include salaries for personnel, shop maintenance, shop materials, and a calculation of the portion of the institution's over all administrative costs which are related to vocational education (12 hours out of 40 hours of instruction are devoted to vocational education = 30% of the instruction; 30% X the total administrative budget provides an estimate of administrative costs related to vocational instruction).

**HOURS of 60 minutes.

Another training institution which offers nonformal instruction for entry level job market skills and for skill upgrading, has average participant hour of instruction costs of \$1.20.

ANUAL BUDGET	DEPRECIATION		
\$10,000	\$4,760	\$14,760	
-----		=	----- = \$1.20
780 + 5,250 + 6,000	PARTICIPANT HOURS	12,030	

130

Using the same formula one can also calculate comparative costs within an institution for evaluating different levels of cost-effectiveness in the interest of reducing these costs and for identifying the most cost-effective use of limited training resources. While most comparisons of this type will include many more different types of courses, the procedure is the same as the example shown below.

ADMINISTRATIVE BUDGET		DEPRECIATION		
\$3,000	+	\$600		\$3,600
-----			=	-----
TOTAL PART. HOURS OF INSTRUCTION:		12,030		= \$0.30*
				12,030

*\$0.30 ADMINISTRATIVE COSTS PER HOUR OF INSTRUCTION. These costs are added to each of the instructional costs listed below to obtain the total participant hour of instruction cost for each of the three training programs.

		Participant Hours
		<u>Of Instruction</u>
-60 hour skill upgrading course in carpentry with 15 participants who complete their training:	60 X 15	= 780
-350 hour basic skills course in welding with 15 participants who complete their training:	350 X 15	= 5,250
-400 hour course in job entry level skills in the area of tailoring, with 300 hours of instruction during the current year, and 20 participants who were enrolled at the end of the year:	300 X 20	= 6,000

		Total: 12,030

CARPENTRY SKILL UPGRADING		DEPRECIATION		
\$1,000	+	\$200		\$1,200
-----			=	-----
780 PARTICIPANT HOURS				= \$1.54*
				780

*\$1.54 INSTRUCTION COSTS + \$0.30 ADMINISTRATIVE COSTS = \$1.84 PARTICIPANT HOUR OF INSTRUCTION COSTS FOR THIS SKILL UPGRADING COURSE IN CARPENTRY.

TAILORING		DEPRECIATION		
\$2,000	+	\$435		\$2,435
-----			=	-----
6,000 PARTICIPANT HOURS				6,000
			=	\$0.41*

*\$0.41 INSTRUCTION COSTS + \$0.30 ADMINISTRATIVE COSTS = \$0.71 PARTICIPANT HOUR OF INSTRUCTION COSTS IN ENTRY LEVEL JOB SKILL TRAINING IN TAILORING.

BASIC WELDING SKILLS		DEPRECIATION		
\$5,000		\$2,525		\$7,525
-----			=	-----
5,250 PARTICIPANT HOURS				5,250
			=	\$1.43*

*\$1.43 INSTRUCTION COSTS + \$0.30 ADMINISTRATIVE COSTS = \$1.73 PARTICIPANT HOUR OF INSTRUCTION COSTS IN THIS BASIC SKILLS WELDING COURSE.

Comparing these costs within the same institution, one should also note the number of students who obtain employment and practice the skills they have been taught for determining the value of the training provided. While the training course in tailoring, for example, was the least expensive at \$0.71 per participant hour of instruction, if only 30% of the tailoring graduates practice their trade, as compared to 90% for welding, then welding would be the most cost-effective training in relation to returns on training investments even though participant hour of instruction costs were approximately twice as expensive as those for tailoring.

Another factor which should be included in these types of calculations is the average wage of graduates in different training areas. If, for example, welders earn twice as much as carpenters, this helps compensate for higher instructional costs in welding. Similarly, more traditional calculations of instructional costs per graduate, who actually practice their trades, can provide additional information for evaluating the cost-effectiveness of different training alternatives.