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# SMALL-SCALE INDUSTRY GRANT YEAR IV

*10/10/77*



## FUNDAÇÃO EDUCACIONAL DO SUL DE SANTA CATARINA ACTIVITIES

Grant Period: January 10, 1977 to January 9, 1978



A PROGRAM FUNDED BY THE U.S. AGENCY FOR  
INTERNATIONAL DEVELOPMENT

FINAL REPORT  
YEAR IV

FUNDACAO EDUCACIONAL DO SUL DE  
SANTA CATARINA (FESSC)  
SMALL-SCALE INDUSTRY GRANT

by  
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Contract No. AID/ta-c-1062

Office of International Programs  
Engineering Experiment Station  
GEORGIA INSTITUTE OF TECHNOLOGY  
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## INTRODUCTION

For the past four years the Agency for International Development (AID) has funded Contract AID/ta-c-1062 through which the Office of International Programs of the Georgia Institute of Technology was to make \$45,000 grants for small-scale industry development programs to four counterpart institutions in different geographic regions of the world. The Fundacao Educacional do Sul de Santa Catarina (FESSC) has been awarded this grant for four consecutive years.

All grantee institutions were selected by the Georgia Institute of Technology, following guidelines suggested by the sponsor as listed below:

1. Suitability of the national macroeconomic framework for local business conditions.
2. Existence of practicing or potential entrepreneurs.
3. Community concern over unemployment.
4. Existence of potential markets for additional products.
5. Linkages (current or potential) with educational, financial, and business communities.
6. Quality of the staff.
7. The institution's potential for utilizing the grant effectively.
8. Potential multiplier effects.
9. Host government commitments.

After an extensive initial screening, the project administration selected the Fundacao Educacional do Sul de Santa Catarina as one of the two original institutions where programs would be implemented during Year I. The results of the past three years of this program at FESSC have been published under the same title as this report, by the same authors, and appropriately marked Years I, II, and III.

The main program objectives for Year IV remained unchanged from the original concept: "To assist in the generation of employment through the development of small-scale industries outside metropolitan centers."

Results to date have been classified as "good" by the corresponding AID review teams during the first three years. In a brief manner, the following accomplishments resulted from the activities implemented during Program Year 1977-1978:

1. Provision of technical-management assistance to 34 local small-scale industries in 13 different municipalities. In addition, consultation, information, and limited assistance were provided to another 28 local enterprises during this year.

2. Of the 34 companies receiving technical-management assistance during this year, 23 were surveyed at both the start and end of the year; between them, they reported having increased their combined labor forces by 667 persons.

3. The counterpart staff also completed three prefeasibility studies, 13 new manufacturing opportunity studies, three management guidelines, five industrial studies, and two case histories.

4. During the year, five conferences, lectures, or seminars were presented by the counterpart staff.

5. The Basic Data Center increased its holdings by 1,972 publications and 1,931 newspaper clippings. They replied to 526 information requests presented during this time period.

6. The Technology Center was approved by the federal and state governments, and 26 million cruzeiros were made available by the government for the construction and equipping of the proposed 4,000-square meter building.

7. Training of local human resources was continued; 22 training programs were offered by the FESSC staff and 1,294 persons completed these programs.

8. The fourth audiovisual documentary was completed during the year.

The sections following this introduction describe in detail the background, objectives, activities scheduled for Year IV, results achieved, and the conclusions reached by the joint staff.

## PROGRAM PLAN FOR YEAR IV

### Background

The Fundacao Educacional do Sul de Santa Catarina (FESSC) is a well-respected, nonprofit, autonomous education institution located in the city of Tubarao, Santa Catarina, Brazil. This educational foundation was established in accordance with the Brazilian Civil Code and national legislation by Decree Laws Nos. 200 and 900, as well as by Municipal Law No. 443/67 of October 18, 1967. In its bylaws, the following institutional objectives are defined:

1. Create, integrate, and maintain schools of higher and medium level of professional quality, as established by the needs of the labor market of the region, state, and country.

2. Carry out course programs, training, and specialization for graduates and special courses for post-graduates.

3. Conduct promotional study and research activities relating to the economic development and social development of the region and state either independently or with the assistance of private and public entities.

4. Promote conferences, debates, and seminars to disseminate studies related to economic problems in general or those specifically concerning the region of South Santa Catarina.

5. Adopt, as needed, the necessary organization to implement the future University of South Santa Catarina.

The Council of Curators is the governing body, and it is made up of representatives of the different entities that created and now support the organization. The Executive Secretary of the Council of Curators is the representative of FESSC, at present the President of the Executive Directory of the Foundation, Dr. Osvaldo dela Giustina.

The Executive Directory of FESSC is composed of its president and the directors of the Department of Research and Development (DPD), the Department of Instruction (DE), the Department of Permanent Education (DEP), and the Department of Administration (DA). There also exists within this structure an Educational and Technical Advisory Council.

Within the Department of Administration (DA), there are a Secretary General, Associate Director, Administrative Assistant, and several other assistants in the field of teaching and planning.

Although the four departments participate to some degree in the program of work implemented under this grant, it is the Department of Research and Development (DPD) that has the full project implementation responsibility. The DPD has four operational centers through which to provide technical assistance, research, planning, and information oriented to local and regional development of private enterprises, communities, municipalities, and other groups within the public sector, as well as the private and civic community.

Early in 1972, FESSC and the Office of International Programs (OIP)--then the Industrial Development Division--of the Engineering Experiment Station at the Georgia Institute of Technology started studying the possibilities of initiating a joint program of work. At the same time, several members of the FESSC staff were being trained at OIP in the field of economic development. As a result of these actions, both institutions officially entered into an agreement on March 11, 1972. The agreement established that the signatories, as centers of higher education, have common interests in both local and regional development and in the development of professional manpower for the areas of South Santa Catarina. The agreement also provided for the cooperative promotion of programs, projects, and activities with the understanding that other organizations may participate.

In 1973, FESSC presented to the Georgia Institute of Technology a proposal for the development of small-scale industries in Santa Catarina. This proposal was later implemented by a small grant funded under an existing contract provided to the Georgia Institute of Technology by the Agency for International Development (AID) for this purpose.

This program has been active since its initiation on January 10, 1974, and the original program was expanded in 1975 (Year II), 1976 (Year III), and 1977 (Year IV), all under funding by AID.

The terms of the \$45,000 grant permitted the grantee to utilize half of the grant funds for personnel, travel, materials and supplies, conferences and related activities. The balance of the grant funds was to be used by the grantee to obtain training and consultation services from a U.S. technical

assistance organization. For the past four years, FESSC has contracted with the Georgia Institute of Technology to provide the necessary training, consultation, and audiovisual documentation for the project.

FESSC assigned to the Department of Research and Development (DPD) the responsibility for the program activities for all four program years. This department has constantly served as the counterpart to the Office of International Programs of the Engineering Experiment Station.

At the time the project was initiated and the organizational structure was established during Year I, the FESSC organization was as shown in Figure 1. At the end of Year IV, the organization had evolved to the present form, which is shown in Figure 2.

Dr. Osvaldo dela Giustina, as President of the Executive Directory, designated Econ. Jose Muller, Director of the DPD, to serve as Counterpart Project Director. The Director of OIP appointed Mr. Nelson C. Wall, Associate Director of OIP, to serve as Project Director.

### Objective

It has been the continuing objective of this project to develop a small-scale industries program at the Fundacao Educacional do Sul de Santa Catarina. Throughout this project, four principal activities have been considered: (1) provision of engineering, managerial, scientific, and technical assistance to small-scale industries in Santa Catarina, Brazil, particularly outside the main metropolitan centers; (2) continued development of an industry information center; (3) organization and implementation of adult training programs for the human resources of the area; (4) development of a "technical center" at FESSC.

Under the existing contract with the grantee, the project administration established two main areas of involvement for the Office of International Programs staff which would assist in attaining the established goals: (1) training of selected FESSC senior staff members both in Brazil and the U.S.A. and (2) provision of systematic on-site consultation by staff members of OIP. It was further established that the project staff would assist FESSC personnel in providing managerial, engineering, scientific, and technical assistance to selected small and medium-size industries in the selected geographic areas of Santa Catarina.

Figure 2

ORGANIZATIONAL STRUCTURE OF THE  
FUNDAÇÃO EDUCACIONAL DO SUL DE SANTA CATARINA  
(December 1977)

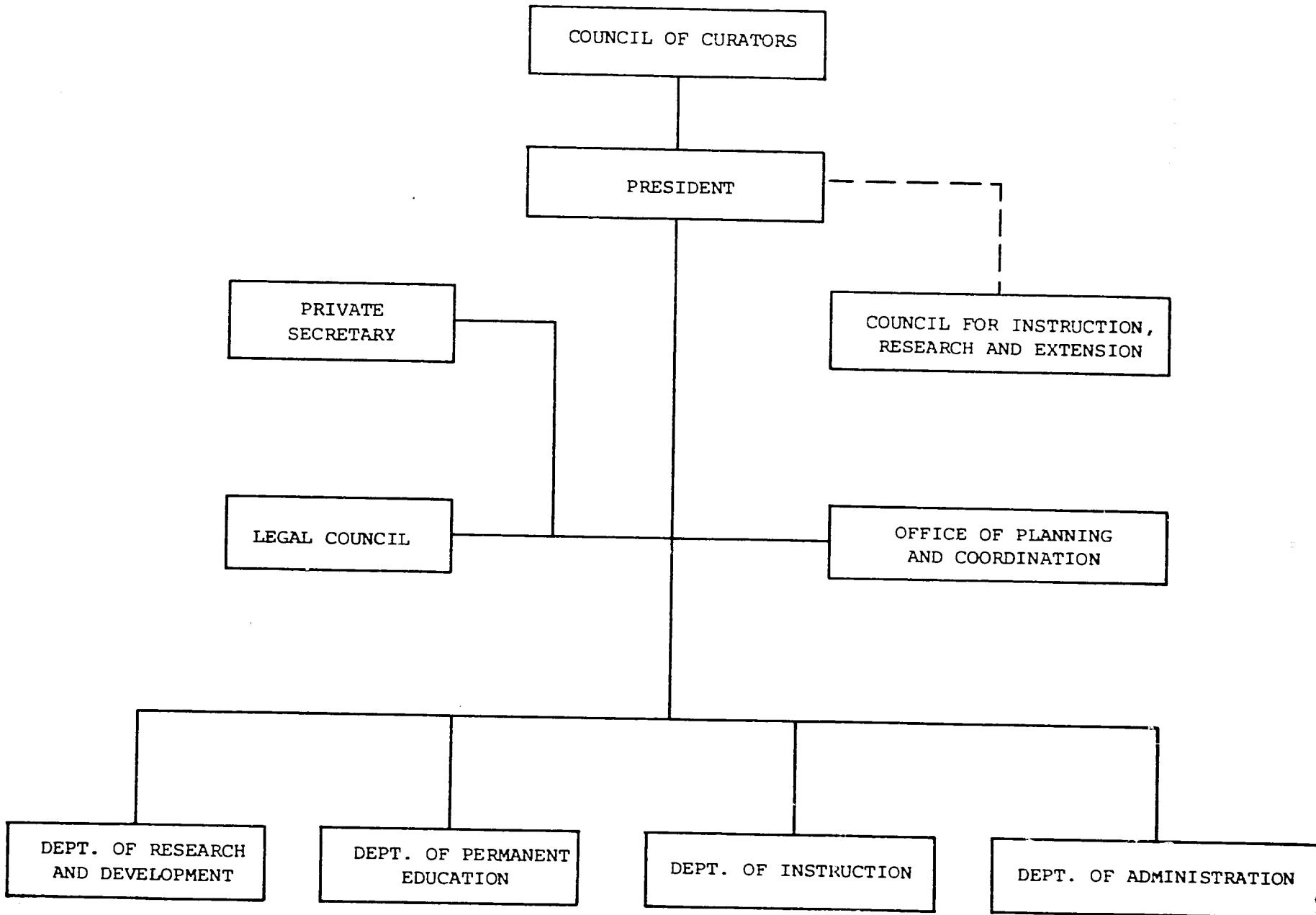
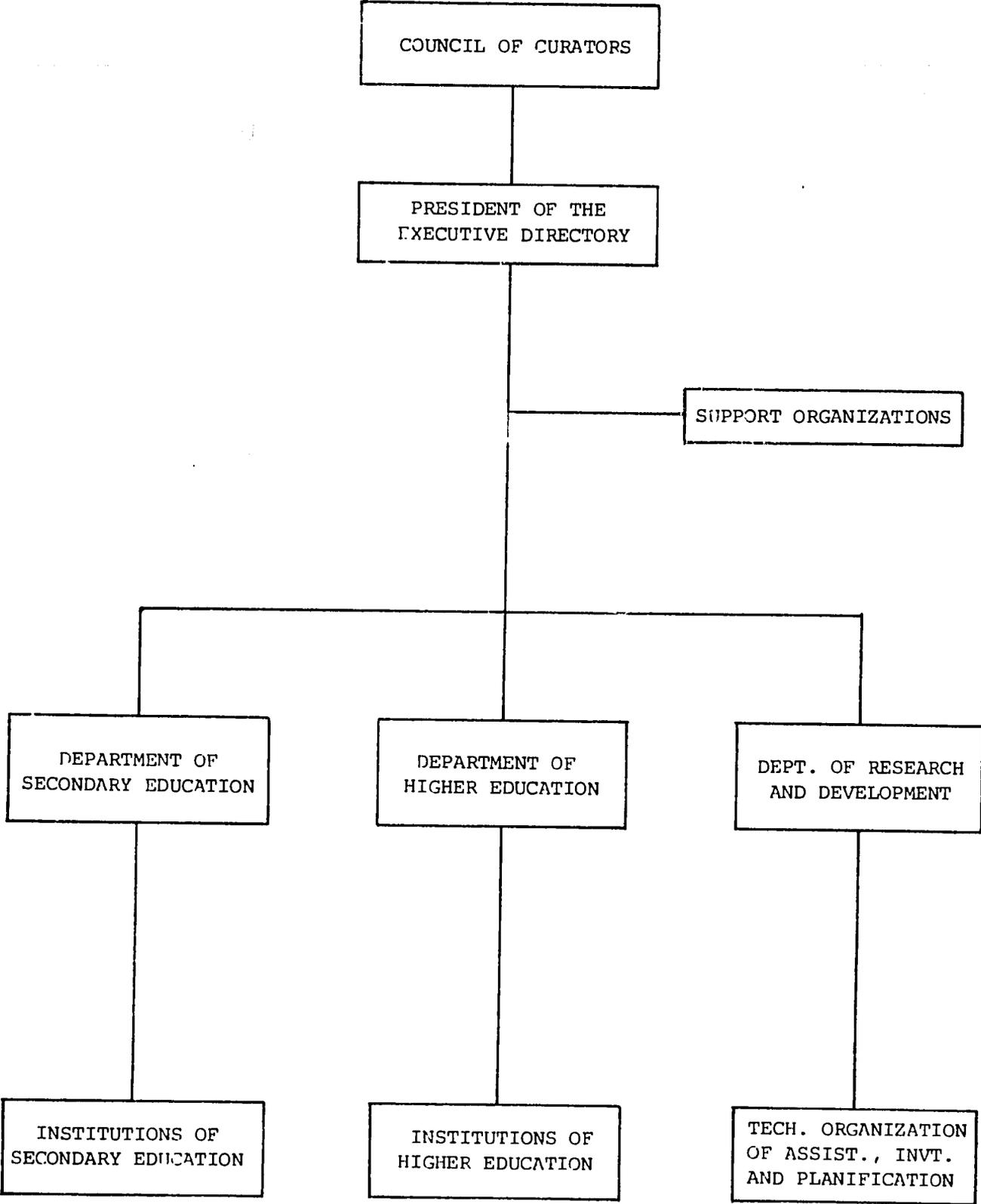


Figure 1  
ORGANIZATIONAL STRUCTURE OF THE  
FUNDAÇÃO EDUCACIONAL DO SUL DE SANTA CATARINA  
(December 1975)



At the end of the fifth year of this project, it is anticipated that FESSC will have in operation a highly trained, experienced staff that will be fully capable of continuing to provide technical assistance services to small-scale industries in their area of influence. As a direct result of this technical assistance service, FESSC anticipates the generation of employment and income in the State of Santa Catarina as well as the development of field-tested indigenous methodology applicable to other regions of Brazil.

#### Total Project Goals of the AID/ta-c-1062 Contract

When the Small-Scale Industry Grant was initiated on January 23, 1974, the following total project goals were established by the Agency for International Development for the Georgia Institute of Technology grant, to be achieved by the end of Year V:

The general objective of this contract is to generate employment in developing countries, particularly outside the metropolitan centers, by: (a) strengthening the capability of a selected institution in each country to provide effective technical assistance to local small industry, (b) demonstrating and documenting the impact of alternative approaches to technical assistance to small industry, and (c) infusing the governmental, industrial and financial sectors of the local community selected to provide employment with the understanding of the techniques of generating jobs. The above objective will be carried out through the use of grants to selected Lesser Developed Country (LDC) organizations.

Once the total project goals have been attained, the sponsor anticipated the following outputs:

1. Increased job opportunities in four countries.
2. Increased viability of indigenously owned enterprises.
3. Improved capability of four LDC institutions to serve small industry.
4. Tested methodologies for strengthening LDC institutions.
5. Evaluation reports on successes and failures in assisting small industry.

All of the established goals have been met during the past four program years plus several additional accomplishments which were listed in the Introduction and will be presented in further detail in other sections of this report.

## Program of Work

At the end of Year III, a program of work was presented by FESSC in their Year IV proposal to OIP. The proposal was funded, and the project administration then established the following activities for the 12-month period covering Year IV. All of these activities have been implemented to date.

1. Organization. Since the initiation of this project, the counterpart institution has recognized that, due to the dynamics of the management process it would need to alter its organization and structure it to meet the present-day needs. By the end of Year III, the Department of Research and Development had evolved into the configuration presented as Figure 3 of this report.

When the program for Year IV was initiated, specific responsibilities were assigned to the different units participating, as well as the centers shown in Figure 3. Once responsibility for implementation had been assigned to the different units, the actual work was initiated and all established subprograms were oriented in such a manner as to continue to serve the small and medium industries in the target area.

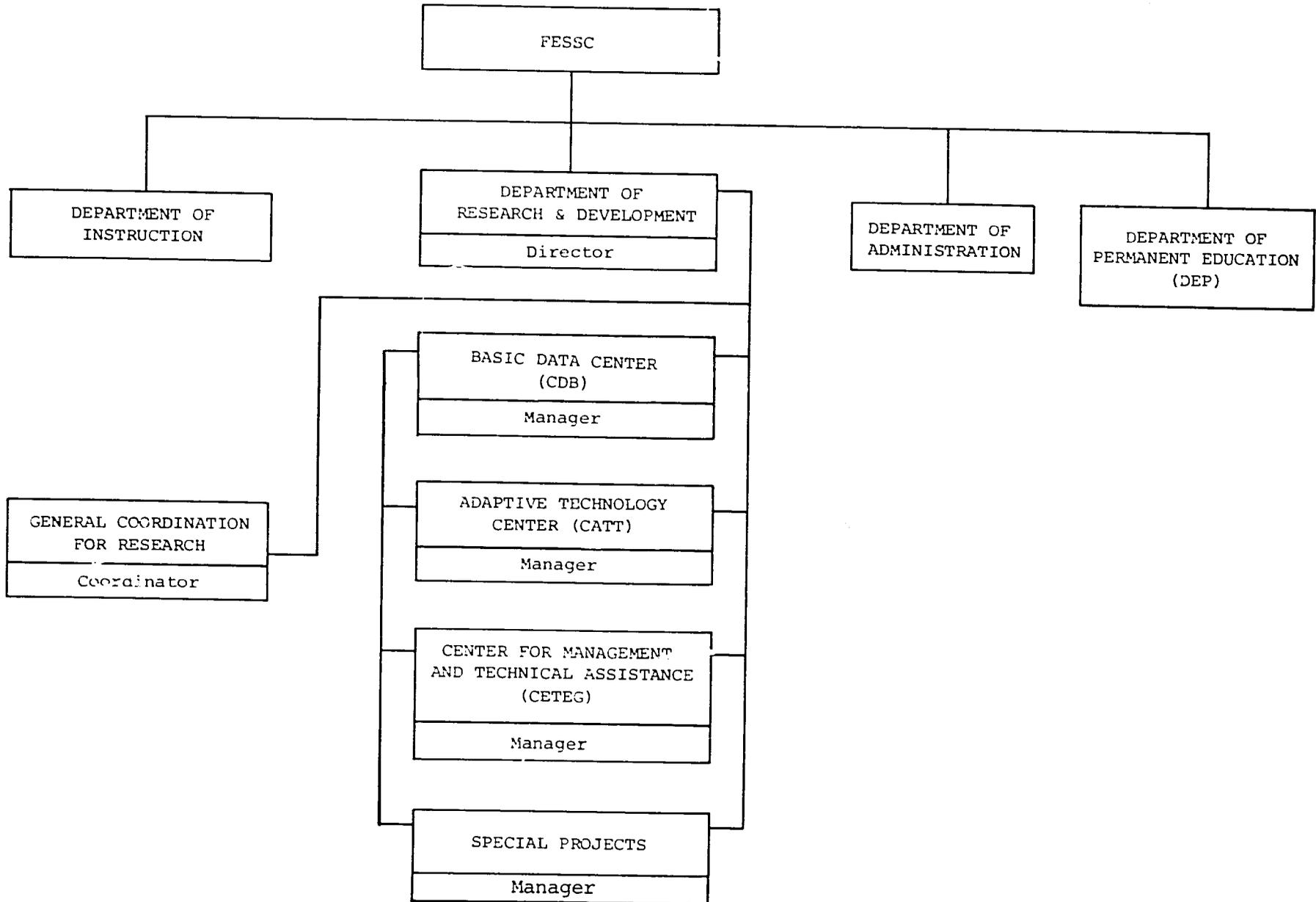
2. Staff and Physical Plant. Twelve persons formed the core program staff for Year IV. They were to be assisted as needed by the staff of the Basic Data Center, Department of Permanent Education, and the Department of Administration. Staff assignments on this project were made on the basis of educational background, interest, capability, motivation, and equal opportunity for female employees. Appropriate office space and equipment were allocated at the start of the fourth year to assure the necessary logistical support required by the project.

3. Project Policy. Since its initiation, the project has required a multi-input-output system with ample flexibility to assure compliance with the project theme--Stimulation of Existing and New Small and Medium-Scale Industries.

4. Program Areas. The OIP Project Director, together with his FESSC counterpart, designed a program to support the implementation of the following activities during Year IV:

a. Basic Data Center (CDB). Holdings of the Basic Data Center had increased consistently during the first three years of the program, and for this year it was planned that no less than 2,000 new units would be added to

Figure 3  
 ORGANIZATIONAL STRUCTURE OF THE  
 DEPARTMENT OF RESEARCH AND DEVELOPMENT  
 (January 1977)



the collection. It was further decided at the end of Year III that, since the collection of newspaper clippings had become very large, in the future they would not be counted as individual items, but rather by number of drawers of file cabinets. For Year IV, it was then planned that the CDB would continue expanding its collection of information of social, economic, industrial, and technological origin.

For the first time during Year III, records had been started on usage of the collection by students, faculty members, and others. Only direct information requests were registered by the staff, and this user record would be continued during the 1977-78 year.

For Year IV, special emphasis would be given to the following areas of the CDB activities:

- (1) Increased acquisition of technical books, manuals, and periodicals.
- (2) Collection, classification, and dissemination of pragmatic, up-to-date information on Brazilian and international material relevant to small-scale industry.
- (3) Increased interaction between CDB and other national and international collections that are active in the field of small-scale industries.
- (4) Continued backup by the OIP International Development Data Center as needed and requested by the CDB staff.

b. Center for Management and Technical Assistance (CETEG). This is the strongest unit that has developed from this program over the past three years. For program Year IV, the following activities were planned:

- (1) Continue to provide continuous technical assistance service to a total of 10 companies.
- (2) Expand the discontinuous (as needed) technical assistance service to a total of 40 companies during this year.
- (3) Conduct and complete four feasibility studies.
- (4) Determine, select, and complete 12 manufacturing opportunity studies.
- (5) Prepare two management guidelines for small-scale industries.
- (6) Train four staff members.

(7) Continue the audiovisual case histories and documentation started during Year I and continued in Years II and III.

c. Adaptive Technology Center (CATT). For Year IV, the main thrust would be in trying to gain funding from national sources to help in establishing a Technology Center on campus. Designs were being made for the building and needed inputs had been identified by the end of Year III. The OIP representative on site planned to work closely with the CATT staff in developing guidelines, initiating activities, determining needs, identifying future requirements and, in general, providing other assistance as needed during the year.

d. Industrial Training and Education. This activity would be implemented by the newly created Department of Permanent Education (DEP), a spin-off of the original Center for Permanent Education (CEP) established by this program during Year I. The FESSC staff, assisted by OIP staff on site, planned to present short courses, lectures, and workshops. Two lecture series were planned for presentation by OIP on-site staff and one by FESSC staff. It was further planned to offer no less than 15 industrial training courses during the year in accordance with local manpower requirements and industrial job generation.

e. Special Projects. This new unit of DPD would be established during the year and in the future would (1) continue as a special project unit, (2) serve as a breeding ground for other units, or (3) take up a more specific orientation. At first, the new unit also would be used for proposal generation, promotion, identification of sources of funding, and similar activities.

#### Use of Grant Funds by FESSC

For the fourth program year, 1977-78, the grantee was funded in the amount of \$45,000. These funds were disbursed by FESSC as presented in Table 1.

Table 1  
DISBURSEMENT OF GRANT AND OTHER PROJECT FUNDS  
FESSC-YEAR IV  
(in U.S. dollars)

<u>Expenditures</u>	<u>Sources of Funds</u>		
	<u>AID</u>	<u>FESSC</u>	<u>Total</u>
Personal Services	\$19,000	\$65,630	\$ 84,630
Materials and Supplies	500	2,720	3,220
Travel	2,000	2,360	4,360
Contracted Services	-	3,110	3,110
Publications (Purchased)	1,000	2,260	3,260
Local Consultants	-	4,560	4,560
Contracted Services (GIT/OIP)	20,500	-	20,500
Overhead	-	1,290	1,290
Audiovisual	2,000	-	2,000
Other	-	-	-
Totals	\$45,000	\$81,930	\$126,930

Note: Of the total funds spent on the small industry program, FESSC contributed 64.55% and AID contributed 35.45%.

## FESSC ACTIVITIES DURING PROGRAM YEAR IV

The administration and staff at FESSC have been totally committed to this project since it was initiated, and over the years they have carried out the bulk of the task assignments and implementation. During Year IV, the FESSC staff completed the following activities, among others:

### Basic Data Center (CDB)

This center is managed by Miss Cecilia Larroyd, who is assisted by a full-time staff of three persons. In accordance with the project plan, the following activities were initiated during Year IV:

1. Preparation of lists of publications and materials to be purchased during the year to increase acquisition of technical books, manuals, and periodicals.
2. Collection, classification, and dissemination of pragmatic, up-to-date information on Brazilian and international material relevant to small-scale industry.
3. Expansion of interaction between CDB and other national and international collections that are active in the field of small-scale industries.
4. Continued implementation of guidelines established during Year I and expansion of the CDB.

During the year, Miss Larroyd and other members of the FESSC staff prepared a translation (into Portuguese) of the original OIP publication entitled Checklist for the Operation of the Basic Data Center by Mr. Richard Johnston of the OIP staff. The translated document was published under the title of Lista de Atividades do Centro de Dados Basicos, translated by Odete Maria Pottmaier and edited by Elly Ribeiro Nunes.

Again, during Year IV the CDB showed a marked expansion in its holdings and users. The new acquisitions for Year IV consisted of 1,972 items plus well over 1,500 newspaper clippings (about two full file cabinet drawers). Table 2 documents the growth of the CDB holdings, starting in 1974-75 (after the March 1974 flood) and continuing to the end of Program Year IV.

As indicated in Table 2, the CDB holdings now total 4,290 units (excluding newspaper clippings). The present holdings are nearly 18 times as

Table 2  
CDB-PUBLICATIONS ACQUIRED  
(Program Years I-IV)

<u>Type of Publication</u>	<u>Added in Program Year</u>			
	<u>1974-75</u>	<u>1975-76</u>	<u>1976-77</u>	<u>1977-78</u>
Periodicals	120	477	863	1,187
Annuals	-	9	10	31
Articles	-	1	-	-
Catalogs	-	33	81	44
Books	121	57	107	285
Manuals	-	2	9	38
Maps	-	3	1	31
Reports	-	15	22	39
Profiles	-	1	74	-
Monographs	-	3	11	4
Journals	-	5	12	20
Census	-	-	3	9
Calendar	-	-	1	-
Studies	-	-	88	67
Booklets	-	-	88	41
Pamphlets	-	-	53	44
Newspaper Clippings*	-	-	1,475*	1,931*
Others	-	-	48	132
Total	241	606	1,471	1,972

\*Newspaper clippings not counted in total.

large as the original collection, which consisted of 241 units saved from the March 1974 flood. In the third program year, a register was established to determine the yearly total of users. In 1976-77, 106 requests were made to the CDC for information, while in 1977-78, a total of 526 information requests were made to the CDC staff--nearly five times as many as in the previous year.

There is no doubt that the CDB is slowly developing into a good data center, and plans for 1978-79 call for further investment in publications and expansion of the CDB.

#### Center for Management and Technical Assistance (CETEG)

CETEG has been responsible for the implementation of this project since Year I, when the center was established. The successful operation of CETEG has been the key to the success of this project. The staff of CETEG came under the very capable direction of Mr. Humberto Dalsasso after he completed his training at OIP in Atlanta, Georgia.

For the past four years, the CETEG staff has been providing pragmatic technical and management assistance to the small and medium-scale industries of the area. During Year I of this project, 45 industries were serviced by CETEG, plus many others that were attended following the March 1974 flood. The staff assisted 57 industries in Year II, 45 industries in Year III, and in the past year they provided technical or management assistance to a total of 34 industries. Over the past four years, the CETEG staff has serviced a total of 161 technical or management assistance cases.

During the 1977-78 year, a total of 62 local industries requested assistance, but only 34 of them were considered as technical or management assistance cases. All 62 cases are recapitulated in this report in Appendix I. The 34 enterprises receiving management and technical assistance were located in 13 different municipalities, as shown in Table 3. The CETEG staff cover a geographic area of about 9,500 square kilometers, encompassing 32 municipalities which form two micro-regions called AMUREL and AMSESC. Map 1 shows the political divisions of the area being served through this project and the municipalities where enterprises have been assisted.

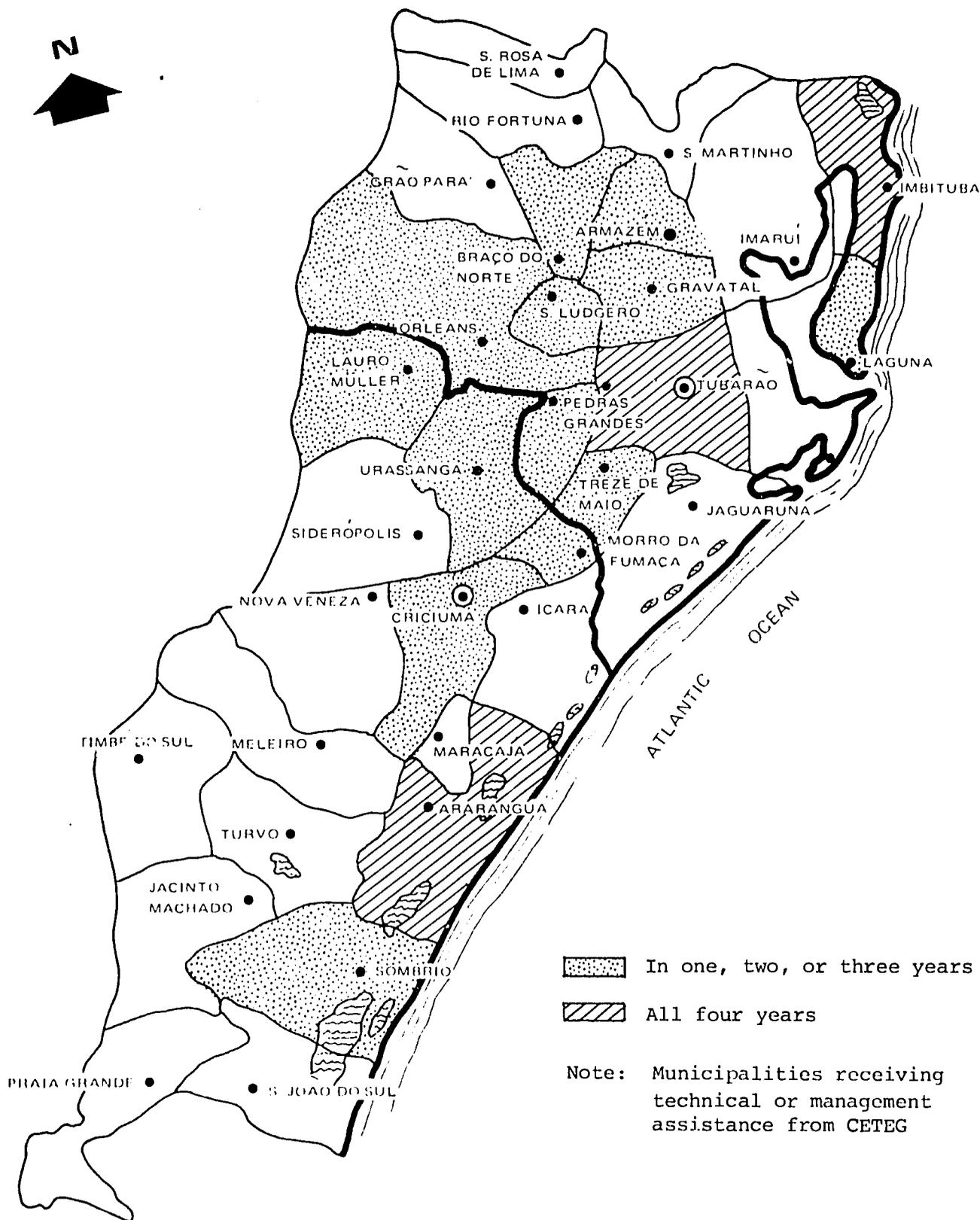
1. Employment Generation. Records have been kept since Year I to determine if new jobs have been generated and productivity or sales have been

Table 3

RECAPITULATION OF TECHNICAL ASSISTANCE  
 CASES BY MUNICIPALITIES, CETEG-YEAR IV

<u>Municipality</u>	<u>Technical Assistance Cases</u>		
	<u>Continuous</u>	<u>Discontinuous</u>	<u>Total</u>
Ararangua	-	2	2
Criciuma	-	3	3
Gravatal	1	-	1
Imbituba	-	1	1
Laguna	-	1	1
Lauro Muller	-	1	1
Orleans	-	1	1
Sao Ludgero	1	-	1
Sombrio	-	1	1
Tubarao	1	19	20
Urussanga	-	1	1
Other Locations in Region	-	<u>1</u>	<u>1</u>
Total	3	31	34

Map 1  
 POLITICAL DIVISIONS OF  
 SOUTH SANTA CATARINA, BRAZIL



increased as a result of this program. In this manner, the project administration has attempted to record and quantify, where possible, the results or performance of the project and counterpart institution. At the end of Year III, a survey was conducted of 15 companies out of the 45 that received technical assistance during that year, and they reported having increased their employment by 996 persons and sales by over 74 million cruzeiros.<sup>1/</sup> In addition, during that same third year, two new companies were started, creating 80 new jobs and sales of 2.4 million cruzeiros. During the fourth year, 23 companies were surveyed out of the 34 that received technical assistance during the year, and they reported increased employment amounting to 667 jobs. The sales volume information will not be available until the end of the first quarter of 1978, at which time companies will have reported their income tax and sales tax. Table 4 presents the employment information in a more detailed manner.

From the beginning of Year I to the end of Year IV, the FESSC program has been able to identify a total of 1,774 new jobs created by selected companies receiving technical and management assistance. The individual yearly gains have been reported in the corresponding final reports for Years I, II, and III, as well as this one for Year IV.

2. Published Studies. During Year IV, the CETEG staff also completed and published three prefeasibility reports, 13 new manufacturing opportunity studies or identifications of manufacturing opportunities, three management guidelines, five industrial studies, and two case histories. In addition, the CETEG staff assisted with, conducted, or sponsored five conferences, seminars, or lectures. Following is a summary of the different documents published.

a. Feasibility Studies

- (1) Hotel de Turismo. Feasibility study to determine the possibilities of establishing a tourist hotel in the city of Laguna using some of the incentives provided by EMBRATUR for this purpose.

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<sup>1/</sup> Jose Muller and Nelson C. Wall, Final Report--Fundacao Educacional do Sul de Santa Catarina (FESSC), Small-Scale Industry Grant, Economic Development Laboratory, Georgia Institute of Technology, Atlanta, Georgia, January 1977, p. 17.

Table 4  
 VARIATION IN EMPLOYMENT OF SELECTED  
 COMPANIES RECEIVING TECHNICAL  
 ASSISTANCE DURING PROGRAM YEAR IV

<u>Company Name</u>	<u>Employment, 1977-78</u>		<u>Variation</u>	
	<u>Start</u>	<u>End</u>	<u>Absolute</u>	<u>Percent</u>
Isaltino Padina Lima	9	13	4	+44.44
INEL	122	98	-24	-19.67
Warmeling & Filho	35	35	0	0
Gino Acessorios	3	9	6	+200.00
Mel-Metalurgica Equipe	13	25	12	+92.30
Mecanica ABC	6	12	6	+100.00
Metalurgica Souza	34	39	5	+14.70
INCOCESA	550	911	361	+65.63
Ceramica Eliane	550	800	250	+45.45
Metasul	16	9	-7	-43.75
Irmaos Tiskoski	36	32	-4	-11.11
Inarca	43	47	5	+11.62
Radflex	86	115	29	+33.72
Moveis Santa Barbara	6	6	0	0
Quimica dois Irmaos	3	6	3	+100.00
Haroldo Zanetta	2	2	0	0
Equipe Representacoes	15	15	0	0
Loja Santa Elena	3	3	0	0
Transportadora Manique	60	45	-15	-25.00
MADEPLAC	87	93	6	+6.89
INCAL	90	90	0	0
Industrias Coventos	500	530	30	+6.00
FUSIMEC	40	40	0	0
Total	2,309	2,976	667	+28.88

- (2) A Producao de Cevada. A study proving the lack of malt production in the country and indicating the possibilities of producing barley in the region. The barley produced would be sold to national beer and whiskey manufacturers.
- (3) Production of Plastic Briefcases. This feasibility study is being published at this time. It discusses the viability of manufacturing briefcases from plastic material for national consumption.

b. New Manufacturing Opportunity Studies

- (1) Fabrica de Isoladores de Alta Tensao e de Vidora Especiais (electrical insulators)
- (2) Maquinas e Implementos Agrarios (agricultural machines and attachments)
- (3) Caldeiraria (boilers)
- (4) PVC e PVA do Caruao (PVC and PVA from coal)
- (5) Ceramica (ceramics)
- (6) Olaria (brick kiln)
- (7) Lentes (lenses for eyeglasses)
- (8) Regeneracao da Borracha (recycling of rubber)
- (9) Maquinas e Equipamentos para Ceramica (machines and equipment for ceramic industry)
- (10) Mineracao de Fluorita (fluorite mining)
- (11) Maquinas para Industria Ceramica (machines for ceramic industry)
- (12) Maquinas para Ceramica (machines for ceramic industry)
- (13) Fabrica de Coquetel (canned or powdered cocktail mix)

All the above titles represent direct requests made by entrepreneurs in Santa Catarina interested in using the facilities provided by FESSC in order to determine the possibilities of producing new products.

c. Management Guidelines

- (1) Correcao Monetaria do Ativo Imobilizado. A management guideline indicating the appropriate accounting system to use in order to compensate for the monetary correction in the case of fixed assets.

- (2) Capital de Giro. This guideline deals with the importance of working capital and how to determine the amount required for a small-scale industry.
- (3) Fundos de Financiamentos Industriais. Sources of funds for financing industrial projects are identified and discussed in this guideline.

d. Industrial Studies

- (1) Diagnostico e Estrategia de Expansao, Isaltino Pandini Lima, Ferro-Plast. This technical study was conducted to assist the above company in planning an expansion. The company now manufactures living room furniture, daybeds, and truck seats but plans to start manufacturing a new product.
- (2) Esquema de Controle, Transportadora Manique Ltda. A local transportation (trucking) firm had been losing money during the year 1976-77. CETEG did a complete study of the company and recommended a system to improve control of the billing, collection, and other money practices of the company.
- (3) Estudo de Mercados Ferro-Plast. A market study conducted for this company to determine the market potential for the new product they wish to produce. The conclusion of the study indicates that there is a good market for the new product.
- (4) Diagnostico, Warmeling e Filho. A management study of this local industry. This in-depth analysis of the company was completed and the corresponding recommendations were presented to the management of the company.
- (5) Diagnostico e Analise, INEL. An in-depth study of a local company producing mill balls and similar products. The study offers management a series of suggestions leading to better management and financial control of the company.

e. Other Published Studies

- (1) Pequena e Media Empresa--Identificao. A case study on the different methodologies used by FESSC in identifying a small or medium-scale industry. The methodology is quite appropriate for Brazil and was proven very useful in the case of FESSC.

- (2) Atividades e Procedimentos-CDB. The second of two case studies prepared this year. This one has to do with the methodology and procedures used in operating the Basic Data Center at FESSC. Many of the procedures were adapted or modified from the ones recommended by the Georgia Institute of Technology in its published report entitled "Checklist for the Operation of the Basic Data Center."
- (3) Relatorio de Estagio. A report covering the formal and on-the-job training necessary to develop a manager for a basic data center. This was the program developed for Ms. Cecilia Larroyd, now manager of the Basic Data Center at FESSC.

#### Adaptive Technology Center (CATT)

The Adaptive Technology Center was established early in Year I of the project, but due to the problems described in the corresponding reports for Years I and II, it has had a very slow start. During Year III, the chemistry laboratory became operational and two engineers were hired--one of whom, Mr. Vladilen Vilar, was appointed to the position of manager of the CATT.

In the past year, FESSC was able to obtain funding from the state government to build a Technology Center. The Governor of Santa Catarina, Mr. Konder Reis, provided a 26-million-cruzeiro grant to FESSC to construct and equip the 4,000-square meter building that will house the Technology Center. Figure 4 shows the initiation of the construction during the month of July 1977.

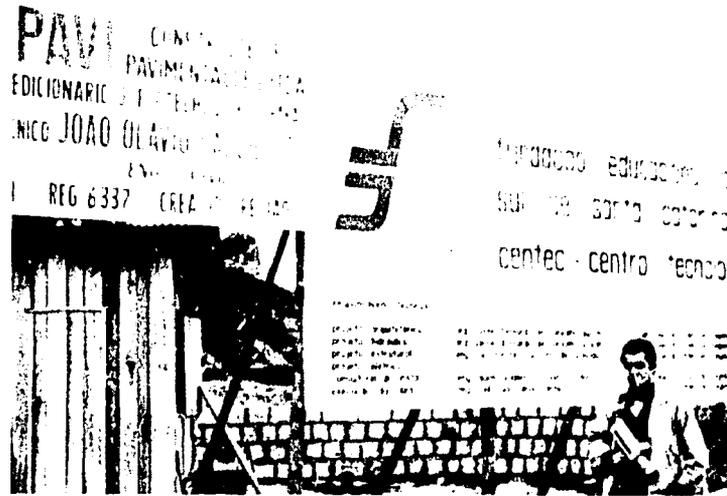
When completed, the Technology Center will house CATT, which will be responsible for the review and evaluation of existing foreign technology and will also attempt to adapt it for use by local small-scale industries. CATT staff also will have teaching assignments and will be part of the staff used for the presentation of technical courses to the students of FESSC.

#### Industrial Training and Education

This activity is now being carried out by the newly created Department of Permanent Education (DEP). During Year IV of the project, 22 training programs were offered and 1,294 persons completed these training programs, as presented in Table 5. Since the activity was initiated in 1974, a total of 184 courses have been offered and 4,717 persons have completed the program.

Figure 4

CONSTRUCTION OF THE TECHNOLOGY CENTER AT FESSC, 1977



Other Activities

Staff training and upgrading continue to have a high priority at FESSC. Every year for the past four years, a series of lectures, conferences, and workshops have been presented under the sponsorship of this program. During Year IV, the FESSC staff provided 190 participants on 41 different programs offered in different cities of the country. Table 6 presents a brief summary of the lectures, conferences, and workshops presented or attended by FESSC staff.

Internal Organization

There were no major changes in the internal organization during the year, only the creation of the Special Projects Group, as shown by the organization chart in Figure 3. The new unit for special projects will be responsible for those projects that do not fit well in any of the other units; at the same time, this unit will serve as a testing ground for new ideas, other activities, and concepts.

Table 5  
 SUMMARY OF INDUSTRIAL TRAINING AND  
 EDUCATIONAL PROGRAMS OFFERED, DEP-1977

<u>Title or Subject</u>	<u>Number of</u>		<u>Location</u>	<u>Presented by</u>
	<u>Courses</u>	<u>Persons</u>		
Welder	2	23	Tubarao	PIPMO/FESSC
Nurse's Aide	1	18	Rio Fortuna	PIPMO/FESSC
Nurse's Aide	1	21	Armazem	PIPMO/FESSC
Locksmith	1	10	Tubarao	PIPMO/LBA/FESSC
Mechanic-Fitter	1	12	Tubarao	PIPMO/LBA/FESSC
Electrician-Maintenance	1	11	Tubarao	PIPMO/LBA/FESSC
Mechanics for Fitters	1	9	Tubarao	PIPMO/LBA/FESSC
Lathe Mechanic	1	12	Tubarao	PIPMO/LBA/FESSC
Psychology-Human Relations	1	434	Tubarao	FESSC
Literature	1	74	Tubarao	FESSC
Social Training I	1	34	Tubarao	FESSC/LBA
Alcoholism	1	14	Tubarao	FESSC
History	1	14	Tubarao	FESSC/SEC
Geography	1	17	Tubarao	FESSC/SEC
Literature	1	12	Tubarao	FESSC
Women in Administration	1	48	Tubarao	FESSC
Poetry (S. Catarina)	1	51	Tubarao	FESSC
Management	1	97	Tubarao	FESSC/RONDON
Health	1	90	Tubarao	FESSC/RONDON
Brazilian Problems	1	268	Tubarao	FESSC/RONDON
Management of Soc. Services	<u>1</u>	<u>25</u>	Florianopolis	FESSC/SGSS
	22	1,294		

Table 6  
SUMMARY OF STAFF TRAINING  
LECTURES, CONFERENCES, WORKSHOPS

<u>Title or Subject</u>	<u>Location</u>	<u>Organization</u>	<u>Number of FESSC Partic- ipants</u>
Tech-Adm. Staff Mgmt.	Tubarao	FESSC	27
Project Evaluation	Tubarao	FESSC/GIT	16
Project Management	Tubarao	FESSC/GIT	23
Staff Training	Tubarao	FESSC	29
Internal Evaluation	Tubarao	FESSC	31
Personnel Management	Florianopolis	FESSC/FUCAT	2
Budget Management	Florianopolis	FESSC/FUCAT	2
Budgeting	Florianopolis	FESSC/FUCAT	2
Accounting	Florianopolis	FESSC/FUCAT	2
Costing	Florianopolis	FESSC/FUCAT	2
Cost Accounting	Florianopolis	FESSC/FUCAT	1
Material Management	Rio do Sul	FESSC/FUCAT	2
Academic Controls	Blumenau	FESSC/FUCAT	2
Medical Quality Control	Sao Paulo	FESSC/PROCIENX	1
Rules and Regulations	Itajai	FESSC/FUCAT	2
Systems-Theory	Joacaba	FESSC/FUCAT	4
Organization Development	Cacador	FESSC/FUCAT	4
Management by Objectives	Lages	FESSC/FUCAT	3
Analysis-Transnational	Joinville	FESSC/FUCAT	2
Marketing	Florianopolis	FESSC/ACIF	3
Management	Tubarao	FESSC/BAMERINDUS	3
Financial Management	Tubarao	FESSC/FUCAT	1
Management Behavior	Tubarao	FESSC/FUCAT	3
Brazilian Reality	Tubarao	FESSC/FUCAT	3
Brazilian Health Forecast	Tubarao	FESSC/FUCAT	1
Extension Service	Tubarao	FESSC	2
Psychology	Tubarao	FESSC	1
Brazilian Literature	Florianopolis	FESSC/UFSC	1
Nursing	Florianopolis	FESSC/UFSC	1
Literature	Florianopolis	FESSC/UFSC	1
Chemistry	Florianopolis	FESSC/UFSC	1

<u>Title or Subject</u>	<u>Location</u>	<u>Organization</u>	<u>Number of FESSC Partic- ipants</u>
Social Service Mgmt.	Porto Alegre	FESSC/PUC	1
Embryology	S. Leopoldo	UNISSINOS/FESSC	1
Cytology	S. Leopoldo	UNISSINOS/FESSC	1
Literature	Florianopolis	FESSC/UFSC	2
Teaching	Cacador	MEC/DAV/CAPES	1
Chemistry	Blumenau	FESSC/FURB	1
English	Blumenau	FESSC/FURB	1
Language	Florianopolis	FESSC/UFSC	1
Mathematics	Florianopolis	FESSC/UFSC	1
Political Science	Sao Paulo	FESSC/USP	1

GEORGIA INSTITUTE OF TECHNOLOGY  
ACTIVITIES DURING PROGRAM YEAR IV

At the end of Year III, while on site in Tubarao, the Project Director defined the Georgia Tech activities for the new program year. Together with the Counterpart Project Director, Mr. Jose Muller, and his staff, the Project Director established the detailed work program for Year IV which included both the Georgia Tech activities and those of the FESSC staff. As soon as the sponsor advised the Office of International Programs (OIP) that the grant would be continued as of January 10, 1977, the program of activities was initiated. The project plan called for the initiation of on-site activities on April 13, 1977, with the arrival of Dr. H. Davis, who was to be followed later during the year by Mr. N. C. Wall, Project Director, with subsequent visits by Dr. Davis, Mrs. Edwina Udunka, and again Mr. Wall.

Each person on the OIP team assigned to this project was briefed by the Project Director prior to departure and was assigned specific tasks within the total project goals. On the following page, Figure 5 illustrates the Project Plan for Year IV. This section presents a brief chronological summary covering the individual activities of the OIP staff members.

April 14-22, 1977 (Harlan Davis)

In this nine-day period, Dr. Davis worked mainly with Mr. G. Joner da Silveira, Director of the Department of Permanent Education (DEP), on different training programs that were being prepared for offering during the year. During his stay, he also presented a portion of the staff seminar that had been initiated during the previous year by Mr. Wall and which would be concluded later this year during Mr. Wall's next on-site visit.

May 5-20, 1977 (Nelson C. Wall)

The Project Director completed over two weeks of on-site activities at this time. During the first week, the project was reviewed with the counterpart staff and some changes were incorporated in the work plan, mainly date changes in order to adjust future visits to new commitments of the OIP staff. As usual, Mr. Wall personally visited many of the industries being serviced by FESSC to evaluate how the program was being accepted and to determine if the assistance being provided was, in reality, assisting these companies. Table 7



and Appendix 1 of this document list all the industries visited by Mr. Wall during his two on-site assignments with this project as well as those serviced by FESSC during program Year IV.

Also during this tour, this staff member was able to complete the presentation of the test training program that had been designed and initiated the previous year during the month of August while he was on site. A total of 34 professional members of the FESSC staff completed this in-house training program and were awarded joint GIT/FESSC certificates. A summary of this training program, as well as a listing of the participants, appears in Appendix 2 of this final report.

July 17-28, 1977 (Harlan Davis)

Dr. Davis was assigned the task of directing the preparation of the audiovisual documentary for this year. During the first week, he contacted the industries where videotaping was to be done and prepared the corresponding schedule. During the second week, his task was to assist Ms. Edwina Udunka in implementing the task of preparing the audiovisual documentary. For reasons that will be explained below, he was not able to assist in the assigned task and instead spent his time trying to recover the photographic equipment from the Brazilian customs.

July 24-29, 1977 (Edwina Udunka)

This member of the staff was assigned the responsibility of filming the continuation of the audiovisual documentary initiated in Year I and expanded in Years II and III. When she arrived in Rio de Janeiro, the customs officer impounded the photographic equipment and it was not returned until after her departure for the U.S. However, three days of filming were completed by FESSC staff with their own equipment, and these tapes were added to the existing documentary.

December 1-22, 1977 (Nelson C. Wall)

Mr. Wall had the on-site assignment for the final period of activity in Year IV. Together with the Counterpart Project Director and his staff, Mr. Wall prepared the end-of-the-year report (14 volumes), as well as the corresponding Project Plan draft for Year V. The final report presented to GIT by FESSC is now filed under this project number at OIP.

Table 7  
INDUSTRIES AND ORGANIZATIONS  
CONTACTED DURING YEAR IV  
(OIP Staff Only)  
1977-1978

<u>Date</u>	<u>Industry or Organization</u>	<u>Location</u>	<u>Contacted by</u>
April 17	Metalurgica Equipe Ltda.	Tubarao	H. Davis
17	Rodaflex	Tubarao	H. Davis
17	Galvosul	Tubarao	H. Davis
17	Gino Acessorios Ltda.	Tubarao	H. Davis
17	Zublick Optica	Tubarao	H. Davis
18	Apaes	Tubarao	H. Davis
18	Arnaldo Zanet	Tubarao	H. Davis
May 13	Metalurgica Page	Ararangua	N. C. Wall
13	Ind. Araranguaense de Calcados Ltda.	Ararangua	N. C. Wall
14	Isaltino Pandini Lima	Tubarao	N. C. Wall
14	Gino Acessorios	Tubarao	N. C. Wall
14	Eletro Industria Catarinense Ltda.	Tubarao	N. C. Wall
15	Confeccoes Suselani	Tubarao	N. C. Wall
15	Irmaos Tiskoski	Sombrio	N. C. Wall
16	Haroldo Zanetta	Tubarao	N. C. Wall
17	Const. Montag Industriais Ltd.	Imbituba	N. C. Wall
22	CODISC	Imbituba	H. Davis
25	Ferro Plast	Tubarao	H. Davis
26	INARCA	Tubarao	H. Davis
27	Refraza	Tubarao	H. Davis
Dec. 6	Ind. Catarinense de Adubos	Laguna	N. C. Wall
7	FUCAT	Tubarao	N. C. Wall
9	Madeiros Cardoso	Tubarao	N. C. Wall
9	Gaucha Madereira	Laguna	N. C. Wall
10	INCOCESA	Tubarao	N. C. Wall
12	Estrutura Metalica	Tubarao	N. C. Wall
12	Mecanica ABC	Tubarao	N. C. Wall
14	Transportadora Manique Ltda.	Criciuma	N. C. Wall

Table 7 (Continued)

<u>Date</u>	<u>Industry or Organization</u>	<u>Location</u>	<u>Contacted by</u>
Dec. 14	Metalurgica Souza Ltda.	Tubarao	N. C. Wall
15	Warmeling & Filho	S. Ludgero	N. C. Wall
15	Industria Extrativa Ltd.	Gravatal	N. C. Wall
16	Levi Fenilli	Tubarao	N. C. Wall

While at FESSC, Mr. Wall also worked closely with the staff assigned to preparing the technical program, proposals, and general activities of the new Technical Center which was under construction. As usual, many industrial visits were made in order to evaluate the technical assistance service being offered by FESSC and the counterpart team.

#### Industries and Organizations Contacted

A basic task of both the OIP and FESSC staff since the initiation of this program has been to work directly with the new and existing small-scale industries and other organizations in the area. The joint staff also has tried to evaluate, on a yearly basis, the new jobs generated as well as the jobs saved through this provision of technical assistance. Table 7 of this report lists all the organizations or small-scale industries contacted by the OIP staff and Appendix 1 presents in a summary manner the industries serviced by the joint staff.

## RESULTS AND CONCLUSIONS

Some very significant accomplishments have been made as a result of the activities implemented during this fourth year of the program, a few of which were highlighted in the Introduction of this report. Much credit goes to the counterpart institution, since it has been making available additional funding from both internal and government sources throughout the four years of this program.

In summary, the following results were achieved under this grant during Year IV:

1. The CETEG staff responded to requests for consultation from 62 small-scale industries, of which 34 were considered as technical-management assistance cases. These 34 cases were in 13 different municipalities of the state of Santa Catarina. Over the past four years, the CETEG staff has responded to a total of 161 technical-management assistance cases and served as a consultant to a grand total of 193 small-scale industries.

2. During Year IV, a survey was made of 23 companies out of the 34 that were considered as management-technical assistance cases. They reported having increased employment by a total of 667 persons.

3. The counterpart staff also completed during this fourth program year three prefeasibility studies, 13 new manufacturing opportunity studies, three management guidelines, five industrial studies, and two case studies.

4. As part of their ongoing activities, five conferences, seminars, or lectures were also presented by the FESSC staff during Year IV.

5. The Basic Data Center added 1,972 publications plus some 1,931 newspaper clippings to their collection during this year. Since the start of the program four years ago, the CDB has increased its holdings from 241 units saved from the 1974 flood to the present 4,290 units. During this program year, the CDB received 526 information requests from the FESSC staff, students, and the general public.

6. The proposed Technology Center was approved by the federal and state governments and funding was made available (26 million cruzeiros) for the construction and equipment of the 4,000-square meter building. This building is now under construction and scheduled to be completed by May 1978.

7. In the area of human resources, FESSC presented 22 training programs which were completed by a total of 1,294 persons. Over the past four years, a total of 184 training programs have been offered to the general public and 4,717 persons have completed them.

8. FESSC supplied 190 participants in 41 different training programs offered elsewhere in Brazil. OIP presented a training program for FESSC staff and 34 staff members were awarded certificates of completion.

9. The audiovisual documentation was continued with filming of progress made during Year IV.

10. As usual, the OIP staff provided on-site professional consultation to FESSC and many local industries being served by the counterpart staff.

The combined staff and the joint project directors, after completing an in-house project evaluation and review last December 1977, have concluded that all the goals for Year IV have been met. Plans for Year V have now been completed and will be implemented as soon as the sponsor authorizes the next year's follow-up program.

Appendix 1  
SUMMARY OF TECHNICAL ASSISTANCE CASES, 1977

SUMMARY OF TECHNICAL ASSISTANCE CASES, 1977

<u>Case No.</u>	<u>Municipality</u>	<u>Product</u>
1	Tubarao (S.C.)	Automotive Parts
2	Gravatal (S.C.)	Silica
3	Sao Ludgero (S.C.)	Livestock
4	Tubarao (S.C.)	Rubber Mats
5	Tubarao (S.C.)	Metallurgy
6	Orleans (S.C.)	Plastics
7	Ararangua (S.C.)	Agricultural Equipment
8	Tubarao (S.C.)	Electrical Transformers
9	Tubarao (S.C.)	Metal Frames & Structures
10	Tubarao (S.C.)	Metal Structures
11	Tubarao (S.C.)	Pug Mills
12	Tubarao (S.C.)	Garments
13	Urussanga (S.C.)	Nonmetallic Minerals
14	Tubarao (S.C.)	Chair Frames
15	Sombrio (S.C.)	Footwear
16	Ararangua (S.C.)	Footwear
17	Tubarao (S.C.)	Meat Grinders
18	Lauro Muller (S.C.)	Furniture
19	Tubarao (S.C.)	Wax Products
20	Tubarao (S.C.)	Wood Shop
21	Tubarao (S.C.)	Class Association
22	Itajai (S.C.)	Cement Products
23	Tubarao (S.C.)	Textiles
24	Tubarao (S.C.)	Cement Products
25	Tubarao (S.C.)	Clay Products
26	Criciuma (S.C.)	Transportation
27	Imbituba (S.C.)	Construction
28	Tubarao (S.C.)	Hospital
29	Criciuma (S.C.)	Lumber Industry
30	Tubarao (S.C.)	Lumber Industry
31	Tubarao (S.C.)	Metallurgy
32	Laguna (S.C.)	Nonmetallic Minerals
33	Criciuma (S.C.)	Metallurgy

<u>Case No.</u>	<u>Municipality</u>	<u>Product</u>
34	Tubarao (S.C.)	Foundry
35	Laguna (S.C.)	Tourism
36	Not defined	Agroindustry
37	Tubarao (S.C.)	Plastics
38	Tubarao (S.C.)	Nonmetallic Minerals
39	Not defined	Metallurgy
40	Tubarao (S.C.)	Metallurgy
41	Urussanga (S.C.)	Chemical Industry
42	Tubarao (S.C.)	Nonmetallic Minerals
43	Tubarao (S.C.)	Federal Government
44	Tubarao (S.C.)	Optical Industry
45	Tubarao (S.C.)	Banker
46	Criciuma (S.C.)	Equipment for Ceramic Industry
47	Tubarao (S.C.)	Commerce
48	Criciuma (S.C.)	Equipment for Ceramic Industry
49	Criciuma (S.C.)	Equipment for Ceramic Industry
50	Tubarao (S.C.)	Agriculture & Cattle
51	South Santa Catarina	Private Association
52	Aramazem (S.C.)	Municipal Government
53	Criciuma (S.C.)	Mechanic-Metallurgy
54	Francisco Beltrao (PR)	Education
55	Brasilia (D.F.)	Ministry of Labor
56	Tubarao (S.C.)	Civic Group
57	South Santa Catarina	Community
58	Tubarao (S.C.)	Municipal Government
59	Laguna (S.C.)	Municipal Government
60	Itajai (S.C.)	Education
61	Tubarao (S.C.)	Graphics
62	Florianopolis (S.C.)	Government

CASE NO. 1

MAIN PRODUCT: AUTOMOTIVE PARTS

Municipality: Tubarao (S.C.)

Brief Description of Problem

An industry manufacturing reclining seats, rubber automotive accessories, and seats for trucks was interested in expanding and needed to organize its operations. This company was placing much emphasis on the production of rubber automotive accessories and seats for trucks.

Applied Solution

After conducting a market study, the FESSC staff discovered that the rubber automotive accessories and seats for trucks had a very low profit margin. On the other hand, the reclining seats were the business' real profit makers.

The staff recommended that the company concentrate on the production of reclining seats. The FESSC team developed a reorganization plan for the company, recommended strategies for market expansion, and helped them in the selection of a location for a branch office. After all of these suggestions and recommendations were implemented, sales volume increased from Cr\$720,000 to Cr\$1,249,781 for the year 1977.

CASE NO. 2

MAIN PRODUCT: SILICA

Municipality: Gravatal (S.C.)

Brief Description of Problem

This industry, due to administrative disorganization, was in very serious financial difficulties. At the brink of bankruptcy, they asked FESSC for assistance.

Applied Solution

Once the problem was identified, the following recommendations were made:

1. Prepare a financial statement.
2. Legally void the financial documents lost or altered.

3. Organize an office for administration, bookkeeping, and to develop new markets.
4. Modify the representatives' contracts which were unilateral and prejudicial to the company.

After these recommendations were implemented, the employees were reduced from 122 to 98 and sales went up from Cr\$3,600,000 in 1976 to Cr\$7,893,453 in 1977.

CASE NO. 3

MAIN PRODUCT: LIVESTOCK

Municipality: Sao Ludgero (S.C.)

Brief Description of Problem

This organization is in business to raise poultry, swine, and sheep. The owner wanted to expand and reorganize the business.

Applied Solution

The FESSC staff conducted a study and made a series of management and technical recommendations to the management, many of which were implemented.

The results were a reduction in employment by 10% (from 39 to 35) and an increase in sales of 110% in the period from 1976 to 1977.

CASE NO. 4

MAIN PRODUCT: RUBBER MATS

Municipality: Tubarao (S.C.)

Brief Description of Problem

A small manufacturer of rubber mats for cars had the following problems: There is a remnant of plastics that cannot be used in the production, as well as an inventory of raw material that is not used in the production of rubber mats for cars.

Applied Solution

The FESSC team recommended that this industry sell the remnants of plastic material to shoemakers and the raw material to upholsterers. It was

further suggested to limit investment in this basic product (rubber mats) because of the limited possibilities for further business expansion.

The company implemented these suggestions and established a new line of production to use the remnants. Sales rose from Cr\$170,000 to Cr\$600,000 a year.

CASE NO. 5

MAIN PRODUCT: METALLURGY

Municipality: Tubarao (S.C.)

Brief Description of Problem

This company, located in a small building, was producing between eight and 20 metal safes a month, with a production cycle of 15 days. They contacted FESSC for advice in the layout of the new factory that they were planning to build.

Applied Solution

After a study was made, the company was advised to build an open hut in the back of the building to increase the capacity instead of constructing a new building. A new plant layout was incorporated and the need to mechanize was pointed out.

After these recommendations were implemented, production increased by 1500%. The number of employees rose by 60%.

With the money they saved by staying in the old building, they bought some much-needed machinery.

CASE NO. 6

MAIN PRODUCT: PLASTICS

Municipality: Orleans (S.C.)

Brief Description of Problem

A local manufacturer of plastic bags was operating at a very low level of production because of difficulty in obtaining raw material.

### Applied Solution

At the request of the FESSC staff, the OIP staff looked into the possibilities of a purveyor of raw materials in the U.S.A. The owners were advised of this new source, but to date have not decided to import the much-needed raw material. The case is still being attended.

CASE NO. 7

MAIN PRODUCT: AGRICULTURAL EQUIPMENT

Municipality: Ararangua (S.C.)

### Brief Description of Problem

This industry manufactures agricultural equipment. They are being legally prevented from manufacturing one of their principal products (terracing machine) by another national producer, who claims to hold a patent for said machine.

### Applied Solution

Assistance was requested from OIP and a patent search was made in the U.S.A. This machine is being manufactured by several companies in the U.S.A., and apparently the patent (if one exists) has expired. This information was transferred to the company via the FESSC team. The case continues in court.

CASE NO. 8

MAIN PRODUCT: ELECTRICAL TRANSFORMERS

Municipality: Tubarao (S.C.)

### Brief Description of Problem

Due to poor administration, this company is presently facing a financial crisis. Management asked FESSC to identify management entrepreneurs who might be interested in buying this industry.

### Applied Solution

The FESSC staff conducted a complete study of the firm and started looking for prospective buyers. The conclusion drawn from this industry study

was that the machinery, equipment, and installations were outdated and the location of the factory was inadequate. These problems, added to the fact that the owner had bad health and was disgusted over the idea of selling the business in unfavorable conditions, were the reasons for FESSC's decision not to assist in trying to sell this industry. Later the industry was bought by a young entrepreneur who retained the past owner as technical advisor.

CASE NO. 9

MAIN PRODUCT: METAL FRAMES & STRUCTURES

Municipality: Tubarao (S.C.)

Brief Description of Problem

This small industry produces metal frames. Management was considering a merger with an industry that produced metal structures and requested the assistance of the FESSC team on the subject.

Applied Solution

The FESSC team conducted an industry study of the company with which this organization was planning to merge. It was determined that the company producing metal structures was in critical financial condition and on the verge of bankruptcy. Therefore, the idea of merging was discarded; instead two key employees were hired from the other company and the producer of metal frames also started manufacturing metal structures. As a result of these activities, employment increased by 100% in one year and sales went from Cr\$70,000 per month in 1976 to Cr\$250,000 a month in 1977.

CASE NO. 10

MAIN PRODUCT: METAL STRUCTURES

Municipality: Tubarao (S.C.)

Brief Description of Problem

A local manufacturer of metal structures was facing financial problems. The company asked for information on how to solve their problems.

### Applied Solution

A study was conducted of the industry--the obligations of the company to the creditors, taxes owed, etc.--all of which demonstrated that it was too late to establish any sort of plan to solve their financial problems. The FESSC team could do nothing to alter the critical situation, and the company went bankrupt shortly thereafter.

CASE NO. 11

MAIN PRODUCT: PUG MILLS

Municipality: Tubarao (S.C.)

### Brief Description of Problem

The company manufactures pug mills and other equipment. They had problems with the clay mixing (pugging) unit and the extruder and requested assistance from the FESSC team to improve the design.

### Applied Solution

The problem was forwarded by FESSC to OIP, which obtained information as well as printed material on the design of these units. The company used the technology made available to them via OIP and FESSC and proceeded to modify their equipment design.

According to the company, the results have been very good. The product is now of a very good quality, highly competitive, and it is being introduced in other markets.

CASE NO. 12

MAIN PRODUCT: GARMENTS

Municipality: Tubarao (S.C.)

### Brief Description of Problem

A small garment manufacturer also facing financial problems requested assistance from FESSC in order to determine how to locate additional funding and to interest other investors.

### Applied Solution

Earlier in this program, this same company indicated that they wished to build a new plant, and the FESSC study recommended that this not be done as it would drain the company financially. The owners went ahead and built a new plant. As a result the company cash flow was greatly reduced. Later, it was further determined that up to 70% of the production had been sold to "poor risks" and at this time these invoices were uncollectible. Shortly thereafter, the company went bankrupt and had to close.

CASE NO. 13

MAIN PRODUCT: NONMETALLIC MINERALS

Municipality: Urussanga (S.C.)

### Brief Description of Problem

An international group contacted this industry and offered them a coal gasifier as an alternate energy source. The company requested that the FESSC team evaluate the proposed coal gasifier prior to purchase.

### Applied Solution

Research conducted by the FESSC team indicated that the gas generated would be of low grade (1600 Kg/cal) and gas production was estimated at 25.9 m<sup>3</sup>/ton of coal. The required investment of over 32 million French francs was considered too high for the energy produced. The FESSC team recommended that this purchase not be concluded; the management of the company accepted the recommendation and rejected the offer.

CASE NO. 14

MAIN PRODUCT: CHAIR FRAMES

Municipality: Tubarao (S.C.)

### Brief Description of Problem

This industry was in financial difficulties, due to administrative errors such as overinvestment, non-selective sales, and high-interest loans. They asked FESSC for their opinion on whether to sell or admit other partners into the company.

Applied Solution

After an in-depth study of the industry, the FESSC staff recommended the following actions:

1. Increase working capital.
2. Activate the collection of all bills.
3. Reduce operating costs of the industry.

These recommendations were implemented by the owners. The number of employees was cut from 35 to nine, while still maintaining the same volume of production; sales were increased from 300,000 to 350,000 cruzeiros per month, and salaries were reduced for the three company directors (owners-operators). By the end of 1977, the company was recovering and again meeting its loan payments.

CASE NO. 15

MAIN PRODUCT: FOOTWEAR

Municipality: Sombrio (S.C.)

Brief Description of Problem

Management contacted FESSC and requested assistance in solving a problem of limited working capital.

Applied Solution

The staff at FESSC provided management with information on special types of loans available from the federal government through PROGIRO to assist small-scale industries. The case is still open and management has applied for the necessary loan.

CASE NO. 16

MAIN PRODUCT: FOOTWEAR

Municipality: Ararangua (S.C.)

Brief Description of Problem

Much as in the previous case, the company was lacking working capital and requested assistance from FESSC. The previous year, the FESSC team had

conducted a feasibility study leading to the establishment of this small industry.

Applied Solution

Information relating to loans to small and medium-size industry was made available to them. The federal government now has a program entitled PROGIT to provide small loans to small and medium-sized industries in Brazil. Management has made a loan application, and at this time the case remains open.

CASE NO. 17

MAIN PRODUCT: METAL GRINDERS

Municipality: Tubarao (S.C.)

Brief Description of Problem

The meat grinder being produced was not operating properly and many parts failures were being reported. As a result, many meat grinders were being returned to the manufacturer. The company decided to change the model being made, and at this point requested assistance from FESSC.

Applied Solution

FESSC requested assistance from OIP, which provided drawings and pictures of alternate models of meat grinders. The design failures were identified as being due to (a) improper material being used for the gears and (b) poor design of the helical gear in the main drive. The technology was transferred by the FESSC staff and management implemented the solutions offered. The new model is being well received by the consumer and the company has expanded from 86 employees to 115 by year's end.

CASE NO. 18

MAIN PRODUCT: FURNITURE

Municipality: Lauro Muller (S.C.)

Brief Description of Problem

This industry manufactures furniture in a region where the economy is closely related to the coal industry. Because the coal industry at present

is going through an economic setback, this has directly affected the economy of the region, thus getting local industries such as this one into great financial trouble. The company asked FESSC for assistance.

#### Applied Solution

The FESSC staff conducted a study and recommended that this industry be more selective with sales on credit, and the sales be expanded by using intermediaries (middlemen) and by expanding the market area. To properly use intermediaries, it was suggested that they manufacture disassembled furniture and increase productivity to reduce production expenses. It also was suggested that the system be modified by using production lines. The industry adopted the recommendations. As a result, the problem with the sales on credit has been solved and some of the product is being sold to wholesalers. Consequently, productivity has increased by 50%, sales have grown from Cr\$700,000 in 1976 to Cr\$1,800,000 in 1977, and machinery has been bought. However, improvements still are needed in the organization of the business.

CASE NO. 19

MAIN PRODUCT: WAX PRODUCTS

Municipality: Tubarao (S.C.)

#### Brief Description of Problem

This industry manufactures candles. Management had financial problems, not enough working capital, and wanted to explore the foreign market as to the possibility of exporting their products. They asked FESSC for assistance.

#### Applied Solution

Information on loans to increase their working capital through PROGIRO was furnished by the FESSC staff. CACEX and the Ministry of Foreign Relations were contacted and all the information obtained was forwarded to the industry. The plan for exporting the company's products is in preparatory stages. The number of employees went from three to six in 1977 and production was tripled.

CASE NO. 20

MAIN PRODUCT: WOOD SHOP

Municipality: Tubarao (S.C.)

Brief Description of Problem

This small industry manufactures wood products. The owner was recalled to his previous job, from which he had been laid off, and was thinking of selling the business. FESSC was approached for assistance in making the decision.

Applied Solution

The FESSC staff analyzed the situation and recommended that the owner not sell. He was advised to go back to work in his previous job and to operate his business in his free time. It was pointed out that in two years he will be eligible for retirement, at which time he will have more time to work in his industry. On the other hand, if he sold it, he would spend his money, and after retiring he would be very unlikely to have any money left to open a new factory. In addition, his current salary was not going to be enough to make a living.

The owner followed the suggestions and is very happy with the way things are turning out.

CASE NO. 21

MAIN PRODUCT: CLASS ASSOCIATION

Municipality: Tubarao (S.C.)

Brief Description of Problem

In 1974 severe flooding occurred in this region and emergency loans were made available to the business of the area. In an appeal made through FESSC to the President of the Republic of Brazil, the interest rate was reduced by half, but there was doubt that the interest charges on the loans as computed by the bank were correct. They asked FESSC for help.

Applied Solution

At the beginning, FESSC decided not to get involved in this dispute because of the danger of being paternalistic with the Association and because

this is an easy problem to resolve and could be solved by them. However, FESSC checked the contract and found that there were errors in the calculations. The staff suggested calculating all the charges and then comparing them against the figures calculated by the bank. For this task, FESSC provided the Association with a copy of the resolution from the Treasury Department pertaining to this case. Following these recommendations, the Association went to the bank and resolved the disparities.

CASE NO. 22

MAIN PRODUCT: CEMENT PRODUCTS

Municipality: Itajai (S.C.)

Brief Description of Problem

A group of entrepreneurs was interested in getting bank financing to start a medium-size industry to manufacture concrete beams and flagstones. They then came to FESSC for assistance in doing this.

Applied Solution

It was suggested to the interested group that they use one of the existing loan programs offered by FINAME, BRDE, BADESC, or BESC. These loans can be secured at 10% interest plus a 12% monetary correction factor. The case is still pending.

CASE NO. 23

MAIN PRODUCT: TEXTILES

Municipality: Tubarao (S.C.)

Brief Description of Problem

This newly formed industry, which manufactures garments, asked FESSC for information on financial sources.

Applied Solution

It was suggested that they contact PROGIRO for a loan. PROGIRO will lend money to small and medium-size industries at a yearly interest of 22% on 24-month notes. The case remains open.

CASE NO. 24

MAIN PRODUCT: CEMENT PRODUCTS

Municipality: Tubarao (S.C.)

Brief Description of Problem

This entrepreneur wanted to manufacture flagstones and stepping stones. He contracted with a company to design and build the machine needed for this operation. He paid for this machine, and it subsequently was delivered only partially finished. Not being able to resolve his problem with the machine manufacturer, he then contacted FESSC for assistance.

Applied Solution

The FESSC staff suggested that the entrepreneur contact the company again and try to make them finish the machine. If unsuccessful, the technical staff at FESSC would help him complete it. Information on equipment related to this industry was provided to the owner by FESSC, and it was suggested that he start producing concrete beams. Results: The industrialist welcomed the idea and is already producing concrete beams. Case still open.

CASE NO. 25

MAIN PRODUCT: CLAY PRODUCTS

Municipality: Tubarao (S.C.)

Brief Description of Problem

This is a small family-owned industry that manufactures clay products. Last year FESSC took the owner to visit more advanced industries in the area. This industry used wood to fire its ovens, and complained of the high cost of fuel. Management approached FESSC for assistance in solving this problem.

Applied Solution

The FESSC staff suggested the use of coal for the firing of the ovens. The industry, following this suggestion, built new coal-fired ovens, saving 40% on the cost of fuel and obtaining a better product. They have increased their production.

CASE NO. 26

MAIN PRODUCT: TRANSPORTATION

Municipality: Criciuma (S.C.)

Brief Description of Problem

The owner-manager of this transportation firm has been facing financial problems during the past year. One of the problems he recognized was the fact that the firm was very decentralized and somewhat disorganized. He contacted the FESSC staff and requested assistance.

Applied Solution

Research by the FESSC team was carried out and the following recommendations were made:

1. Establish a bookkeeping system of daily entry that would enable management to control all the units daily.
2. Reduce capital expenditures by 60%.
3. Follow a centralization strategy to regain total control of the business.

The owner welcomed these suggestions. He established a system to control the business, reduced personnel from 60 to 45 employees, and the company is now a profitable business.

CASE NO. 27

MAIN PRODUCT: CONSTRUCTION

Municipality: Imbituba (S.C.)

Brief Description of Problem

The company, in the process of being established, wanted to initiate an adequate bookkeeping system and hired an accounting firm to do this. Later they requested that the FESSC team review the bookkeeping system.

Applied Solution

The system established was too elaborate and sophisticated for a small-scale business to operate. Changes are being suggested by the FESSC team and are now being implemented. Case still open.

CASE NO. 28

MAIN PRODUCT: HOSPITAL

Municipality: Tubarao (S.C.)

Brief Description of Problem

This enterprise, a hospital, was to have been partially financed by the INPS, but the promised funds had not been received and the enterprise was going through financial difficulties. At this point, they contacted FESSC for assistance.

Applied Solution

After reviewing the situation, the FESSC staff suggested they obtain financing from PROGIRO, a federal loan program providing funds over two-year pay periods at 21% yearly interest. The management started to do this, but before completing the new loan application, INPS released the authorized funds and there was no need for an additional loan.

CASE NO. 29

MAIN PRODUCT: LUMBER INDUSTRY

Municipality: Criciuma (S.C.)

Brief Description of Problem

This sawmill operation was established about five years ago, and during the past year management decided that they required additional working capital. They approached FESSC and requested assistance in determining financial sources.

Applied Solution

The staff at FESSC suggested that they apply at once for a loan from PROGIRO under the existing program for small-scale industry loans. The management, after a long waiting period, decided to apply for the loan and did so, but by then the available funding was nearly exhausted. The loan request is still pending and the case remains open.

CASE NO. 30

MAIN PRODUCT: LUMBER INDUSTRY

Municipality: Tubarao (S.C.)

Brief Description of Problem

These industrialists, in the lumber industry, wanted to diversify and needed assistance in starting a new line manufacturing furniture.

Applied Solution

The FESSC staff prepared an industry study and concluded that this industry was in financial stress and very disorganized. They also pointed out the fact that the furniture industry was going through a period of low sales and profits. FESSC suggested that they not diversify, but concentrate their efforts on organizing the existing business instead. The industrialists decided not to expand, and expressed interest in assistance from the FESSC program to organize their business.

CASE NO. 31

MAIN PRODUCT: METALLURGY

Municipality: Tubarao (S.C.)

Brief Description of Problem

Internal Revenue fined this company for having claimed tax exemption under what they considered voided legislation. The company management contacted FESSC for assistance in resolving this case.

Applied Solution

The case was studied and it was concluded that the business was still tax exempt. A copy of the new legislation was provided to them by FESSC. Apparently the state office used the wrong legislation. Case resolved.

CASE NO. 32

MAIN PRODUCT: NONMETALLIC MINERALS

Municipality: Laguna (S.C.)

Brief Description of Problem

This company needed a nutritionist to implement for its employees the food program of the Ministry of Labor. They requested assistance in hiring a nutritionist.

Applied Solution

The office at FESSC put them in contact with various nutritionists. The company is now interviewing the candidates and will be hiring one of them.

CASE NO. 33

MAIN PRODUCT: METALLURGY

Municipality: Criciuma (S.C.)

Brief Description of Problem

Three entrepreneurs acquired an existing business. All of them had other occupations and nobody was really taking care of the business. For this reason, this business was disorganized and losing money. Two of the partners wanted to sell their shares. The third partner was to remain as the sole owner.

Applied Solution

The FESSC staff conducted a study and concluded that the location of the industry was wrong, the machinery was outdated or obsolete, and the productivity was very low and disorganized. It was suggested that very little money should be invested in this industry until another building was selected. It was also suggested that a managerial staff should be hired to organize the business and the selection of new lines of production should be implemented. With these modifications, the company should increase productivity by 40% to 50% and become profitable. An adequate location and machinery also should be sought. No results are available yet, and the case remains open.

Appendix 2

SUMMARY OF TRAINING PROGRAM PRESENTED, 1976-78

PREVIOUS PAGE

CURSO PROFESIONAL SOBRE  
INGENIERIA Y ADMINISTRACION

Resumen

Este curso ha sido diseñado con el propósito de proveer una oportunidad exclusiva para que el personal profesional de la Fundacao Educacional do Sul de Santa Catarina (FESSC) se familiarice con algunos de los nuevos métodos utilizados en el desarrollo de proyectos y la evaluación y administración de los mismos. Entre los temas que serán presentados se incluye la generación de ideas, conceptos para nuevos proyectos, preparación de propuestas, análisis de costo/beneficio, planificación, programación y proceso de control. Dentro del tópico de análisis de proyecto se tratará, en forma detallada, el desarrollo de pequeñas empresas. La generación de idea para inversiones, estudio de mercado, análisis técnico-financiero y otros también serán tratados durante el programa. Finalmente, se discutirá y se evaluará el problema especial del análisis de proyectos de pequeñas industrias dentro de la realidad de Brasil.

Se cubrirá el programa que se señala mediante presentaciones de clase, así como grupos de trabajo. Los instructores del programa serán miembros de la facultad del Instituto Tecnológico de Georgia y la Fundacao Educacional do Sul de Santa Catarina. El programa será presentado en dos partes que serán denominadas Fase I y Fase II, respectivamente. La Fase I será ofrecida durante los días de Diciembre 6 al 10 de este año; la Fase II se dictará en el período de Abril 5 al 15 de 1977. Se establece que sólo se ofrecerán cuatro horas por día de clase y que el programa se presentará de las 18:00 a las 22:00 horas de días hábiles. Al término de la segunda fase, se otorgarán certificados conjuntos (GIT-FESSC) a los participantes que tengan cumplido con éxito las dos fases del programa. Se limitará la participación a unas 20 personas que serán seleccionadas por la FESSC de sus cuadros profesionales.

Tópicos del Curso - Fase I

1. Evaluación de Proyectos

- a. Formas de tomar ideas, generar conceptos y la evaluación de proyectos. Se presentarán métodos de costo/beneficio, retorno interno y otras formas de análisis.

Facultad	H. Davis
Aula	5 Horas
Práctica	5 Horas

## 2. Administración

- a. Métodos usados en la planificación y programación de proyectos.  
Se incluye el sistema de "matrix lógica."

Facultad	H. Davis
Aula	3 Horas
Práctica	2 Horas

## 3. Aplicación de Conceptos en FESSC

- a. La presentación de sistemas usados por la FESSC y como estas ideas anteriores pueden ser usadas por la administración de la FESSC.

Facultad	FESSC
Aula	3 Horas
Práctica	2 Horas

Total de la Fase I	Aulas	11 Horas
	Práctica	<u>9 Horas</u>
		<u>20 Horas</u>

## Tópicos del Curso - Fase II

### 1. Desarrollo de Proyectos

- a. El desarrollo, análisis y la evaluación de las metas y de la filosofía operacional. La determinación de los requerimientos económicos, punto de balance y proyecciones económicas.

Facultad	N. Wall
Aula	3 Horas
Práctica	1 Hora

- b. Generación de ideas para inversiones, análisis del mercado, análisis técnico y financiero.

Facultad	N. Wall
Aula	3 Horas
Práctica	1 Hora

### 2. Administración

- a. Uso de presupuestos, control financiero, costo de operaciones, generación de fuentes económicas.

Facultad	N. Wall
Aula	3 Horas
Práctica	1 Hora

- b. Administración de la tecnología propia o adquirida, patentes, licencias, derechos de inventar, y los derechos de la institución

Facultad N. Wall  
Aula 2 Horas

- c. Otros métodos administrativos usados por las instituciones contraparte de GIT en el desarrollo de pequeñas industrias.

Facultad N. Wall  
Aula 1 Hora

3. Problemas de las Pequeñas Industrias

- a. Ambiente económico  
b. Organización  
c. Planificación y control  
d. Comunicaciones  
e. Personal  
f. Medidas de trabajo  
g. Evaluaciones

Facultad N. Wall  
H. Davis  
Aula 5 Horas  
Práctica 2 Horas

4. Informes Técnicos

- a. Preparación de documentos económicos, presupuestos, documentos de préstamos y otros.

Facultad H. Davis  
Aula 3 Horas  
Práctica 1 Hora

- b. Redacción, preparación, presentación de documentos técnicos, estudios de base, informes de investigaciones y otros.

Facultad N. Wall  
Aula 3 Horas  
Práctica 1 Hora

5. Aplicación de Conceptos en FESSC

- a. La aplicación del material presentado al uso general de la administración de la FESSC así como las industrias con quienes ellas laboran.

Facultad FESSC  
Aula 4 Horas

Total de la Fase II	Aulas	27 Horas
	Práctica	<u>7 Horas</u>
		<u>34 Horas</u>
PROGRAMA TOTAL (FASE I & II)		
	Aulas	38 Horas
	Práctica	<u>16 Horas</u>
		<u>54 Horas</u>

### Certificación

Como fue señalado al inicio, las personas que terminan las dos fases del programa con éxito recibirán un certificado que será emitido por la Fundação Educacional do Sul de Santa Catarina y el Georgia Institute of Technology.

### Costo

El personal docente de ambas instituciones aportarán sus servicios sin costo alguno ya que están cubiertos por el programa existente entre ambas instituciones. La FESSC decidirá si desea cobrar una pequeña cantidad en forma de matrícula a los participantes para cubrir los costos de materiales e impresión de documentos.

FESSC STAFF THAT COMPLETED  
TRAINING PROGRAM, 1977-78

1. Agenor Henrique Albring
2. Agostino Andrino Frasson
3. Antero Tadeu Mafra
4. Antonio Joao Manfio
5. Amaline Boulus Issa Mussi
6. Cecilia Larroyd
7. Erly Perini
8. Elly Ribeiro Nunes
9. Eugenia Carneiro Aguiar
10. Evaldo Sampaio Garcia
11. Fawzi Mustafa El-Mashni
12. Gerson Luiz Joner da Silveira
13. Humberto Dalsasso
14. Jovino Armando Dutra
15. Jose Muller
16. Jose Alexandre de Souza
17. Joaquim de Sa Faraco
18. Joao Alves Schmitz
19. Jaime Genovez
20. Joao Jeronimo de Medeiros
21. Lucia Flavia Correa Garcia
22. Laudelino Santos Neto
23. Maria Joni Cani Maiochi
24. Mauro Francisco Haverroth
25. Miguel Popoaski
26. Nilton Joao Ramos
27. Paulina Volpato Wronski
28. Silvia Michels
29. Silvestre Heerdt
30. Vasco Antonio Baratto
31. Vilma Citadim Tonon
32. Victorio Wronski
33. Wladilen dos Santos Villar
34. Wilson Schulter