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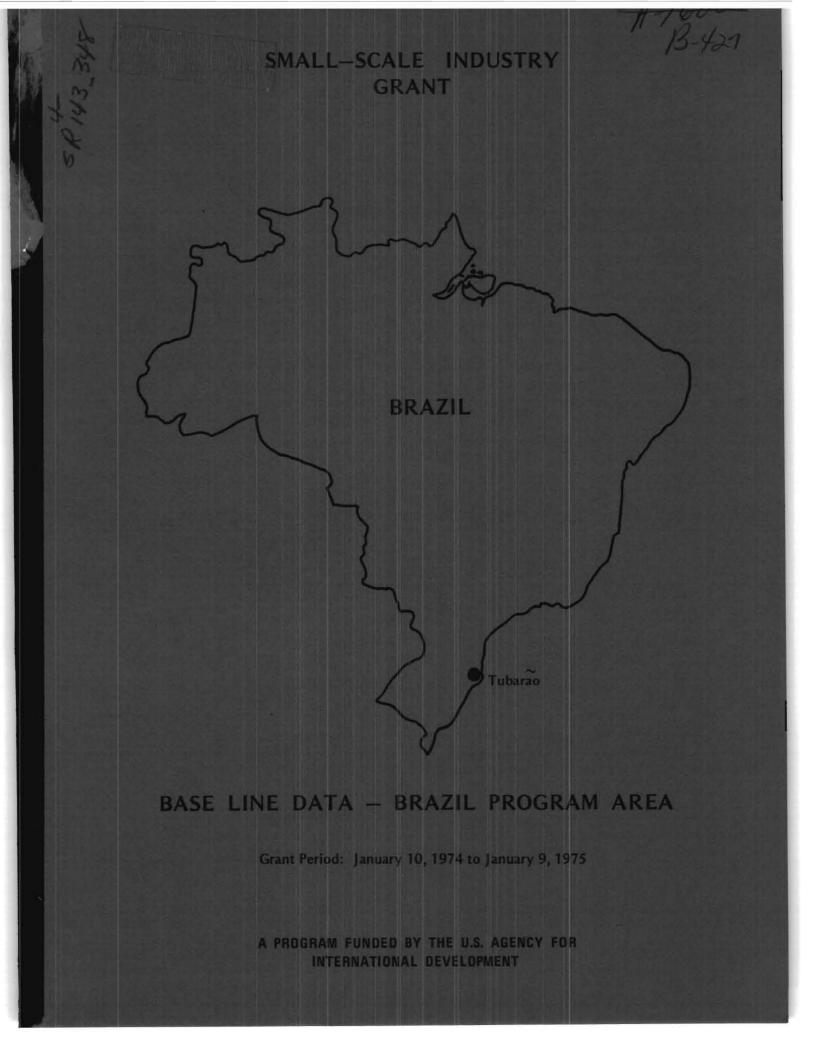
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PROJECT INITIATION

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Sponsor Contact Person (s): Mr. Osvaldo Dela Guistina, H Fundacao Educacional do Sul Av Acacio Moreira, 787 Tubarao, Santa Catarina, Bra	de Santa		
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.



BASE LINE DATA

AREAS OF BRAZIL SERVED BY EDUCATIONAL FOUNDATION OF SOUTH SANTA CATARINA

V.I

Compiled by

Industrial Development Division Engineering Experiment Station

GEORGIA INSTITUTE OF TECHNOLOGY Atlanta, Georgia 30332

January 1975

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BACKGROUND AND INTRODUCTION

United States of Brazil

The United States of Brazil was discovered in 1500 by Cabral, a Portuguese explorer. With a land area of 8,511,965 square kilometers and 98 million inhabitants (1972 census), it is third in size and second in population in the western hemisphere.

Brazil's gross national product of CR\$298,902 million (US\$46 billion) in 1972 placed the country in the 15 top producing nations in the world. The estimated real annual growth rate of between 13% and 15% for the past five years is among the world leaders.

This outstanding growth, however, has been accomplished largely in the "Golden Triangle" comprising the three states of Sao Paulo, Minas Gerais, and Rio de Janeiro. In the remaining 26 states, development ranges from the arid, tropical, and poor northeast to areas in the south that are rich in resources, largely underdeveloped in comparison with the "Golden Triangle," and have a varied pattern of development, such as Parana, Rio Grande do Sul, and Santa Catarina.

Even within a developing state like Santa Catarina, there are pockets of underdevelopment that have not kept pace with the area's overall economic progress. For this reason, the southern section of Santa Catarina was chosen by the Government of Brazil and by the State of Santa Catarina to receive special developmental assistance.

Educational Foundation of South Santa Catarina

Fundacao Educacional do Sul de Santa Catarina (FESSC) was founded in 1967 as a state university of economic sciences. The Department of Research and Development, established in 1969, will provide the main thrust of the technical assistance to be given to industries in the South Santa Catarina area.

In 1970, an advanced School of Science and Teaching was added at FESSC. The Trade School of Dehon was established in 1972 for teaching technical courses. Enrollment in 1972 was 894 in the university and 460 in the technical curriculum.

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The Research and Development Department of FESSC is considered to be on the same level as the other faculties of the university. The basic objective of this center of technical knowledge is the practical application of existing knowledge to the problems of industry in the area.

Area of Technical Assistance

The area that will be assisted by FESSC is in the southernmost section of the state of Santa Catarina and covers 9,409 square kilometers, with a population of 496,785. The state has an area of 95,483 square kilometers and 2,901,734 inhabitants (1970 census). The service area comprises two municipal association areas -- the Association of Municipalities of the Laguna Region (AMUREL), centered in Tubarao, and the Association of the Municipalities of the South of the State of Santa Catarina (AMSESC), centered in Criciuma.

In the initial stages of industrial assistance, it has been proposed that FESSC concentrate its efforts in the three municipalities of Braco do Norte, 184 square kilometers and 10,540 population, with 74 industries and employment of 364; Laguna, 353 square kilometers and 35,042 population, with 169 industries and employment of 1,653; and Tubarao, 353 square kilometers and 66,876 population, with 145 industries and employment of 2,909.

Introduction to Base Line Data

This report consists of a series of tabular displays of data on the area to be served by FESSC. The data include an identification of existing industry by classification, size, number of firms, number of workers, and total sales. Detailed information by industrial classification is provided for South Santa Catarina, AMUREL, AMSESC, and the cities of Tubarao, Braco do Norte, and Laguna. Industry totals (number of firms, number of employees, and sales of industrial establishments) are given for each city within each of the two municipal association areas. In addition, population and land area data are listed for all municipal association areas of Santa Catarina and for all cities within the two municipal association areas comprising the FESSC service area.

The primary sources of information for the tables that follow are the DPD/FESSC industrial census of 1971-1972 and the FIBGE population census of 1970. All data were provided by FESSC. Similar data will be compiled at the end of the project for comparison and evaluation. In addition, comparable

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information will be gathered on each industry or group of industries which FESSC assists.

Table l

BASIC MANUFACTURING DATA, SOUTH SANTA CATARINA BY MUNICIPAL ASSOCIATION AREAS, 1971-1972

			Numb	er of Fi	rms	Numb	er of Worl	kers
BSIC*	ISIC**	Subgroup and Size	AMUREL	AMSESC	Total	AMUREL	AMSESC	Total
I	2	MINING AND QUARRYING	14	20	34	104	6,780	6,884
		l - 4 workers	7	2	9	12	3	15
		5 - 9	4	1	5	25	5	30
		10 - 19	2	2	4	29	36	65
		20 - 49	1	1	2	38	33	71
		50 - 99	-	-	_	-	-	-
		100 - 199	_	4	4	-	496	496
		200 and up	-	10	10	-	6,207	6,207
II	3	MANUFACTURING	1,584	708	2,292	11,217	6,974	18,191
		1 - 4	959	378	1,337	2,926	928	3,854
		5 - 9	496	211	707	2,977	1,407	4,384
		10 - 19	86	77	163	1,086	986	2,072
		20 - 49	25	25	50	726	729	1,455
		50 - 99	8	10	18	538	669	1,207
		100 - 199	4	6	10	577	850	1,427
		200 and up	6	2	8	2,387	1,405	3,792
II-l	36	Manufacture of nonmetallic mineral products, except products of petroleum and				1 650		2 445
		coal	105	92	197	1,259	2,188	3,447
		1 - 4	63	49	112	188	134	322
		5 - 9	30	26	56	182	170	352
		10 - 19	8	12	20	103	151	254
		20 - 49	3	1	4	71	31	102
		50 - 99	-	-	-	-	_	_

* BSIC = Brazilian Standard Industrial Classification

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** ISIC = International Standard Industrial Classification

			Numb	Number of Firms		Number of Workers		ers
BSIC	ISIC	Subgroup and Size	AMUREL	AMSESC	Total	AMUREL	AMSESC	Total
II-l	36	Manufacture of nonmetallic mineral products, except products of petroleum and coal (continued)						
		100 - 199 workers	-	2	2	_	297	297
		200 and up	1	2	3	715	1,405	2,120
II-2	5	Construction	7	3	10	899	76	975
		1 - 4	-	-	-	-	-	-
		5 - 9	1	-	1	9	-	9
		10 - 19	-	2	2	-	26	26
		20 - 49	2	-	2	55		55
		50 - 99	1	1	2	59	50	109
		100 - 199	1	-	1	136	-	136
		200 and up	2	-	2	640	-	640
II-3	37	Basic metal industries	26	31	57	177	416	593
		1 - 4	16	17	33	41	40	81
		5 - 9	5	7	12	33	41	74
		10 - 19	2	2	4	27	25	52
		20 - 49	3	2	5	76	53	129
		50 - 99	-	2	2	-	153	153
		100 - 199	-	1	1	-	104	104
		200 and up	12	=	-	-	-	-
II-4	383	Manufacture of electrical machinery apparatus, appli-						*
		ances, and supplies	3	-	3	25	-	25
		1 - 4	1	-	1	3	-	3
		5 - 9	-	-	-	-	-	-
		10 - 19	2	-	2	22	-	22
		20 and up	-	-	-	-	-	
							(con	tinued)

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			Numb	er of Fi	rms	Numb	er of Work	ers
BSIC	ISIC	Subgroup and Size	AMUREL	AMSESC	Total	AMUREL	AMSESC	Total
II-5	384	Manufacture of transport						
		equipment	11	5	16	111	36	147
		1 - 4 workers	8	3	11	21	9	30
		5 - 9	1	-	1	6	-	6
		10 - 19	1	2	3	10	27	37
		20 - 49	-	-	-	-	_	-
		50 - 99	1	-	1	74	-	74
		100 and up	-	-	-	-	-	-
II-6	331	Manufacture of wood and wood and cork products, except						
		furniture	188	146	334	691	602	1,293
		1 - 4	157	108	265	388	281	669
		5 - 9	24	28	52	141	176	317
		10 - 19	4	7	11	50	75	125
		20 - 49	2	3	5	57	70	127
		50 - 99	1	-	1	55	-	55
		100 and up		-	-	-	-	-
II-7	332	Manufacture of furniture and fixtures, except primarily of metal	40	F 4		202	214	617
		of metal	42	54	96	303	314	617
		1 - 4	23	30	53	43	52	95
		5 - 9	15	18	33	104	123	227
		10 - 19	1	3	4	13	44	57
		20 - 49	2	3	5	60	95	155
		50 - 99	1	-	1	83	-	83
		100 and up	-	-	-	-	-	-

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				Numb	er of Fi	rms	Numb	er of Work	ers
	BSIC	ISIC	Subgroup and Size	AMUREL	AMSESC	Total	AMUREL	AMSESC	Total
	II-8	355	Manufacture of rubber products	3	-	3	32	-	32
			1 - 4 workers	-	-	-	_	_	-
			5 - 9	1	-	1	8	-	8
			10 - 19	2	-	2	24	-	24
			20 and up	-	-	-	-	-	-
*	II-9	323	Manufacture of leather and products of leather, leather substitutes and fur, except						
			footwear and wearing apparel	1	5	6	15	170	185
ſ			1 - 4 5 - 9	-	2 2	2 2	_	3 14	3 14
.7-			10 - 19	1	-	1	15	-	15
			20 - 49	-	-	-	-	-	-
			50 - 99	-	-	-	-	-	422
			100 - 199	-	1	1	-	153	153
			200 and up	-	-	-	-	-	-
	II - 10	352	Manufacture of other chemi-						
			cal products	6	4	10	23	91	114
			1 - 4	5	2	7	17	7	24
			5 - 9	1	-	1	6	-	6
			10 - 19	-	-	-	-	-	-
			20 - 49	-	1	1	_	33	33
			50 - 99	-	1	1	-	51	51
			100 and up	-	-	-	-	-	-
	11-11	321	Manufacture of textiles	l	2	3	2	11	13
			1 - 4	1	-	1	2	-	2
			5 - 9	-	2	2	-	11	11
			10 and up	-	-	-	-	-	

Table 1 (continued)

			Numb	er of Fi	rms	Numb	er of Work	ers
BSIC	ISIC	Subgroup and Size	AMUREL	AMSESC	Total	AMUREL	AMSESC	Total
II-12	322	Manufacture of wearing ap-						
11-12	522	parrel, except footwear	16	50	66	115	942	1,057
		1 - 4 workers	6	6	12	19	23	42
		5 - 9	5	15	20	30	108	138
		10 - 19	5	18	20	66	252	318
		20 - 49	5	7	23	-	201	201
		20 - 49 50 - 99	-			-	201	201
		100 - 199	-	3	3 1	-	150	150
			-	1		-	-	
		200 and up	-	-	-	-	-	
II-13	311	Food manufacturing	1,095	273	1,368	6,183	1,857	8,040
		1 - 4	621	137	758	2,032	305	2,337
		5 - 9	400	97	497	2,365	669	3,034
		10 - 19	55	29	84	691	360	1,051
		20 - 49	13	7	20	407	221	628
		50 - 99	4	2	6	267	156	423
		100 - 199	1	1	2	189	146	335
		200 and up	1	_	1	232	_	232
II-14	313	Beverage industries	56	17	73	215	70	285
		1 - 4	48	11	59	141	37	178
		5 - 9	6	5	11	42	20	62
		10 - 19	2	1	3	32	13	45
		20 and up	-	-	-	-	-	-
II - 15	314	Tobacco Manufactures	1	1	2	144	4	148
		1 - 4	_	1	1	_	4	4
		5 - 9	_	_		_		-
		10 - 19	_	-	-	-	-	_
		20 - 49	-	_	-	-	-	-
		50 - 99	_	_	-	-	-	-
							(cor	ntinued)

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Table 1 (continued)

			Numb	er of Fi	rms	Numb	er of Work	ers
BSIC	ISIC	Subgroup and Size	AMUREL	AMSESC	Total	AMUREL	AMSESC	Total
II - 15	314	Tobacco manufactures (continued)						
		100 - 199 workers 200 and up	- 1	-	_ 1	144 -	-	144 -
II-16	342	Printing, publishing, and allied industries	7	14	21	49	87	136
		1 - 4 5 - 9 10 - 19 20 and up	3 3 1 -	5 8 1 -	8 11 2 -	12 24 13	19 55 13 -	31 79 26 -
II-17	410	Electricity, gas, and steam 1 - 4 5 - 9 10 - 19 20 - 49 50 - 99 100 - 199 200 and up	2 - - - - 1 1	-	2 - - - - 1 1	543 - - - 108 435		543 - - - 108 435
II-18	390	Other manufacturing indus- tries 1 - 4 5 - 9 10 - 19 20 - 49 50 - 99 100 - 199 200 and up	14 7 4 2 - - 1	11 6 3 - 1 1 -	25 13 7 2 1 1 -	431 19 27 20 - - - 365	110 14 20 - 25 51 - -	541 33 47 20 25 51 - 365

Source: DPD/FESSC Industrial Census, 1971-72.

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Table	2
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BASIC MANUFACTURING DATA, CITIES OF TUBARAO, BRACO DO NORTE, AND LAGUNA, 1971-1972

			Tul	barao	Braco	do Norte	Lag	guna
BSIC*	ISIC**	Subgroup and Size	Firms	Workers	Firms	Workers	Firms	Workers
_			2	50			-	4.5
I	2	MINING AND QUARRYING	3	50	4	15	5	43
		1 - 4 workers	-		2	2	2	4
		5 - 9	2	12	2	13	2	13
		10 - 19	-	-	-	-	-	-
		20 - 49	1	38	-	-	1	26
		50 and up	-	-	-	-	-	-
II	3	MANUFACTURING	142	2,859	7 0	349	164	1,610
		1 - 4	59	176	47	112	72	292
		5 - 9	46	304	16	88	74	462
		10 - 19	21	254	4	61	9	109
		20 - 49	8	238	3	88	3	73
		50 - 99	1	59	-	-	4	255
		100 - 199	3	388	-	-	1	189
		200 and up	4	1,440	-	-	1	230
II-1-3	3610	Manufacture of pottery, china,						
		and earthenware	21	107	18	84		
		1 - 4	14	40	10	29		
		5 – 9	4	27	6	31		
		10 - 19	2	20	2	24		
		20 - 49	1	20	-	-		
		50 and up	-	-	-	—		

(continued)

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^{*} BSIC = Brazilian Standard Industrial Classification

^{**} ISIC = International Standard Industrial Classification

			Tul	oarao	Braco do Norte	Laguna	
BSIC	ISIC	Subgroup and Size	Firms	Workers	Firms Workers	Firms	Workers
II-1-4	3699	Manufacture of nonmetallic mineral products not else-					
		where classified	2	5			
		1 - 4 workers	2	5			
		5 and up	-	-			
II-2	5	Construction	6	866			
		1 - 4	-	-			
		5 - 9	1	9			
		10 - 19	-	-			
		20 - 49	1	22			
		50 - 99	1	59			
		100 - 199	1	136			
		200 and up	2	640			
II-3	37	Basic metal industries			1 1		
		1 - 4			1 1		
		5 and up					
II-3-3	3710	Iron and steel basic indus-					
		tries	6	63			
		1 - 4	2	4			
		5 – 9	1	9			
		10 - 19	2	27			
		20 - 49	1	23			
		50 and up	-	-			

Table 2 (Conclined)	Table	2	(continued)
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			Tul	barao	Braco do Norte	Lag	guna
BSIC	ISIC	Subgroup and Size	Firms	Workers	Firms Workers	Firms	Workers
II-3-4	381	Manufacture of fabricated metal products, except machinery and equipment	1	6			
		1 - 4 workers 5 - 9	1	- 6			
		10 and up	-	-			
II-3-5	382	Manufacture of machinery, except electrical	2	37		1	7
		l - 4	-	-		-	-
		5 - 9	1	5		1	7
		10 - 19 20 - 49	-	- 32		_	_
		50 and up	_ _	-		_	_
II-4-1	3831	Manufacture of electrical industrial machinery and apparatus	2	22			
		1 - 4 5 - 9	-	_			
		10 - 19	2	22			
		20 and up	-	-			
II-4-3	3832	Manufacture of communica- tion equipment and apparatus	l	3			
		1 - 4	1	3			
		5 and up	-	-			
II-5-1	3841	Ship building and repairing				3	78
		1 - 4				2	4
		5 – 9				- (co	- ontinued)

			Tul	oarao	Braco	do Norte	Lac	Juna
BSIC	ISIC	Subgroup and Size	Firms	Workers	Firms	Workers	Firms	Workers
II - 5-1	3841	Ship building and repairing (continued)						
		10 - 19 workers 20 - 49 50 - 99 100 and up					- _ _ _	- - 74 -
II-5-4	3843	Manufacture of motor vehicles	4	22	2	5		
		l - 4 5 - 9 10 - 19 20 and up	2 1 1	6 6 10 -	2 - - -	5 - - -		
II-6-1	3319	Manufacture of wood and cork products not elsewhere classified 1 - 4 5 - 9	10 4 4	84 12 24	8 7	33 12 -	5 3	82 6 -
		10 - 19 20 - 49 50 - 99 100 and up	1 1 - -	12 36 -	_ _ _	- 21 -	_ 1 _	- 21 55 -
II-7	332	Manufacture of furniture and fixtures, except primarily of metal	12	85	6		2	11
		1 - 4 5 - 9 10 - 19 20 - 49 50 and up	12 6 5 - 1 -	85 18 32 - 35 -	6 3 2 - 1 -	44 6 13 - 25 -	2 1 1 - -	11 3 8 - - -

			Tul	oarao	Braco do Norte	Lag	Juna
BSIC	ISIC	Subgroup and Size	Firms	Workers	Firms Workers	Firms	Workers
II-8	355	Manufacture of rubber products	3	32			
		l - 4 workers	-	-			
		5 - 9	1	8			
		10 - 19	2	24			
		20 and up	-	-			
II-10-1	354	Manufacture of miscellaneous products of petroleum and					
		coal	l	4			
		1 - 4	1	4			
		5 and up	-	-			
II-10-4	3523	Manufacture of soap and clean- ing preparations, perfumes, cosmetics, and other toilet					
		preparations	2	9			
		1 - 4	1	3			
		5 - 9	1	6			
		10 and up		-			
II-11	321	Manufacture of textiles				l	2
		1 - 4				1	2
		5 and up				_	_
II-12-3	3213	Knitting mills	7	60		1	13
		1 - 4	1	3		-	-
		5 - 9	3	16		-	-
		10 - 19	3	41		1	13
		20 and up		-		-	-

			Tul	oarao	Braco	do Norte	Lag	guna
BSIC	ISIC	Subgroup and Size	Firms	Workers	Firms	Workers	Firms	Workers
II-12-4	324	Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear	l	4	2	4		
		l – 4 workers 5 and up	_1	- 4	2	4		
II-13-1	3116	Grain mill products	21	123	21	115	138	806
		1 - 4 5 - 9 10 - 19 20 - 49 50 - 99 100 and up	13 5 2 1 - -	41 29 23 30 -	16 3 1 1 -	41 17 15 42 -	62 72 3 - 1	270 447 34 - 55 -
II-13-2	3111	Slaughtering, preparing, and preserving meat 1 - 4 5 - 9 10 and up			3 2 1	9 3 6 -		
II-13-3	3114	Canning, preserving, and processing of fish, crustacea, and similar foods 1 - 4 5 - 9 10 - 19 20 - 49 50 - 99 100 - 199 200 and up					9 - 4 2 1 1	592 - 50 52 71 189 230

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BSIC	ISIC	Subgroup and Size	Tub Firms	Workers		do Norte Workers	Lag	guna Workers
II-13-4	3112	Manufacture of dairy products	1	9				
		1 - 4 workers	-	-				
		5 - 9	1	9				
		10 and up	-	-				
II - 13-8	3121	Manufacture of food products						
		not elsewhere classified	22	175	5	25	1	12
		1 - 4	6	17	3	8		_
		5 - 9	11	75	1	5	-	-
		10 - 19	4	43	1	12	1	12
		20 - 49	1	40	-	-	-	-
		50 and up	-	-	-	-	-	-
II-14	313	Beverage industries	4	46	1	9	1	1
		1 - 4	· _	-	-	_	1	1
		5 - 9	2	14	1	9	-	-
		10 - 19	2	32	-	-	-	-
		20 and up	-	-	-	-	-	-
II-15	314	Tobacco manufactures	1	144				
		1 - 4	_	-				
		5 - 9	_	-				
		10 - 19	-	-				
		20 - 49	-	-				
		50 - 99	-	-				
		100 - 199	1	144				
		200 an d up	- ,	-				

			Tul	barao	Braco	do Norte	Lag	guna
BSIC	ISIC	Subgroup and Size	Firms	Workers	Firms	Workers	Firms	Workers
TT 16	240							
II-16	342	Printing, publishing, and			-	-	-	
		allied industries	4	25	1	7	1	4
		1 - 4 workers	2	8	-	-	1	4
		5 - 9	2	17	1	7	-	-
		10 and up	-	-	-	-	-	-
II-17	410	Electricity, gas, and steam	2	543				
		1 - 4	-	_				
		5 - 9	-	-				
		10 - 19	-	_				
		20 - 49	-	-				
		50 - 99	-	-				
		100 - 199	1	108				
		200 and up	1	435				
II-18	39	Other manufacturing industries	6	385	2	13	l	2
		1 - 4	3	8	1	3	1	2
		5 - 9	2	12	-	-	_	-
		10 - 19	-	-	1	10	-	_
		20 - 49	-	-	-	—	-	-
		50 - 99	-	-	-	-	_	-
		100 - 199	-	-	-	-	-	-
		200 and up	1	365	-	-	-	-

SALES OF INDUSTRIAL ESTABLISHMENTS IN MUNICIPAL ASSOCIATION AREAS OF SOUTH SANTA CATARINA BY INDUSTRIAL CLASSIFICATION, 1971-1972

	AMURE	G	AMSES	С	Total	
	Sales	Per-	Sales	Per-	Sales	Per-
BSIC	(cr\$1.00)	cent	(cr\$1.00)	cent	(cr\$1.00)	cent
I	1,535,168	0.9	148,870,332	39.8	150,405,700	27.9
II-1	17,239,616	10.4	42,368,348	11.3	59,607,964	11.1
II-2	1,688,507	1.0	2,242,573	0.6	3,931,080	0.7
II-3	3,385,235	2.0	10,251,932	2.7	13,637,167	2.5
II-4	833,200	0.5	-	-	833,200	0.2
II-5	447,500	0.3	1,196,988	0.3	1,644,488	0.3
II-6	8,880,661	5.4	9,899,090	2.7	18,779,751	3.5
II-7	5,743,599	3.5	5,986,428	1.6	11,730,027	2.2
II-8	763,080	0.5	-	-	763,080	0.1
II-9	1,200,000	0.7	4,440,000	1.2	5,640,000	1.0
II-10	244,425	0.2	3,532,252	0.9	3,776,677	0.7
II-11	13,200	0.0	578,400	0.2	591,600	0.1
II - 12	2,065,742	1.2	12,819,010	3.4	14,884,752	2.8
II-13	56,871,696	34.5	124,916,440	33.4	181,788,138	33.7
II-14	1,967,313	1.2	1,324,697	0.4	3,292,010	0.6
II - 15	4,375,397	2.7	5,400	0.0	4,380,797	0.8
II-16	572,522	0.3	1,580,843	0.4	2,135,365	0.4
II-17	45,561,468	27.6	-	-	45,561,468	8.5
II-18	11,660,092	7.1	3,965,601		15,625,693	2.9
Tota	1 165,048,423	100.0	373,978,534	100.0	539,026,957	100.0

Note: See Table 1 for description of Brazilian Standard Industrial Classification (BSIC) categories.

SALES OF INDUSTRIAL ESTABLISHMENTS IN MUNICIPAL ASSOCIATION AREAS OF SOUTH SANTA CATARINA BY MUNICIPALITY, 1971-1972

* *	Sales	Percent	Percent
Municipality	(cr\$1.00)	of Area	of Total
-			
Armazem	2,345,274	1.4	0.4
Braco do Norte	8,113,025	4.9	1.5
Grao Para	1,400,278	0.8	0.2
Gravatal	3,037,970	1.8	0.6
Imarui	8,589,270	5.2	1.6
Imbituba	16,002,044	9.7	3.0
Jaguaruna	2,620,293	1.6	0.5
Laguna	17,235,678	10.5	3.2
Orleans	6,601,675	4.0	1.2
Pedras Grandes	2,442,744	1.5	0.4
Rio Fortuna	1,135,655	0.7	0.2
Santa Rosa de Lima	942,487	0.6	0.2
Sao Ludgero	2,577,500	1.6	0.5
Sao Martinho	218,000	0.1	0.1
Treze de Maio	5,330,248	3.2	1.0
Tubarao	86,456,282	52.4	16.0
Subtotal (AMUREL)	165,048,423	100.0	30.6
Ararangua	31,993,107	8.6	5.9
Criciuma	180,055,619	48.1	33.4
Icara	9,305,414	2.5	1.7
Jacinto Machado	11,837,800	3.2	2.2
Lauro Muller	15,357,287	4.1	2.9
Maracaja	1,004,500	0.3	0.2
Meleiro	6,461,484	1.7	1.2
Morro da Fumaca	17,751,033	4.7	3.3
Nova Veneza	19,180,000	5.1	3.6
Praia Grande	1,135,592	0.3	0.2
Sao Joao do Sul	1,190,617	0.3	0.2
Sideropolis	989,500	0.3	0.2
Sombrio	4,511,244	1.2	0.8
Timbe do Sul	8,026,272	2.1	1.5
Turvo	13,331,460	3.6	2.5
Urussanga	51,847,605	13.9	9.6
Subtotal (AMSESC)	373,978,534	100.0	69.4
Total (South Santa Catarina)	539,026,957	-	100.0

NUMBER OF INDUSTRIAL ESTABLISHMENTS AND EMPLOYEES IN MUNICIPAL ASSOCIATION AREAS OF SOUTH SANTA CATARINA BY MUNICIPALITY, 1971-1972

	Establi	shments	Emplo	oyees
Municipality	Number	Percent	Number	Percent
Armazem	22	0.0		0.1
Braco do Norte	74	0.9 3.2	111 364	0.4 1.5
Grao Para	67	2.9	379	1.5
Gravatal	131	2.9	576	2.3
Imarui	360	15.5	1,751	7.0
Imbituba	278	11.9	1,949	7.8
Jaquaruna	100	4.3	434	1.7
Laguna	169	7.3	1,653	6.6
Orleans	105	4.8	511	2.0
Pedras Grandes	34	1.5	142	0.6
Rio Fortuna	19	0.8	54	0.2
Santa Rosa de Lima	14	0.6	49	0.2
Sao Ludgero	26	1.1	203	0.8
Sao Martinho	16	0.7	51	0.2
Treze de Maio	32	1.4	185	0.7
Tubarao	145	6.2	2,909	11.6
Subtotal (AMUREL)	1,598	68.7	11,321	45.1
Ararangua	80	3.4	694	2.8
Crioiuma	143	6.1	6,911	27.6
Icara	29	1.2	460	1.8
Jacinto Machado	39	1.7	203	0.8
Lauro Muller	20	0.9	1,186	4.8
Maracaja	20	0.9	131	0.5
Meleiro	28	1.2	172	0.7
Morro da Fumaca	29	1.2	508	2.0
Nova Veneza	31	1.4	185	0.7
Praia Grande	33	1.4	105	0.4
Sao Joao do Sul	43	1.8	181	0.7
Sideropolis	20	0.9	46	0.2
Sombrio	57	2.5	330	1.3
Timbe do Sul	30	1.3	114	0.5
Turvo	44	1.9	203	0.8
Urussanga	82	3.5	2,325	9.3
Subtotal (AMSESC)	728	31.3	13,754	54.9
Total (South Santa Catarina)	2,326	100.0	25,075	100.0

LAND AREA AND POPULATION OF MUNICIPAL ASSOCIATION AREAS OF SANTA CATARINA, 1970

Association	Area (in sq. km.)	Population
	(III bq. hine)	ropulation
GRAN FPOLIS	6,262	325,743
AMFRI	1,078	113,794
AMVI	4,810	252,738
AMAVI	6,410	181,116
FIDESC	6,944	292,501
AMPLA	9,451	159,900
AMARP	8,468	137,326
AMMOC	11,486	254,272
AMOSC	9,849	313,002
AMEOSC	4,272	129,911
AMURES	17,044	245,225
AMUREL	4,345	233,266
AMSESC	5,064	263,519
Total (Santa Catarina)	95,483	2,901,734

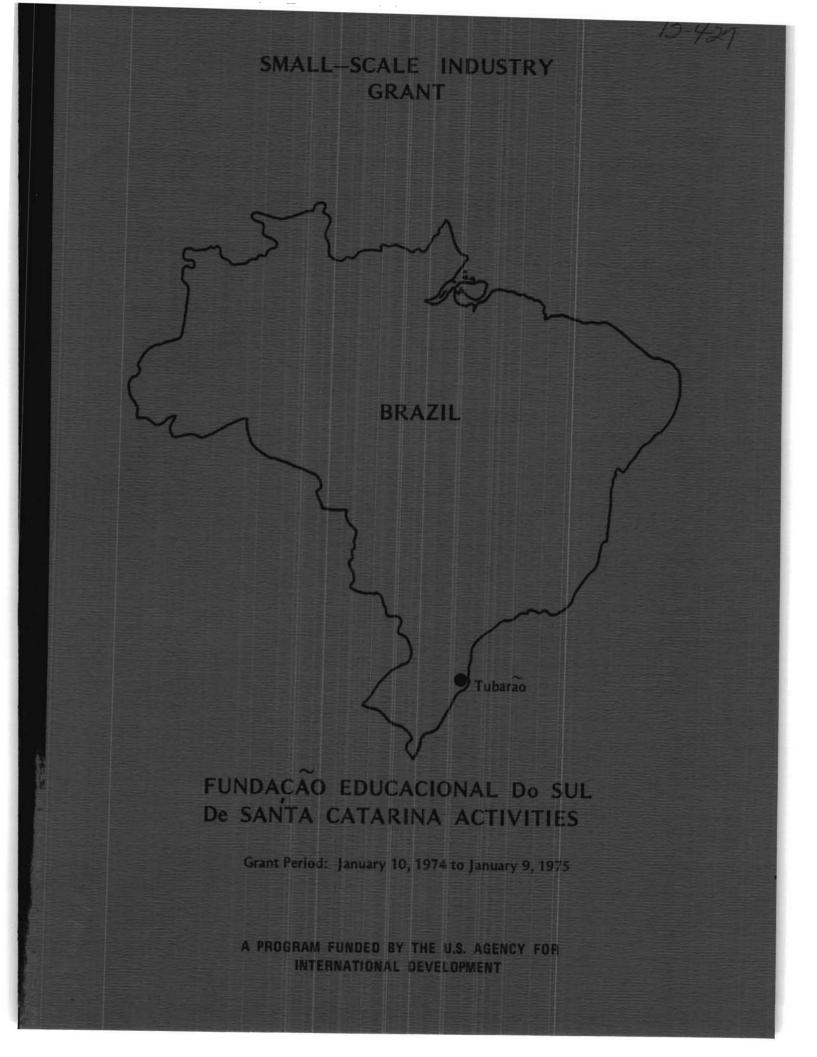
Source: FIBGE Census of Population, 1970.

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LAND AREA AND POPULATION OF MUNICIPAL ASSOCIATION AREAS OF SOUTH SANTA CATARINA BY MUNICIPALITY, 1970

	Area	
Municipality	(in sq. km.)	Population
**		
Armazem	147	7,117
Braco do Norte	184	10,540
Grao Para	298	7,025
Gravatal	229	8,438
Imarui	422	21,041
Imbituba	182	20,498
Jaguaruna	410	14,397
Laguna	353	35,042
Orleans	689	15,773
Pedras Grandes	163	5,912
Rio Fortuna	279	4,441
Santa Rosa de Lima	154	1,773
Sao Ludgero	112	4,597
Sao Martinho	227	3,470
Treze de Maio	143	6,326
Tubarao	353	66,876
Subtotal (AMUREL)	4,345	233,266
Ararangua	412	26,211
Criciuma	274	81,452
Icara	299	17,098
Jacinto Machado	369	13,689
Lauro Muller	287	15,574
Maracaja	60	4,079
Meleiro	402	11,306
Morro da Fumaca	84	4,758
Nova Veneza	454	8,135
Praia Grande	295	8,140
Sao Joao do Sul	283	8,577
Sideropolis	405	13,341
Sombrio	431	18,049
Timbe do Sul	336	6,300
Turvo	348	11,159
Urussanga	325	15,651
		263,619
Subtotal (AMSESC)	5,064	-
Total (South Santa Catarina)	9,409	496,785

Source: FIBGE Census of Population, 1970.



FINAL REPORT

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

by Jose Muller and Nelson C. Wall

Contract No. AID/ta-c-1062

Industrial Development Division ENGINEERING EXPERIMENT STATION Georgia Institute of Technology January 1975

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INTRODUCTION

On January 23, 1974, the Agency for International Development (AID) funded Contract No. AID/ta-c-1062 through which the Georgia Institute of Technology (GIT) was to make \$45,000 grants for small-scale industry programs to two institutions of higher learning to be selected in different geographic regions of the world. This is the final (end-of-the-year) report for the work performed jointly by the staff of the Fundação Educacional do Sul de Santa Catarina (FESSC) in Brazil and the Georgia Institute of Technology.

Following contract guidelines, the administration of the Georgia Institute of Technology used the following criteria in selecting grantee institutions:

- 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 market for additional products.
- 5. Linkages (current or potential) with educational, financial, and business communities.
- 6. Quality of staff.
- 7.' Institution's potential for utilizing grant effectively.
- 8. Potential multiplier effects.
- 9. Host government commitments.

After an extensive initial screening, the Fundação Educacional do Sul de Santa Catarina submitted a proposal entitled "Program of Development for Small and Medium Industries." This proposal was later funded under the existing contract provided by AID to the Georgia Institute of Technology. The basic objective of the project is to assist in the generation of employment through the development of small-scale industries outside metropolitan centers. Some of the immediate results of this project are the following:

1. Establishment of the Basic Data Center (CDB) within the Department of Research and Development (DPD) at FESSC.

2. Establishment of the Center for Management and Technical Assistance (CETEG).

3. Establishment of the Community Development Center (CDC).

4. Training at IDD of three senior staff members.

5. Provision of technical assistance services to 45 local small-scale industries.

6. Preparation and publication of one feasibility study.

7. Preparation and publication of an industrial expansion project.

8. Preparation and publication of two new manufacturing opportunity studies.

9. Establishment of the Adaptive Technology Center (CATT).

10. Preparation of an audiovisual documentation of the first-year program by the Technology and Development Institute, East-West Center, Hawaii.

11. Training of over 2,500 persons through 112 training programs.

12. Participation in and/or contribution to the following development meetings or conferences:

- a. Third National Seminar of the Small and Medium Industry.
- b. Regional Meeting on Human Resources.
- c. Meeting of the Brazilian Institute of Technical and Management Assistance.
- d. Meeting of the Brazilian Agro-Cattle Research Company.

Additional sections of this final report describe in detail the background, objectives, activities scheduled in the program of work, results achieved, and the conclusions reached by the project staff.

Background

The Fundação Educacional do Sul de Santa Catarina (FESSC) is an autonomous organization established under the civil code and legislation, under special decree and Laws 200 and 900.

FESSC was established by Municipal Law No. 443/67 of October 18, 1967, and its bylaws define the following objectives:

1. Create, integrate, organize, 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 program, training, and specialization for graduates and special courses for post-graduates.

3. Promote, study, and research in relation to the economic development and social development of the region and state by themselves, or with the assistance, or in cooperation with private and public entities.

4. Promote conferences, debates, and seminars as a dissemination of studies related with economic problems in general or specifically of 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 made up of representatives of the entities that support and created the organization. Its Executive Secretary 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 (the Executive Secretary of the Curator Council), the Director of the Department of Higher Education, the Department of Secondary Education, and the Department of Research and Development. There is also an Educational and Technical Advisory Council to the Directory.

The support organization to the administration includes a Secretary General, Associate Director, Administrative Assistant, and assistance in teaching and planning.

The Higher Education Department coordinates the schools and institutes and course work at that level carried out by FESSC. In December 1972, the Higher Education Department had a faculty of economic sciences, course work in economics, and was establishing courses in accounting sciences and administration.

The School of Advanced Sciences and Teaching offers courses in teaching (teachers, administration of school, educational orientation, and teaching orientation), languages (Portuguese, English, and French), and social studies (geography and history), and is now establishing a course in philosophy, civics, and ethics and course work for professors in the areas of professional techniques.

The Department of Secondary Education is made up of the Integrated School Father Dehon and a small experimental school.

The Research and Development Department has a center or institute to provide technical assistance, research, planning, and information oriented to local development and regional development of private enterprises, communities, municipalities, and other public sectors, as well as the private and civic community.

Since early 1972, FESSC and Georgia Tech's Industrial Development Division (IDD) had been jointly studying the possibilities of initiating a joint program of work. As a result of these early deliberations, 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 students at a professional level for the area 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.

Finally, FESSC presented a proposal to the Georgia Institute of Technology entitled "Program of Development for Small and Medium Industries," and this became a grant of \$45,000 funded under an existing contract provided to GIT by AID for this purpose.

The terms of the grant permitted the grantee to utilize half of the grant funds for personnel, travel, materials and supplies, conferences, etc. The balance of the funds were to be used by the grantee to obtain training and consultation from U.S. technical assistance organizations.

The Georgia Institute of Technology and the Technology and Development Institute, East-West Center, subsequently contracted with the Fundação Educacional do Sul de Santa Catarina to provide training, consultation, and an audiovisual documentation of the project.

At the time the project became effective on January 10, 1974, the FESSC organizational structure was as is shown in Figure 1.

The President of the Executive Directory, Dr. Osvaldo dela Giustina, designated Econ. Jose Muller, Head of the Department of Research and Development, to serve as Counterpart Project Director. The Chief of the Industrial Development Division appointed Mr. Nelson C. Wall to serve as Project Director for Georgia Tech's portion of the program.

Objective

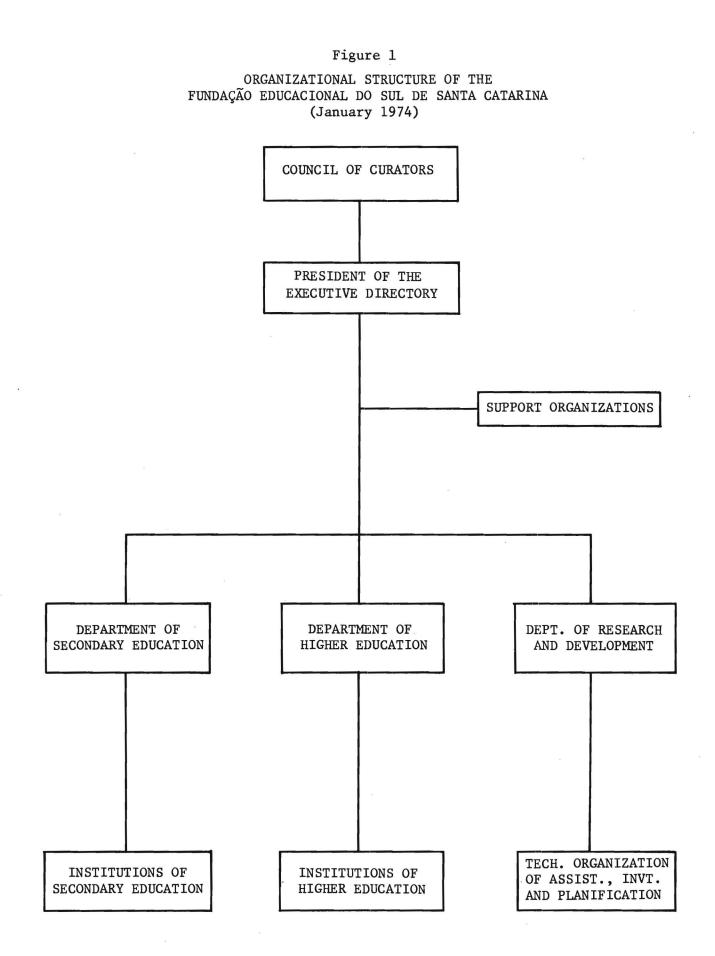
In general, it is the objective of this project to develop a small-scale industries program at the Fundação Educacional do Sul de Santa Catarina. Through this program, FESSC would (1) assist in generating employment in Santa Catarina, particularly outside the main metropolitan centers, (2) provide technical assistance to small and medium industries in the selected areas, and (3) strengthen the relevancy of the educational program.

The project administration, under the contract with the grantee, then established two main areas of activity for the Georgia Institute of Technology staff which would assist in attaining the established objectives: (1) training of selected FESSC staff members both in Brazil and the USA and (2) providing onsite consultation by staff members of the Industrial Development Division of the Engineering Experiment Station at the Georgia Institute of Technology. It was also established that the project staff would assist FESSC personnel in providing managerial, engineering, scientific, and technical assistance to selected small and medium industries in the selected geographic areas of Santa Catarina.

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

At the start of the "Small-Scale Industry Grant" on January 23, 1974, the following total goals had been established by the Georgia Tech grant for the first year of activity:

1. Select and recommend to AID/Washington, TA/OST, four Lesser Developed Country (LDC) institutions from different geographic regions as candidate institutions.



2. Carry out preliminary visits to the selected institutions to develop and establish patterns of collaboration.

3. After final selection, assist the grantee in preparing final plan for the utilization of the grant funds in a manner best suited to achieve the stated objectives.

4. Award the grant once this was approved by AID.

5. Provide consultation to the grantee during the planned activity period.

6. Monitor and evaluate project at least twice during the following 12month period.

7. Assemble base-line data study at the start of the project.

All of the established goals were met during the first year of the project plus several additional accomplishments which were listed in the introduction and will be amplified in the balance of this final report.

Program of Work

A program of work had been presented in the original FESSC proposal and, on the basis of that document, the project administration established the following activities for the first 12-month period, all of which have been implemented:

1. <u>Organization</u>. Taking the existing organization at FESSC (Figure 1), specific responsibilities were established for the units so that they would assume the task of implementing the different portions of the program. New administrative units were also required and these were created. All programs were to be oriented in such a manner as to serve the small and medium industries in the selected areas.

2. <u>Staff and Physical Plant</u>. Based on the needs of the different program units, it was necessary to allocate appropriate office space and equipment to assure the logistical support necessary to the implementation of the program. The staff was then selected and the candidates were considered on the basis of interest, capability, and motivation to carry out the requested task.

3. <u>Project Policy</u>. The program required a multi input-output system with the proper flexibility to assure compliance with the basic theme -- stimulation of existing and new small-medium scale industries.

4. <u>Program Areas</u>. The program was designed to support the implementation of the following activities over a 12-month period:

a. <u>Establishment of the Basic Data Center (CDB)</u>. An incipient center existed within the Department of Research and Development. It was the objective of the project to expand and develop this center to house pertinent information on social, economic, industrial, and technological origin and to classify these data so that it would serve as a source of information viable to the FESSC activities.

b. <u>Establishment of the Center for Management and Technical Assistance</u> (CETEG). The program proposed to formalize this operation and determine a rationale to serve for future expansion of this much needed service once it was established. Mr. Humberto Dalsasso was given the responsibility of setting up the center under the guidance of the Counterpart Project Director and the IDD on-site staff.

c. Establishment of the Adaptive Technology Center (CATT). This new unit would be working with CETEG in carrying out the tasks of providing technical assistance and adapting "foreign" technologies that were identified as appropriate to the local needs of small-scale industries. The responsibility for this task was originally assigned to a FESSC staff engineer, Mr. Jose C. Goetze, who has since been replaced by Mr. Adalgiso Domingues.

d. <u>University Training and Education</u>. It has been the desire of FESSC to improve their capability and evolve into an engineering school in the near future. During the Year I program, assistance would be provided to the FESSC staff by IDD staff consultant to develop a suggested curriculum as a starting point for an eventual "academic program" to be approved by the pertinent Brazilian authorities. One objective was the possible establishment of a Department of Industrial Engineering.

e. <u>Industrial Training and Education</u>. A specific short-term training program was to be developed by the IDD staff to cover the immediate needs of the counterpart staff. It was planned that during the first quarter of the year, three or four selected members of the FESSC staff would travel to Atlanta to IDD headquarters to receive special training.

FESSC staff would in the meantime offer industrial training programs to workers in small-scale industries and the general public as needed. These programs would be presented in the target areas and also at FESSC headquarters in Tubarão.

Use of Grant Funds by FESSC

For the 1974-75 grant year, the grantee was funded in the amount of \$45,000. These funds were disbursed in the following manner:

	Disbursed to			
Activities	FESSC	GIT	TDI/E-W	Total
Personal Services	\$18,000	\$12,500 ¹ /	\$2,000 ² /	\$32,500
Travel				
International		7,500		7,500
Local	4,000			4,000
Materials and Supplies	500	500		1,000
TOTAL	\$22,500	\$20,500	\$2,000	\$45,000

 $\frac{1}{The}$ GIT personal services include the authorized overhead and retirement charges.

 $\frac{2}{}$ The contract with the East-West Center was for a total of \$2,000 for the preparation of audiovisual material.

FESSC ACTIVITIES DURING PROGRAM YEAR I

The FESSC staff showed great dedication during the first program year as they carried out the bulk of the tasks programmed for this 12-month period.

Establishment and Operation of the Basic Data Center

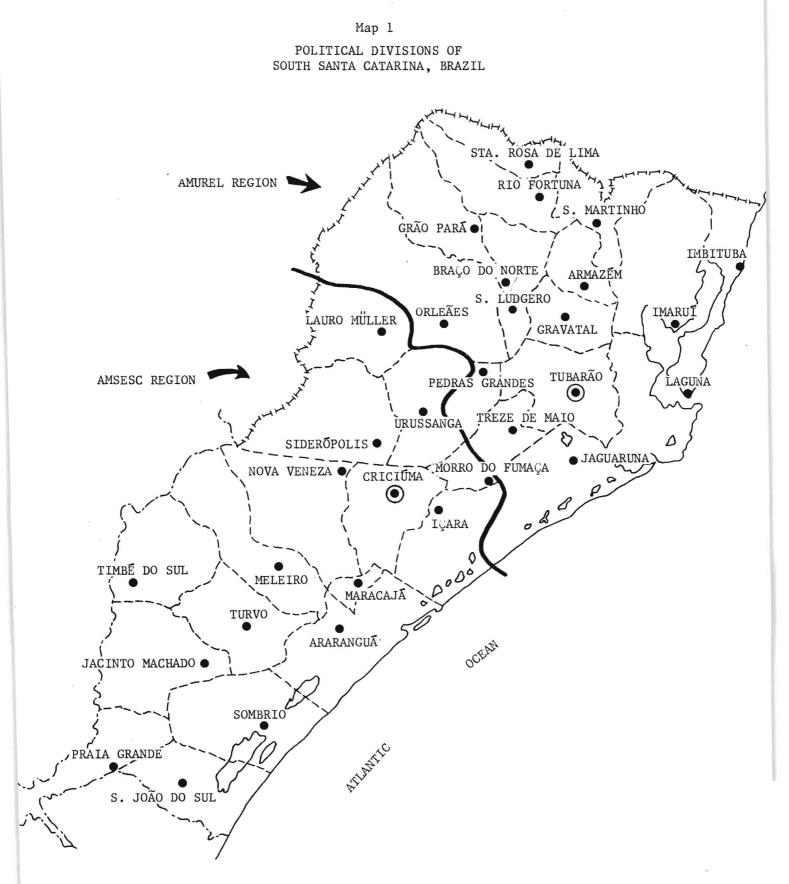
Three persons of the FESSC staff are at present operating this center -two are senior members of the staff and one is a junior member. Mr. Marcos T. Hemkemeir, head of the center, has an academic background in economics and statistics. The center suffered a serious setback in March, when part of the collection was lost as the result of a flood. The staff has since reconstructed the center and it is now in full operation. During the year, the following activities were also carried out:

- 1. Registration of existing periodicals.
- 2. Preliminary listing of existing bibliographies.
- 3. Initial cataloging of local industrial enterprises.
- 4. Initial classification of bibliographies.
- 5. Continued collection of relevant newspaper clippings.

The center is expected to continue growing, and plans for Year II call for the acquisition of data and equipment with FESSC external funds. It may be said that the center has systematically expanded during the first year of the program. The head of the center will complete his special training program in Atlanta by the end of the project year.

Center for Management and Technical Assistance

The staff of CETEG, under the direction of Mr. Humberto Dalsasso, has moved quickly forward into the area of providing technical assistance to small and medium-scale industries. As indicated earlier in this report, the staff of CETEG was able to provide technical assistance to 45 industries during the year. A recapitulation of these cases is presented in this report as Appendix 1. It is important to recognize the fact that the staff of CETEG is responsible for a geographic area of 9.5 thousand square kilometers, encompassing 32 municipalities forming two micro-regions called AMUREL and AMSESC. Map 1 will assist the reader in identifying the political divisions of the project area.



Adaptive Technology Center

CATT, the newest of the administrative units established during Year I of the program, is initially being directed by a young engineer, Mr. Jose C. Goetze of the FESSC staff. This unit will in the future review existing "foreign" technology and attempt to adapt it for use by local small-scale industries. While it may take several years before this project is "on stream," FESSC is the only institution in South Brazil that is willing to attempt to do this.

Community Development Center

CDC was established and funded by the FESSC administration in an attempt to develop the different communities in the target area. Although not an integral part of this project, this center, together with the Center for Bio-Medicine (CMBS), was developed with the objective of better serving the population of South Santa Catarina. Both of these units played a very important role during the emergency period following the March 1974 flood.

University Training and Education

The academic staff at FESSC has now been working for the past nine months, guided and assisted by Dr. David Fyffe of Georgia Tech, in the development of an "academic program" that would provide higher education to students in the field of industrial engineering. The final "academic program" proposal will be submitted by FESSC to the Minister of Education of Brazil. If approved, the program will be presented to FESSC students as part of the yet-to-be-created Department of Industrial Engineering. It is anticipated by FESSC authorities that the required authorization will be issued early in 1975.

Industrial Training and Education

Early in the program year, it was planned that members of the FESSC staff would go to IDD headquarters in Atlanta for special training. It was anticipated that the participants would be in Atlanta by fall 1974, but due to the March flood, the dates had to be changed. On January 6, 1975, three participants started a six-week training program at IDD which was presented in Portuguese to facilitate instruction. This program is briefly outline in Appendix 2 of this report.

As part of the industrial training and education activities, the staff at FESSC established the Center for Continuous Education (CEP) designed to provide special training to workers and the public in general. During the past year,

1.2

the CEP staff presented 112 training programs and had over 2,500 participants complete the training course as follows:

Program Title	No. of Programs	No. of Participants
Medical Aid	2	50
Rural Programs	91	2,296
Civil Construction	18	195
Others	1	11
TOTAL	112	2,552

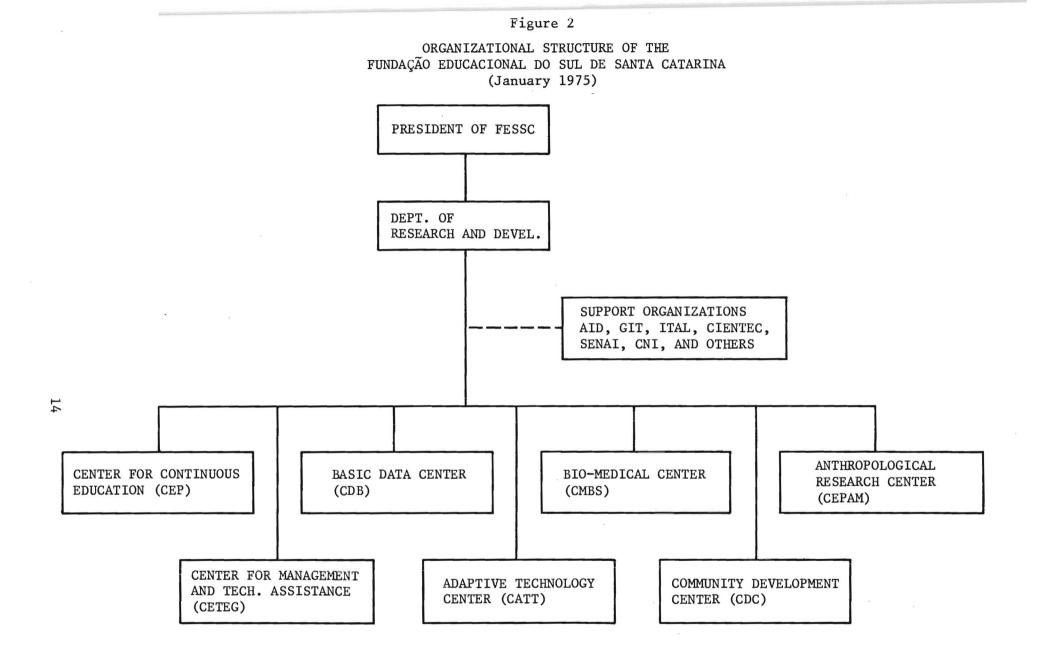
Emergency Program

In a sincere desire to assist the public in general and the industrial community following the March 23-25 flood which covered 90% of the city of Tubarão, the FESSC staff established and funded an emergency program which used all available manpower at that time. In general, the following public services were performed by volunteers from FESSC:

- 1. Team of three persons to work in the central area.
- 2. Team of three persons to locate and work in the AMSESC area.
- 3. Team of four persons to locate and work in the AMUREL area.
- 4. Preparation of reports suggesting priorities for the disaster areas.
- 5. Preparation of reports establishing the housing needs for the areas.
- 6. General community reconstruction projects.
- 7. Studies to determine the material losses caused by the flood.
- 8. Innoculation of vaccines to 65,000 persons.
- 9. Emergency saving of 18 lives and participation in 2,000 emergency cases.
- 10. Assistance in food and clothing distribution.
- 11. General counseling and assistance to local and federal authorities.
- 12. Reconstruction of FESSC after a material loss of well over one quarter million dollars.

Internal Organization

As the project evolved, so did the internal organization. By the end of the year, the counterpart project director had modified the organizational structure from the original shown in Figure 1 to a more viable organization which corresponds to the present needs of FESSC and the Department of Research and Development (see Figure 2).



GEORGIA INSTITUTE OF TECHNOLOGY ACTIVITIES DURING PROGRAM YEAR I

Activities of the Georgia Institute of Technology for the program year were initiated with the arrival in Tubarão of Mr. Ross W. Hammond, Chief of the Industrial Development Division, and Dr. David Fyffe of the Georgia Tech staff on March 4, 1974. They were later followed by Mr. George Morelos, Mr. Phil Potts, Mr. Richard Johnston, Mrs. Martha Ann Deadmore, Mr. Fred Burian, and again Mr. George Morelos late in December 1974. Each of the staff members had been assigned a specific task within the total goals of the project. In this section, a brief summary of the individual activities are presented in chronological order.

March 4 - March 8 (Ross W. Hammond)

The Project Director, Mr. Nelson C. Wall, had prepared the IDD work program for Year I and, at this time, Mr. Ross Hammond initiated the project in Tubarão and, in consultation with the grantee Project Director, completed the adjustments that were needed in the work program. The following major areas of work had been defined:

- 1. Basic Data Center
- 2. Center for Management and Technical Assistance
- 3. Adaptive Technology Center
- 4. University Training and Education
- 5. Industrial Training and Education

Depending on their expertise, different IDD staff members had been assigned to the project. The appropriate Project Plan had been developed and appears as Figure 3. While on site, Mr. Hammond also provided general consulting services to the FESSC staff, discussed the proposed engineering curriculum, and visited many of the small and medium industries that were expecting technical assistance.

March 4 - March 8 (David Fyffe)

This member of the IDD staff was being funded by a grant provided by the Agency for International Development to the Georgia Institute of Technology under the 211(d) grant program. His task was to present to the staff at FESSC the new program leading to the degree of Master of Science for students

Project NoB-427	Figure 3 PROJECT PLAN
Project TitleSIG FESSC	PROJECT PLAN
Project Director N. C. WALL	_ _ Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov Dec.
Project Initiation January 10, 1974	
Project Preparation (FESSC & IDD)	
Quarterly Reports (FESSC & IDD)	
Setting Up Data Center (CDB)	
Operation of Data Center (CDB)	
Setting Up Consult. Mgmt & T. A. (CETEG)	
Operation of CETEG	
Start Selection of (3) Communities	
Community Projects & M.T.A.	
Start Manufacturing Opportunity Studies Operation of Manufact. Opp. Studies	
Program Review & Audiovisual	
Industrial T. A. & Research	
Draft Final Report & T. A. to Project	╶┨┼┾┽┼┾┽┼╎┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼╢╖╖┼┼┼┼┼┽┼┽┼┼┼┼╄╢╢╜╨╨╽╫╓╖┝╓╷┼┼┼┼┼┽┼╼
Staff Training (3) in Atlanta	
Project Direction & Reporting	
Final Report	╶╊┥┝╶┧┊╄┽╄┽╄┽┼┼┼┼┼┾┾┼┽╄┽╄┽┝┥┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼
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LEGEND STAFF 1 N. C. Wall 2 R. Hammond 3 M. T. Hemkemeier & Staf	4H. Dalsasso & Staff7M Muñoz & Staff5E. Ramm, Goetze & Staff8IDD Atlanta Stafff6C. Goetze & Staff9J. Muller

interested in small industry development. This program is being offered at Georgia Tech by the School of Industrial and Systems Engineering.

The administration at FESSC plans to prepare and present an "academic program" to the Minister of Education of Brazil and request authorization to establish a Department of Industrial Engineering at FESSC sometime in 1975. During his stay, Dr. David Fyffe was able to assist the faculty at FESSC, and they are at present completing the "academic program."

June 28 - July 6 (George Morelos)

As soon as possible after the disastrous flood of March 23-25, 1974, which affected 18 municipalities and over one-quarter million persons, a member of the IDD staff was sent to Tubarão to evaluate the situation and provide whatever assistance was possible to the counterpart institution and staff. Mr. Morelos was authorized by the Project Director to review, change, and adjust the Project Plan as needed to cope with the emergency and the needs of FESSC. During his on-site time in Tubarão, Mr. Morelos, together with the grantee Project Director, Mr. Jose Muller, set up an emergency program to provide assistance to small and medium scale industries in the areas that had been damaged by the flood. The objective was to help them get back into operation as quickly as possible. Other activities were also scheduled by the grantee staff and are presented under the FESSC staff section of this report.

June 28 - July 6 (Fred Burian)

Under a separate contract, FESSC had arranged for the filming of an audiovisual history of the activities of Year I of the project. Mr. Burian of the East-West Center staff traveled with Mr. Morelos to carry out his contractual assignment. The audiovisual documentary was filmed, and pictures were also taken of the damage caused by the March 1974 flood. Both the video tape and corresponding pictures were presented as part of the A-1600 report. These audiovisual materials are available to interested organizations.

August 16 - September 19 (George Morelos)

On this assignment, Mr. Morelos was to provide guidance and consulting services to the FESSC staff working in the Center for Management and Technical Assistance and the Adaptive Technology Center. During his 34-day stay in Tubarão, Mr. Morelos and the FESSC staff provided technical assistance to 23 industries in four municipalities. Other activities also were carried out,

such as assistance to the Department of Research and Development, meetings with local entrepreneurs to assist them in determining possible new industrial investments, initiation of prefeasibility studies, and other activities as determined by the overall program.

August 16 - September 19 (Phil Potts)

Together with Mr. Morelos, this member of the IDD staff shared part of the tasks mentioned in the preceding paragraph. Mr. Potts concentrated his work primarily in the area of provision of technical assistance to small and medium industries under the direction of the FESSC staff.

August 25 - August 31 (Richard Johnston)

The purpose of Mr. Johnston's trip was to assist the Basic Data Center in setting up procedures and determining the types of materials to be collected. His assignment was to provide guidance required by the FESSC staff in the daily operation of the CDB. In the performance of his assigned task, Mr. Johnston prepared a document entitled <u>Provisional Procedures for the Operation of the</u> <u>Basic Data Center</u>, which appears as Appendix 3 of this report.

August 25 - August 31 (Martha Ann Deadmore)

Funded under a separate grant on project (B-414) sponsored by the Agency for International Development, this member of the IDD staff visited Tubarão with Mr. Johnston. Mrs. Deadmore was involved in obtaining material for an IDD newsletter entitled "Small Industry Development Network." She interviewed the President of FESSC, Dr. Osvaldo dela Giustina, and the resulting article appeared in a later issue of the newsletter. She met staff personnel and worked with the associate editor located at FESSC.

December 7 - December 19 (George Morelos)

Mr. Morelos had the on-site assignment for the last period of activity. During this visit, he continued working with the staff of the Center for Management and Technical Assistance, the Adaptive Technology Center, and the Department of Research and Development. At the end of this period of assistance, the FESSC staff had been able to provide technical assistance service to 45 small and medium scale industries. Despite the disruption caused by the flood, the project staff met the established goals.

RESULTS AND CONCLUSIONS

Many positive accomplishments have resulted from Year I of this program, some of which were listed briefly in the introduction of this report. The total funding available to FESSC from this project was very limited, yet the following results were achieved:

1. The FESSC/IDD staff, working with the Department of Research and Development, the Center for Adaptive Technology, and the Center for Management and Technical Assistance, was able to provide technical assistance to 45 small and medium industries in four municipalities. Full details are presented in Appendix 1.

2. Through this program, the staff at FESSC was able to prepare an "industrial expansion" study for a local industry. The study was published under the title "Industrial de Doces Aurea--Projeto de Expasão Industrial." The study was prepared for Nicodemos Philippi and Cia, which is now implementing the project. The expansion will allow the company to produce 700 tons per year (at 80% of production capacity) of assorted jams, jellies, and sweets. The expansion represents an additional investment of about \$100,000 and will provide direct employment for 18 local persons. All financing has been provided by local banks.

3. The FESSC staff also completed and published two new industry studies for interested investors -- <u>Fabrica de Carrocerias Basculantes</u> for the Creso Tauares & Cia. Ltda. and <u>Fabrica de Tijolos e Correlatos</u> for Cerâmica Itapoa Ltda. Both of these new industries are now being established by the corresponding entrepreneurs. The first case will represent an investment of about \$200,000 and will have a direct employment of 30 persons. The second case represents an investment of about \$130,000 and will employ 23 local persons.

4. Another study prepared by the FESSC staff during the year is a feasibility study which was published under the title <u>Regeneração de Borracha--</u> <u>Projeto de Viabilidade</u>. At the time this report was being written, the project had not been acted upon by interested investors.

5. The Basic Data Center was established early in the project year. After the March flood, the center was rebuilt by the FESSC staff. At present, the center is operational and has proven to be of great value in providing the necessary data for the four studies prepared by the staff and mentioned in the preceding paragraphs.

6. Both the Community Development Center and the Adaptive Technology Center were established during Year I of the project. The CDC staff is at present gathering information on the communities in the two micro-regions of AMUREL and AMSESC. The staff is systematically carrying out community audits in these two areas. The Adaptive Technology Center is just starting operations and no major results are anticipated until Year II of the project.

7. Three senior staff members of FESSC, Messrs. Dalsasso, Head of CETEG; Marcos Hemkemeier, Head of CDB; and Adalgiso Domingues, Head of CATT, are completing their training program at IDD in Atlanta, Georgia. When the team returns to FESSC, they will be able to better assist in the performance of project tasks.

8. Through the Center for Continuous Education, over 2,500 persons were trained by the project staff during the year. This activity has been very well received by both the local population and the industries of the area.

9. The staff at FESSC spent much time compiling relevant demographic and industrial data on the area they serve. They also compiled a card index of all industries of the area which eventually will be used in the preparation of a manufacturing directory.

10. During the program year, the administration at FESSC noted the deficiencies of the existing organization and evolved it into a more viable one. This activity was totally carried out by the FESSC top administration.

11. Under other AID-funded programs, an audiovisual history of Year I was completed, base-line data of the area were compiled, contributions were made to newsletters, and a curriculum for industrial engineering was developed.

12. FESSC staff members contributed to and/or participated in four development meetings or conferences during the year.

In spite of the detrimental factors imposed on the project by the March 1974 flood, all project commitments have been met at this time.

Appendix I SUMMARY OF TECHNICAL ASSISTANCE CASES

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SUMMARY OF TECHNICAL ASSISTANCE CASES

No.	Municipality	Product
1	Tubarão	Food
2	Tubarão	Electrical Equipment
3	Tubarão	Food
4	Armazém .	Food
5	Tubarão	Soap
6	Orleans	Plastics
7	Tubarão	Wood
8	Tubarão	Garments
9	Tubarão	Metalworking
10	São Ludgero	Food
11	Tubarão	Woodworking
12	Tubarão	Furniture
13	Tubarão	Food
14	Tubarão	Transportation Equipment
15	Tubarão	Woodworking
16	Tubarão	Screws
17	São Ludgero	Food
18	Tubarão	Rubber
19	Tubarão	Shoes
20	Ararangua	Shoes
21	Parnaiba-Piauí	Handicrafts
22	Tubarão	Metal Furniture
23	Tubarão	Metalworking
24	Tubarão	Food
25	Tubarão	Ceramics
26	Tubarão	Vegetable Oil
27	Tubarão	Bricks and Tiles
28	Imbituba	Woodworking
29	Tubarão	Bricks and Tiles
30	Orleans	Food
31	Tubarão	Woodworking
32	Braço do Norte	Food
33	Tubarão	Machine Shop
34	Braço do Norte	Enamel

No.	Municipality	Product
35	Tubarão	Electrical Equipment
36	Laguna	Electric Motors
37	Laguna	Food
38	Tubarão	Bricks and Tiles
39	Tubarão	Metalworking
40	Buenos Aires	Plastics
41	Criciuma	Ceramics
42	Tubarão	Ceramics
43	Tubarão	Ceramics
44	Tubarão	Appliances
45	Tubarão	Aluminum Working

Main Product: Fruit Juice-Citrics

Municipality: Tubarão

Brief Description of Problem: Company wishes to start producing alcoholic beverages such as rum, and required technical assistance in selecting equipment, plant layout, and manufacturing process.

Applied Solution: Necessary information was obtained and plan was prepared so that company would contact financial sources for necessary funding. Company is now working with the local banks. Main Product: Electrical Transformers

Municipality: Tubarão

Brief Description of Problem: Difficulty in expanding their market and lack of good relations with local energy producer from the State of Santa Catarina.

<u>Applied Solution</u>: Contact was made with local energy producer (CELESC), and both companies were then able to review their differences and establish understanding. In the process, a plant layout was prepared and some suggestions were offered for more efficient operation of the industry. Market study is now being performed.

Main Product: Ice Cream

Municipality: Tubarão

Brief Description of Problem: The manufacturer was having problems with the product freezing both in the plant and at the point of sale.

<u>Applied Solution</u>: The materials utilized were examined and analyzed, and it was found that one of the products under the brand name of "Glintex" was causing the freezing. A new product was recommended and this has proven successful.

Municipality: Armazem

Brief Description of Problem: Company wishes to expand its operation but lacks financial resources.

<u>Applied Solution</u>: The management of the company was accompanied on a visit to the Banco do Brasil S. A. and through it obtained the necessary credit. As part of the solution, a study was made of all materials used to assist the company in obtaining more moderately priced raw materials. Case No. 5.

Main Product: Soap and Candles

Municipality: Tubarão

Brief Description of Problem: Management wished to purchase a similar manufacturing operation that was in the process of going bankrupt. It was necessary to determine if the acquisition was financially desirable and if the equipment could be of use to the company.

<u>Applied Solution</u>: Both companies were studied and, in the process, the management of the two companies had a breakdown in their personal relations. As a result, the company requesting technical assistance decided not to enter into this negotiation, but to simply expand its own operation.

Main Product: Plastics

Municipality: Orleans

Brief Description of Problem: Management was considering expanding their product line and needed additional risk capital.

<u>Applied Solution</u>: A brief study was made of the company and this was presented to the Banco do Brasil S. A., and the bank provided the financing.

Main Product: Woodworking

Municipality: Tubarão

Brief Description of Problem: The owner of the company was in commercial sales of wood products and wished to establish a sawmill.

<u>Applied Solution</u>: Two solutions were considered: a) contracting with the existing sawmill and becoming a partner in it or b) setting up a new company to operate a sawmill to be installed. In the process of the studies, the staff identified the problem that wood reserves are very low and it is very difficult to obtain raw lumber for operating a sawmill. In view of this, the management of the company decided to negotiate with an existing sawmill and enter into a partnership with it. Municipality: Tubarão

Brief Description of Problem: Small cottage industry wished to expand and become small industry. Management was in dire need of funds to carry out this project.

<u>Applied Solution</u>: After evaluating this family enterprise, the staff determined that they had few personal resources, no equipment, and lacked production know-how. It was recommended that they not attempt to establish an industry at this time, and technical assistance was provided in helping them acquire basic garment-industry equipment and improving production processes. Main Product: Metalworking

Municipality: Tubarão

Brief Description of Problem: Group of young persons, members of the Junior Chamber of Commerce, wished to invest in a company to manufacture metal scaffolding. They have 13,000 Cruzeiros available as risk capital.

<u>Applied Solution</u>: After analyzing the project, it was considered feasible but the following shortcomings were identified: Lack of funds for this magnitude project and limited experience in this industrial activity. The investors were able to increase their original capital to 100,000 Cruzeiros, and through a bank in Florianopolis they were able to finance the balance. Additional technical staff was contracted, and the plant is now being installed for a total investment of 1 million Cruzeiros. Municipality: São Ludgero

Brief Description of Problem: The company was overextended in its credit and was about to be foreclosed by the Banco do Brasil S. A.

<u>Applied Solution</u>: A feasibility study was prepared to determine if the company should be rehabilitated and, if so, what funds would be required. As a result of the study, the bank was willing to renegotiate its existing loan to allow the company more time to pay off its debts. The company was meeting all of its obligations when, unfortunately, the March flood wiped out their crops. They are now again renegotiating with the bank for a new disaster loan.

Main Product: Woodworking

Municipality: Tubarão

Brief Description of Problem: Three young men wished to form a company to produce mouldings, window shades, and similar products.

<u>Applied Solution</u>: The young investors were quite indefinite in their desires and it was not possible to come up with a finite solution. It was suggested to the investors that they further consider what they wished to do and that in the meantime they visit industrial activities in the area to become more familiar with business procedures. Municipality: Tubarão

Brief Description of Problem: Group of investors were interested in the possibility of manufacturing wood furniture.

<u>Applied Solution</u>: A feasibility study was prepared with the assistance of academic staff to determine if the investment was desirable. The interested investors are now trying to implement the project and set up a small furniture plant to serve the local region.

Main Product: Food

Municipality: Tubarão

Brief Description of Problem: Local businessman wished to enter into the food manufacturing activity. His choice was the manufacturing of sweet potato dessert and mandioc dessert.

<u>Applied Solution</u>: An initial study was prepared by the staff and, at present, this is being expanded to consider the possibilities of exporting the abovementioned products. Final solution is still underway.

Municipality: Tubarão

Brief Description of Problem: Local investors wished to manufacture dump trucks.

<u>Applied Solution</u>: A feasibility study was prepared considering this manufacturing activity. The study was presented to financial sources for consideration. The process was delayed due to the March flood, but financing was arranged and obtained in the month of October.

Municipality: Tubarão

Brief Description of Problem: Two brothers wished to invest in the establishment of a wood mill. They needed a partner with know-how in the operation of a sawmill.

<u>Applied Solution</u>: Similar to a previous case, the study identified the fact that forestry reserves are at an all-time low and it is practically impossible to obtain raw lumber for this type of operation. It was suggested to the investors that they try to find a partner with existing forestry reserves and then reconsider this investment.

Main Product: Screws

Municipality: Tubarão

Brief Description of Problem: Investors wished to expand the company to the manufacturing of screws (metal).

<u>Applied Solution</u>: A preliminary study was prepared and through it the staff identified that equipment is very expensive and requires large production for its efficiency. It was also determined that similar national companies have not been successful due to the raw cost (non-competitive) of imported screws. It was suggested to the investors that they invest in an in-depth feasibility study before deciding on this activity. Municipality: São Ludgero

Brief Description of Problem: This small industry wished to expand and also set up its own electrical generation plant. This expansion was considered in view of the fact that the plant had to be rehabilitated after the flood.

<u>Applied Solution</u>: The necessary study was prepared and financing was obtained to implement the project. The company has proven successful in its expansion and is now considering going into the manufacturing of dough products (noodles, spaghetti, etc.). Main Product: Rubber Products

Municipality: Tubarão

Brief Description of Problem: Two investors wished to enter into a venture to manufacture rubber products for the transportation industry.

<u>Applied Solution</u>: Feasibility study was prepared and several similar producers were interviewed to obtain first-hand information on this type of activity. The investors were presented with a report and they are now establishing their small industry. Main Product: Shoes

Municipality: Tubarão

Brief Description of Problem: An investor from Uruguay was interested in setting up a small industrial operation to manufacture tennis shoes.

<u>Applied Solution</u>: The necessary feasibility study was prepared and the market was analyzed. It was suggested to the investors that before they enter into this activity they set up a system to wholesale the product throughout the region, otherwise their market potential would not warrant the investment. The investors are still considering what they will do.

Main Product: Shoes

Municipality: Arangua

Brief Description of Problem: An investor was interested in setting up a small shoe manufacturing operation in this city.

<u>Applied Solution</u>: A feasibility study was prepared and the investor was taken to visit an existing shoe manufacturer so that he could obtain information from the management of the company. Since then, the investor has rented a small building, acquired the necessary equipment, and is presently operating.

Main Product: Handicrafts

Municipality: Paranaiba-Piaui

Brief Description of Problem: Small handicraft cooperative wished to acquire simple equipment for leather tannery.

<u>Applied Solution</u>: Contacts were made with companies in this line of business, and equipment information as well as prices were provided to the cooperative. At present, they plan to buy some equipment later in the year.

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Main Product: Metal Furniture

Municipality: Tubarão

Brief Description of Problem: A group of three investors wished to begin manufacturing metal file cabinets. At present, they are representing another manufacturer of the same product and selling it successfully.

<u>Applied Solution</u>: The appropriate study was prepared and it was brought to the attention of the investors that one of the problems they will encounter will be acquisition of raw material for metal fabrication. It was further suggested that they negotiate with the company they now represent and see if some cooperative arrangement could be worked out. The investors are now negotiating with the company they represent.

Main Product: Metalworking

Municipality: Tubarão

Brief Description of Problem: General information for interested group on financing of industrial project. The group is interested in the concept of setting up a small metalworking industry.

<u>Applied Solution</u>: The interested parties were provided with financial information and were introduced to a local bank. Since then, they have been working directly with the bank trying to obtain a line of credit.

Main Product: Food

Municipality: Tubarão

Brief Description of Problem: This existing company has had financial problems and, at the time, was facing foreclosure by the bank.

Applied Solution: A study was made of the company, and it was recommended that the executive director be replaced in order to take care of some internal problems. The bank has since then reached an agreement with the company, allowing them more time to pay their loan.

Municipality: Tubarão

Brief Description of Problem: General information to establish small ceramic industry. Investors needed technical assistance in the area of plant layout, equipment, and production process.

<u>Applied Solution</u>: The necessary technical information was provided to the investors and, at present, plant is under construction.

Municipality: Tubarão

Brief Description of Problem: A local firm in the wholesale business of vegetable oil was interested in setting up a small industry to produce similar product.

<u>Applied Solution</u>: A study was prepared to determine if it would be feasible to establish another producer of vegetable oil in the area. It was determined through the studies that there is a limited capacity of available raw material at this time and that it would be best to wait until proper crop production was sufficiently increased.

Main Product: Brick and Tile

Municipality: Tubarão

Brief Description of Problem: The investors desired a feasibility study to determine if they should establish a small plant to manufacture brick and roof tile.

Applied Solution: The study was completed and presented to a local bank which financed the project. The company is now building a plant and will be in operation early in 1975.

Main Product: Wood Truck Bodies

Municipality: Imbituba

<u>Brief Description of Problem</u>: A group of investors wished to obtain financing to establish a woodworking operation. They plan to manufacture wood truck bodies.

<u>Applied Solution</u>: A study was completed indicating that this was a feasible investment. The project has been financed and it is estimated that there will be a total investment of 600,000 Cruzeiros.

Main Product: Brick and Tile

Municipality: Tubarão

Brief Description of Problem: This company, already in operation, wished to improve its existing plant facility and build a new brick oven.

<u>Applied Solution</u>: Management of the company was taken to visit several operations in the municipality of Tijucas. An appropriate type of oven was identified and copied, and it is presently being built at the site of this industry.

Main Product: Food

Municipality: Orleans

Brief Description of Problem: A group of farmers were interested in the manufacturing of palletized mandioc flour.

<u>Applied Solution</u>: A market study was completed on this product and on the availability of raw materials. It was determined that it was not feasible economically to produce this product on the basis of present mandioc prices. The investors decided not to establish the industry.

Main Product: Wood Forms

Municipality: Tubarão

Brief Description of Problem: Investors were interested in the manufacturing of wood forms for construction industry.

<u>Applied Solution</u>: A project study was prepared by staff of FESSC and given to the investors. Shortly thereafter they decided to go into business and the industry is now being established.

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Main Product: Food

Municipality: Braço do Norte

Brief Description of Problem: Company was interested in expanding operations into the manufacturing of dough products.

Applied Solution: The appropriate study was conducted and the company carried out the expansion.

Main Product: Machine Shop

Municipality: Tubarão

Brief Description of Problem: This company was having financial problems. The company did not approach FESSC staff with the problem. They were directly contacted by the staff.

<u>Applied Solution</u>: A study was made of the company which manufactures equipment for making roof tiles. After the flood, it was suggested that they change their administration and their internal procedures which has helped the company financially.

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Main Product: Enamel

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Municipality: Braço do Norte

Brief Description of Problem: Need of funds to rehabilitate after the flood.

Applied Solution: A financial study was prepared and taken to the regional development branch and financing was obtained.

Municipality: Tubarão

Brief Description of Problem: Limited financial capability and administrative problems.

<u>Applied Solution</u>: A financial study was made of the company and it was identified that part of the problem was due to the flood. A second study is now under process, after having provided a training program for supervisors at this plant. The second study should be completed before the end of this program year. Municipality: Laguna

Brief Description of Problem: A local manufacturer wished to change its production from gasoline engines to electric or diesel engines, in view of the energy crisis.

<u>Applied Solution</u>: Information was requested from the Georgia Institute of Technology on this case. Since then, the manufacturer has purchased several pieces of capital equipment that were needed and the project is still open. It is anticipated that this project will be finished early in 1975.

Main Product: Food

Municipality: Laguna

Brief Description of Problem: Company went bankrupt after the flood. They were processing rice.

<u>Applied Solution</u>: Appropriate financing study was made of the company, and it was determined that the company could be rehabilitated. A local bank provided part of the needed financing, and an arrangement was worked out with the creditors to allow the company to go back into business. The company is presently operating and still receiving technical assistance.

Main Product: Brick and Tile

Municipality: Tubarão

Brief Description of Problem: Unacceptable end product with a normal production reject of up to 50%.

<u>Applied Solution</u>: A complete industry study is still underway to determine if the problem was caused by raw material, equipment, drying procedures, or others. The study has yet to be completed, but it is anticipated that it will be completed by the end of the first quarter of 1975.

Main Product: Metalworking

Municipality: Tubarão

Brief Description of Problem: The investor is interested in manufacturing nails for the construction industry.

<u>Applied Solution</u>: A study of this industry was completed and it was determined that often this industry is subject to "dumping practices." Additional information was gathered at the request of the investor and the final study was presented to him. The investor is still considering whether to go into this business or not. Main Product: Plastics

Municipality: Buenos Aires, Argentina

Brief Description of Problem: This is a plastics manufacturer located in Buenos Aires who has had to close his operation due to the lack of raw material. He is interested in relocating his company in Brazil.

<u>Applied Solution</u>: Complete information on Brazil and the region was provided to the investor, as well as other desirable data. The investor decided to establish in either São Paulo or Tubarão. He is still considering his decision.

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Main Product: Metalcasting

Municipality: Criciuma

<u>Brief Description of Problem</u>: Industrialist was considering establishing a small metalcasting operation.

<u>Applied Solution</u>: Appropriate reports were made for this industry. At present, the investor continues to be interested and a feasibility study is now being prepared.

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Main Product: Ceramics

Municipality: Tubarão

<u>Brief Description of Problem</u>: Investor has initial feasibility study for an investment of 4.5 million Cruzeiros to manufacture ceramics.

<u>Applied Solution</u>: Appropriate market study has been conducted and, at present, the staff continues to work with this group of investors. The project is still open.

Main Product: Ceramics

Municipality: Tubarão

Brief Description of Problem: Request for special incentives from the municipalitity of Tubarão.

<u>Applied Solution</u>: The problem was reviewed by the staff and presented to the municipality on behalf of the company. It appears that the municipality will authorize the requested special incentive.

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Municipality: Tubarão

Brief Description of Problem: Company has requested special incentives from the municipality.

<u>Applied Solution</u>: The FESSC staff prepared the appropriate documentation and requested the incentives on behalf of the manufacturer from the municipality of Tubarão. Incentives were authorized by the municipality.

Main Product: Aluminum Working

Municipality: Tubarão

Brief Description of Problem: Company requested special incentives from the municipality of Tubarão.

<u>Applied Solution</u>: The staff prepared the necessary documents and presented them to the municipality on behalf of the manufacturer. Special incentives were authorized by the municipality. Appendix 2 TRAINING PROGRAM FOR FESSC TECHNICAL STAFF

TRAINING PROGRAM FOR FESSC TECHNICAL STAFF January 6 - February 4, 1975

First Week		
Monday	Morning	Welcome and introduction to Atlanta, Georgia, Georgia Tech, and EES.
	Afternoon	Study period.
Tuesday	Morning	Elements of Industrial Development.
	Afternoon	Study period.
Wednesday	Morning	Elements of Industrial Development (Continued) and the Universe of Industrial Development
	Afternoon	Study period.
Thursday	Morning	Economic Geography.
	Afternoon	Study period and work on term projects.
Friday	Morning	Economic Geography (Continued).
	Afternoon	Study period and work on term projects.
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Second Week		
Monday	Morning	Regional Development.
	Afternoon	Work on term projects.
Tuesday	Morning	International Industrial Development.
	Afternoon	Study and work on term projects.
Wednesday	Morning	Industrial Location.
	Afternoon	Study and work on term project.
Thursday	Morning	Analysis of Potential Industrial Opportunities.
``	Afternoon	Plant visit.
Friday	Morning	Manual of Industrial Development.
,	Afternoon	Plant visit.
Third Week		
Monday	Morning	Manual of Industrial Development (Continued).
	Afternoon	Visit SBA.
Tuesday	Morning	Manual of Industrial Development (Continued).
	Afternoon	Study and work on term project.

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Third Week	Third Week (Continued)						
Wednesday	Morning	Theory of Industrial Dynamics.					
	Afternoon	Study and plant visit.					
Thursday	Morning	Problems of Small and Medium-Size Industries.					
	Afternoon	Study and work on term project.					
Friday	Morning	Problems of Small and Medium-Size Industries.					
	Afternoon	Plant visit.					
Fourth Week							
Monday	Morning	Simulation of Industrial Development Cases.					
	Afternoon	Visit industrial park.					
Tuesday	Morning	Simulation of Industrial Development Cases (Continued)					
	Afternoon	Visit industrial park and districts.					
Wednesday	Morning	Market Analysis.					
	Afternoon	Study and work on term projects.					
Thursday	Morning	Export Promotion.					
5	6						
2	Afternoon	Visit U.S. Department of Commerce					
Friday	-	-					
	Afternoon	Visit U.S. Department of Commerce					
Friday	Afternoon Morning	Visit U.S. Department of Commerce Industrial Promotion.					
Friday Fifth Week	Afternoon Morning Afternoon	Visit U.S. Department of Commerce Industrial Promotion. Visit industrial development organization in Atlanta.					
Friday	Afternoon Morning Afternoon Morning	Visit U.S. Department of Commerce Industrial Promotion. Visit industrial development organization in Atlanta. Technology Transfer Problems.					
Friday <u>Fifth Week</u> Monday	Afternoon Morning Afternoon Morning Afternoon	Visit U.S. Department of Commerce Industrial Promotion. Visit industrial development organization in Atlanta. Technology Transfer Problems. Study and plant visit.					
Friday Fifth Week	Afternoon Morning Afternoon Morning Afternoon Morning	Visit U.S. Department of Commerce Industrial Promotion. Visit industrial development organization in Atlanta. Technology Transfer Problems. Study and plant visit. Technology Transfer Problems (Continued).					
Friday <u>Fifth Week</u> Monday Tuesday	Afternoon Morning Afternoon Morning Afternoon Morning Afternoon	<pre>Visit U.S. Department of Commerce Industrial Promotion. Visit industrial development organization in Atlanta. Technology Transfer Problems. Study and plant visit. Technology Transfer Problems (Continued). Study and visit Georgia Tech's Research Units.</pre>					
Friday <u>Fifth Week</u> Monday	Afternoon Morning Afternoon Morning Afternoon Morning Afternoon Morning	<pre>Visit U.S. Department of Commerce Industrial Promotion. Visit industrial development organization in Atlanta. Technology Transfer Problems. Study and plant visit. Technology Transfer Problems (Continued). Study and visit Georgia Tech's Research Units. Determination of Adequate Intermediate Technology.</pre>					
Friday <u>Fifth Week</u> Monday Tuesday	Afternoon Morning Afternoon Morning Afternoon Morning Afternoon	<pre>Visit U.S. Department of Commerce Industrial Promotion. Visit industrial development organization in Atlanta. Technology Transfer Problems. Study and plant visit. Technology Transfer Problems (Continued). Study and visit Georgia Tech's Research Units.</pre>					
Friday <u>Fifth Week</u> Monday Tuesday	Afternoon Morning Afternoon Morning Afternoon Morning Afternoon Morning Afternoon Morning Afternoon	<pre>Visit U.S. Department of Commerce Industrial Promotion. Visit industrial development organization in Atlanta. Technology Transfer Problems. Study and plant visit. Technology Transfer Problems (Continued). Study and visit Georgia Tech's Research Units. Determination of Adequate Intermediate Technology. Industrial visit. Determination of Adequate Intermediate Technology.</pre>					
Friday <u>Fifth Week</u> Monday Tuesday Wednesday	Afternoon Morning Afternoon Morning Afternoon Morning Afternoon Morning Afternoon	<pre>Visit U.S. Department of Commerce Industrial Promotion. Visit industrial development organization in Atlanta. Technology Transfer Problems. Study and plant visit. Technology Transfer Problems (Continued). Study and visit Georgia Tech's Research Units. Determination of Adequate Intermediate Technology. Industrial visit.</pre>					

Sixth Week		
Monday	Morning	Preparation of Manufacturing Feasibility Studies.
	Afternoon	Industrial visits.
Tuesday	Morning	Preparation of Manufacturing Feasibility Studies.
	Afternoon	Work on term project.
Wednesday	Morning	Quality Control in Small and Medium-Size Industries.
	Afternoon	Work on term project.
Thursday	Morning	Quality Control in Small and Medium-Size Industries.
	Afternoon	Work on term project.
Friday		Presentation of term project and end of course.

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Appendix 3

PROVISIONAL PROCEDURES FOR THE OPERATION OF THE BASIC DATA CENTER

PROVISIONAL PROCEDURES FOR THE OPERATION OF THE BASIC DATA CENTER

Fundação Educacional do Sul de Santa Catarina Tubarão, Santa Catarina Brazil

by

Richard Johnston Project B-427

Industrial Development Division ENGINEERING EXPERIMENT STATION Georgia Institute of Technology Atlanta, Georgia, USA

Preface

These procedures are written to provide guidelines of a basic nature for the establishment of the Basic Data Center (CDB) at the Fundação Educacional do Sul de Santa Catarina (FESSC), Tubarão, Brazil. Since these procedures are expected to be adjusted from time to time to increase efficient performance, the addition of the word "Provisional" in the title is appropriate.

Many of these procedures were developed from the publication of the Basic Data Branch entitled <u>Information Support for Development Agencies: A Community</u> <u>Action Program</u> and from the <u>List of Subject Headings for Indexing and Filing</u> <u>Industrial Development Collections</u>, published by the American Industrial Development Council.

OBJECTIVES

There are three primary objectives of the Fundação Educacional do Sul de Santa Catarina (FESSC):

- 1. Determine the socioeconomic situation in the 32 cities of the Southern State of Santa Catarina.
- 2. Discover what FESSC can do to transform the Southern State of Santa Catarina into a higher level of industrial activity.
- 3. Improve the socioeconomic condition of all of its people.

These objectives are to be achieved through establishment and operation of six centers listed below in order of priority:

- 1. Administration, Management, and Technical Assistance Center
- 2. Adaptive Technology Center
- 3. Community Development Center
- 4. Public Administration and Regional Planning Center
- 5. Bio-sanitary Center
- 6. Anthropological Research Center

The objective of the Basic Data Center (CDB) is to provide support information to FESSC in the implementation of its programs.

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LIBRARIANS

The proper operation of a data center is not a simple matter. The philosophy of librarianship and the techniques of management, selection, acquisition, classification, and reference are not generally known and require specialized training. To ensure the success of CDB, a university trained librarian should be a full-time professional staff member. However, if a full-time position is not feasible, a librarian should be available for some period each day or at least for a few hours each week.

The librarian is a professional -- not a clerk. A full-time typist, other clerical help, and student assistants must be available to carry out the routine work of CDB.

A list of library schools and training courses in documentation available in Brazil is shown in Appendix 4.

REFERENCE

Reference is what the CDB is all about. The CDB exists to provide answers to user inquiries and information requirements. If CDB cannot answer the question from its collection, the staff of CDB is to go all out to help the user locate the answer in other collections or from other sources.

Reference is the activity of CDB in which the users are assisted in locating needed information. This activity takes several forms. One form is providing quick answers to short questions such as names of people or companies, addresses of organizations, and location of statistical report. Another form would involve lengthy and detailed searching of all available publications for a specific set of facts. Another form of reference service would be notifying staff members of newly arrived articles or publications having contents of continuing interest to them. It is important to record requests for reference assistance which CDB is unable to fill. These unfilled requests form a basis for selection of new publications.

CDB is not to be a technical library. Rather it is to be the one source in which will be found information about Tubarão and the South Santa Catarina area. It is expected that CDB will eventually have those basic, first level publications concerning the most important commercial activities of South Santa Catarina, but the more complicated, detailed, and sophisticated technical and engineering needs will be provided through Brazilian organizations and other international groups.

To locate a publication on the shelves, follow these procedures:

1. If you know the author, find the author card in the card catalog. Read the number in the upper right corner. This number (0001, 0142, or some such number) will be the shelf location number, and the publications will be on the shelf in numerical order.

2. If you know the title, find the title card in the card catalog. Read the number in the upper right corner and follow procedures outlined above in paragraph 1.

3. If you know neither the author nor the title, look at the card in the subject card section of the card catalog. Each publication will appear on one or more subject cards. Look at the subject cards until you find a publication fitting your needs. Read the number in the upper right corner and follow procedures outlined above.

4. Periodicals will have no number to indicate their location. Periodicals are arranged on the shelves alphabetically by title.

The Basic Data Center (CDB) should obtain the following types of information in support of each of the FESSC programs:

A. Administration, Management, and Technical Assistance

These publications provide detailed instructions for the planning, establishment, operation, management, and maintenance of a specific industry or business or individual operation within a manufacturing process. These sources of industrial information comprise the following:

- Sources of information on industrial techniques, processes, knowhow, and management data (e.g., handbooks, reference books, periodicals, manuals, guides to information sources, and directories of professional organizations).
- Sources of information on industrial equipment, products, and companies (e.g., directories, export guides, special reports, market surveys, trade and company literature, Chamber of Commerce journals and handbooks).
- 3. Publications of a general nature (e.g., newspapers, news magazines).
- 4. Research and progress reports, published and otherwise, from laboratories and manufacturing enterprises.
- 5. Audiovisual materials.
- Sources of information on scientific and technical developments and experiences.¹/
- B. Community Development, Public Administration and Regional Planning These sources of information are described in <u>Information Support for</u> Development: A Community Action Program - Appendix 1.

C. Adaptive Technology The Adaptive Technology Center will require information of a highly specialized nature. Technology employed in local industries can be determined by on-site visits and interviews.

 $\frac{1}{UNIDO}$. Information Units in Small Plants, 1973, pg. 9.

The knowledge of technology capable of being adapted to local industry can be acquired from several sources.

- Engineers and technicians in the State of Santa Catarina who can assist should be identified, contacted, and their level of cooperation determined.
- 2. Three national institutions should be visited and arrangements made for continuing assistance:

Instituto Brasileiro de Bibliografia e Documentação Rio de Janeiro Institute for Technological Research São Paulo National Institute of Technology Rio de Janeiro

From these three institutes can be obtained technical information and assistance, pilot plant studies, industrial information, industrial evaluations, industrial applications of research work, supplier and trade associations information, and other information relative to adaptive technology.

International organizations should be contacted for information and assistance. Some of these organizations have offices in Brazil. Some of the organizations to contact are listed below:

Intermediate Technology Development Group Limited London, England UNESCO Servicio de Publicações Fundação Getúlio Vargas Caixa Postal 21120 Braia de Botafogo 183 Rio de Janeiro, G.B. UNESCO

1320 Bulevar Artigas Apartado de Correos 859 Montevideo, Uruguay

UNIDO Felderhous Rathausplatz 2 P. O. Box 707 1010 Vienna Austria

UNIDO United Nations New York, New York 10017

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United Nations Development Program (UNDP) United Nations New York, New York 10017 Food and Agricultural Organization Viale delle Termi di Caracalla Rome, Italy Food and Agricultural Organization Casilla 10095 Santiago, Chile United Nations Apt. 201 Cruz Street No. 19 Rio de Janeiro, Brazil International Labor Organization CH1211 Geneva 22, Switzerland International Labor Organization Caixa Postal 607-ZC-00 Rua da Gloria 190 Apt. 20 Rio de Janeiro, Brazil World Bank Group (IMF) 19th and H Streets NW Washington, D.C. 20431 UNISIST Division of Scientific and Technological Information Documentation **UNESCO** 7, Place de Fontenoy 75700 Paris, France UNESCO 7, Place de Fontenoy 75700 Paris, France

D. Bio-Sanitary

Since medical literature is so vast, the Bio-Sanitary Center cannot realistically expect to acquire much more than a good basic collection of reference publications. These publications will provide information on indigenous medical problems of Santa Catarina and support the teaching and research work of the Center, faculty, and staff. The faculty and staff should recommend to CDB most of the publications they require.

The existing medical schools, bio-sanitary centers, and related research centers in Brazil have publications. It will be necessary to gain access to these publications through an interlibrary loan agreement or in-house use privileges. The World Health Organization should be contacted and asked to provide books and equipment.

If in the State of Santa Catarina there is not now a computer facility to search tapes of the Chemical Abstracts and other basic data bases, it might be useful to ask the World Health Organization or UNIDO to establish at FESSC a facility to provide bio-sanitary and medical research information to other such institutions in Santa Catarina and Brazil. If these tapes are available elsewhere in Brazil, perhaps UNIDO or WHO would provide to FESSC a computer terminal through which searching can be done.

E. Anthropological

The information for the Anthropological Center will support the three major activities of teaching, researching, and displaying. The faculty should recommend for acquisition appropriate handbooks, guides, serials and journals, and other publications directed primarily toward the teaching and researching activities.

The information center should independently acquire other information such as maps (historical, geological, hydrological, weather, road, contour, and EROS satellite), area histories, weather data, soil studies, journals and reports from other anthropological center, other information that would help to reveal the history of the state, and conditions in existence today resulting from historical influences. Another important function would be to display and make available for study and inspection products created or discovered by the Anthropological Center. These products will range from simple photographs to intricately reconstructed artifacts recovered from excavations. These activities will require the information center to acquire handbooks and guides concerning the preparation and display of these items. The word "acquisitions" refers to all of those activities followed to get possession of the publications selected to be acquired by CDB. These documents will be acquired as unsolicited gifts, solicited gifts, purchase, or exchange.

1. Unsolicited gifts

As soon as the CDB becomes organized and operational, various people from the college, industry, and other organizations will give publications to the center. Each donor should receive

acknowledgement for his gift. The CDB will keep only those gift publications which fulfill the requirements of the selection criteria.

2. Solicited gifts

Many publications, especially pamphlets and reports, can be acquired free of charge from the report author or publishing organization. Diligent searching of all incoming publications will reveal the existence of new publications which can be acquired at no cost to the CDB.

3. Exchange

Contacts by letter and personal visits to organizations producing publications can result in agreements to exchange FESSC-produced publications for publications produced by the other organizations. Some of these organizations are:

- a. Libraries -- university, research and corporate
- b. Research institutions
- c. Government organizations City State

National

d. International organizations UNIDO UNESCO UNDP

FAO

ILO

UNISIST

- e. Embassies and consulates
- f. Chambers of commerce
- g. U.S. Book Exchange 3335 V Street, N. E. Washington, D. C. 20018

h. National Exchange Centres

4. Purchase

Using the purchase procedures established by FESSC, the CDB will buy those publications selected for acquisition. Some of these publications can be purchased directly from the issuing agency, but others must be purchased through book or magazine agents located in Santa Catarina, Porto Alegre, Rio de Janeiro, São Paulo, Brasilia, Buenos Aires, Argentina, Mexico City, Madrid, London, Paris, New York, Vienna, and other places. For each publication ordered, a record must be kept which will show the full citation of the publication, its cost, agent, date of ordering, and other pertinent information. When the publication is received, the actual publication and its invoice must be checked against the original order. Periodically the order file must be checked to determine non-deliveries of publications and proper follow-up action taken.

Objective

The objective of these procedures is to arrive at a method for placing all publications on the shelves in a systematic and orderly manner so that each publication has one definite shelf location and is therefore easily retrievable.

LOCATION ON SHELVES

Since only a relatively small number of publications will be acquired by CDB, only a simple system is required. This system needs a few cards for each publication -- an author card, a title card, one or more subject cards, one card for GIT, and a shelf list card.

Pamphlets, books, and directories housed in pamphlet boxes will be assigned an accession number which will indicate the shelf location for the publication.

Maps will be housed in vertical files or other suitable places and will be arranged by titles in alphabetical order.

Periodicals will be housed in pamphlet boxes and arranged on the shelves by titles in alphabetical order.

PROCESSING PUBLICATIONS

1. If the publication is a periodical, fill out cards for the card catalog. File one card in author section. File one card in the title section according to its alphabetical order. File a second card in a separate file that lists all periodicals. Send the fourth card to GIT.

2. If the publication is a pamphlet, book, or directory, fill out cards for the card catalog. File one card in the author catalog according to its alphabetical order. File one card in the title catalog according to its alphabetical order. Send one card to GIT. File one card in shelf list file according to its numerical order.

3. For all publications determine in what subject category the publication falls. Determine the subject category from one or more subject headings chosen from the master list of subject headings used by CDB. File these subject cards in the subject file of the card catalog according to their alphabetical order.

Sample cards are shown on the following page.

SUBJECT CARD

Subject		
Author		
Title		2
Publisher Date	Place Pages	ļ
Subjects		

Whitlatch, George I	0001
Industrial	
Industrial Development Division, Georgi Technology, Atlanta, Georgia, U.S.A.	a Institute of
1970 72 p.	
Industrial Sites	

AUTHOR CARD

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Author	
Títle	
Pu bl ísher Date	Place Pages
Subjects	

TITLE CARD	
Title	-
Author	
r.	ж.
Title	
Publisher Date	Place Pages
Subjects	
x.	т.
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INDUSTRIAL SITES

Whitlatch, George I 0001 Industrial Sites Industrial Development Division, Georgia Institute of Technology, Atlanta, Georgia, U.S.A. 1970 72 p. Industrial Sites

INDUSTRIAL SITES

Whitlatch, George I 0001 Industrial Sites Industrial Development Division, Georgia Institute of Technology, Atlanta, Georgia, U.S.A. 1970 72 p. Industrial Sites

PERIODICAL CARD	
TITLE	
Publisher	Place
Frequency	Cost
Renewal	Date
Subjects	

PERIODICAL CARD-SUBJECT

SUBJECT	
Title	
Publisher	Place
Frequency	Costs
Renewal	Date
Subjects	

x

KOREA TODAY				
Department of Commerce, Monthly	Republic of 400 Won	Korea,	Seoul,	Korea January
Economic Conditions				

ECONOMIC CONDITIONS				1
KOREA TODAY	4			
Department of Commerce,	Republic of	Korea,	Seoul,	Korea
Monthly	400 Won			January
Economic Conditions				

Pamphlets - Books - Directories

- 1. One card to author file.
- 2. One card to title file.
- 3. One or more cards to subject file.
- 4. One card to shelf list file.
- 5. One card to GIT.

Periodicals

- 1. One card to periodical file.
- 2. One card to title file.
- 3. One or more cards to subject file.
- 4. One card to GIT.
- 5. One card to author file.

File cards alphabetically using the "word by word" filing system -- see Appendix 5.

SUBJECT HEADINGS ASSIGNMENT

Community Development, Public Administration, and Regional Planning Publications

To begin assignment of subject headings, a basic list of terms has been selected for use. These terms come from the AIDC's LIST OF SUBJECT HEADINGS FOR AN INDUSTRIAL DEVELOPMENT ORGANIZATION. As the collection grows, additional headings may be chosen from the larger list identified as "Headings for General Material" in the AIDC list. The subject headings chosen for the first year, however, should be selected from the list provided. Rules for the selection of headings are listed in the first part of the AIDC list. See pages 1, 2, and 33 in Appendix 3.

Administration, Management, Technical Assistance, and Adaptive Technology Publications

Subject headings for the technology materials should be chosen from the publication, <u>Thesaurus of Scientific and Engineering Terms</u>, <u>Engineers Joint</u> <u>Council</u>, New York. Thesaurus is a precise guide for librarians to follow for subject headings selection and for information retrieval.

Bio-Sanitary Publications

Subject headings for the Bio-Sanitary Center's publications could be chosen from Part 2 of the January issue of <u>Index Medicus</u>, "Medical Subject Headings." This annual list is the authoritative list for the catalog of the National Library of Medicine, Washington, D.C., USA.

Anthropology Publications

Subject headings for the publications acquired for the Anthropology Center could be chosen from the subject index of the annual publication, <u>International</u> <u>Bibliography of Social and Cultural Anthropology</u>. Another possible source for more detailed subject headings could be the <u>Handbook of South American Indians</u> by Julian Haynes Steward.

SUBJECT HEADINGS USED BY THE CDB FOR COMMUNITY DEVELOPMENT, PUBLIC ADMINISTRATION, AND REGIONAL PLANNING

Advertising
Agriculture
Biographical Sketches
Climate
Communication Media: Radio, Television, Press Facilities
Community Attitudes
Company Information
Consolidations and Mergers
Construction
Cost of Living
Cultured Facilities and Programs
Directories
Economic Conditions and Economic Industry
Educational Facilities
Employment and Unemployment
Financial Data
Financial Institutions
Forecasts and Trends
Geography: Characteristics and Distinctive Features of an Area
Government: Farm Organization
Government Regulations
Government Services
Health Facilities and Services
Highways and Streets
History
Housing and Residential Areas
Income
Industrial Buildings
Industrial Districts
Industrial Sites
International Aspects
Labor Force
Labor Relations

Labor Unions Land Use Manufacturing Market Surveys Medical Facilities and Services New Plants and Expansions Organizations and Associations Plant Layout Population Products Public Utilities Raw Materials Realtors Recreation Research Resources Retail Trade Service Industries Shopping Centers Statistics Taxation Technology and Processes Tourism Traffic Transportation Urban Renewal Wages Warehouses Wholesale Trade

To assist CDB in developing its card catalog, one author card will be sent to Richard Johnston at Georgia Tech. This card can be examined at Georgia Tech and, if required, suggestions can be made to change the card to make it more effective. These cards will be filed at GIT so that FESSC personnel in training at GIT can be aware of the collection at FESSC and so that GIT personnel going to Tubarão can better plan on their informational requirements needed at FESSC. Persons from other counterpart countries can also see the types of information being collected by fellow counterpart organizations.

PERIODICALS

Periodicals published in Brazil can be ordered directly from the publishers. Periodicals published in most other countries can best be ordered through an agent such as Libris Agencia Literaria Ltdo. or Livraria Interciencia, Ltdo., both located in Rio de Janeiro. Probably there are other agents in São Paulo, Porto Alegre, or Florianópolis who could order the periodicals. The local newspapers of the State of Santa Catarina could be ordered direct if CDB is unable to get them free of charge.

As each issue is received at CDB it should be recorded on the periodical control card. This control card enables the staff of CDB to know which issues have not been received and need to be re-ordered.

After being recorded on the control card, each periodical is routed to the various staff members of FESSC. When the periodical is finally returned to CDB, the significant articles are indexed and these index cards are then filed in the periodical index card file. After indexing, the periodical is then stored in its pamphlet box on the shelf. These periodicals are so arranged that the most recent issue is on the right and so that the title page faces to the left.

NEWSPAPER CLIPPINGS

Newspapers should be purchased from each county in the State of Santa Catarina, from Florianopolis, and from each capital city in the states adjacent to the State of Santa Catarina. A major newspaper from Rio de Janeiro, Santos, São Paulo, and Brasilia should also be purchased.

Each of these newspapers should be read and articles clipped that have information about or concern the welfare of the Tubarão or South Santa Catarina area. The list of subject headings that follows this section could be used for these clipped articles, but additional subject headings may be added when needed.

Each article selected for clipping will be cut out and posted upon a sheet of paper onto which has been typed at the top left corner the appropriate subject heading. Examples could be:

Tubarão - Agriculture - <u>Daily News</u>, 24 October 1974

Tubarão - Economic Conditions, Daily News, 24 October 1974

Articles to be clipped concerning income-producing activity will have a special heading called the commerce and industry clippings. Example:

Tubarão - Commerce and Industry - ABC, S. A. - <u>Daily News</u>, 24 October 1974

Florianopolis - Commerce and Industry - XYZ, S. A. - Daily News, 24 October 1974

Following each subject heading will be typed the title of the newspaper and the date of publication. Example:

Florianopolis - Port Facilities - Daily News, 24 October 1974

Each clipping will be filed first by its geographical heading and next by its subject heading. Examples:

Florianópolis - Commerce and Industry - ABC, S. A. Florianópolis - Port Facilities Tubarão - Agriculture Tubarão - Commerce and Industry - XYZ, S. A. Tubarão - Economic Conditions

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SUBJECT HEADINGS FOR NEWSPAPER CLIPPINGS

COUNTY:

AGRICULTURE AIR TRANSPORTATION ANNEXATION AREA REDEVELOPMENT CLIMATE COMMUNITY AGENCIES CONSTRUCTION CONVENTIONS DIRECTORIES ECONOMIC CONDITIONS

ECONOMIC OPPORTUNITY PROGRAM EDUCATION EMPLOYMENT GOVERNMENT GOVERNMENT FINANCE HEALTH HIGHWAYS AND STREETS HOUSING

INCOME

INDUSTRIAL BROCHURES INDUSTRIAL DEVELOPMENT AGENCIES INDUSTRIAL SITES LAWS AND ORDINANCES

MANPOWER MAPS MILITARY INSTALLATIONS NATURAL RESOURCES PLANNING POLLUTION POPULATION PORT FACILITIES RECREATION RETAIL TRADE SHOPPING CENTERS TAXATION TOURIST TRADE TRANSPORTATION URBAN RENEWAL UTILITIES WAGES

LOCAL HEADINGS

CIRCULATION

"Circulation" is the term used to describe the activities whereby publications are made available to the FESSC staff and other users and then replaced on the shelves for storage and future use.

All new periodicals will be delivered to the staff.

The staff will take from the CDB for temporary use whatever publications they need.

The staff will return all publications to one designated location in the quarters of the CDB.

Each staff member will record on a register the publications he is taking from CDB. He will list the publication's title, number, and his initials. When these publications are returned to CDB, the student assistant will indicate the return of the publication on the register by marking through with a pencil the entry made by the person who checked out the publication. The student assistant will then replace each publication in its proper shelf location.

Appropriate statistics can be generated from the circulation records. These statistics can indicate the volume of usage, the subjects of interest, and the types of publications needed for future acquisition.

BUDGET

The CDB will operate under certain financial constraints. Previous to the start of each new fiscal year, a budget must be prepared to provide guidelines to enable the operations of CDB to remain within the limitations established by higher authorities. The budget must indicate the amount of money required for periodical and newspaper renewals, for new book and pamphlet purchases, for equipment and supply needs, and for other services and items required for CDB operation. Each month the actual expenditures incurred must be checked against the budget projections, and proper adjustments to expenditures can then be made to conform with budget figures.

OUTSIDE SOURCES OF INFORMATION

Since no one library can possibly supply all of the publications required by its patrons, it will be necessary for CDB to identify and locate useful publications elsewhere in the community. A record of the location of other organizations of publications highly useful to CDB should be compiled, kept up to date, and made available to the staff. Some organizations to contact in Tubarão are:

- 1. The Tubarão departments of water, health, and light
- 2. Associação Comercial Industrial de Tubarão
- 3. Banco do Estado de Santa Catarina S. A.
- 4. Camara Junior
- 5. Centaris Electricas do Sul do Brasil, S. A.
- 6. Companhia Catarinense de Telecomunicações
- 7. Instituto Nacional de Previdencia Social
- 8. Rede Ferroviaria Federal S. A.
- 9. Reflorestadora Catarinense S. A.

Similar organizations in Florianopolis should be contacted. Other organizations to contact are:

- 1. Associação Brasileira de Normas Tecnicos. Rio de Janeiro
- 2. Diario Oficial for Brazilian patents
- Instituto Argentino de Racronalizacion de Materials, Buenos Aires, Argentina
- Instituto Brasileiro de Bibliografia e Documentação (IBBD), Rio de Janeiro
- 5. The technical institutes and libraries in Porto Alegre
- 6. See Appendix 2 for a list of organizations in Brazil responsible for documentation and library services.

Publications will be produced by the CDB for two main purposes:

1. To provide written instructions to the staff enabling them to make better use of the collection, e.g., special bibliographies, accession lists, guides and handbooks to the holdings of CDB.

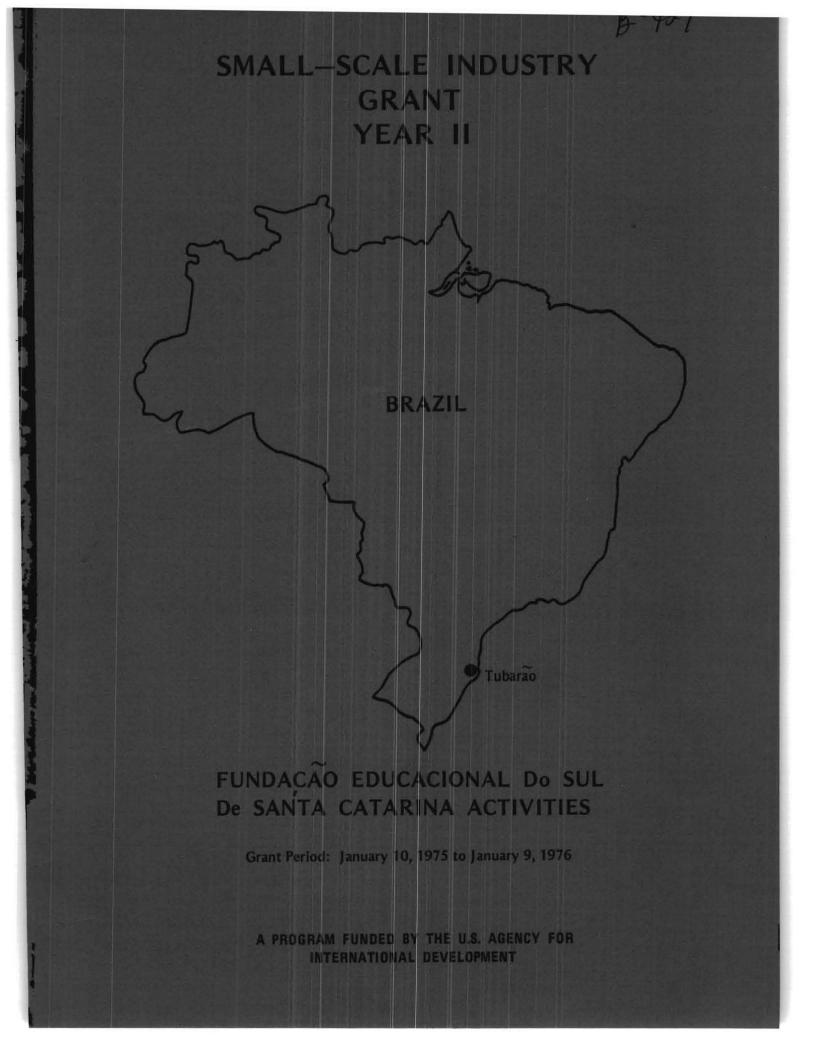
2. To provide favorable publicity for the CDB from potentially helpful outside agencies, e.g., directories of various types, lists of articles indexed from periodicals at CDB, services at CDB available to the citizens of South Santa Catarina, and a newsletter.

To learn of the existence of publications useful to CDB, it is necessary to be aware of the many different organizations having valuable information. A way to learn about these organizations is to publish a newsletter from CDB or FESSC and to distribute it as widely as possible both nationally and internationally. In return, many of these organizations receiving the CDB newsletter will send their own newsletter and lists of their available publications.

The space available for CDB is adequate for the present and for several years to come. There is a need for some additional equipment. The equipment that should be acquired is listed below:

- 1. Card catalog file -- minimum 20 drawers
- 2. Microfilm and microfiche readers and printer
- 3. Pamphlet boxes
- 4. Additional shelving in the future
- 5. Additional vertical files

When contemplating the acquisition of new equipment, always try to determine the requirements five years hence and purchase enough to fulfill these long-term needs.



FINAL REPORT YEAR II

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

Ъу

Jose Muller

and

Nelson C. Wall

Contract No. AID/ta-c-1062

Economic Development Laboratory ENGINEERING EXPERIMENT STATION Georgia Institute of Technology January 1976

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INTRODUCTION

On January 31, 1975, the Agency for International Development (AID) funded, for the second consecutive year, Contract No. AID/ta-c-1062, through which the Georgia Institute of Technology was to make available \$45,000 grants for Small-Scale Industry Development Programs to three institutions of higher learning in different geographic regions of the world. Two of the three grants would be for the continuation of existing programs with counterparts selected in 1974; the third grant would be for a new counterpart to be selected in 1975.

The Fundação Educacional do Sul de Santa Catarina was one of the two grant continuations, since this program had been initiated on January 23, 1974. This document is the final (end-of-the-year) report for the work performed jointly by the staff of the Fundação Educacional do Sul de Santa Catarina (FESSC) in Brazil and the Georgia Institute of Technology, Atlanta, Georgia.

When the grant was initiated in 1974, the administration of the Georgia Institute of Technology and the sponsor established the following criteria for the selection of grantee institutions:

- 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 staff.
- 7. Institution's potential for utilizing grant effectively.
- 8. Potential multiplier effects.
- 9. Host government commitments.

After an extensive initial search, the Fundação Educacional do Sul de Santa Catarina (FESSC) was one of the original two institutions selected and the appropriate grant was established. The results of the first year of the program were published at the end of the grant year. For additional details, the reader may refer to the <u>Final Report--Fundação Educacional do Sul de</u> <u>Santa Catarina (FESSC), Small-Scale Industry Grant</u> (January 10, 1974, to January 9, 1975) by Jose Muller and Nelson C. Wall, Industrial Development Division, Georgia Institute of Technology, Atlanta, Georgia, January 1975.

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For Year II of the project, the basic objective remains unchanged and is as follows: "To assist in the generation of employment through the development of small-scale industries outside metropolitan centers."

Some of the immediate results and accomplishments realized in Year II of this project are the following:

1. Generation of 31 new industrial jobs and an increase in sales of 4.1 million cruzeiros in eight of the companies assisted in 1974.

2. Expansion of the Basic Data Center (CDB). The holdings of the CDB were doubled during the year.

3. Strengthening of both the Center for Management and Technical Assistance (CETEG) and the Center for Permanent Education (CEP).

4. Establishment of the Adaptive Technology Center (CATT).

5. Provision of technical assistance services to 37 local small-scale industries in 11 different municipalities of the state of Santa Catarina.

6. Preparation and publication of four feasibility studies and 14 new manufacturing opportunity studies.

7. Training of 46 staff members and 512 industrial workers.

8. Establishment of an audiovisual section and acquisition of appropriate equipment.

9. Preparation of an audiovisual documentation of the second-year program jointly with the Technology and Development Institute, East-West Center, Hawaii.

10. Presentation of over 10 conferences, seminars, and workshops.

11. Participation in and/or contribution to a number of development meetings and conferences.

12. Preparation and publication (under contract) of an in-depth study of Santa Catarina for the Minister of the Interior and the Superintendency for the Development of the Southern Region (SUDESUL). The five-volume, 477-page study was published under the title Termos de Referência.

Additional sections of this end-of-the-year report describe in detail the background, objectives, activities, schedule of the program of work, results achieved, and the conclusions reached by the project's joint staff.

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Background

The Fundação Educacional do Sul de Santa Catarina (FESSC) is a wellrespected, nonprofit, autonomous institution which was established by the Brazilian Civil Code and national legislation under Decree Laws 200 and 900. As an institution of higher learning, FESSC has the following objectives:

1. Create, integrate, organize, 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 or cooperation 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 made up of representatives of the entities that support and created the organization. Its Executive Secretary 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 (the Executive Secretary of the Curator Council), the Director of the Department of Higher Education, the Department of Secondary Education, and the Department of Research and Development. There is also an Educational and Technical Advisory Council to the Directory.

The support organization to the administration includes a Secretary General, Associate Director, Administrative Assistant, and assistants in teaching and planning.

The Higher Education Department coordinates the schools and institutes and course work at that level carried out by FESSC. In December 1975, the Higher

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Education Department had a faculty of economic sciences, course work in economics, and had established courses in accounting sciences and administration.

The School of Advanced Sciences and Teaching offers courses in teaching (teachers, school administration, educational orientation, and teaching orientation), language (Portuguese, English, and French), and social studies (geography and history), and has now established a course in philosophy, civics, and ethics and course work for professors in the areas of professional techniques.

The Department of Secondary Education is made up of the Integrated School Father Dehon and a small experimental school.

The Research and Development Department has a center or institute to provide technical assistance, research, planning, and information oriented to local development and regional development of private and civic community.

Since early 1972, FESSC and Georgia Tech's Economic Development Laboratory (EDL)--formerly the Industrial Development Division--had been studying the possibilities of initiating a joint program of work. As a result of these early deliberations, 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 students at a professional level for the area 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.

FESSC then presented a proposal to the Georgia Institute of Technology entitled "Program of Development for Small and Medium Industries." It was implemented by a grant funded under an existing contract provided to the Georgia Institute of Technology by the Agency for International Development (AID) for this purpose.

In 1974, the Economic Development Laboratory, in cooperation with FESSC, initiated Year I of a program of small-scale industry development. This program was expanded in 1975 (Year II), again under funding by the Agency for International Development.

The terms of the \$45,000 grant permitted the grantee to utilize half of the grant funds for personnel, travel, materials and supplies, conferences, etc.

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The balance of the funds were to be used by the grantee to obtain training and consultation from U.S. technical assistance organizations.

The Georgia Institute of Technology and the Technology and Development Institute, East-West Center, subsequently contracted with the Fundação Educacional do Sul de Santa Catarina to provide training, consultation, and an audiovisual documentation of the project.

The Department of Research and Development (DPD) of FESSC was assigned the responsibility of the program activities for Year II and served as a counterpart to the International Development Branch of the EDL.

At the time Year II program was initiated on January 10, 1975, the DPD organizational structure was as shown in Figure 1.

The President of the Executive Directory, Dr. Osvaldo dela Giustina, designated Econ. Jose Muller, Head of the Department of Research and Development, to serve as Counterpart Project Director. The Director of the Economic Development Laboratory appointed Mr. Nelson C. Wall, Head of the International Development Branch, to serve as Project Director for Georgia Tech's portion of the program.

Objective

The continuing objective of this project is to develop a small-scale industries program at the Fundação Educacional do Sul de Santa Catarina. Three principal activities were considered: (1) provision of engineering, managerial, scientific, and technical assistance to small-scale industries in three defined geographic areas of Santa Catarina, Brazil; (2) continued development of an industry information center; (3) organization and implementation of adult training programs for the human resources of the area.

The project administration, under the contract with the grantee, then established two main areas of involvement for the Georgia Institute of Technology staff which would assist in attaining the established objectives: (1) training of selected FESSC staff members both in Brazil and the U.S.A. and (2) providing on-site consultation by staff members of the Economic Development Laboratory of the Engineering Experiment Station at the Georgia Institute of Technology. It was also established that the project staff would assist FESSC personnel in providing managerial, engineering, scientific, and technical assistance to selected small and medium industries in the selected geographic areas of Santa Catarina.

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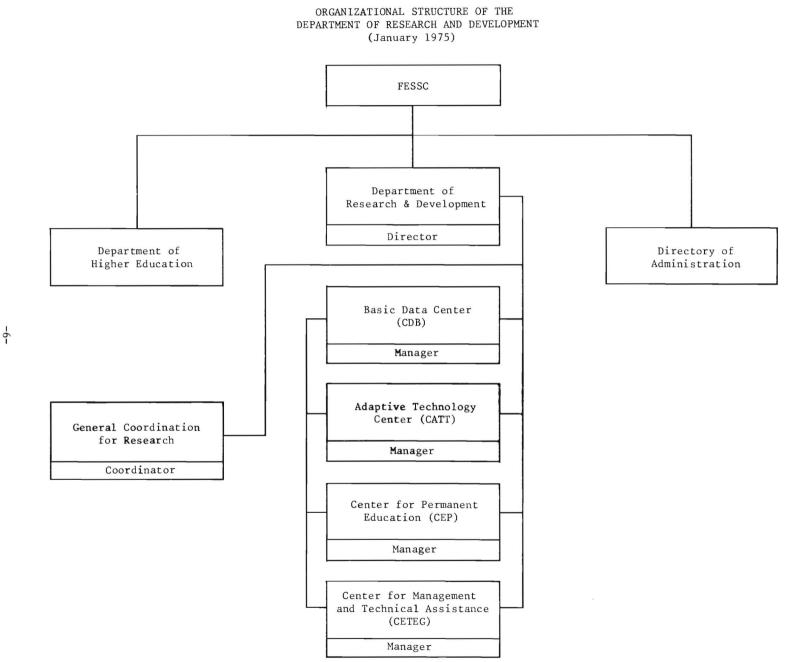


Figure 1

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At the end of this multi-year project, it is anticipated that FESSC will have in operation a well-trained staff that will be fully capable of providing technical assistance services to small-scale industries in the area. As a result of this technical assistance service, FESSC anticipates the generation of employment and income in Santa Catarina as well as the development of an indigenous methodology applicable to other regions of Brazil.

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

At the start of the Small-Scale Industry Grant on January 23, 1974, the following total goals had been established by the Agency for International Development for the Georgia Tech grant, to be achieved over a period of four years:

"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 are reached, the sponsor anticipates 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 for Year II were met plus several additional accomplishments which were listed in the introduction and will be presented in further detail in the balance of this final report.

Program of Work

A program of work was presented by FESSC in their Year II proposal on the basis of the work that had been implemented and evaluated during the first

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year of the program. The following activities were then established for the second 12-month period (Year II), all of which have been implemented:

1. <u>Organization</u>. The original organization at FESSC had evolved as shown in Figure 1, and specific responsibilities were established for the units so that they would start implementing the different assignments identified by the program. The newest unit, the Adaptive Technology Center (CATT), was to receive special attention; most of the staff training would be focused on the professional staff of the CATT. All programs were to be oriented in such a manner as to serve the small and medium industries in the selected municipalities.

2. <u>Staff and Physical Plant</u>. Based on the identified needs of the different units of the program, appropriate office space and equipment were allocated to assure the necessary logistical support to the project. The acquisition of audiovisual equipment was considered of the highest priority, as well as allocation of office and laboratory space for this new activity. Staff needs were still eminent, and candidates were selected to be considered during the year. Candidate selections were made on the basis of interest in the program, capability, and motivation to carry out the requested task.

3. <u>Project Policy</u>. The program required a multiple input-output system with the proper flexibility to assure compliance with the sponsor's basic theme--Stimulation of Existing and New Small-Scale Industries.

4. <u>Program Areas</u>. The EDL Project Director and his counterpart at FESSC jointly designed a program to support the implementation of the following activities during Year II:

a. <u>Basic Data Center (CDB)</u>. This unit had suffered heavy losses during the March 1974 flood and many of the publications had been damaged or destroyed. <u>1</u> During Year II, emphasis was to be given to the following areas of work within the CDB:

- (1) Complete cleanup of the damages caused by the flood.
- (2) Collection, classification, and dissemination of pragmatic, up-to-date information on Brazilian and international material relevant to small-scale industries.

<u>1</u>/For details, please refer to Jose Muller and Nelson C. Wall, Final <u>Report--Fundação Educacional do Sul de Santa Catarina (FESSC) Small-Scale</u> <u>Industry Grant</u> (January 10, 1974, to January 9, 1975), Industrial Development Division, Georgia Institute of Technology, Atlanta, Georgia, January 1975.

- (3) Additional on-site consultation and assistance from the EDL senior staff as needed.
- (4) Implementation of the guidelines established during Year I for the operation of the CDB.

b. <u>Center for Management and Technical Assistance (CETEG)</u>. As part of the first-year program, this center was established during the summer of 1974. During Year I, CETEG was able to establish the operational policy for the center and eight small-scale industries were serviced. The March 1974 flood created an emergency which necessitated assignment of all staff members to assist in the reconstruction of the many small-scale industries that had been damaged.

For Year II, the following activities were planned:

- (1) Continue to provide technical assistance to eight small-scale industries originally selected and add up to 10 more during the year.
- (2) Prepare and complete two feasibility studies during the period.
- (3) Train students who are to be involved with CETEG staff in carrying out technical assistance services.
- (4) Prepare management guidelines for small-scale industries.
- (5) Continue the audiovisual case history started in Year I.

c. <u>Center for Permanent Education (CEP)</u>. This was the third new center created during Year I. Its purpose is to provide adult continuing education services in South Santa Catarina, for which there is a great need. In spite of the damage caused by the flood, this center continued its operation and has been able to establish close links with all the "human resources development" groups of the area, such as:

> Fundação Legião Brasileira de Assistencia (FLBA) Serviço Nacional de Aprendizagem Industrial (SENAI) Programa Intensivo de Preparação de Mão de Obra (PIPMO) Fundação Gaúcha do Trabalho (FGT)

For Year II, the CEP planned to present about 30 programs to an anticipated audience of 1,000 participants. The programs were to be designed to respond to the educational needs of the indigenous manpower.

d. <u>Adaptive Technology Center (CATT)</u>. Although this fourth center was established during Year I, it had been very slow in starting, and just

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before the end of the first year, the FESSC staff engineer responsible for the center had left FESSC. During Year II, the new manager of the center, Mr. Adalgiso Domingues, would be trained at EDL Atlanta and the center would be reactivated. This unit would have the responsibility of providing technical assistance and adapting "foreign" technologies to the local needs of smallscale industries.

e. <u>Industrial Training and Education</u>. A specific short-term training program had been initiated during the last week of Year I. This program was to be continued into Year II and the three selected members of the FESSC professional staff would complete their training at EDL headquarters in Atlanta during Year II.

FESSC staff, in the meantime, would offer industrial training programs to workers in small-scale industries and the general public as needed. These programs would be presented in the target areas and also at FESSC headquarters in Tubarão.

Use of Grant Funds by FESSC

For the 1975-76 grant year, the grantee was funded in the amount of \$45,000. These funds were disbursed in the following manner:

		Disbursed to:		
Activities	FESSC	GIT	TDI/E-W	Total
Personal Services	\$18,000	\$12,500 ¹ /	\$2,000 <u></u> /	\$32,500
Travel				
International		7,500		7,500
Local	4,000			4,000
Materials and Supplies	500	500		1,000
Total	\$22,500	\$20,500	\$2,000	\$45,000

 $\frac{1}{The}$ GIT personal services include the authorized overhead and retirement charges.

 $\frac{2}{}$ The contract with the East-West Center was for a total of \$2,000 for the preparation of audiovisual material.

It also should be noted that FESSC received additional funding from the Secretaria de Planejamento da Presidência da Republica through the Secretaria de Cooperação Economica e Tecnica International (SUBIN) in the amount of 254,915 cruzeiros (about US\$30,000) to further assist FESSC in carrying out this important program of development. FESSC also supported the project with internal funds in the amount of 206,943 cruzeiros (about US\$22,500), as shown on the original budget for Year II (Table 1).

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Table 1 COSTS AND SOURCES OF FUNDING Year II (in U.S. dollars)

Assigned Funds Additional Funds to Be Assigned Cost $\underline{\mathtt{GIT}}^1$ Sharing FESSC² FESSC GIT SUDESUL Programmed Activities Total FESSC SUBIN OTHERS TOTAL 1. Activities Salaries: 1 Senior Mgr. 9,000 1.1 Establishment of CETEG 1 Adm. Asst. 1,200 13,000 2 Prof. Tech 1.2 Research Local trips 2,000 1.3 Preparation of Training Profiles, Cons. trips to U.S. 4,000 Asst., Train. 10,000 1.4 Tech. Asst. Staff 2. Activities Salaries: 2.1 Basic Data Center 1 Junior Mgr. 5,800 2.2 Training Training and trips 10,500 2.3 Materials and 3,150 Vehicle equipment Equi. and mat. 500 Consultants audiovisuals 2,000³ (TDI-E-W-Ctr) 2,000 2.4 Inst. of Cons. 2,000 and Maint. Mat. Overhead 15% 4,350 22,500 22,500 22,500 67,500 Totals ¹From AID under Small Industry Grant.

²As contribution to success of the program

³TDI at the East-West Center will contribute the time of their audiovisual specialist and the needed equipment.

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FESSC ACTIVITIES DURING PROGRAM YEAR II

The FESSC staff continues to show great dedication to this program. This highly motivated staff has carried out the major portion of the tasks that were programmed for Year II.

Basic Data Center (CDB)

The CDB has, at present, a staff of four persons full time; two are senior members of the staff and the other two are junior members. Mr. Marcos T. Hemkemeier, Head of the CDB, has an academic background in economics and statistics. On February 4, 1975, Mr. Hemkemeier returned from EDL headquarters in Atlanta, where he had been participating in a special six-week training program, and initiated the following activities at the CDB:

1. Determination of the damage caused by the March 1974 flood to the CDB collection.

2. Collection, classification, and dissemination of pragmatic, up-to-date information on Brazilian and international material relevant to small-scale industries.

3. Continued implementation of the guidelines established during Year I for the operation of the unit.

4. Preparation of lists of materials and publication to be purchased or obtained.

Later in the year, Mr. Richard Johnston, Head of the International Development Data Center, EDL, was on-site from March 29 to April 25, 1975, to assist the staff of the CDB in developing their unit. Together with Mr. Hemkemeier, Mr. Johnston decided to systematically determine the information resources that were available to the CDB and which could be used to assist in supporting the technical assistance work being done by the FESSC staff.

It was then decided by the EDL and FESSC Project Directors that they should conduct a survey of selected organizations in five principal cities: Tubarão, Porto Alegre, Florianopolis, São Paulo, and Rio de Janeiro. Mr. Hemkemeier, together with Mr. Johnston, developed a procedure for the survey and prepared a standard interview format.

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The following information centers were visited by both Mr. Hemkemeier and Mr. Johnston, as part of the survey conducted:

Tubarão

- <u>Electrosul</u>. Collection specializing in power generation, electricity, construction, and electronics. Larger collection at their Rio de Janeiro headquarters.
- <u>Rede Ferroviaria Federal S/A</u>. A unit within the system named Estrada Ferro Dona Teresesa Cristina. Has information on the Serviço Nacional de Aprendizagem (SENAI).

Florianopolis

- 1. <u>Federal University of Santa Catarina</u>. Good technical collection of the engineering school.
- 2. <u>Instituto Euvaldo Lodi</u>. Specializes in collecting economic and demographic statistics.
- Instituto Brasileiro de Assistencia Gerencial a Pequena e Média <u>Empresa (IBAGASE)</u>. Provides management and technical assistance and serves as an exchange center by passing on locally received unanswerable questions to the Instituto Nacional de Tecnologia (INT) for replies.
- <u>Centro de Assistencia a Pequena e Média Industria (CAMPI)</u>. A state office of the Departamento de Assistencia a Pequena e Média Industria (DAMPI). This unit collects technical documentation, technical assistance and research studies.

Porto Alegre

- Universidad Federal do Rio Grande do Sul (UFRGS). Good collection of bibliographic documentation. School of Engineering also has large technical collection.
- 2. <u>Pontifica Universidade Catolica (PUC)</u>. Has some 20,000 volumes in its general collection.
- 3. <u>Instituto de Pesquicias Hidraulicas at UFRGS</u>. Special collection concentrating on hydraulics.
- 4. <u>Escola Tecnica de Curtimento</u>. Vocational training data, mainly on leather tanning.

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- 1. <u>Electrosul</u>. Collection specializing in construction, power plants, energy generation, and electricity.
- Instituto Brasileiro do Bibliografo e Documentação (IBBD). Mainly in the area of bibliographies and documentation for national bibliographies.
- 3. <u>Confederação Nacional da Industria</u>. Collection of technical abstracts, feasibility studies, special studies, and general research.
- 4. <u>Instituto Nacional de Tecnologia</u>. Mostly collection of technical abstracts.
- 5. Fundação Getulio Vargas. Large bookstore with UNESCO publications.

São Paulo

- 1. <u>United States Information Service (USIS)</u>. Fair collection of handbooks.
- <u>Nucleo de Informações Tecnologicas</u>. Supported by the National Technical Information Service (NTIS) of the U.S. Department of Commerce. Subscription service available.
- 3. <u>Universidade de São Paulo (USP)</u>. Has many resources in both published and unpublished form; offers research and reference services. Several institutes within USP have specialized collections.

Once Mr. Johnston departed, Mr. Hemkemeier and his staff continued expanding the collection at the CDB. During the year, they have nearly doubled the total holdings. In Year II, the following number of documents were received, classified, coded, and entered into the collection:

Periodicals	477
Annuals	9
Articles	1
Catalogs	33
Books	57
Manuals	2
Maps	3
Profiles	1
Reports	15

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Monographs	3
Newspapers	5
Total	606

The CDB has systematically expanded over the past two years of the program and has recovered from the damage caused by the flood. The center will continue to grow, and plans for Year III call for the acquisition of equipment and publications with FESSC external funds.

Center for Management and Technical Assistance (CETEG)

This has been the outstanding activity during Year II, due to the great emphasis given to it by the counterpart institution. The staff of CETEG, under the capable direction of Mr. Humberto Dalsasso, quickly moved forward into the area of providing technical assistance to small and medium-scale industries. As indicated in the introduction of this report, the CETEG staff was able to provide technical assistance to 37 industries during the past program year. A recapitulation of these cases is presented in this report as Appendix 1. The cases were in 11 different municipalities within the state, as shown in Table 2. It is important to recall the fact that the CETEG staff is responsible for a geographic area of 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 in which the program is being implemented.

1. Employment Generation

As part of the continuous evaluation that is performed in this project, the joint project directors requested from CETEG that a survey be conducted of the industries receiving technical assistance during Year I to determine if: (a) new jobs had been generated and (b) productivity or sales had been increased. At the end of the second quarter, a partial survey had been completed of eight of the 1974 technical assistance projects and the results were highly favorable. As a result of the services provided by FESSC to these eight small-scale industries, 31 new jobs had been generated and sales had been increased by 4.1 million cruzeiros. Details of the survey are presented in Table 3.

2. Published Studies

During the second program year, the CETEG staff also completed and published four feasibility studies, 14 new manufacturing opportunity studies or identifications of manufacturing opportunity, and assisted, conducted, or

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	CASES, CETEG, TEAK II															
Municipality Activities	Tubarão	Braço do Norte	Orleans	Lauro Muller	Araranguá	Morro da Fumaça	Imbituba	Laguna	Pedras Grandes	São Ludgero	Criciuma	Other Regions	Others From State	Other Countries	Other States	Total
Technical Assistance-Continuous	6	2	1	-	1		-	2	-	-	-	-	-	-	-	12
Technical Assistance-Discontinuous	11	2	2	1	1	1	2	1	1	1	-	-	-	1	1	25
Total	17	4	3	1	2	1	2	3	1	1	-	-	-	1	1	37

Table 2 RECAPITULATION OF TECHNICAL ASSISTANCE CASES, CETEG, YEAR II



POLITICAL DIVISIONS OF SOUTH SANTA CATARINA, BRAZIL

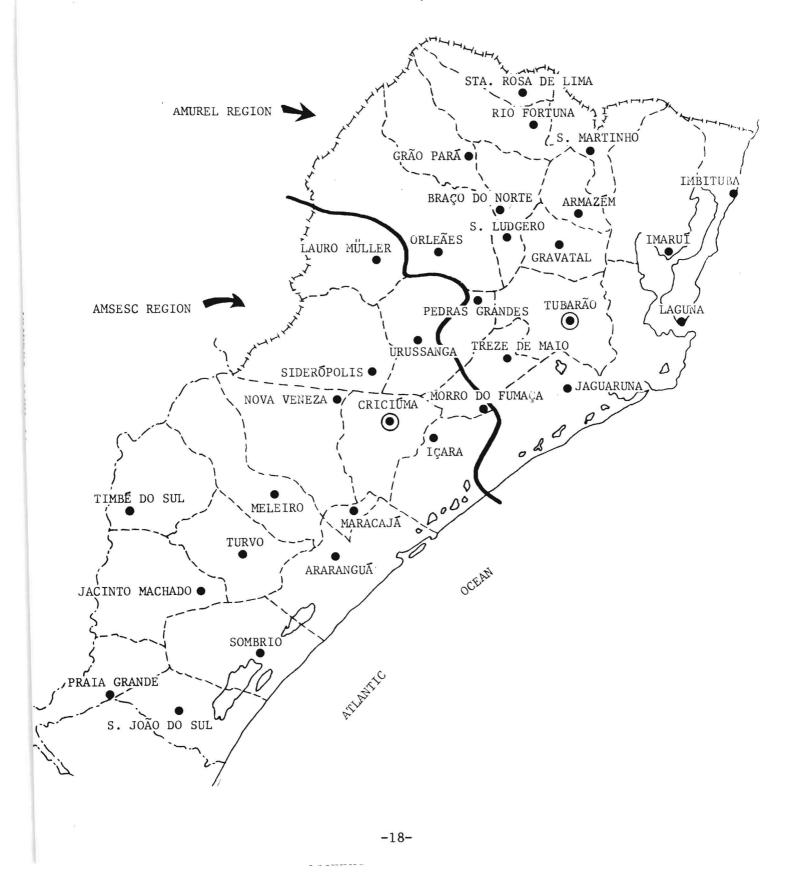


Table 3

VARIATION IN EMPLOYMENT AND VOLUME OF SALES COMPANIES RECEIVING TECHNICAL ASSISTANCE 1974

Technical Employment					Sales (Cr\$000)				
Assistance	19	75	Variatio	n	19	75	Variation	n	
Project	Start	End	Absolute	%	Start	End	Absolute	7.	
1	28	21	-7	-25.0	1,122	800	-322	-28.7	
2	17	20	3	11.8	791	2,200	1,409	22.8	
32	12	26	14	116.7	647	2,140	1,493	230.8	
4	7	10	3	42.8	103	500	397	385.4	
30	-	5	5	-	-	150	150	-	
3	7	10	3	42.8	93	220	127	136.5	
61	13	18	5	38.5	-	270	270		
5	25	30	5	20.0	900	1,500	600	66.7	
Total	109	140	31	28.4	3,656	7,780	4,124	112.8	

Note: No data available at this time on Projects 45, 57, and 62.

sponsored 10 conferences, seminars, and lectures. The following summary presents the titles of the different topics covered:

- a. Feasibility Studies
 - (1) <u>Industria de Maquina Agricola</u>. Feasibility study to determine the possibilities of manufacturing agricultural equipment in the area of South Santa Catarina.
 - (2) <u>Industria de Móveis</u>. Feasibility study for the location of a furniture manufacturing plant in the municipality of Tubarão.
 - (3) <u>Industria de Confecções</u>. Study for the establishment of a garment manufacturer in the area of Tubarão.
 - (4) Incomal-Industria e Comercio de Madeiras Ltda. Feasibility study for processing wood into dimensional stock mainly for use in the manufacturing of truck and bus bodies. The plant was established at Mirim in the municipality of Imbituba on the basis of this study. At present, 47 persons are employed, of whom seven are engaged in office and management activities and 40 are direct labor.
- b. New Manufacturing Opportunities Studied
 - (1) Industria Eletro-Eletrônico (electric-electronic)
 - (2) Oleo Essencial da Casca de Arroz (essential oil from rice)
 - (3) Doce de Batata, Abobora e Mandioca (preserves)
 - (4) Embalagens de Papel (Kraft paper)
 - (5) Ferramentas Especiais (special tools)
 - (6) Industria de Moveis (furniture)
 - (7) Grampos para Cerca (metal fasteners)
 - (8) Calçados Plasticos (plastic shoes)
 - (9) Cinzas para Moldados de Construções (cinder blocks)
 - (10) Materiais de Segurança (safety equipment)
 - (11) Raniculture (frog farming)
 - (12) Hortigrangeiro (truck-farming)
 - (13) Fabrica de Acolchoados (mattresses)

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(14) Fermento (yeast)

The above titles studied or reviewed represent, in most cases, direct requests from entrepreneurs in South Santa Catarina interested in the possibilities of producing a new product.

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- c. Other Published Studies
 - <u>Recursos Humanos: Necessidades Empresarias no Sector</u> <u>Secundario da AMSESC</u>. Sponsored by the Secretaria do Desenvolvimento Economico do Estado de Santa Catarina. This 125-page study looks into the human resources of the AMSESC area and analyzes the problem.
 - (2) <u>Termos de Referência Região Sul</u>. Sponsored by the Superintendencia do Desenvolvimento da Região Sul (SUDESUL). A five-volume, 477-page, in-depth study of the combined AMSESC and AMUREL area. This study is being used by the state government as a basis for the present five-year economic development plan.
 - (3) <u>Assistencia á Pequena e Média Industria--Aspecto Metodologico</u>. Sponsored by the Secretaria de Cooperação Economica e Tecnica Internacional (SUBIN). A 60-page study of the appropriate methodology to be used in providing technical assistance to small and medium-size industries.
 - (4) <u>Anteprojeto para Instalação Centro Tecnológico</u>. A study to assist in the creation of a technology center to specialize in the area of industrial chemistry.

Center for Permanent Education (CEP)

As indicated in the final report for Year I, FESSC established the Center for Permanent Education (CEP) to provide special training to the FESSC staff, workers, and the public in general. This section will only cover the FESSC staff training and the balance will appear later under the heading of Industrial Training and Education.

The CEP is managed by Dr. Gerson Joner da Silveira, a senior staff member of FESSC. During Year II, the CEP presented a series of staff training programs, of which some were presented at FESSC headquarters and others were conducted in cooperation with other organizations. Table 4 presents a summary of the 15 programs sponsored by CEP for FESSC staff during 1975.

Adaptive Technology Center (CATT)

This center was established early in Year I, but due to the March 1974 flood, the staff was unable to begin operating the center. At the end of

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Table 4

SUMMARY OF STAFF TRAINING PROGRAMS CENTER FOR PERMANENT EDUCATION (1975)

Date		U.S.A. or Brazil		
Started	Title or Subject	Location	Organ.	Staff Participants
Jan. 5	International Industrial Development	Atlanta	EDL	Dalsasso, Hemkemeier, Domingues
March 28	Income Tax, Monetary Correction, Operating Capital	Tubarão	Fed. Gov.	Morães
April 10	Income Tax	Tubarão	Fed. Gov.	Morães
April 11, April 12	Staff Training	Tubarão	FESSC EDL	All Staff DPD
May 7	Marketing	Tubarão	FESSC IBAGESC	Dalsasso
May 7	Accounting	Tubarão	FESSC IBAGESC	Morães, Sotero
June 15	Information Science	Rio	Brazil Data Inst.	Hemkemeier
July 5	Technology Education	Tubarão	FESSC	Manfio, Alzira, Elly, Demathe, Herta, Horacio, Dalsasso, Esmael, Ivori, Jaime, Joaquim, Laudelino, Loyde, Hemkemeier, Paulina, Tarciso, Vitorio, Vilma, Walmor
July 5	Post-Graduate Program	Floria- nopolis	UFSC	Wilson Schuelter
July 7	Higher Education Staff Training	Floria- nopolis	Fund. Getulio Vargas	Carvalho, Alexandre, Ramos, Silvestre, Kuntz, Kuerten, Ramm, Pereira, Maximino
July 12	Financial Organization U.S.A.	Tubarão	FESSC Local Banks	Staff DPD
Sept. 16	Documentation	Tubarão	INPS	Morães
Sept. 16	Educational Orientation	P. Alegre	PUC	Lucia Flavia
Oct. 15	State Financing	Tubarão	Gov.	Morães
Nov. 15	Human Resources	Floria - nopolis	OEA	Hemkemeier, Nilo, Sampaio
Nov. 17	Post-Graduate Program	P. Alegre	CAPES	Manfio, Fauzi
		-22-		

Year I, the manager of the CATT, Eng. Jose Goetze, left his full-time employment at FESSC and remained as a part-time consultant. At the start of Year II, a new manager was appointed, Eng. A. Domingues Dias, and he participated in the six-week training program held at EDL headquarters in Atlanta. Unfortunately, by the middle of Year II, Eng. Domingues resigned his post at FESSC and, again, the CATT program came to a halt.

This unit plans to review existing "foreign" technology and attempt to adapt it for use by local small-scale industries. While it may take several years before this portion of the project is "on stream," the joint project directors believe it is of such importance that they will continue attempting the implementation. At present, a new manager has been selected and will start at CATT early in 1976.

During Year II, Mr. Humberto Dalsasso prepared and published an in-depth study entitled <u>Metodologia de un Programa de Assistência para o Desenvolvimento</u> <u>da Pequena e Média Industria</u>, which presents an adaptation of the basic smallscale industry development methodology established by the EDL.

Once the new CATT manager is appointed, the project plan is to evaluate the International Rice Research Institute equipment and attempt to adapt it to the needs of local consumers and the manufacturing possibilities of local small-scale industries.

Industrial Training and Education

As a major activity of industrial training and education, the director of the CEP coordinated with the other units at FESSC to offer during Year II a relevant series of special training programs to workers and the public in general. During this program year, 31 training programs were offered and 512 persons completed the training courses, as shown in Table 5.

Other Activities

In order to provide professional interaction as part of the program for Year II, a series of lectures, conferences, and workshops were presented. These activities were directed mainly at the general public, service groups, and other professionals involved in the Santa Catarina development process. Table 6 presents a brief summary of the lectures, conferences, and workshops presented under the sponsorship of the Year II program.

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Table 5

SUMMARY OF INDUSTRIAL TRAINING AND EDUCATIONAL PROGRAMS OFFERED CEP-1975

		Nu	ber of	Brazil	
Title or Subject	Quarter	Courses	Participants	Location	Presented By
Mechanic-Lathe Operator	First	1	10	Tubarão	PIPMO/FESSC
Mechanic Fitter	First	1	12	Tubarão	PIPMO/FESSC
Welder	First	1	10	Tubarão	PIPMO/FESSC
Electrician	First Second	3	37	Imbituba	LBA/FESSC
Stone Mason	Second Third	7	74	Imbituba	FESSC/PIPMO/LBA
Carpenter	Second	2	20	Imbituba	LBA/FESSC
Basic Nursing	Second Third	4	85	Imbituba	PIPMO/FESSC
Pediatric Nurse	Second	1	16	Tubarão	PIPMO/FESSC
Marketing Manager	Second	1	45	Tubarão	FESSC/IBAGESC/ACIT
Personnel Administration	Second	1	32	Tubarão	FESSC/IBAGESC/ACIT
English	Second	3	26	Tubarão	FESSC
Nurse's Aid	Third Fourth	2	54	Tubarão	FESSC
Human Relations	Third	2	54	Tubarão	FESSC/IBAGESC/CELESC
First Aid	Third Fourth	2	37	Tubarão	FESSC
Total		31	512		

Table 6

SUMMARY OF LECTURES, CONFERENCES AND WORKSHOPS PRESENTED IN 1975

Date	Title of Subject	Location	Audience	Speakers
Feb. 28	Comparative Study of the U.S. and Brazilian Socioeconomic System	Tubarão, Brazil	Rotary Club	Dalsasso
March 10, March 14	Methodology and Techniques for Small-Scale Industry Development	Atlanta, Georgia	Counterparts under 211(d)	Dela Giustina, Muller, Wall
March 17	Georgia Tech and the Economic Development Laboratory	Tubarão, Brazil	Graduating Seniors, School of Economics	Dalsasso
March 18	Georgia Tech and the Economic Development Laboratory	Tubarão, Brazil	Junior Class, School of Economics	Dalsasso
March 29, March 30	The University and the Small- Scale Industry Development Program	Joaçaba, Brazil	Lodi-Plano Institute for Execut. Training	Dalsasso
April 4	Evaluation of the Publication Termos de Referencia	Criciúma, Brazil	SUDESUL- State Gov. Offices & Municipal Assoc.	Muller, Wall, and Staff
April 8, April 10	Industrial Development	Tubarão, Brazil	Juniors and Seniors of School of Economics	Wall, Muller, Dalsasso
April 11, April 12	Industrial Development	Tubarão, Brazil	Staff of DPD & Adm. Staff FESSC	Wall, Muller, and Dalsasso
July 12	Financial Organizations U.S.A.	Tubarão, Brazil	Local Bank Managers	Wall
Oct. 14	The DPD and Activities It Performs	Tubarão, Brazil	CICIT	Dalsasso
Nov. 6	Technical Evaluation of the Publication <u>Termos de</u> <u>Referencia</u>	Tubarão, Brazil	SUDESUL	Muller and Staff
Nov. 7	Public Hearing on the Publication <u>Termos de</u> <u>Referencia</u>	Tubarão, Brazil	SUDESUL, AMUREL, AMSESC, and the Gov. of Santa Catari- na	Muller and Staff
			August	

Another accomplishment for Year II was the establishment by FESSC of a concept to uniformly determine what is a "small-scale industry." Several definitions are prevalent in Brazil, and small-scale industries are measured by: (a) employment, (b) sales, and (c) production. Mr. H. Dalsasso developed a formula to allow all of these factors to be considered in determining whether or not the company is a small-scale industry. This mathematical determination is fully presented by the author in the published document entitled Relatorio Anual 1975, pages 16-19.

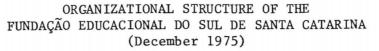
During Year II, a training program was developed for managers of smallscale industries. The course material was developed by Mr. H. Dalsasso and was published this year under the title <u>Administração para Pequena e Média Indus-</u> <u>tria</u>. This basic course will be offered in Year III as a short course under the CEP.

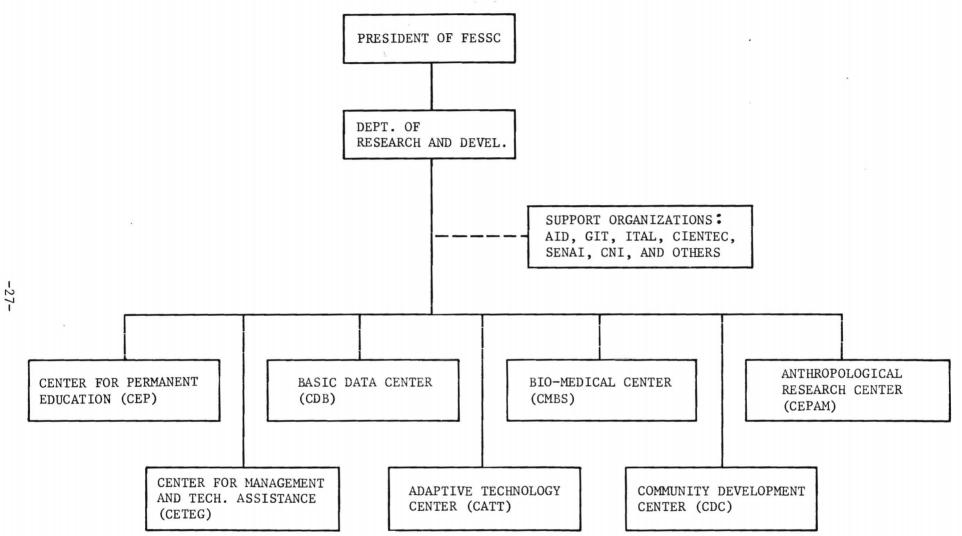
Internal Organization

No major changes have taken place in this program year. As of December 1975, the counterpart organization was as shown in Figure 2.

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GEORGIA INSTITUTE OF TECHNOLOGY ACTIVITIES DURING PROGRAM YEAR II

The Georgia Tech activities for the second year of the program were initiated by the Project Director on January 10, 1975, when the sponsor advised EDL that the project would be continued. Throughout the month of January, the project plan was designed with the FESSC staff at EDL. As per the project plan, Mr. Nelson Wall initiated the on-site activities on March 31, 1975. He was accompanied by Mr. Richard Johnston. They were followed during the year by Mr. Gaston Parets, Mrs. Edwina Udunka, Mr. Fred Burian, Mr. George Morelos, and Dr. John Kaatz.

Each individual assigned to this project was briefed by the Project Director and assigned a specific task within the total project goals. Figure 3, on the following page, illustrates the Project Plan for Year II. In this section, brief summaries of the individual activities of the EDL staff members are presented in chronological order.

March 31-April 18, 1975 (Nelson C. Wall)

The first order of business was to review the work program for Year II with the grantee Project Director and complete minor adjustments in the scheduling. The major areas of work had been defined as being the following:

- 1. Basic Data Center
- 2. Center for Management and Technical Assistance
- 3. Center for Permanent Education
- 4. Adaptive Technology Center
- 5. Industrial Training and Education

Different specialists from the EDL staff had been assigned to the project to provide the necessary backup. During his on-site tour, the Project Director participated in a seminar presented by FESSC at Criciuma for state secretaries, government officials, and the Municipal Association of Santa Catarina. The Project Director also presented three other seminars during his visit.

Members of the CETEG staff and Mr. Wall visited several small-scale industries and provided services during this period. Details of the companies visited may be found in the various trip reports for the year.

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						FIGU	RE 3			
Project NoB-427	-				PF	ROJE	CT PLA	N		
Project Title SIG-FESSC-Year II	-									
Project Director Nelson C. Wall	Jan.	Feb.	March	April	May	June	July Aug.	Sept.	Oct. Nov.	Dec.
Project Initiation January 10, 1975	X									
Project Preparation (FESSC and EDL)			+++							
Quarterly Reports (FESSC and EDL)				X			X		X	X
Consultant Service Data Center (CDB)				0-						
Operation of Data Center (CDB)							-0			
Consultant Management and T.A. (CETEG)									-1	
Operation of Management and T.A. (CETEG)										
Selection of Manuf. Opportunity Studies				\mathbb{D}						
Preparation of Manuf. Opportunity Studies	3					$\rightarrow \oplus +$				
Audiovisual Documentation							-6-			
Technical Assistance Service Staff Training in Atlanta	-0-	0-					•⑦••			
Project Direction and Reporting	┣┿┿┿	+	+++		+++(1-8-				
On-Site Seminars and Workshops									-1)	
FESSC Technical Assistance Service							8 +++++			
Final Report										
		╎┼╎╎┥								
									┟╷╷╷╷╷╷	
LEGEND Staff: ¹ N. C. Wall 6 Udunka-Buria		R. John G. More			M. Hem J. Mul	kemeier ler	4 H.	Dalsasso	5 Sta	ff

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March 31-April 25, 1975 (Richard Johnston)

As Head of the International Development Data Center of EDL, Mr. Johnston was assigned the responsibility of working directly with the CDB and Mr. Hemkemeier, his counterpart. During this period of time, Mr. Hemkemeier and Mr. Johnston surveyed selected information centers in the cities of Tubarão, Porto Alegre, Florianopolis, São Paulo, and Rio de Janeiro. While at FESSC, Mr. Johnston also provided consultant services to the CDB staff and assisted in improving the established system.

April 6-May 3, 1975 (Gaston A. Parets)

This member of the EDL staff was funded by the Agency for International Development (AID) under the Georgia Institute of Technology 211(d) grant program. His assignment was to research and prepare for publication an industrial case history.

June 25-July 18, 1975 (Nelson C. Wall)

On this assignment, the Project Director was to assist the FESSC staff in their technical assistance cases, conduct training workshops, direct the audiovisual activities, evaluate the mid-year status of the project, and continue his industrial research for eventual preparation of a case history.

During his stay, he met with the State Secretary for Technology and Environment to review a preliminary proposal for the establishment of a Mineral Beneficiation Laboratory at FESSC. Meetings also were held with the newly created state agency, Fundação Catarinense do Trabalho (FUCAT), to determine their human resources needs and possible training programs. The small-scale industries visited during this tour of duty appear in part in Table 7.

July 5-July 14, 1975 (Edwina Udunka)

Under the 211(d) grant project, Mrs. Udunka visited FESSC for a week while assisting Mr. Burian in filming the continuation of the audiovisual documentary initiated in Program Year I. The videotape and corresponding collection of photographs were presented as part of the administrative report of Project A-1600. These audiovisual materials are available to interested organizations.

July 5-July 14, 1975 (Fred Burian)

Funded by a contract between FESSC and the East-West Center, Mr. Burian came to Tubarão to film the audiovisual documentary for Year II. Many of the

sites shown as damaged by the 1974 flood in the first audiovisual tape were retaped for Year II to indicate the high level of reconstruction.

July 5-July 25, 1975 (George Morelos)

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This member of the EDL staff worked closely with the audiovisual team and assisted another staff member, Dr. Kaatz, in conducting research in the area of banking systems. While at FESSC, Mr. Morelos also worked with the CETEG staff on specific cases of technical assistance.

July 5-July 23, 1975 (John Kaatz)

Funded under the 211(d) grant to Georgia Tech, this member of the EDL staff visited Tubarão with Mr. Morelos. Dr. Kaatz was involved in conducting research on the banking system, federal monetary policy, and related topics for the eventual preparation of a case history.

November 7-December 3, 1975 (Nelson C. Wall)

Mr. Wall had the on-site assignment for the last period of activity for Year II. During his stay, he continued working with the FESSC staff assigned to the Center for Management and Technical Assistance, the Department of Research and Development, and other units involved in the project. Assistance was given to the counterpart project director in preparing the FESSC end-of-theyear report. Research was completed and the first draft was prepared for an industrial case history which is being published under the AID 211(d) grant program. The draft of the Year III program was prepared during this on-site tour.

Industries and Organizations Contacted

Among other tasks, the EDL on-site staff was to provide technical assistance to the FESSC staff and work directly with new and existing small-scale industries or development organizations. During the 12-month duration of the Year II program, many such contacts were made. Table 7 presents a summary listing of all industries and development organizations contacted by the EDL on-site staff during the year covered by this document.

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Table 7

INDUSTRIES AND ORGANIZATIONS CONTACTED DURING YEAR II (EDL STAFF ONLY) 1975

Date	Industry or Organization	Persons Contacted	Brazil Location	Contacted By
April 1	National Institute of Technology	A. Lifcnitz	Rio	R. Johnston
April 4	SUDESUL Government of Santa Catarina Secretary of Industry and Commerce Secretary of Labor Secretary of Tech. and Environment Secretary of Interior Ministry of Treasury President AMSESC President AMUREL	P. Freitas Melro A. Konder Reis S. Netto Campos F. Bastos D'Avila Batista Pereira Zany Gonzalez E. D'Aquino Silveira A. Manrique Barreto N. Simon Nandi	Criciuma Criciuma Criciuma Criciuma Criciuma Criciuma Criciuma Criciuma Criciuma	N. C. Wall N. C. Wall
April 8	University Federal do Rio Grande do Sul	Floasa Schreiver, Edi P. Vogel	Porto Alegre	R. Johnston
April 9	Pontificia Universidad Catolica	Ligia Fouyat, Jussara Mielnicczuk	Porto Alegre	R. Johnston
April 10	Escola Tecnica de Curtimento	M. Sfoggia	Porto Alegre	R. Johnston
April 14	FAIR, S.A.	Fawzi El Mashni	Tubarão	N. C. Wall
April 15	Centro Pequena e Média Industria	A. G. Jorge J. O'Sullivan	Florianopolis	R. Johnston
April 16	National Technical Information Service	Glenn Harper	São Paulo	R. Johnston
July 4	Cia. Carbonifera Catarinense Escola Tecnica General Oswaldo Vega	Fidelis Barato Waimir Wasniewski	Criciuma Criciuma	N. C. Wall N. C. Wall
July 7	Electro Industria Catarinense Gino Acessorios Ltda.	Nelson Maximo R. J. Ghisi	Tubarão Tubarão	N. C. Wall N. C. Wall

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Table 7 (Continued)

Date	Industry or Organization	Persons Contacted	Brazil Location	Contacted By
July 8	FAIR, S.A.	Fawzi E. Mashni	Tubarão	N. C. Wall
July 9	Lacticinios Tubaronense, S/A Izaltino P. Lima Metalurgica Souza Ltd. Banco do Brasil Cana Economica Federal	Z. Damiani I. Lima A. Souza L. Baiao A. Bez	Tubarão Tubarão Tubarão Tubarão Tubarão	N. C. Wall N. C. Wall N. C. Wall N. C. Wall N. C. Wall
July 10	Nicodemos Philippi & Cia Esmaltados Catarinense Plasticos Zomer Ltda. Zomer & Cia. Ltda. Estofados Zomer Ltda. Granja Suely Banco do Estado de Santa Catarina	N. Philippi I. Casçães A. Zomer E. Zomer S. Zomer L. Fellsbino Varele	Braço do Norte Braço do Norte Orleans Orleans Orleans Orleans Tubarão	N. C. Wall N. C. Wall N. C. Wall N. C. Wall N. C. Wall N. C. Wall J. Kaatz
July 11	Agroindustria Ghisi & Cia Industrial Preve & Cia	N. Ghisi I. Preve	Treze de Maio Treze de Maio	N. C. Wall N. C. Wall
July 14	Fundação Getulio Vargas	P. M. Vlasman	Florianopolis	N. C. Wall
Nov. 18	Nicodemos Philippi & Cia.	N. Philippi	Braço do Norte	N. C. Wall
Nov. 20	Lacticinios Tubaronense, S.A.	Z. Damiani	Tubarão	N. C. Wall
Nov. 25	Esmaltados Catarinense	I. Cascaes	Braço do Norte	N. C. Wall
Nov. 27	Metalurgica Souza Ltda.	A. Souza	Tubarão	N. C. Wall
Dec. 1	Plasticos Zomer	A. Zomer	Orleans	N. C. Wall
Dec. 2	Gino Acessorios Ltda.	R. J. Ghisi	Tubarão	N. C. Wall

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RESULTS AND CONCLUSIONS

Year II of this program has provided many positive accomplishments, a number of which were briefly listed in the introduction of this end-of-the-year report. The total activity was larger this year due to the fact that FESSC had additional funding from both state and national sources besides the grant funded by USAID through the Georgia Institute of Technology. In summary, the following achieved results may be credited to the Year II program:

1. The CETEG completed a partial survey of the companies that received technical assistance in Year I (1974) and has established that these companies have generated 31 new direct jobs (a 28% increase) and have increased sales by 4.1 million cruzeiros per year (a 112% gain).

2. The joint FESSC/EDL staff, working through the Department of Research and Development, the Center for Management and Technical Assistance, and the other units involved, was able to provide direct on-site technical assistance to 37 local small-scale industries. Full details on the technical assistance cases are presented in Appendix 1.

3. The FESSC staff has completed and published four feasibility studies for interested investors--<u>Industria de Maquina Agricola</u>, <u>Industria de Moveis</u>, <u>Industria de Confeções</u>, and <u>Industria e Comercio de Madera</u>. These studies call for a total investment of 4.2 million cruzeiros and would generate 98 new direct jobs. The last of the four listed has been implemented, and the industry is now on stream.

4. At the same time, the FESSC staff has completed 14 new manufacturing opportunity studies, the titles of which are listed in the appropriate section of this report.

5. The Basic Data Center was rehabilitated after the flood and is now operating in an appropriate manner. During the year, the collection was doubled in size. The Basic Data Center provided the required data support for the preparation of all studies and reports published during the year.

6. Three senior staff members of FESSC completed training at EDL headquarters in Atlanta. This special training program was initiated at the end of Year I and successfully completed in the first quarter of Year II.

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7. In addition to the above training outside Brazil, 46 other staff members of FESSC were trained in-house during the year by EDL staff on-site together with senior FESSC staff.

8. Through the Center for Permanent Education, 31 industrial training programs were offered and 512 persons successfully completed the courses. This activity has been very well received by local industrialists.

9. Under this USAID-funded program, an audiovisual documentation of the Year II activity also was completed. The FESSC has now initiated its own audiovisual department and has purchased the necessary equipment.

10. The joint FESSC/EDL staff contributed to and/or participated in 10 lectures, workshops, and seminars on small-scale industry development during this 12-month period.

11. Preparation and publication of five additional major studies, handbooks, training programs, and manpower studies. One of these has been used by the state government as basis for the five-year development plan for the state of Santa Catarina.

12. The EDL staff provided over 19.5 man-weeks of on-site professional consultation to the FESSC staff and local industries during the program year.

It is the conclusion of the combined staff and the joint project directors that all project commitments have been fully met at this time.

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Appendix 1 SUMMARY OF TECHNICAL ASSISTANCE CASES

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SUMMARY OF TECHNICAL ASSISTANCE CASES 1975

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Case No.	Municipality	Product
1	Tubarão	Food
2	Tubarão	Electrical-Electronic
3	Tubarão	Textile-Garments
4	Lauro Muller	Furniture
5	Tubarão	Essential Oil
6	Tubarão	Food Products
7	Tubarão	Paper
8	Tubarão	Tools
9	Tubarão	Clay Bricks
10	Tubarão	Pharmaceutical
11	Imbituba	Furniture
12	Laguna	Electric Power
13	Imbituba	Lumber
14	Orleans	Plastics
15	Tubarão	Metal Staple
16	Georgia/Tubarão	Footwear
17	Pedras Grandes	Brooms
18	Curitiba	Nonmetallic Mineral
19	Braço do Norte	Wood Molding
20	Araranguã	Metallurgical
21	Tubarão	Safety Equipment
22	Braço do Norte	Food
23	Orleans	Poultry
24	Tubarão	Metallurgical
25	Tubarão	Nonmetallic Mineral
26	Tubarão	Food
27	Tubarão	General Industry
28	Tubarão	Metallurgical
29	Morro da Fumaça	Nonmetallic Mineral
30	Tubarão	Mattresses
31	Tubarão	Yeast
32	S. Maria	Milk Processing

SUMMARY OF TECHNICAL ASSISTANCE CASES (Continued)

Case No.	Municipality	Product
33	Tubarão	Printing and Publishing
34	Tubarão	Milk Processing
35	Rome, Georgia (U.S.A.)	Agricultural Equipment
36	Tubarão	Social Services
37	Braço do Norte	Lumber
38	Imbituba	Lumber
39	Tubarão	Municipal Government
40	Braço do Norte	Enameling
41	Braco do Norte	Food
42	Ararangua	Lumber
43	Tubarão	Bricks
44	Tubarão	Auto Accessories
45	Tubarão	Furniture
46	Orleans	Plastics
47	Laguna	Food
48	Tubarão	Electrical Equipment
49	Laguna	Marine Engines
50	Tubarão	Bricks
51	Tubarão	Machinery and Equipment

THE FOLLOWING CASES WERE CLASSIFIED AS DISCONTINUOUS (AS NEEDED) TECHNICAL ASSISTANCE

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CASE NO. 1

Municipality: Tubarão

Brief Description of Problem

A small-scale industry manufacturing ice cream cones for local market used a stabilizer for the flour products going into the making of the cones. The product, which was imported and sold under the name of "Glintex," had become unavailable. The owner tried other products, but was not getting the desired results.

Applied Solution

A quick survey was made to determine if "Glintex" could be found elsewhere in the area. Contact was made with Hercules do Brasil Productos Quimicos in São Paulo, which tested several of its products and provided a substitute for "Glintex" to the satisfaction of the owner of the client industry. The problem was solved.

CASE NO. 2

MAIN PRODUCT: ELECTRIC-ELECTRONIC

Municipality: Tubarão

Brief Description of Problem

A banker was interested in determining the manufacturing opportunity for an electric-electronic device.

Applied Solution

The municipal industrial development plan has incentives for electric or electronic industries; however, after the 1974 flood, the municipality has not been able to provide as many incentives, due to other priorities. Suggestions for electronic devices were requested from the EDL staff. The interested person is now looking into manufacturing opportunities in the ceramics industry. Case still open. Municipality: Tubarão

Brief Description of Problem

A local manufacturer of knitwear using hand-operated equipment (made in Italy) wished to adapt the equipment for semi-automated operation.

Applied Solution

After researching the possibility of adapting the equipment, the anticipated production savings, and one-time cost, the researcher determined that the manufacturer should not attempt to adapt the equipment. It was recommended that he purchase automated equipment or continue with the present equipment, if investment was not justified. Case closed.

CASE NO. 4

MAIN PRODUCT: FURNITURE

Municipality: Lauro Muller

Brief Description of Problem

A small furniture manufacturer was having three concurrent problems: (1) with his suppliers, (2) with his bank, and (3) with his plant cash flow.

Applied Solution

Each problem was reviewed and further problem areas were discussed. Bank was also contacted and payment problems were reviewed. The manufacturer was given guidance in the area of contracting for services, supplies, and other matters, as well as in his in-plant bookkeeping. Some tax benefits also were determined and brought to his attention. All recommendations have been implemented and the problems have been solved.

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Municipality: Tubarão

Brief Description of Problem

A possible entrepreneur was interested in producing essential oil from rice husks. The client had no knowledge of the product on how it is produced.

Applied Solution

The problem was forwarded to the EDL staff at Georgia Tech. Library search, conversations with specialists, and other consultation indicated this was not a desirable industrial activity and did not appear to be a feasible concept.

Additional search is now being conducted at the request of FESSC. The case remains open.

CASE NO. 6 MAIN PRODUCT: FOOD PRODUCT

Municipality: Tubarão

Brief Description of Problem

A local food store owner was interested in the production of jams and jellies. He wanted to manufacture "sweets" from sweet potatoes, manioc, and squash.

Applied Solution

An EDL staff member, while on-site, looked into this potential opportunity and became interested. Later at EDL headquarters, research was conducted and a full study was completed. The feasibility study was delivered to the client, but he has yet to decide if he will establish an industry or not. Case closed.

-42-

Brief Description of Problem

A potential investor was interested in the possibilities of starting a small paper industry to produce wrapping paper (brown) and food bags or shopping bags.

Applied Solution

Research conducted by FESSC staff indicates this is not a feasible operation at the small-scale level. Most of the large paper mills or producers carry this as a by-product line. It has been suggested to the potential investor that he consider other products. Case closed.

CASE NO. 8

MAIN PRODUCT: TOOLS

Municipality: Tubarão

Brief Description of Problem

This industrialist was considering diversifying into the manufacturing of small hand tools. He believed he had a modification which would make a certain tool more desirable and easier to use. He wanted to know if this modification had been patented and needed guidance in the new venture.

Applied Solution

The modified tool was studied by FESSC staff. It also was determined that there is no patent covering this modification. It was then suggested to the industrialist that a feasibility study be conducted to determine the potential market, production costs, and other factors. The study was done by FESSC staff, and the industrialist is now implementing the new small-scale industry.

-43-

Brief Description of Problem

A small manufacturer of clay bricks was having problems with loading and unloading his kiln. The plant lacked materials-handling devices.

Applied Solution

In looking into the original problem, a second more important one was determined. The plant sales were down and the company finances were in a weak position. From other similar cases, the FESSC staff knew that the clay brick market was suffering severe competition created by the large producers. Two solutions were offered: (a) evolve product line to clay tiles (roofing) and (b) set up conveyors and other material-handling devices to assist in the loading and unloading of the kiln. Both solutions have been implemented with very favorable results.

CASE NO. 10

MAIN PRODUCT: PHARMACEUTICAL

Municipality: Tubarão

Brief Description of Problem

This industrial activity was initiated as a pilot project at FESSC. After the flood, a small industry was established in a building on the FESSC campus. At present, they have outgrown their plant facilities and wish to expand.

Applied Solution

The FESSC team looked into the feasibility of building a new plant or expanding the present installation. In their research, they found out that this industry had also requested technical assistance from a government agency; consequently, as a matter of professional ethics, the FESSC staff withdrew from the case. Case closed.

Municipality: Imbituba

Brief Description of Problem

An interested person in the retail business wanted assistance in developing a feasibility study for a small furniture manufacturing plant.

Applied Solution

Research was carried out by the FESSC team and a study was initiated. In the process of gathering the needed data, it was determined that the interested party had pending some financial operations with the local bank and this made any bank financing impossible for the time being. The person was informed of this new problem and the study was suspended pending solution of his personal financial problem.

CASE NO. 12

MAIN PRODUCT: ELECTRIC POWER

Municipality: Laguna

Brief Description of Problem

A small electric power generating plant (rural area) needed assistance in determining the incentives available to this type of enterprise.

Applied Solution

A library search was conducted, appropriate information was gathered, and the corresponding tax incentives were determined by the staff. A written report with recommendation was presented to the interested party. Problem solved.

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Municipality: Imbituba

Brief Description of Problem

The owner of a small wood mill was having a management problem in the area of monetary correction of his plant investment and operating capital.

Applied Solution

Appropriate information which existed from previous similar cases was made available to the plant owner. A member of the FESSC staff assisted him in setting up the necessary bookkeeping procedures to compensate for the monthly inflation rate and monetary correction. Problem solved.

CASE NO. 14

MAIN PRODUCT: PLASTICS

Municipality: Orleans

Brief Description of Problem

A manufacturing enterprise in the field of plastic items had expanded its production capability and plant area. The management was having problems in establishing a personnel management system, determining product cost, obtaining supplies, marketing system, and in other areas.

Applied Solution

A complete study was made of the industry in question to determine the causes and effects of the identified problem areas and others not identified by management. A series of recommendations were made to management and implemented. As a result of the implemented recommendations, the plant had saved over 100,000 cruzeiros by the end of the year. Case solved.

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MAIN PRODUCT: METAL STAPLES

Municipality: Tubarão

Brief Description of Problem

A person working in an industrial plant wanted to open up his own factory to manufacture metal staples for fencing.

Applied Solution

It became apparent, at the start of this case, that the interested party lacked knowledge and would not be a successful entrepreneur. A study made of the product he had in mind revealed that this was not a feasible manufacturing opportunity. The party insisted in finding a feasible type of small-scale industry to be established. Existing studies on candles, yeast, and other products were made available to the client. Case closed.

CASE NO. 16

MAIN PRODUCT: FOOTWEAR

Municipality: Georgia, U.S.A., and Tubarão

Brief Description of Problem

A Georgia inventor was interested in determining the industrial possibilities of manufacturing plastic footwear in the area of Santa Catarina. This inquiry came through the EDL staff in Atlanta, Georgia.

Applied Solution

The EDL/FESSC staff researched this potential manufacturing opportunity. Later, while on-site, EDL staff and FESSC personnel interviewed the footwear manufacturer, as well as others, and discussed the product as per an available sample. It was concluded that, due to climatic conditions (high temperatures), this type of footwear was not appropriate. Written data and a verbal report were provided to the inventor by EDL staff in Atlanta, Georgia. Case closed.

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MAIN PRODUCT: BROOMS

Municipality: Pedras Grandes

Brief Description of Problem

An existing manufacturer of brooms was considering a plant relocation and wished to know if any incentives would be available to his operation if it were to be relocated at Pedras Grandes.

Applied Solution

The problem was looked into. The researcher determined that the necessary raw material (mainly straw) was not available at the desired location and that labor costs were lower at his existing location. The municipality also was contacted, and no interest was shown or incentives offered because the industry was not on their priority list of desirable types of activities. Case closed.

CASE NO. 18

MAIN PRODUCT: NONMETALLIC MINERALS

Municipality: Curitiba

Brief Description of Problem

The interested party wished to purchase and use as raw material the coal ash from Electrosul.

Applied Solution

Electrosul was contacted and they indicated no desire to sell the ash unless it were to be used in an industrial activity or conversion. It was suggested to the interested party that he get together the necessary capital to establish a cinder block plant or a cement plant. Existing studies were made available to him. He is at present trying to get a group of investors together. Case still open.

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Municipality: Braço do Norte

Brief Description of Problem

An established manufacturer of wood moldings had an internal problem in the company and his partner left the business. The ex-partner handled part of the management of the company. The remaining partner was looking for a capable person to assume this role.

Applied Solution

A professional economist was located who had an interest in this activity. Some difficulties were faced at first over the salary range for this new person. Agreement was finally reached and the new manager is now working with the company. Case closed.

CASE NO. 20

MAIN PRODUCT: METALLURGICAL

Municipality: Ararangua

Brief Description of Problem

This company has been receiving much pressure from another national producer about its main product. The owners believe the product was patented in the U.S. and that the patent ran out; therefore, it is now in the public domain.

Applied Solution

The product patent is being researched by the EDL staff, and it appears that the patent is no longer in effect. Case still in progress.

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MAIN PRODUCT: SAFETY EQUIPMENT

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Municipality: Tubarão

Brief Description of Problem

A local industrialist wishes to start manufacturing safety equipment. He wishes to produce gloves, leggings, and helmets and later expand into other lines.

Applied Solution

A market survey is being conducted by the FESSC staff. To date, little information has been made available by the larger companies that would normally purchase this type of safety equipment. The case is still in process.

CASE NO. 22

MAIN PRODUCT: FOOD

Municipality: Braço do Norte

Brief Description of Problem

The manager-owner of this very small company did not know how to perform his monetary correction to keep his assets in line with the present exchange correction.

Applied Solution

This type of case has been very common in the past two years. The FESSC staff assisted the owner in setting up a simple bookkeeping system whereby, on a monthly basis, he can correct the value of his sales and assets to compensate for the ever-changing exchange rate. Case closed.

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Municipality: Orleans

Brief Description of Problem

A well-established poultry producer was having trouble in determining his company's break-even point, unit cost, required sales price, and other critical costing and financial data.

Applied Solution

The FESSC team reviewed the entire financial and accounting system of the company. It was determined that the unit cost figure in use was in error and that the break-even point, as established, also was in error. Other erroneous and critical factors were determined. Assistance was provided in establishing a new system, and this was implemented. Case completed.

CASE NO. 24

MAIN PRODUCT: METALLURGICAL

Municipality: Tubarão

Brief Description of Problem

A small metallurgical company was having problems with the process being used and the product was not meeting established requirements.

Applied Solution

The process was reviewed and found to be both incorrect and difficult to follow. A new simplified process was recommended and implemented. This has worked to the satisfaction of the management of the industry. Case completed.

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Brief Description of Problem

An interested investor wanted information on uses and applications of quartz. This person indicated that he owned or controlled large deposits of quartz.

Applied Solution

Preliminary research carried out by FESSC staff indicated that the samples provided were quartz, but the microcrystallization of it reduced its commercial value. The staff suggested that the samples be taken to a better equipped laboratory for in-depth research. The interested investor was provided with "on-shelf" information on uses of quartz. Samples have been taken to another laboratory in São Paulo by the investor. Case closed.

CASE NO. 26

MAIN PRODUCT: FOOD

Municipality: Tubarão

Brief Description of Problem

A local banker was interested in the possibilities of starting a frog farm in the Tubarão area. The interested person wanted information on ranaculture, processing, market potential of the product, and similar industrial data.

Applied Solution

A brief study was prepared for the interested person. The FESSC team was able to provide information on feeding requirements, minimal operational size of farms, breeders, prices, and general technical information. The preliminary study indicated this to be a viable aqua-industrial activity. The report was presented to the client with the recommendation that a feasibility study be conducted under contract.

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Brief Description of Problem

A local industrialist wished to expand his operations and was conducting two alternative investments: (a) sales of textiles, and (b) citrus farming. The person had no experience in either activity and was seeking general information.

Applied Solution

The team conducted the necessary preliminary research and presented the following recommendations:

- 1. The city of Capivari was well served with retail textile establishments. Another store would have a difficult initial period. The client had no retail experience, which would be an additional handicap. Even if the retail outlet were successful, the profit would be low because of the very limited market.
- 2. The farm is too small to be a "grove" and additional land would be needed. Soil analysis is being conducted of the land in question to determine if it would be suitable for citrus growing.

MAIN PRODUCT: METALLURGY

CASE NO. 28

Municipality: Tubarão

Brief Description of Problem

This is a medium-sized metal industry, employing 120 persons. Management has been serviced by several consultants in an attempt to increase production, but no positive results have been obtained.

Applied Solution

With the assistance of an outside consultant (industrial engineer), the operation was studied and some basic time-standards were established. A wageincentive program also was established on the basis of the new time-standards.

Over a 30-day period, the new system was implemented, resulting in a reduction of 18 employees and a monthly saving of over 15,000 cruzeiros. The

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balance of the work force is now increasing production to meet the wageincentive program.

CASE NO. 29

MAIN PRODUCT: NONMETALLIC MINERAL

Municipality: Morro da Fumaça

Brief Description of Problem

The company produces fluorite, of which some 5,000 "acid grade" tons are generated monthly. The firm was interested in exporting this product. Another area of interest was "pelletizing."

Applied Solution

Quick data on export potential were gathered for this product. By the time the study was completed, the company had been sold. The present management has other plans and will not be exporting the product.

The information on pelletizing was requested from EDL and received shortly thereafter. This information was given to the new management, which continues to have an interest in this concept. Case concluded.

CASE NO. 30

MAIN PRODUCT: MATTRESSES

Municipality: Tubarão

Brief Description of Problem

A potential investor is interested in establishing a small industry to manufacture mattresses, bedspreads, quilts, and similar products.

Applied Solution

The FESSC research staff is still conducting a study, and the report has not yet been completed.

MAIN PRODUCT: YEAST

Municipality: Tubarão

Brief Description of Problem

A small group of seniors at FESSC is interested in opening a yeast plant.

Applied Solution

Technical data on yeast processing were obtained and provided to the group. Under the leadership of a FESSC staff member, they are now conducting their own feasibility study. Case still open.

CASE NO. 32 MAIN PRODUCT: MILK PROCESSING

Municipality: Santa Maria

Brief Description of Problem

The University at Santa Maria (area outside Santa Catarina) is interested in setting up a course on milk processing.

Applied Solution

The administration provided the university with names and addresses of all milk processing plants in Santa Catarina and a copy of the LACTUBASA study which was prepared last year.

CASE NO. 33 MAIN PRODUCT: GRAPHICS

Municipality: Tubarão

Brief Description of Problem

This firm was suffering from a lack of working capital and low cash-flow position.

Applied Solution

A complete study of the operation was conducted by the FESSC team. The problem areas were determined and solutions were suggested to management. The recommendations are now being implemented, but it is too early to determine the degree of success. Case remains open.

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Brief Description of Problem

This company was having problems with milk producers in the area. Some suppliers were selling raw milk directly to consumers and not to the processing plants. The company wanted the municipal government to enforce an existing law which prohibits sale of raw milk to the consumer.

Applied Solution

This is not a new problem. Other milk processing plants in the past have been faced with the same situation. The suppliers claimed that the pickup schedule was not kept and they then marketed the raw milk themselves. The producers wanted assurance from the processing plant that all raw milk delivered would be bought up at an established price. Meetings were held with milk producers and government officials, as well as plant management. Solutions were found and the problem appears to be solved.

CASE NO. 35

MAIN PRODUCT: AGRICULTURAL EQUIPMENT

Municipality: Rome, Georgia

Brief Description of Problem

This U.S.-based company purchases harrowing discs from overseas companies in Brazil and Africa. A local producer wishes to sell to the U.S. company.

Applied Solution

A list of company specifications was obtained and mailed to the Brazilian producer. At a later date, a catalog of the Brazilian product was presented to the U.S. company buyer. This was done through contacts made by the EDL staff. The U.S. company now has to decide if it wishes to try the Brazilian discs.

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Brief Description of Problem

An organization interested in child welfare required assistance in presenting a proposal to the state government for 250,000 cruzeiros to support its programs.

Applied Solution

A group of senior students was asked to assist the organization in obtaining the necessary information and preparing the proposal; they were supervised by a FESSC staff member. A proposal requesting 364,000 cruzeiros was presented to the state government. The proposal was approved and funded.

CASE NO. 37

MAIN PRODUCT: LUMBER

Municipality: Braço do Norte

Brief Description of Problem

The company was severely damaged during the 1974 flood and was assisted by FESSC in obtaining funds for reconstruction. The company is facing severe financial problems and wants FESSC to become a partner and assist them in rehabilitating.

Applied Solution

The basic request cannot be accepted because it is outside the program philosophy. Alternate solutions are being reviewed at this time. Case still in process. Municipality: Imbituba

Brief Description of Problem

The FESSC team conducted the feasibility study which led to the establishment of the industry. At present, the plant faces acute energy shortages and, due to lack of electricity, cannot operate.

Applied Solution

Meetings were held with the representatives of the power company, who claim they are up to maximum capacity in that area and cannot provide more electrical power to the plant. A relocation study was completed to bring the plant to Tubarão. Plant relocation is now under way.

CASE NO. 39

MAIN PRODUCT: MUNICIPAL GOVERNMENT

Municipality: Tubarão

Brief Description of Problem

The municipal government asked for a consultation on whether to provide a requested incentive to a new industry.

Applied Solution

The industrial project was reviewed and found appropriate to the development plan of the area. It was recommended that the incentive be provided. The municipal government authorized the incentive.

THE FOLLOWING CASES WERE CLASSIFIED AS CONTINUOUS TECHNICAL ASSISTANCE

Municipality: Braço do Norte

- o Audiovisual documentation of the kiln sequence, loading and unloading, and material handling of product was carried out.
- o Technical assistance was provided by EDL staff to improve enameling technique. At first, 50% of production was not meeting quality standards; after technical assistance, rejects are running at about 10% of total.
- o Technical assistance was provided to solve problem of metal rupture when pressing or stamping metal outlet boxes (electrical).
- o Technical assistance was provided to bathe, rinse, and improve precoated surface of metal.
- o Suggested new type of tanks for acid bath and corresponding heating elements. Not implemented at present, due to lack of capital.
- Market research was conducted to determine new potential clients.
 Since then, orders have increased substantially. Plant now operating furnace three shifts (24 hours) per day at maximum capacity.
- o Trained management in simple accounting procedures and business concepts. Management is more effective at this time.
- o Owner enrolled in a "management for small-scale industry" program in December.

Municipality: Braço do Norte

- o Completed company study and action plans for the year in its new plant (designed last year).
- o During the year, technical and management assistance was provided to the company, with main focus on new milk-based product.
- Resolved internal "personal" problem between the owner and a key employee. Favorable situation now exists.
- Obtain federal approval of this food line, resulting in acceptance by a larger market.
- o Completed financial study of the company for the present year.
- o Obtained from the Ministry of Agriculture a scholarship for an employee in production of milk-base food.
- o Established wage-salary guidelines for the employees and also pricing policy for product. Personnel management policy also established.
- o Completed market survey and testing of new milk-based product. Well accepted and now scheduled for production.
- o Top management enrolled in the "management of small-scale industry" program offered by FESSC in December 1975.

Municipality: Ararangua

Actions Implemented This Year

This company came into the program at the start of the third quarter.

- o Study of the company was initiated in an attempt to determine the problem areas.
- o It is apparent that the company is financially weak, due mainly to economic deterioration as a result of inflation.
- o At present, alternate products are being considered that could be manufactured using the present equipment and plant.
- o The lumber industry is weak at this time, due to slow down in construction and laws prohibiting the export of unprocessed lumber.
- Management now participating in the "management for small-scale industry" program being offered by FESSC.

Municipality: Tubarão

- o Company in-depth study completed during the year.
- o Action plan for development of the industry was completed as scheduled.
- o Three alternative actions were presented: (a) continued operation at present level and eventual closing of plant as an uneconomic operation,
 (b) small expansion and implementation of changes to raise production about 40% to bring cost to break-even point, or (c) larger investment and expansion to increase production 100% at a cost of 100,000 cruzeiros.
- Management accepted solution (b) for a short-term objective and (c) for a long-range objective. Financing was arranged and plans were implemented.
- o Solution (b) or small expansion now completed and production has been increased over 30% at this time.
- Management now enrolled in the "management for small-scale industry" course being offered at FESSC.

- o Assisted by EDL on-site staff, plant was established and went "on stream."
- o Management was trained in basic administration concepts, as well as general accounting, bookkeeping, and financial concepts.
- o Simple system was implemented so management would be aware of financial position of company and break-even point of operations.
- o Technical assistance was provided in production problem related to cutting and forming; tools were identified or designed and implemented.
- o Market research was conducted to determine market outlets for the product.
- o Distribution and sales system was designed for the company and implemented.
- o Company policy and guidelines were established.
- Management enrolled in the "management for small-scale industry" program at FESSC.

MAIN PRODUCT: FURNITURE

Municipality: Tubarão

- o Company entered the program during the second half of the year.
- o There was a total lack of administrative structure. This problem has been studied and appropriate recommendations made. Some of the suggested actions are being implemented.
- o A plant layout is being completed to assist in best using existing space and improving material flow.
- o Limited market research has been completed and management is now establishing new outlets.
- o Management did participate in the small-scale industry program scheduled for December 1975.

MAIN PRODUCT: PLASTICS

Municipality: Orleans

Actions Implemented This Year

This company entered the continuous assistance program during the second quarter of the year.

- o Company study was completed to determine needs, weaknesses, and strong points, as well as problem areas.
- o Two areas needed immediate attention: (1) company organization and (2) costs analysis and market analysis.
- o Study was completed to recommend an expansion or diversification of production to include a new item in the same line.
- o Study was completed to relocate the new product line within the plant, in order to provide space for the administrative department.
- o Control system was established to monitor unit cost and product cost.
- o Management now participating in the "management for small-scale industry" program at FESSC.

MAIN PRODUCT: FOOD

Municipality: Laguna

- o In-depth financial analysis of the company was completed.
- Meetings were conducted with creditors, bank managers, and Secretary of Industry in an attempt to solve existing financial problem-company on the verge of bankruptcy.
- o New management policies established as well as marketing and sales guidelines.
- o Financial rehabilitation plan was prepared and accepted by creditors, bank, and other parties concerned.
- o New credit line established by bank allowing company to start rehabilitation process.
- o Case completed on July 31, 1975.

MAIN PRODUCT: ELECTRICAL EQUIPMENT

Municipality: Tubarão

Actions Implemented This Year

This company suffered a nearly total loss as a result of the 1974 flood.

- Company had three major problems: (1) total lack of funds, (2) poor management-labor relationship, and (3) lack of contact between management and financial services.
- o The owners were "production" oriented, but had little or no management know-how. A person was identified and hired to serve as company manager.
- o In-depth financial study of company was carried out.
- o Possible expansion of company was studied.
- o Necessary equipment manufacturers were identified and quotation obtained.
- o New accounting system was implemented.
- o Financing was obtained through local sources.
- o Management training was provided to the new manager.
- o Owners are now participating in the "management for small-scale industry" program at FESSC.

Municipality: Laguna

Actions Implemented This Year

- o Company was seeking technical know-how in order to start manufacturing small marine diesel engines as an expansion to present line of gasoline marine engines.
- o EDL staff tried to obtain a manufacturer in the U.S.A. to license his product to the Brazilian company, but none of the inquiries made provided a positive result.
- o FESSC staff tried to determine other products to be manufactured with existing equipment in an attempt to broaden the base of the company.

CASE NO. 50

MAIN PRODUCT: BRICKS AND TILES

Municipality: Tubarão

- o Product quality was poor--only 38% to 40% of tiles being produced were acceptable to the buyers.
- Basic quality control system was established and acceptance has been increased to 48% of production. Other changes are now being implemented.
- o Floor tile line also was modified and rejects have been greatly reduced.
- o Management controls have been established as part of the management and technical assistance provided.
- o Total improvement plan has been designed and presented, but has yet to be implemented by owners due to internal strife. This is a family business and the family is divided on this subject.
- Management group has been scheduled to participate in the FESSC
 "management for small-scale industry" program.

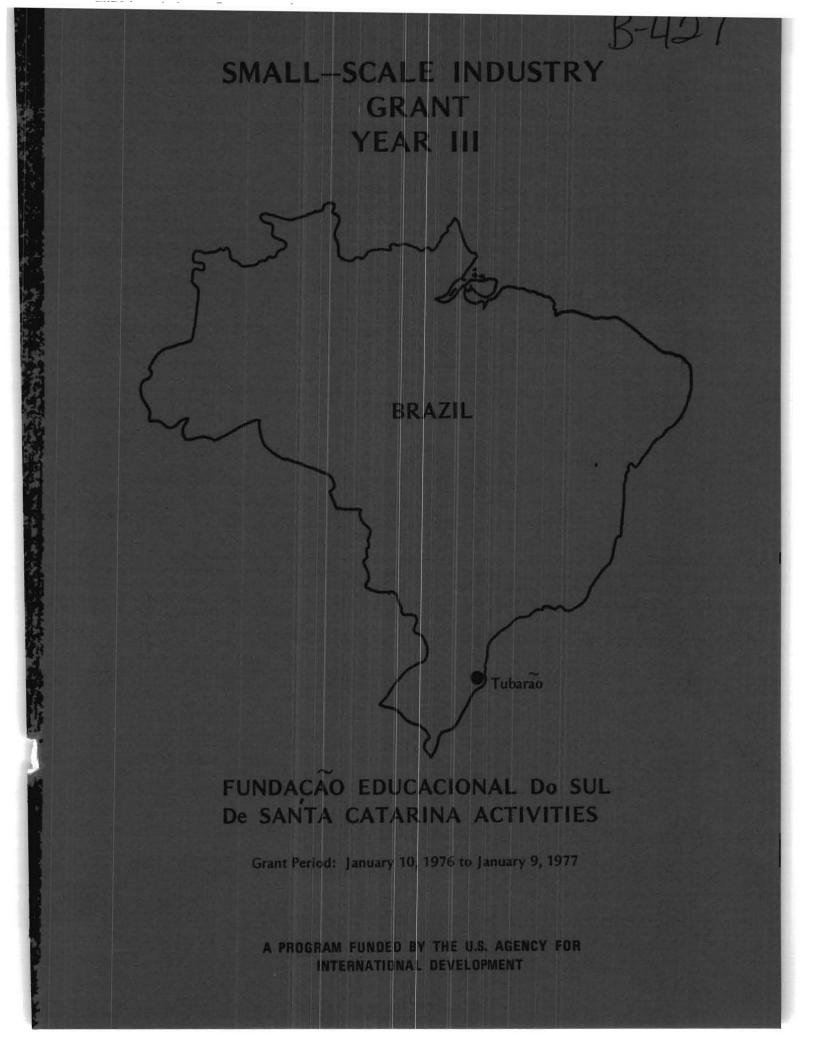
Municipality: Tubarão

Actions Implemented This Year

- o Prepared work plan for the year which included major changes in the administrative, sales, financing, and production areas.
- o Changes were made in the plant layout, in order to make room for office space.
- o Equipment was purchased for the accounting office and administration.
- o Complete financial analysis of the company was conducted.
- Arrangements were made by FESSC staff for the foundry foreman to go to the TUPY foundry in Joinville for two weeks of on-the-job training. The foreman learned how to produce iron nodules.
- o Price structure for all products produced was modified.

o Company operating guidelines were established.

- o Sales and distribution system was modified.
- o Administrative controls, unit pricing and costing were established.



FINAL REPORT YEAR III

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

by

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and

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Contract No. AID/ta-c-1062

International Programs Division Economic Development Laboratory Engineering Experiment Station GEORGIA INSTITUTE OF TECHNOLOGY Atlanta, Georgia January 1977

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INTRODUCTION

The Agency for International Development (AID) funded for the third consecutive year Contract AID/ta-c-1062 through which the Georgia Institute of Technology (GIT) was to make \$45,000 grants for small-scale industry development programs to four institutions of higher learning in different geographic regions of the world. In Year III, three of the four grants would be for the continuation of existing programs; the fourth grant would be for a new counterpart entering in 1976.

Following contract guidelines, the administration of the Georgia Institute of Technology used the following criteria in selecting each of the grantee institutions:

- 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 a very extensive initial search, the Fundação Educacional do Sul de Santa Catarina (FESSC) was selected during the first year of the program and the appropriate grant was established. The results of the first two years of the program are a matter of record and the interested reader may refer to the following two published reports: <u>Final Report - Fundação Educacional do Sul de</u> <u>Santa Catarina (FESSC), Small-Scale Industry Grant</u> (January 10, 1974, to January 9, 1975) by Jose Muller and Nelson C. Wall, Economic Development Laboratory, Georgia Institute of Technology, Atlanta, Georgia, January 1975, and <u>Final Report Year II - Fundação Educacional do Sul de Santa Catarina (FESSC),</u> <u>Small-Scale Industry Grant</u> (January 10, 1975, to January 9, 1976) by the same authors.

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

In a brief manner, the following accomplishments resulted from the activities implemented this year:

1. Preparation and publication of one feasibility study, three prefeasibility studies, and 24 new manufacturing opportunity reports.

2. Provision of technical/management assistance to 45 local small-scale industries in 10 different municipalities. Consultation, information, and limited assistance also were provided to another 35 enterprises during this period of time.

3. Generation of 996 additional jobs in the industries being served by the FESSC staff, as well as 80 jobs in two new companies established in 1976.

4. Addition of 2,946 documents to the collection at the Basic Data Center.

5. Presentation of 14 conferences, seminars, and lectures.

6. Completion of four research studies funded by the federal government.

7. Preparation of the first five "technical" reports by the staff of the Adaptive Technology Center.

 Presentation of 19 industrial training programs to over 350 participants.

9. Evolution of the Center for Permanent Education into the Department of Permanent Education (DEP).

10. Participation of FESSC staff in 18 training programs presented by the DEP.

11. Completion of the third audiovisual documentary on small-scale industries in Santa Catarina.

12. Provision of on-site professional consultation by the EDL staff.

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

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Background

The Fundação Educacional do Sul de Santa Catarina (FESSC) is an autonomous, well-respected, nonprofit institution in Brazil. This organization was established by the Brazilian Civil Code and national legislation under special Decree Laws 200 and 900. FESSC was also established by Municipal Law No. 443/ 67 of October 18, 1967, and its bylaws define the following objectives for the institution:

1. Create, integrate, organize, 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 or cooperation 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 institution is governed by the Council of Curators, which is made up of representatives of the entities that support and created FESSC. 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, the Department of Higher Education, the Department of Secondary Education, and the Department of Administration. There is also in the organization an Educational and Technical Advisory Council.

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Within the administration unit there is a Secretary General, Associate Director, Administrative Assistant, and other assistants in the field of teaching and planning.

All the departments participate to some degree in the activities implemented under the Small-Scale Industry Grant, but it is the Department of Research and Development that has the project implementation responsibility.

The Department of Research and Development has a center or institute to provide technical assistance, research, planning, and information oriented to local development and regional development of private enterprises, communities, municipalities, and other public sectors, as well as the private and civic community.

The Economic Development Laboratory (EDL) of the Georgia Institute of Technology and FESSC started working together early in 1972, at which time members of the FESSC staff were being trained at the International Programs Division of EDL. As a result of these contacts, the participating staff members of both institutions studied the possibilities of initiating a joint program of work in Santa Catarina, and 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 area of South Santa Catarina. In another section, the agreement also provided for the cooperative promotion of programs, projects and related activities, with the understanding that other qualified organizations may also participate.

By 1973, FESSC had 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.

On January 10, 1974, the Economic Development Laboratory (EDL), in cooperation with the Fundação Educacional do Sul de Santa Catarina (FESSC), initiated Year I of this program of small-scale industry development. The original program was expanded in 1975 (Year II) and 1976 (Year III), again 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

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related activities. The balance of the grant funds was to be used by the grantee to obtain training and consultation services from U.S. technical assistance organizations.

The Georgia Institute of Technology contracted with the Fundação Educacional do Sul de Santa Catarina to provide training, consultation, and an audiovisual documentation of Project Year III.

The Department of Research and Development (DPD) of FESSC has been assigned the responsibility for the program activities for all three program years. This department has served as a counterpart to the International Programs Division of the EDL.

At the end of the Year II program, the organization of FESSC was as shown in Figure 1, but by the end of Year III, the organization had evolved to the present form, which is shown in Figure 2.

The President of the Executive Directory, Dr. Osvaldo dela Giustina, designated Econ. Jose Muller, Director of the Department of Research and Development, to serve as Counterpart Project Director. The Director of the Economic Development Laboratory appointed Mr. Nelson C. Wall, Chief of the International Programs Division, to serve as Project Director for the Georgia Tech portion of the program.

Objective

The continuing objective of this project is to develop a small-scale industries program at the Fundação Educacional do Sul de Santa Catarina. Three principal activities were considered: (1) provision of engineering, managerial, scientific, and technical assistance to small-scale industries in three defined geographic areas of Santa Catarina, Brazil; (2) continued development of an industry information center; (3) organization and implementation of adult training programs for the human resources of the area.

The project administration, under the contract with the grantee, then established two main areas of involvement for the Georgia Institute of Technology staff which would assist in attaining these objectives: (1) training of selected FESSC staff members both in Brazil and the U.S.A. and (2) provision of on-site consultation by staff members of the Economic Development Laboratory of the Engineering Experiment Station at the Georgia Institute of Technology. It was also established that the project staff would assist FESSC personnel in

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Figure 1

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

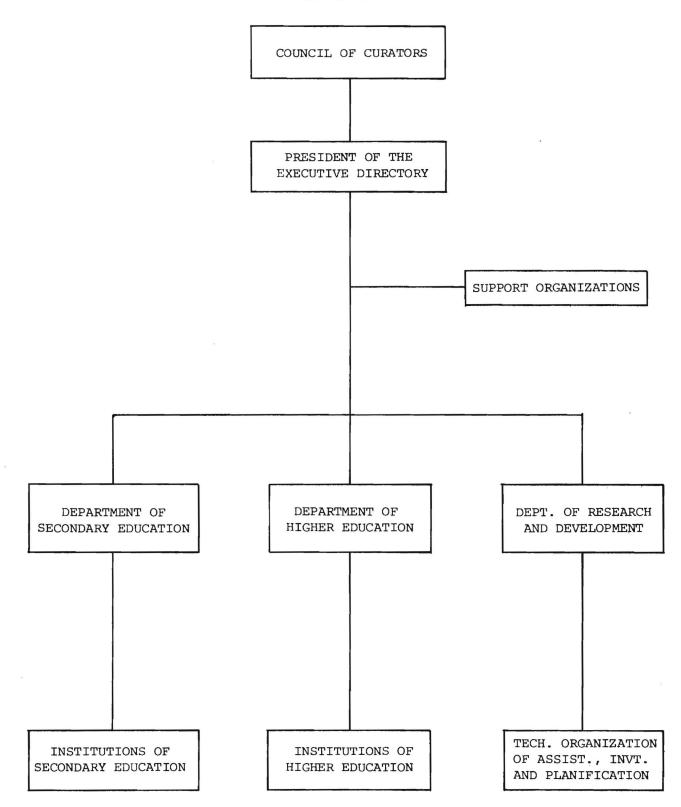
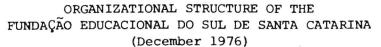
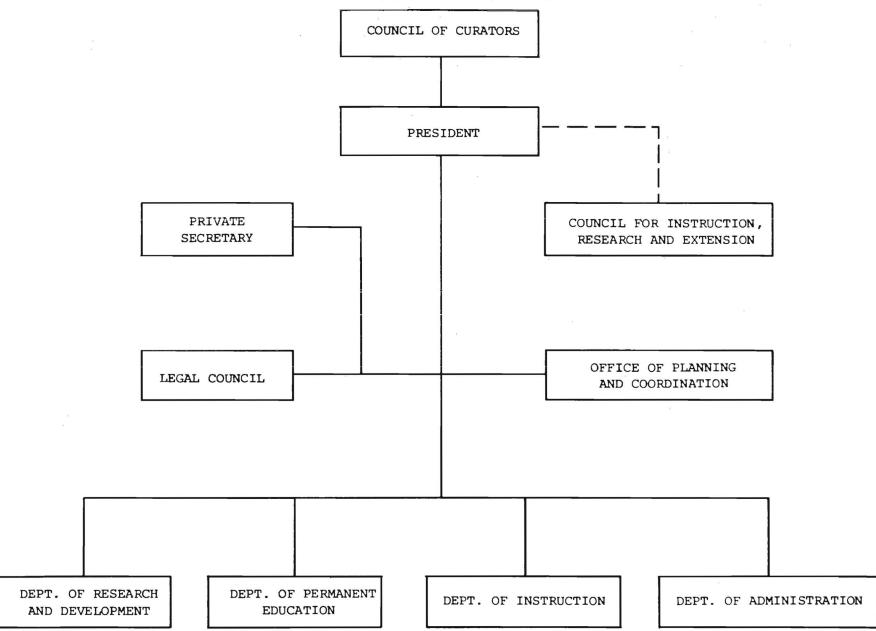


Figure 2





providing managerial, engineering, scientific, and technical assistance to selected small and medium industries in the selected geographic areas of Santa Catarina.

At the end of this multi-year project, it is anticipated that FESSC will have in operation a well-trained staff that will be fully capable of providing technical assistance services to small-scale industries in the area. As a result of this technical assistance service, FESSC anticipates the generation of employment and income in Santa Catarina as well as the development of an indigenous methodology applicable to other regions of Brazil.

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

At the start of the Small-Scale Industry Grant on January 23, 1974, the following total goals had been established by the Agency for International Development for the Georgia Tech grant, to be achieved over a period of four years:

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 are reached, the sponsor anticipates 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 for Year III were met plus several additional accomplishments which were listed in the Introduction and will be presented in further detail in the balance of this final report.

Program of Work

A program of work was presented by FESSC in their Year III proposal on the basis of the work that had been implemented and evaluated during the second year of the program. The project administration then established the following activities for the next 12-month period (Year III), all of which have been implemented:

1. <u>Organization</u>. The counterpart institution recognized that the existing organizational structure no longer covered the needs of the institution, and a new organization was designed with the assistance of the Project Director. This was implemented during the year and finally evolved into the configuration presented as Figure 2 of this report.

At the start of Year III, specific responsibilities were established for the different units participating so that they would start implementing the different assignments identified by the program of work. The Department of Research and Development was organized, as shown in Figure 3, at the start of the third program year. It was understood that during the year the Center for Permanent Education (CEP) would evolve, spin off, and become the Department of Permanent Education (DEP). This was a natural outgrowth of the expanded work and relevant projects that have been carried out by the CEP staff since it was established in Year I of this program.

All programs for Year III were oriented in such a manner as to continue to serve the small and medium industries in the selected municipalities.

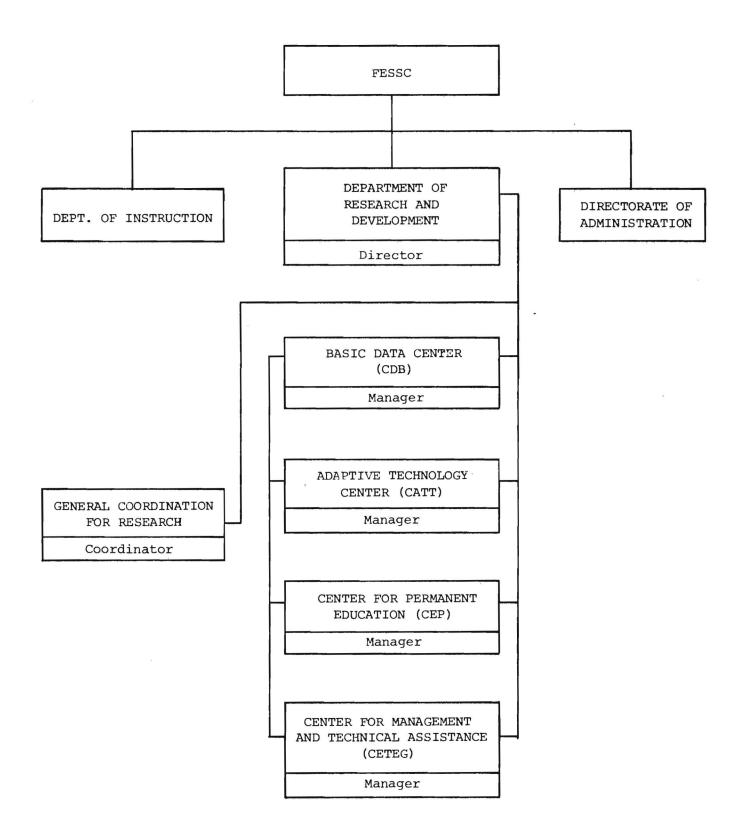
2. <u>Staff and Physical Plant</u>. Based on the needs of the different program units, FESSC had hired an industrial engineer at the end of Year II who brought the program staff up to 12 persons. This did not include the staff of the Basic Data Center, the Center for Permanent Education, or the Counterpart Project Director and his support staff. Appropriate office space and equipment were allocated at the start of Year III to assure the necessary logistical support to the project. Staff assignments on this project were made on the basis of interest, capability, motivation, and equal opportunity for female employees.

3. <u>Project Policy</u>. Since its inception, the program has required a multiple input-output system with the proper flexibility to assure compliance with the basic theme--stimulation of existing and new small and medium-scale industries.

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ORGANIZATIONAL STRUCTURE OF THE DEPARTMENT OF RESEARCH AND DEVELOPMENT (January 1975)



4. <u>Program Areas</u>. The program was jointly designed by the EDL Project Director and his counterpart at FESSC to assure the necessary support in the implementation of the following activities over a 12-month period:

a. <u>Basic Data Center (CDB)</u>. During Year II, the CDB had doubled its holdings, but additional development was considered necessary by the project administration. This important unit would be assisted in expanding its collection of information of social, economic, industrial, and technological origin. It was noted that in previous years this collection had been widely used by the FESSC staff in the day-to-day solving of the problems of the small-scale industries in the area. Students, faculty members, and general public also had been utilizing this resource.

For Year III special emphasis would be given to the following areas within the CDB:

- Collection, classification, and dissemination of pragmatic, up-to-date information on Brazilian and international material relevant to small-scale industries.
- (2) Additional consultation and assistance from the EDL senior staff as needed and requested by the CDB staff.
- (3) Increased interaction between CDB and other national and international collections that are active in the field of small-scale industries.
- (4) Implementation and expansion of the original guidelines established for the operation of the CDB during Year I.

b. <u>Center for Management and Technical Assistance (CETEG)</u>. This "delivery system" was established during Year I and by now it had proven to be a very strong and well-developed unit. For Year III, the following main activities were planned:

- Continue to provide continuous technical assistance service to four additional companies for a total of 12 companies.
- (2) Expand the discontinuous (as needed) technical assistance service to a total of 40 companies.
- (3) Research and conduct four feasibility studies relevant to the program area.
- (4) Determine, select, and complete 12 manufacturing opportunity studies.

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- (5) Complete two small-scale industrial case histories.
- (6) Continue the audiovisual documentation started during Years I and II.
- (7) Prepare management guidelines for small-scale industries.

During the year, the EDL on-site staff would provide support, assistance, and consultation to the CETEG staff on all of the above-mentioned program activities.

c. <u>Center for Permanent Education (CEP)</u>. As in previous years, the EDL staff on site would be participating with the FESSC staff in the presentation of short courses, lectures, and workshops. For this year, three training programs were planned, but dates were not established at that time. Two lecture series also were planned. A test program would be presented during the year by the EDL staff. Industrial training programs were also tentatively scheduled to be presented by CEP staff and other interested organizations or sponsors.

Among the activities planned for Year III would be the "spinning off" of CEP if it should be ready to do this during the program year.

d. <u>Adaptive Technology Center (CATT)</u>. This center was established during Year I as an interim step leading to the eventual offering of "technical programs of education" at FESSC. At that time the FESSC staff had no technological capability and no laboratories or equipment. The plans for Year III for CATT included modest growth, with the addition of two professionals (an industrial engineer and a chemical engineer) and a master mechanic, as well as the establishment of a simple chemistry laboratory. In addition, the new staff would start offering "technical" courses within FESSC to interested students as well as assisting in presentation of industrial and other seminars. The EDL staff would provide the technical backup as needed.

Use of Grant Funds by FESSC

For the 1976-77 grant year, the grantee was funded in the amount of \$45,000. These funds were disbursed as presented in Table 1.

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DISBURSEMENTS OF GRANT FUNDS FESSC - YEAR III (in U. S. dollars)

	Sources of Funds						
		Cost Sharing -					
Expenditures	AID	FESSC*	Total				
Personal Services	\$17,000	\$ 73,789	\$ 90,789				
Materials and Supplies	500	3,191	3,691				
Travel	2,000	4,152	6,152				
Contracted Services	-	3,204	3,204				
Publications (Purchased)	1,000	3,495	4,495				
Local Consultants	-	4,610	4,610				
Contracted Services (GIT/EDL)	22 , 500	-	22,500				
Overhead	-	9,456	9,456				
Audiovisual	2,000	-	2,000				
Other		1,242					
Totals	\$45,000	\$103,139	\$148,139				

* Cost-shared funds were distributed as follows:

SUBIN (State Agency)	22.98% of total
FESSC	31.22% of total
Contracts	15.42% of total

FESSC ACTIVITIES DURING PROGRAM YEAR III

For the past three years the administration and staff at FESSC have shown a continuous dedication to the small-scale industry development program. This highly motivated staff has carried out the major portion of all the tasks that were programmed for Year III.

Basic Data Center (CDB)

The CDB is staffed, at present, with four full-time persons--two are senior members of the staff and two are junior members. For the first two years, Mr. Marcos T. Hemkemeier was the Head of the CDB, but he resigned early in Year III, since which time Ms. Cecilia Larroyd has been the Acting Head. At the start of Year III, the following activities were initiated at the CDB:

 Collection, classification, and dissemination of pragmatic, up-to-date information on Brazilian and international activities relevant to small-scale industries.

2. Expansion of the interaction between CDB and other national and international collections that are known to be active in the field of small-scale industries.

3. Continued implementation of the guidelines established during Year I for the operation of the unit.

4. Preparation of lists of publications and materials to be purchased during the year or obtained gratis from other sources.

During the first quarter of the year, Mr. Richard Johnston, Head of the International Development Data Center (IDDC) of the International Programs Division (IPD) at EDL, suggested an additional series of actions to assist CDB in its growth program. As a result of all these combined activities, CDB has shown a marked expansion during Year III. Table 2 presents a summary of the number and types of publications that were received, classified, coded, and entered into the collection during Year III, compared with the additions for Year II. The new acquisitions for Year III are nearly five times those for the previous year.

Also of interest is the fact that the number of requests made to the CDB staff to seek, research, and provide specific information for a project

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CDB - PUBLICATIONS RECEIVED

	Added in	Year
Type of Publication	1975-76	1976-77
Periodicals	477	863
Annuals	9	10
Articles	1	-
Catalogs	33	81
Books	57	107
Manuals	2	9
Maps	3	1
Reports	15	22
Profiles	1	74
Monographs	3	11
Newspapers	5	12
Census	-	3
Calendar	-	1
Studies	-	88
Booklets	-	88
Pamphlets	-	53
Newspaper Clippings	-	1,475
Others		48
Total	606	2,946

-

increased from 60 during Year II to 106 during Year III. The CDB will continue to grow, and plans for Year IV call for the acquisition of additional books, periodicals, technical publications, and many others with FESSC funds.

Center for Management and Technical Assistance (CETEG)

This center has been a successful operation since the start of Year I. The staff of CETEG, under the very capable direction of Mr. Humberto Dalsasso, has quickly moved into the area of providing pragmatic technical and management assistance to the small and medium-scale industries of the area. During Year I, 45 industries were serviced, plus many others that were attended following the March 1974 flood; in Year II, the CETEG staff serviced 37 industries; and this past year, 80 industries received technical or management assistance, of which 45 were recorded as technical assistance cases and the balance were considered consultations, inquiries, and limited assistance cases.

A recapitulation of these cases is presented in this report as Appendix 1. The enterprises serviced during Year III were in 10 different municipalities within South Santa Catarina and two additional cases were in other regions of the state. (See Table 3.) It must be pointed out that the CETEG staff is covering 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 which presently is being served through this program.

1. Employment Generation. The project administration has attempted to record and quantify in an orderly manner, where possible, the results or performance of the project. Records have been kept since Year I to determine if new jobs have been generated and productivity or sales have been increased. At the end of Year II, 31 new jobs had been generated and sales had increased about 4,124,000 cruzeiros in the eight companies surveyed. $\frac{1}{}$ A survey of 15 companies that had received technical assistance during Year III indicated an increase of 996 employees and sales gains totaling 74 million cruzeiros. In addition, two new companies were started, generating 80 jobs and sales of 2.4 million cruzeiros. Table 4 presents this information in a more detailed manner.

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<u>l</u>/Jose Muller and Nelson C. Wall, <u>Final Report--Fundação Educacional do</u> <u>Sul de Santa Catarina (FESSC), Small-Scale Industry Grant</u>, Economic Development Laboratory, Georgia Institute of Technology, Atlanta, Georgia, January 1975, p. 19.

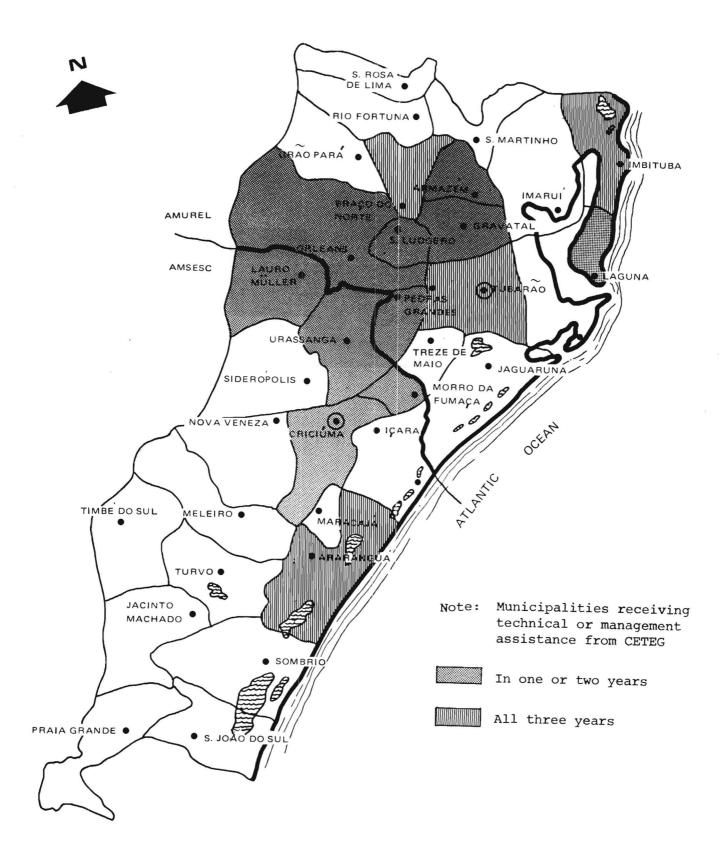
RECAPITULATION OF TECHNICAL ASSISTANCE CASES CETEG, YEAR III

	Techni		
Municipality	Continuous	Discontinuous	Total
Araranguá	1	-	1
Braço do Norte	2	- ,	2
Criciúma	-	1	l
Gravatal	1	1	2
Imbituba	-	1	1
Laguna	-	1	1
Morro da Fumaça	-	1	1
Orleans	-	-	-
São Ludgero	1	2	3
Treze de Maio	-	-	-
Tubarão	7	22	. 29
Urussanga	-	1	1
Other Locations in Region	-	1	1
Other Locations in State	_		_2
Total	12	33	45

2

Map 1

POLITICAL DIVISIONS OF SOUTH SANTA CATARINA, BRAZIL



VARIATION IN EMPLOYMENT AND VOLUME OF SALES COMPANIES RECEIVING TECHNICAL ASSISTANCE, 1976

	Employment 1976 Variation					Sales (Cr \$000) 1976 Variation						
Company Name	Start	End		olute	Pe	rcent	Start	End	Absolute	P	ercent	
Cerâmica Fatima, Ltda.	21	91	-	2	-	9.5	360	420	+ 60	+	16.6	
Zomer Ind. Plasticos, Ltda.	25	35	+	10	+	40.0	6,000	7,200	+ 1,200	+	20.0	
Irmãos Fernandes	70	96	+	26	+	37.1	4,200	6,000	+ 1,800	+	42.8	
Metalurgica Souza, Ltd.	36	27	-	9	-	25.0	2,425	2,600	+ 175	+	7.2	
Nicodemos Philippi Cia.	17	80	+	6 3	+	370.6	1,791	4,800	+ 3,009	+	168.0	
ALUSUD-Aluminios do Sul, S. A.	48	300	+	252	+	525.0	-	50,000	+50,000		-	
ELINCA-Electro Ind. Catarinense, Ltda.	8	14	+	6	+	75.0	92	120	+ 28	+	30.4	
Luiz Pedro Medeiros & Filhos, Ltda.	26	28	+	2	+	7.6	1,102	1,800	+ 698	+	63.3	
Nivaldo Cunha de Oliveira	25	22	_	3	-	12.0	3,600	5,760	+ 2,160	+	60.0	
INEL-Industria Extrativa, Ltd.	102	122	+	20	+	19.6	3,861	6,000	+ 2,139	+	55.4	
Farmoterapica do Vale, Ltda.	28	95	+	67	+	239.2	360	2,067	+ 1,707	+	474.1	
Tubarão Com. e Ind. Quimica, Ltda.	5	23	+	18	+	360.0	1,500	1,800	+ 300	+	20.0	
O. J. Kliemann & Filhos	86	98	+	12	+	13.9	7,500	9,000	+ 1,500	+	20.0	
INBRAL-Ind. Bras. de Laminados	2	152	+	150	+7	,500.0	132	3,800	+ 3,668	+2	,778.7	
INCOCESA-Ind. Com. Cerâmica, S. A.	416	800	+	384	+	92.3	3,200	9,500	+ 6,300	+	196.8	
Galvanosul, Ltda.	-	20	+	20		-	-	1,500	+ 1,500		-	
Refraza, S. A.		60	+_	60		-		900	+900		-	
Total	915	1,991	+1	,076	+	117.5	36,123	113,267	+77,144	+	213.5	

2. <u>Published Studies</u>. As part of the accomplishments for Year III, the CETEG staff also completed and published one feasibility study, three prefeasibility reports, 24 new manufacturing opportunity studies or identifications of manufacturing opportunities, and two management guidelines; initiated one industrial case study; and assisted, conducted, or sponsored 13 conferences, seminars, and lectures. The following summary presents the titles of the different documents published.

a. Feasibility Studies

(1) <u>Criação de Chinchillas Lani Geras</u>. Feasibility study to determine the possibilities of growing chinchillas for their pelts in Santa Catarina in the vicinity of the city of Tubarão.

(2) <u>Concentrado Proteico</u>. A prefeasibility study to determine if a full study should be done on the possibility of manufacturing a protein concentrate as a food additive for children.

(3) <u>Isoladores de Alta Tensão e Vidros Especiales</u>. Preliminary study (prefeasibility) to determine the possibilities of manufacturing hightension electrical insulators in Santa Catarina.

(4) <u>Plasticos Polivinilicos (PVC-PVA)</u>. Third of the prefeasibility studies completed this year. This one is focused on the manufacture of PVC or PVA from local coal (mineral).

An additional prefeasibility study was initiated and will be completed during Year IV. This unfinished report will be on the subject of a tourist industry for Laguna.

b. New Manufacturing Opportunities Studied

(1) Fabrica de Fermento (yeast)

(2) Alcolchoados de Tecido e Travesseiros Plásticos (textile mattresses and plastic pillows)

(3) Sacos de Plásticos (plastic bags)

- (4) Roupas Infantis (children's wear)
- (5) Industria de Moveis (furniture)
- (6) Industria Farmaceutica (pharmaceutical products)
- (7) Frascos de Plásticos (plastic flasks-pharmaceutical)
- (8) Industria de Madeira (wood industry)
- (9) Estructura Metálica (metal structures)

- (10) Vidrios Refratários (refractory ware)
- (11) Industria de Confecções (garments)
- (12) Micro-Tratores (mini-tractors)
- (13) Oportunidades Industriais para o Municipio (industrial opportunities for the municipality)
- (14) Industria de Confecções (garments)
- (15) Hotel de Turismo (tourism hotel)
- (16) Casas Pre-Fabricadas (prefabricated homes)
- (17) Materiais Elétricos (electrical materials)
- (18) Oportunidades Industriais (general manufacturing opportunities)
- (19) Farinha de Ossos (bone meal)
- (20) Industria de Confecções (garments)
- (21) Fecularia (food preparation-tapioca)
- (22) Esmalte Cerâmico (ceramic enamel)
- (23) Produção de Peles (animal fur)
- (24) Fabrica de Tintas (chemical dyes)

The above titles studied or reviewed represent, in most cases, direct requests from entrepreneurs in South Santa Catarina interested in the possibilities of producing new products.

c. Management Guidelines

(1) <u>A Correção Monetaria dos Bens Patrimoniais</u>. A management guideline indicating the appropriate bookkeeping system to compensate the monetary correction in reference to estate inheritance.

(2) <u>O Balanço da Empresa para o Empresario</u>. This guideline deals with the significance of the balance sheet to the entrepreneur.

d. Industrial Studies

(1) <u>Planejamento Tecnico da Construcção de Forno Elétrico</u> <u>Intermitente para Queima de Esmaltado</u>. This technical report was prepared by the technical staff from CATT and CETEG. The report determines the type of electric kiln that should be fabricated for a local industry that bakes enamel on metal. The local industry was provided with a complete design and a set of blueprints and specifications for the building of the kiln. (2) <u>Géleia de Frutas</u>. An industrial study on the preparation of fruit jellies for a local manufacturer. The CATT staff and laboratory facilities performed the research to determine the best manner of preparing the fruit, quality control, preserves to be used, sugar content, and other manufacturing details for several different types of fruits.

(3) <u>Esquema de Controle de Distribução de Bebidas</u>. A management report for an industrial firm in the bottling, distribution, and sales of beverages. The report presents a system design for the economic and financial control of the company and also looks into some areas of sales policy, distribution, and warehousing.

(4) <u>Warmeline & Filho - Diagnóstico</u>. An in-depth study of a local company presently breeding swine, producing and processing broilers, and operating a feedmill. The company owner is interested in expanding his operation into new agro-industrial activities; as a preliminary to this, it was necessary to take a good hard look at his present operation and make a series of appropriate suggestions for improving the present enterprise.

(5) <u>Luiz Medeiros e Filhos</u>. A management study for a local manufacturer of construction materials and cement forms. This in-depth analysis of the company was completed and the corresponding recommendations were presented to the management of the company.

e. Other Published Studies

(1) <u>Populações de Baixa Renda-Condição Social e Necessidades</u> <u>Habitacionais em Santa Catarina</u>. Several federal agencies funded this research study directed to the problems of the low-income population of Santa Catarina, their social conditions, and housing needs.

(2) Educação Permanente no Sul de Santa Catarina. This research project, funded internally by FESSC and conducted together with the CEP staff, determines the needs for continuous or adult education in the target area.

(3) <u>Capacitação de Recursos Humanos para o Sul de Santa</u> <u>Catarina</u>. Under a research grant from the government of the state, the CEP staff and the CETEG staff jointly conducted a study on the training needs of the human resources of the state.

(4) <u>Modelo Teórico para a Educação de 1° Grau</u>. This research project was funded by the government of the state and the Secretary for

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Education of the state of Banta Catarina. Assisted by the CETEG staff, the CEP staff researched and suggested a series of new educational concepts to be applied to the 1° Grau education system.

(5) <u>Plano de Operações do Projeto Litoral Sul de Santa Catarina</u>. The Minister of the Interior and Superintendência do Desenvolvimento da Região Sul funded this project, and the FESSC staff developed an implementation plan.

Center for Permanent Education (CEP)

When established in Year I, the project administration envisioned that this center would evolve into a department in a three- to four-year period. The CEP is the responsibility of Dr. Gerson Joner da Silveira, under whose leadership the center has grown rapidly. As a result of this growth, the CEP became a department during Year III, and now has equal status with the DPD, but continues to participate strongly in the program.

During this reporting year, a series of staff training programs and industrial training programs were conducted either at FESSC or in cooperation with other organizations. Table 5 presents a summary of the 18 programs sponsored by CEP (now DEP) for the FESSC staff during the year 1976-1977.

The CEP (now DEP) staff also were responsible for assisting in the development of the plans for the new campus as well as for their own internal organization as they became a department. During the year, the staff also participated in the preparation of the three reports previously mentioned in the section on Published Studies.

Adaptive Technology Center (CATT)

This center was established to serve as the nucleus around which one or more engineering or technological disciplines would develop at FESSC. As a long-range goal, FESSC planned on being able to offer a curriculum in science (engineering or technology) by 1979-1980. The center was established in Year I, and after a very slow start by the end of Year II, a chemistry laboratory was in operation and two engineers had been hired to start working in Year III. When this program year started, Mr. Vladimir Vilar, who is an engineer, had been appointed to the position of manager of the CATT; later in the year, an industrial engineer also joined the staff.

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SUMMARY OF FESSC STAFF TRAINING PROGRAMS CENTER FOR PERMANENT EDUCATION (1976)

Quarter Offered	Title or Subject	Location	Organization	Staff Participants
×				
1 & 2	Human Resources	Florianopolis	OEA-SUDESUL-UDESC	Cargnin, Moraes
1 & 2	Financial Administration	Florianópolis	ACAFE-UDESC-URGS	Cargnin, Moraes
1, 2, & 3	Economic Theory	Florianópolis Blumenau	ACAFE-UDESC-URGS	Dalsasso, Dutra, Mafra, Medeiros
2	Legal Procedures	Florianópolis	SDE-ACAFE-FESSC	May
2, 3, & 4	Brazilian Literature	Blumenau	SDE-ACAFE-UDESC- FESSC	Ramos, Espinola
2, 3, & 4	Brazilian Literature	Florianópolis	UFSC-FESSC	Neto
2 & 3	English Language	Blumenau	SDE-ACAFE-UFRS- FESSC	Faraco, Correa
2,3&4	Brazilian History	Florianopolis	UFSC-FESSC	Martins
2,3 & 4	Nursing Practices	Florianópolis	SDE-ACAFE-FESSC	Camargo
2,3&4	Nursing Practices	Florianopolis	USFC-FESSC	Schuelter
2,3&4	Chemistry	Florianopolis	USFC-FESSC	Gotardo
2	Mathematics	Blumenau	SDE-ACAFE-UDESC- UFRGS-FESSC	Oliveira, Bittencourt
2 & 3	Industrial Chemistry	Blumenau	SDE-ACAFE-UFRGS- FESSC	Bortoluzzi
2	Industrial Maintenance	Criciúma	ACIC-CEAG-FESSC	Girunthal
2,3&4	Literature	Florianópolis	UFSC-FESSC	Mussi, Silveira
3	Budgeting and Financing	Joaçaba	PNTE-FUCAT-FESSC	Moraes, Sotero, Albring

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Table 5 (Continued)

Quarter Offered	Title or Subject	Location	Organization	Staff Participants
3	Administrative Services	Lages	PNTE-FUCAT-FESSC	Heerdt, Schmitz, Albring
4	Project Evaluation and Management - Phase I	Tubarão	FESSC	30 staff members- FESSC

This unit plans to review existing "foreign" technology and attempt to adapt it for use by local small-scale industries. CATT personnel also are on the teaching staff at FESSC and are offering technical courses to the students.

In the previous section on Published Studies, it was mentioned that two technical reports had been published with the assistance of the CATT staff. The EDL staff member on site assisted and guided the CATT staff in carrying out the "kiln" report, but the one on fruit jellies was done by the CATT staff.

Negotiations are now under way by the EDL/IPD staff to have the International Rice Research Institute use the CATT staff in Brazil on some of their projects.

Industrial Training and Education

One of the principal activities conducted by the DEP is coordinating with FESSC and other units to offer a relevant series of special training programs to workers and the public in general. During Year III of the program, 19 training programs were offered and 359 persons completed the training courses, as presented in Table 6.

Other Activities

Every year, a series of lectures, conferences, and workshops are presented as part of this program in order to provide as much professional interaction as possible. These activities during Year III were directed mainly at the general public, service groups, international visitors, and other professionals directly involved in the development process of South Santa Catarina. Table 7 of this report presents a brief summary of the 14 lectures, conferences, and workshops presented under the sponsorship of the Year III program.

Internal Organization

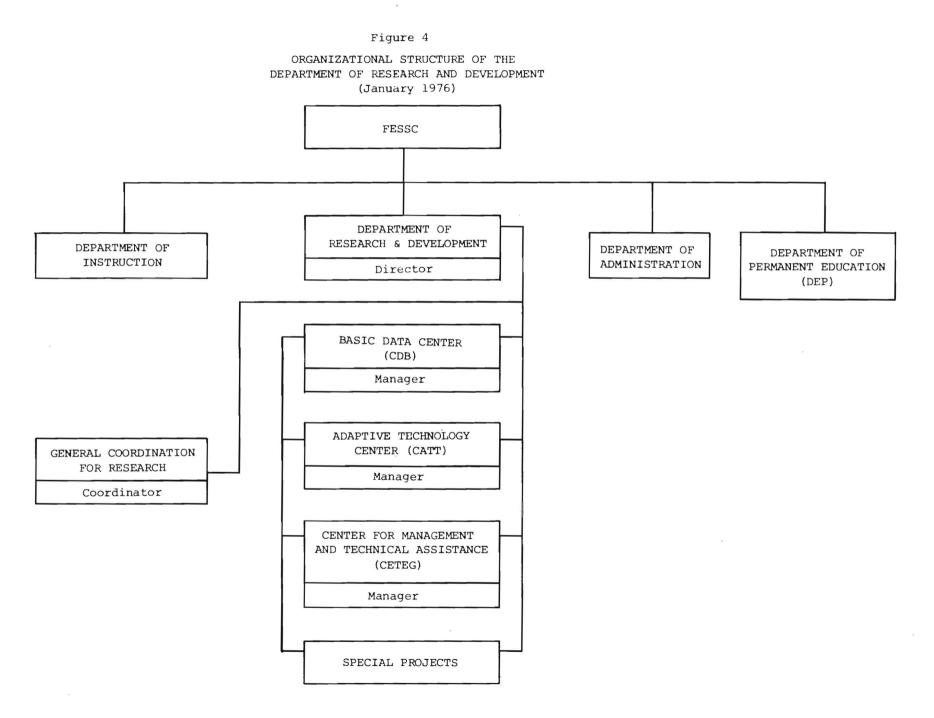
As was indicated in this chapter, the CEP evolved during the year to a department; therefore, at the end of Year III the counterpart organization was as shown in Figure 4.

SUMMARY OF INDUSTRIAL TRAINING AND EDUCATIONAL PROGRAMS OFFERED DEP - 1976

Title on Cubicat	0		mber of	Tarahian	Due contro d has
Title or Subject	Quarter	Courses	Participants	Location	Presented by
Welder	First	1	10	Tubarão	PIPMO/FESSC
Electrician	First	1	10	Tubarão	PIPMO/FESSC
English	Second	2	20	Tubarão	FESSC
Educational Supervision	Third	1	31	Tubarão	CENAFOR/SEE/FESSC
Enterprise Development	Third	1	35	Tubarão	FESSC
Welder	Third			~	
	Fourth	2	25	Tubarão	LBA/FESSC
Mechanic-Fitter	Third	1	13	Tubarão	LBA/FESSC
Electrician-Installer	Third			~	
	Fourth	2	24	Tubarao	LBA/FESSC
English I	Third	1	28	Tubarão	FESSC
English II	Third	1	19	Tubarão	FESSC
Mechanic-Welder	Fourth	1	12	Tubarão	LBA/FESSC
Nurse's Aide	Fourth	1	22	Tubarão	PIPMO/FESSC
Project and Market Research	Third	1	20	Tubarão	Sec. Edu./APAE
Contracting	Third	1	20	Tubarão	SECEDU/APAE
Administration	Third	1	45	Tubarão	FESSC
Planning for Educators/ Administrators	Third	1	25	Gravatal	PNTE/FUCAT/FESSC
Total		19	359		

SUMMARY OF LECTURES, CONFERENCES AND WORKSHOPS PRESENTED IN 1976

	Date	Title or Subject	Location	Audience	Speakers
÷	May 3	The New University Campus	Tubarão	Government Officials	Ribas, dela Giustina, et al.
	May 4-7	Small-Scale Industry Development Seminar	Tubarão	Graduating Seniors	Muller, Wall
	May 10	Theoretical Model for Grade I Education	Florianopolis	Government Officials	Ribas, dela Giustina, et al.
	May 26-29	Evaluation of Small-Scale Industry Programs	Manila	All Grantee Institutions	Hammond and Participants
2	August 13	Micro-Planning for Santa Catarina	Tubarão	Government Officials and Staff	Dr. Buchler and FESSC Staff
0	August 20	Review of Year III Program	Tubarão	CDP Staff	Wall, Muller
	September 2	Project for Southern Coast	Tubarão	Staff	Boeing
	September 10	Rural Credit Policy	Tubarão	Staff	Gov. Konder Reis
	September 23	RECON Project	Tubarão	Staff	Dr. Borghausen
	October 25-29	Political Studies Seminar	Tubarão	Staff	Mayor of Tubarão
	October 25-29	Enterprise Conference	Criciúma	Local Manufacturers	Muller and Staff
	November 3	New University Campus	Tubarão	Government Officials	Ribas and Staff
	November 11	Flood Controls	Tubarão	SUDESUL	FESSC Staff
	December 2	Planning Seminar	Tubarão	Staff	Muller
	December 11-12	Academic Planning	Tubarão	Staff	Academic Directory



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GEORGIA INSTITUTE OF TECHNOLOGY ACTIVITIES DURING PROGRAM YEAR III

The Georgia Tech activities for Year III of the program had been defined by the Project Director at the end of Year II while on site in Tubarao. Together with the Counterpart Project Director, Mr. Jose Muller, and his staff, the Project Director identified the work program for Year III, as well as the activities for the FESSC staff. When the sponsor advised the Economic Development Laboratory (EDL) that the grant would be continued on January 10, 1976, the activities were initiated. As per the project plan, the Project Director, Mr. Nelson C. Wall, initiated the on-site activities on April 17, 1976. He returned later during the year, followed by Mrs. Edwina Udunka and Dr. Harlan Davis.

Each member of the EDL staff assigned to this project was briefed by the Project Director and assigned a specific task within the total project goal. Figure 5, on the following page, illustrates the Project Plan for Year III. This section, a brief summary of the individual activities of the EDL staff members, is presented in a chronological manner.

April 17-May 14, 1976 (Nelson C. Wall)

During this four-week period of time, the first action taken by the Project Director was to review the work program for Year III with the Counterpart Project Director and complete minor adjustments in the scheduling. The major areas of work had been defined as the following:

- 1. Expansion of Basic Data Center.
- 2. Provision of technical assistance through CETEG.
- 3. Evolution of CEP to DEP.
- 4. Initiation of technology projects.
- 5. Continuation of industrial training and education.

Different specialists within the EDL staff in Atlanta had been assigned to the project to provide the technology and data backup necessary to the project. During his on-site tour, this member of the EDL staff was asked to serve as a consultant to the internal committee created at FESSC to modify the present organization and the administrative system.

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]	Project Director <u>Nelson C. Wall</u>	Jan.		Ma	rch	A	pril	Ma	ay	1	Jur	ne	Jul	У	Auç	ı.	Se	pt.	1	Oct		Not	v.	Deo	· ·	
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	Planning Year III Program								4-						11				+			++	· · ·		÷	
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Also during this on-site tour, Mr. Wall had the opportunity of working with the FESSC committee assigned to the development of a project for the creation of a new university campus. Mr. Wall had been working with this committee since Year II, when the preliminary design was made. On May 3, 1976, the new university campus project was presented to the governor of the state of Santa Catarina, and much later in the year it was approved, with funding to start in 1977. During 1976, the necessary land was acquired by FESSC and portions of the project were offered to contractors for bids.

Together with the CETEG staff, Mr. Wall visited several small-scale industries and provided services during his stay on site. Details of the companies visited and actions taken may be found in the various trip reports for the year.

A seminar was presented from May 4 to May 7 on the subject of Small-Scale Industry Development. The audience of graduating seniors in economics received the presentation well and interacted greatly with both Mr. Muller and Mr. Wall, who were the speakers.

August 7-August 23, 1976 (Nelson C. Wall)

The first week of this on-site period was dedicated to the taping of the audiovisual documentation for Year III. Together with the audiovisual specialist, the small-scale industries were visited and a series of industrial audiovisual tapes and photographs were taken. Table 8 of this report presents a listing of all the industries and organizations contacted by the EDL staff during the year.

During the balance of this tour, a test training program was designed by the Project Director and the FESSC staff. This training program will be presented in three phases, the first in December, the second in January, and the third in April 1977. An outline of the training program is presented in Appendix 2 of this report.

The CEP had, by this time, become the Department of Permanent Education (DEP) and Mr. Gerson da Silveira had been appointed to the position of Director of the Department. Together with Mr. da Silveira, Mr. Wall assisted in preparing a project outline for a "national executive training program" which FESSC will submit to the federal government for funding.

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August 7-August 13, 1976 (Edwina Udunka)

For a one-week period of time, Mrs. Udunka was on site to film the continuation of the audiovisual documentary initiated in Year I and expanded in Year II. The resulting videotape and collection of still photographs were presented as part of the administrative report of Project A-1600. All of these audiovisual documents are available to interested organizations.

November 27-December 10, 1976 (Harlan Davis)

Dr. Davis had the on-site assignment for the last period of activity for Year III. During his stay, he presented Phase I of the training program that had been designed earlier in the year. He also assisted the Counterpart Project Director and his staff in the preparation of the end-of-the-year report. A draft of the Year IV program also was prepared during this on-site tour.

Industries and Organizations Contacted

Among other tasks, the EDL staff on site, together with the FESSC staff works directly with the new and existing small-scale industries and other organizations in the area. The staff also tries to evaluate the new jobs generated as well as the jobs saved through this provision of technical assistance. Table 8 lists all the organizations or small-scale industries contacted by the EDL staff during their on-site tours in Year III.

INDUSTRIES AND ORGANIZATIONS CONTACTED DURING YEAR III (EDL STAFF ONLY) 1976

Date	Industry or Organization	Persons Contacted	Location	Contacted by
April 25-30	BRASCAN	Dr. D. Cabral	Recife	N. C. Wall
May 3	State Secretary of Education	Dr. S. Ribas	Florianopolis	N. C. Wall
May 5	Nicodemos Philippi & Cia.	N. Philippi	Braço do Norte	N. C. Wall
May 6	Esmaltados Catarinense S.A.	I. Casçães	Treze de Maio	N. C. Wall
May 7	Conselho de Desenvolvimento Industrial de Santa Catarina (CODISC)	W. de Souza	Tubarão	N. C. Wall
May 10	Dal-Bo & Cia.	E. Dal Bo	Criciuma	N. C. Wall
May 10	Aluminios do Sul S.A.	A. I. Urnau	Tubarão	N. C. Wall
May 11	Industria Carboquimica Catarinense	F. Barato	Criciúma	N. C. Wall
August 10	Bebidas Universo	N. C. de Oliveira	Tubarão	Wall, Udunka
August 10	Gino Acessorios Ltda.	R. J. Ghisi	Tubarão	Wall, Udunka
August 11	Alberto Warmeling & Filho	A. Warmeling	São Ludgero	Wall, Udunka
August 11	Belini Ind. de Molduras	S. Schicman	Braço do Norte	Wall, Udunka
August 12	Industrial Extrativa Ltd.	0. Cardoso	Gravatal	Wall, Udunka
August 17	Pozza & Cia.	A. Pozza	Tubarão	N. C. Wall
August 17	Quimica Dois Irmãos Ltda.	L. Souza	Tubarão	N. C. Wall

Many significant accomplishments have been made during this third year of the program, a few of which were briefly listed in the introduction of this report. Much was achieved due to the fact that the counterpart institution made available additional funding from both internal and government sources. In summary, the following results were gained through the program during Year III.

1. The CETEG staff provided technical-management assistance to 45 industries in 10 different municipalities within the state. At the same time, 35 additional enterprises consulted with the FESSC staff during the year.

2. During the year, the industries being served and surveyed by the FESSC/GIT staff have increased their labor force by 996 new jobs and their sales on the order of 74 million cruzeiros.

3. The FESSC staff completed during the year one feasibility study, three prefeasibility studies, 24 new manufacturing opportunity reports, two management guidelines, and started one industrial case history.

4. As part of the activities for the year, 14 conferences, seminars, and lectures were presented by the project staff.

5. The Basic Data Center added 2,946 documents to its collection and supplied direct answers to 106 inquiries for information. It also provided all the data support for the preparation of all the studies and reports published during the year.

6. Several special research projects were funded during the year by the federal government, which is a good indicator of the respected position FESSC has been able to gain within Brazil.

7. Training was provided to the FESSC staff and 18 programs were sponsored by the DEP for the staff during 1976-1977.

8. The Adaptive Technology Center prepared the first series of "technical" reports related to local industrial needs.

9. During the year, 19 industrial training programs were sponsored by DEP; over 350 persons completed these training courses.

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10. The Center for Permanent Education became sufficiently strong during Year III to be "spun off" as a newly created department of FESSC.

11. The third audiovisual documentation was completed during this year. The FESSC audiovisual group is now doing its own documentation.

12. The EDL staff provided on-site professional consultation to many of the local industries being served by the counterpart staff.

It is the conclusion of the combined staff and the joint project directors that all the goals for Year III have been fully met at this time. Plans for Year IV have now been completed and will be implemented as soon as the sponsor authorizes the next year's program. Appendix 1 SUMMARY OF TECHNICAL ASSISTANCE CASES, 1976 ----

Case No.	Municipality	Product
1	Tubarão, SC	Clay Products
2	Tubarão, SC	Soft Drinks
3	Tubarão, SC	Cement Castings
4	Tubarão, SC	Graphics
5	Tubarão, SC	Agricultural Equipment
6	Tubarão, SC	Electrical Transformers
7	Tubarão, SC	Floor Mats
8	Araranguã, SC	Sawmill
9	Braço do Norte, SC	Enameling
10	Braço do Norte, SC	Jelly, Jam, Candy
11	Gravatal, SC	Mining
12	São Ludgero, SC	Agro-Industry
13	Tubarão, SC	Metal Chests
14	Tubarão, SC	Food-Bakery
15	Tubarão, SC	Garments
16	Tubarão, SC	Office Furniture
17	Tubarão, SC	Aluminum Forms
18	Tubarão, SC	Bricks and Tiles
19	Tubarão, SC	Candles
20	Tubarão, SC	Plastic Coating
21	Tubarão, SC	Education
22	Tubarão, SC	School Supplies
23	Tubarão, SC	Paint
24	Tubarão, SC	Manufacturers Association
25	Tubarão, SC	Action Group
26	Tubarão, SC	Garments
27	Tubarão, SC	Action Group
28	Tubarão, SC	Medical Facility
29	Tubarão, SC	Metalworking
30	Tubarão, SC	Agricultural Machines
31	Tubarão, SC	Accounting Services
32	Tubarão, SC	Transportation
33	Tubarão, SC	Primary Education
34	Tubarão, SC	Education
35	Criciuma, SC	Machinery

Case No.	Municipality	Product
36	Gravatal, SC	Health Spa
37	Florianopolis, SC	State Government
38	Imbituba, SC	Hospital
39	Laguna, SC	Rice Mill
40	Morro da Fumaça, SC	Accounting Service
41	São Ludgero, SC	Food
42	São Ludgero, SC	Tapioca
43	Urussanga, SC	Bus Line
44	Sul Santa Catarina	Government Agency
45	Itajai, SC	Education
46	Laguna, SC	Tourism
47	Sul Santa Catarina	Agro-Industry
48	Sul Santa Catarina	Food-Protein
49	Sul Santa Catarina	Electrical Insulators
50	Sul Santa Catarina	Plastics
51	Tubarão, SC	New Product
52	Tubarão, SC	Pillows
53	Tubarão, SC	Plastic Bags
54	Tubarão, SC	Information Request
55	Tubarão, SC	Furniture
56	Tubarão, SC	Pharmaceuticals
57	Tubarão, SC	Spare Parts
58	Tubarão, SC	Plywood
59	Tubarão, SC	Metal Structures
60	Tubarão, SC	Refractory Clay Products
61	Tubarão, SC	Garments
62	Tubarão, SC	Small Tractors
63	Tubarão, SC	Government Agency
64	Tubarão, SC	Garments
65	Tubarão, SC	Tourist Hotel
66	Tubarão, SC	Information Request
67	Tubarão, SC	Electrical Supplies
68	Ararangua, SC	Information Request
69	Florianopolis, SC	Bone Meal
70	Laguna, SC	Garments

Case No.	Municipality	Product
71	Treze de Maio, SC	Manioc Flour
72	Urussanga, SC	Ceramic Coating
73	Sul Santa Catarina	Animal Breeding
74	Sul Santa Catarina	Dyes
75	Tubarão, SC	Footwear
76	Tubarão, SC	Metalworking
77	Florianopolis, SC	Government Agency
78	Florianopolis, SC	Government Agency
79	Curitiba, PR	Bank
80	Sul Santa Catarina	Finance Company

The following 45 cases were classified as technical assistance cases. The remaining 35 cases are not presented because they were only consultation, information transfer, or one-time contacts.

CASE NO. 1

MAIN PRODUCT: CLAY PRODUCTS

Municipality: Tubarão

Brief Description of Problem

This enterprise is operated by a local church in order to employ their students, generate some income for the church, and support the educational activities. The business is losing money.

Applied Solution

Company management was analyzed as well as the manufacturing operation. It was determined that: (a) the kilns are too small for industrial operation and (b) the staff has no business know-how. It was suggested that management procedures be established both in producing the goods and running the company. Once this is done, it may be desirable to increase the present investment and expand the existing kiln facility.

Shortly afterward, the persons in charge were removed, and since then, the company has not followed the offered suggestions. The small plant continues to lose money.

MAIN PRODUCT: SOFT DRINKS

Municipality: Tubarão

Brief Description of Problem

Owner requested the design of a control system to be applicable to his sales and distribution system. In the past, great discrepancies were noted in sales, stock, and deposited stock with distributors.

Applied Solution

After conducting an audit, it was determined that control forms were needed to keep track of merchandise, production, sales, and distribution. Other management control tools also were required.

A system was designed and implemented by management. Shortly thereafter, two employees who were believed involved in the "juggling" of the accounts resigned. The company is now doing well and the financial crunch has been resolved. The company has gone from 25 employees to 22 and sales have gone from 3.6 million cruzeiros to 5.7 million cruzeiros per year.

CASE NO. 3

MAIN PRODUCT: CEMENT CASTINGS

Municipality: Tubarão

Brief Description of Problem

The past few years have seen a boom in the construction industry, but this company is losing money. The owner requested assistance to determine why he is losing money. From preliminary research, it was determined that the company management had little or no ability to manage and little or no knowhow of financial matters.

Applied Solution

The following conditions were determined as being in existence:

- 1. Poor purchasing and selling procedures
- 2. No control of sales
- 3. Poor use of facility
- 4. Low stock rotation

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5. No marketing ability

6. Total lack of financial controls

A series of actions were recommended to correct the weaknesses as identified. These were implemented during the past year, and the company is now turning around. Sales have gone from 1.1 million cruzeiros last year to 1.8 million cruzeiros this year, and profits are up.

CASE NO. 4

MAIN PRODUCT: GRAPHICS

Municipality: Tubarão

Brief Description of Problem

This small company produces a weekly newspaper. For some time the company has been losing money. Owners are two partners--one a sociologist and the other an economist.

Applied Solution

The company was studied by the FESSC staff and it became apparent that:

1. The owners were more interested in being able to express themselves through the weekly newspaper than in the profits of the company.

2. The equipment (press and others) was quite old and in constant need of repairs. A fair amount of money was used each month in keeping the equipment operational.

The owners were told that they needed to do one of two things:

- a. Expand the operation and improve equipment.
- b. Lease the operation and reserve the right to prepare the weekly editorial.

Neither action was taken. The company currently is not operating and the owners are considering what to do.

Municipality: Tubarão

Brief Description of Problem

The company was assisted in the past year by FESSC. They were told to consolidate their production and improve their manufacturing procedures, and certain management suggestions were made. Now the owners wish to start exporting their production outside the state at the request of "potential" buyers.

Applied Solution

Through a review of the "foreign" correspondence, it became apparent that there were no real buyers, but simply persons curious to know about the equipment being manufactured. The review also pointed to a continuing weakness in the accounting system. It was suggested that the owners:

- 1. Continue serving the local market and consolidate their operation.
- 2. Replace the accountant being employed by the company.

Both suggestions were implemented by management, and the financial trend of the company was greatly improved. By the end of the year, sales were up to 2.6 million cruzeiros, as compared with 2.4 million cruzeiros the previous year.

CASE NO. 6

MAIN PRODUCT: ELECTRICAL TRANSFORMERS

Municipality: Tubarão

Brief Description of Problem

Two problems were reported by the owners: (a) lack of funds and (b) irregularities in the accounting system. One of the owners is a technical person, in ill health, and with no management ability. The partner has limited management ability.

Applied Solution

Company had a low credit rating and at times could not fill orders due to lack of materials or stock. The company accountant was using poor accounting

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practices. It was suggested that the partners expand the company capital and replace the company accountant.

The partners took in two additional partners--one with funds and the other with much needed components and raw materials. They hired another accountant at the same time.

The company is improving greatly; orders are up and so is production. Employment has expanded from eight workers to 14.

CASE NO. 7

MAIN PRODUCT: FLOOR MATS

Municipality: Tubarao

Brief Description of Problem

This company continues to have very limited operating capital, low productivity, and fairly low sales.

Applied Solution

Together with on-site IPD staff, FESSC provided technical assistance to the company. Complete management systems were established. The IPD staff reviewed the production system. Problems in cutting the material used in manufacturing the mats also were investigated.

The owner implemented each suggestion that was made to him by the FESSC team. Two types of cutters were brought to his attention, but these have not been purchased yet. The company shows signs of beginning to grow and, according to the company records, sales for this year will be up 100%.

CASE NO. 8

MAIN PRODUCT: SAWMILL

Municipality: Ararangua

Brief Description of Problem

The company has been doing well, but in the past few years profits have been falling. Management also wanted to review other investment opportunities in order to diversify.

Applied Solution

A complete study was made of the company. In the past, they have been using their own timber from a timber tract which was purchased some 20 years ago at very low price. Management (two partners) over the years have had high returns and have accumulated personal wealth, traveled abroad, and in other words have been living in "high cotton." The staff suggested a more controlled way of operating the company, reduction of expenditures, and fewer nonproductive activities. Management did not accept the suggestions, and the company has been dropped from the program.

CASE NO. 9

MAIN PRODUCT: ENAMELING

Municipality: Braço do Norte

Brief Description of Problem

This company had been assisted during the previous program year and by Year III had reached a solid economic position--sales were up and productivity was high. Management wanted to build a new kiln and requested technical assistance in designing the new installation.

Applied Solution

FESSC, assisted by EDL staff on site, designed a new kiln that would allow the company to increase production up to 400% above present output. A complete report was made and designs were prepared; a report of this case also was published. All the designs, drawings, etc. have been given to the company at no cost.

Management is now determining if they can afford this additional investment. If the kiln is installed, there would be a reduction of manpower in the operation. Municipality: Braço do Norte

Brief Description of Problem

This company also was serviced in Year II, and Year III was to be its last year of "free service." The owner is interested in lowering the production cost of the jellies he is manufacturing. The company has grown well in the past three years and now its products are marketed in three states of the region.

Applied Solution

The project team, assisted by the EDL engineer on site, completed a new study of the company to improve the process, production line, material flow, and other items. New manufacturing processes were reviewed, tested, and evaluated. Additional equipment also was considered.

Recommendations were made to the owner to adjust the plant layout, purchase some additional equipment, and modify the production line. All these suggestions were implemented. Production cost was reduced slightly, but sales have increased significantly; consequently, profits are higher than anticipated. A few new jobs also were generated. The company was projected to progress beyond the small-scale classification by the end of the year.

CASE NO. 11

MAIN PRODUCT: MINING

Municipality: Gravatal

Brief Description of Problem

This organization is attempting to extract silica from local deposits. It is a new company, not well organized, and with large debts. The owner requested that the FESSC team assist in getting the company operational.

Applied Solution

The project team did a complete financial analysis of the company and suggested that additional capital was required. This to be done by (a) more investment by present owners or (b) sales of company stock. An analysis of

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the management system was also made and recommendations were offered to bring all the bookkeeping from Criciuma to Gravatal in order to maintain better dayby-day control. An EDL staff member visited the different deposits and made engineering recommendations on better use of explosives, drilling practices, and materials handling.

Nearly all the recommendations have been implemented, employed staff has been increased from 102 to 122, and sales have gone from 3.8 million cruzeiros to 6.0 million cruzeiros during this year.

CASE NO. 12

MAIN PRODUCT: AGRO-INDUSTRY

Municipality: São Ludgero

Brief Description of Problem

This is a family-owned operation involved in raising broilers, processing broilers, hog raising, limited dairy farming and a feedmill. The family wants to expand operation, invest more capital, and increase profits.

Applied Solution

The case was unusual as it had many agricultural facets that are uncommon to the staff's background. Three studies were made to determine (a) which of the activities was most profitable, (b) how the business would be expanded, and (c) other alternatives. Management assistance was provided while the studies were being completed and better management procedures were established. Broiler processing proved to be the most profitable, followed by the feedmill, dairy farming, and other broiler farming, with hog farming being the least productive.

The case was completed, documented, and published. Expansion plans were prepared for the broiler processing operation and the feedmill. The company is now implementing these recommendations, and no results have yet been registered. EDL provided much support from its data collection on the agro-industrial portion of the study.

MAIN PRODUCT: METAL CHESTS

Municipality: Tubarao

Brief Description of Problem

This is a new company manufacturing metal chests which requested assistance in getting started. It is a typical small operation, 13 employees, with a projected production of 2,800 chests per year. The firm is occupying a rented warehouse with under 100 m² of available floor space, but plans to move to its own location as soon as a 240 m² building is completed.

Applied Solution

The team visited the installation and determined that not enough floor space was available; they suggested knocking down a partition and expanding the work area. Additional equipment is needed--metal cutter, metal bender, better welding equipment. Cement being used (filler) is the wrong type; it is "slow drying" and they should use a "quick drying" type. A plant layout was made for the present operation and will be redone when the new plant is available.

Owners have implemented some of the recommendations; case is still open.

CASE NO. 14

MAIN PRODUCT: FOOD-BAKERY

Municipality: Tubarão

Brief Description of Problem

The owner contacted FESSC to request assistance. Company is losing money and owner cannot determine why.

Applied Solution

A study was made of the company. This is a highly competitive line (bread), but other bakers are running profitable enterprises in the same area. It was determined that the owner was giving a 30% commission to the stores (point of sales) and 20% to the distributors. The company has not kept any records, so it was impossible to determine production costs in an attempt to establish if the unit prices were correctly determined.

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Data are now being gathered, and a report will be completed in the next few weeks. Case continues open.

CASE NO. 15

MAIN PRODUCT: GARMENTS

Municipality: Tubarão

Brief Description of Problem

New enterprise in the garment business (to produce craft-type garments). Company is having financial problems and not enough floor space for its operation.

Applied Solution

A financial study was made of the operation, and the following recommendations were offered:

- 1. Reduce credit sales, offer shorter terms
- 2. Request extension on notes to suppliers
- 3. Reduce variety of production line
- 4. Improve credit line with bank

All these actions are being implemented, but this line of business has a limited potential in this area and is very competitive. Case remains open.

CASE NO. 16

MAIN PRODUCT: OFFICE FURNITURE

Municipality: Tubarão

Brief Description of Problem

The company has developed well in the past two years and has been serviced before under this program. Owners now wish to sell part of their stock, take a profit and continue in operation; they want to do this in a manner that will permit them to take the best possible advantage of the existing tax laws.

Applied Solution

The products have been well received and they are being sold nationally. Several investors are interested in coming into the business. A study was

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made to determine the best way the present owners could divest part of their holdings, pay the least possible amount of taxes, and continue to operate and control the business. Recommendations were made to the owners after consultations with legal and tax experts. The owners are considering the recommended actions. Case still open.

CASE NO. 17

MAIN PRODUCT: ALUMINUM FORMS

Municipality: Tubarao

Brief Description of Problem

This is a group of investors that has been working with FESSC since 1973. Since then, part of the group acted and established a ceramic tile plant that was suggested by FESSC. Another part of the group became interested in another manufacturing opportunity study having to do with "aluminum forms." The second group is being assisted by FESSC.

Applied Solution

The FESSC team and the EDL on-site staff have been working with the investors for over a year in researching the concept, project feasibility, tax benefits, and other items. The group has now built its plant, designed by a national consultant firm, and is about to start operation. To date, FESSC has assisted in obtaining tax benefits, municipal incentives, and additional market information. Production test runs are now being made, and 300 persons have been hired by the plant. Sales for the first year are forecasted at 50 million cruzeiros. This company will have significant economic impact in the area. Although not a small-scale industry, the importance of this new plant is such that FESSC decided to take it on under the program.

CASE NO. 18

MAIN PRODUCT: BRICKS AND TILES

Municipality: Tubarão

Brief Description of Problem

This company purchased new Spanish equipment to manufacture tiles. It needed help in installing the equipment and, later, in resolving a problem of unacceptable quality (95% of the production consisted of rejects).

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Applied Solution

Equipment purchased by company was inspected by the FESSC team and EDL staff on site. It was determined that installation instructions were missing. After much waste of time, the manufacturer did send someone out to assist in setting up the machines. Production was started, but about 95% of the tiles would break between the handling and the baking in the kiln. The team returned and determined that the extruder had an orifice that was too small. The company contacted the manufacturer of the equipment, who resolved the problem. Adjustments were made by manufacturer for damage caused. Production is now at normal level, and the operation looks good, with anticipated profits by mid-1977.

CASE NO. 19

MAIN PRODUCT: CANDLES

Municipality: Tubarão

Brief Description of Problem

The company has a 20 tons per month quota of raw material from Petrobras, but due to a weak financial position, can use only about two tons per month. There is a good market for candles, but the company is not using all of the available productive capacity.

Applied Solution

The FESSC team checked with the Banco do Brasil and was able to determine that the company had not maintained the appropriate records with the bank. Further investigation indicated that the company was not doing well financially.

The owners were told to implement a series of actions to improve the financial position of the company and to update their records with the Banco do Brasil. The situation has improved somewhat, and at present, the company has increased production to four tons per month. The added sales should greatly improve the cash flow and the position with the bank. Case still open. Municipality: Tubarão

Brief Description of Problem

This new company was established as a support unit for another enterprise that will be initiated in 1977. The new company was assisted from concept to date. Assistance was requested in the area of quality control, and test runs are now being made.

Applied Solution

Until the other installation is operational, this company has no outlet for its products. It is anticipated that the consumer company will be operational early in 1977. In collaboration with the EDL staff person on site, assistance was provided and basic quality control systems were recommended. The company is now in the process of implementing these recommendations.

CASE NO. 21 MAIN PRODUCT: EDUCATION

Municipality: Tubarão

Brief Description of Problem

This small educational institution wanted to determine costs of operation and administrative procedures, and requested assistance in setting up appropriate educational programs.

Applied Solution

The FESSC team, assisted by the academic staff, suggested the appropriate programs. Cost analysis was conducted of the system and appropriate recommendations were made. Management implemented the recommendations and increased tuition to meet operating costs. The institution appears to be doing well and receiving community acceptance. Municipality: Tubarão

Brief Description of Problem

This newly established company is attempting to bid on a contract to sell school supplies to the Fundação Nacional do Material Escolar (FENAME).

Applied Solution

The company had not completed all the legal requirements for a new firm (i.e., registration, license, etc.). The FESSC team assisted them in doing this, and is now helping them develop a realistic proposal (bid) to be presented to FENAME.

CASE NO. 23 MA

MAIN PRODUCT: PAINT

Municipality: Tubarão

Brief Description of Problem

The owners of this enterprise are in need of additional working capital. The firm is so short of funds that they are having difficulties obtaining much-needed raw materials.

Applied Solution

The FESSC staff contacted the bank used by the firm and were able to determine that the company had no funds available in the bank. The owners had attempted to borrow money, but the bank had not considered the request because it did not indicate how the funds would be utilized or repaid. The FESSC staff assisted the owner in completing the appropriate loan forms and they were then submitted to the bank. The bank is now considering the loan request. Municipality: Tubarao

Brief Description of Problem

The newly elected board of a new association requested assistance in preparing goals, objectives, and programs for the organization.

Applied Solution

Members of the FESSC staff are working with the board of directors in developing the goals, objectives, and programs. Case still open.

CASE NO. 25

MAIN PRODUCT: ACTION GROUP

Municipality: Tubarao

Brief Description of Problem

This is a citizen's group interested in promoting the building of a highway joining the coastal area with the mountains, using Highway B-475. They had been informed that the federal government was not planning to build B-475 at this time.

Applied Solution

The FESSC staff, assisted by the action group, developed an economic impact study to prove the great need for building this road. The completed study has been presented to the Federal Minister of Transportation for his consideration.

CASE NO. 26

MAIN PRODUCT: GARMENTS

Municipality: Tubarão

Brief Description of Problem

The owner was planning to sell his home (financed) and build a new, larger plant with living area. He wished to borrow 300,000 cruzeiros to accomplish his plan.

Applied Solution

Staff from FESSC, together with the owner, developed the feasibility study needed to request the bank loan. Several contacts were made, and the Banco do Brasil, S.A. became interested in this loan. The documentation was completed, loan issued, house sold, and new plant and living quarters built outside the city limits.

Since then the company has expanded from 11 employees to 22 and sales have increased from 1 million cruzeiros to 3.8 million cruzeiros for 1976.

CASE NO. 27

MAIN PRODUCT: ACTION GROUP

Municipality: Tubarao

Brief Description of Problem

This is another group of citizens who are interested in the repaving of the existing highway between Tubarão and Estância Hidromineral da Guarda.

Applied Solution

The FESSC team prepared the economic impact study and assisted the group in presenting their case to the local authorities. Two phases are suggested: (a) repaying the road to Guarda and (b) repairs to the road to Orleans. Both these roads are used to bring coal in from Lauro Müller. The state government is now considering the requests after having given verbal approval.

CASE NO. 28

MAIN PRODUCT: MEDICAL FACILITY

Municipality: Tubarão

Brief Description of Problem

A local organization wished to initiate a "health service" for young students.

Applied Solution

Although the concept was appropriate, the FESSC team did not believe this to be within the scope of the project, so assistance was given on a

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voluntary basis by some members of the staff. The project did not prove to be feasible and was given up by the interested organizations.

CASE NO. 29

MAIN PRODUCT: METALWORKING

Municipality: Tubarao

Brief Description of Problem

The company has been investing fairly large sums each year in training staff, but as soon as they are productive they leave and go to a competitor or into business for themselves.

Applied Solution

The problem was reviewed by the staff, and it was decided that the company should set up some terms which would have to be agreed to by the potential trainee before he receives training. Terms were prepared, and the company has adopted a form which is now signed by the persons to be trained. The trainee then agrees to remain working for a given period of time in which he pays back for the training received. The new program is now being implemented.

CASE NO. 30

MAIN PRODUCT: AGRICULTURAL MACHINES

Municipality: Tubarão

Brief Description of Problem

The company is more in sales and service of agricultural equipment than in manufacturing. They are having problems financing agricultural equipment (installment sales).

Applied Solution

Together with the owners, the FESSC staff contacted the main financing source for credit sales of agricultural equipment, the Banco do Brasil. The bank indicated that, due to the economic setbacks experienced early in 1976, the bank was limiting its financial policy until the economy gained momentum. A few months later, the credit system was again reestablished and the problem was solved.

CASE NO. 31

MAIN PRODUCT: ACCOUNTING SERVICES

Municipality: Tubarão

Brief Description of Problem

The company had gained some industrial clients and was interested in knowing the type of systems, reserves, and tax calculations that FESSC was suggesting to the companies that it serviced.

Applied Solution

For several days, members of the FESSC staff worked with the accountants of the company to transfer to them the accounting techniques being used by FESSC to assist small-scale industries in the area. The accounting firm is now applying these money-saving techniques to its customer accounts.

CASE NO. 32

MAIN PRODUCT: TRANSPORTATION

Municipality: Tubarão

Brief Description of Problem

The owners have a trucking company to haul cinders from the electricalpower generating plant and a second company to manufacture different products using cinders as a base product. They wanted assistance in setting up a vehicle control and maintenance system.

Applied Solution

All the truck ages, conditions, service needs, repairs and routes were considered in preparing a maintenance schedule for all the vehicles. In the process, it also became apparent that the trucking company and the manufacturing company would both save money if they were to be united. The maintenance system has been implemented as recommended; in the meantime, the fusion of the two enterprises is being considered by management. Municipality: Tubarao

Brief Description of Problem

The organization wants to start a private primary school and is requesting 100,000 cruzeiros from the Ministry of Education to assist in the initial installation of the school. Assistance was sought from FESSC in developing the project and justification for the requested support.

Applied Solution

The area is still in need of educational facilities even though private schools may not be the answer. The project was developed to show that the school would be self-supporting once the original 100,000-cruzeiro grant was used in the establishing of the institution. The documentation has been completed and presented. Case still open.

CASE NO. 34 MAIN PRODUCT: EDUCATION

Municipality: Tubarão

Brief Description of Problem

Another private educational institution having financial problems requested assistance from FESSC.

Applied Solution

A complete study was made of the management and financial system. It was determined that financial controls were needed and these were then recommended to the present management. The institution is now implementing the recommendations and the financial position of the institution is improving. Municipality: Criciuma

Brief Description of Problem

Owners of the enterprise requested assistance in the area of determining costs of production items.

Applied Solution

The company production lines, techniques, and facilities were reviewed. It became apparent that: (1) production runs were too small, (2) there were too many different products, and (3) there was poor cost accounting.

Recommendations were made to improve or modify all three problem areas. The variety of products was reduced somewhat. All recommendations are being implemented successfully and a cost system has been established.

CASE NO. 36

MAIN PRODUCT: HEALTH SPA

Municipality: Gravatal

Brief Description of Problem

This spa has been in operation for a number of years. It has a good reputation, and most of the clients are from out of state. Management is facing economic problems and wanted assistance in conducting a financial study of the company.

Applied Solution

A complete study was made of the company and its operation. Financial limitations were detected as well as management defficiencies. It was also suggested that the spa be kept open all year instead of during the winter months. This has been implemented and the off season has provided a 40% occupancy rate during this year.

CASE NO. 37

MAIN PRODUCT: STATE GOVERNMENT

Municipality: Florianopolis

Brief Description of Problem

The state government requested a listing of available research laboratories in the region and a bibliography on pollution.

Applied Solution

A survey was conducted to determine all available laboratory facilities in the region. A request was made to EDL for an international bibliography on pollution, and this was obtained. Additional bibliographical entries were made of Brazilian publications. Information was presented to the state government.

CASE NO. 38

MAIN PRODUCT: HOSPITAL

Municipality: Imbituba

Brief Description of Problem

A small hospital (private) operating in the city of Imbituba was having management problems. The board was divided and management was unable to define what the board wished to do.

Applied Solution

The FESSC team did not wish to be partial in this or any other technical assistance case, so the board was requested to write to FESSC and formally invite them to look at the problem. At the same time, the board was to make the commitment of allowing FESSC to look at records, archives, files, and other available information. The board could not decide on this request; consequently, to date the FESSC team has not entered the case.

Municipality: Laguna

Brief Description of Problem

This company was attended during the past program year. At this time, they requested assistance in obtaining certain incentives offered by PROCAP (Programa de Capitalização de Empresas).

Applied Solution

The FESSC team has completed all the necessary forms on behalf of the company, and they have been submitted to PROCAP. The PROCAP office is favorably considering the request for financial assistance.

CASE NO. 40 MAIN PRODUCT: ACCOUNTING SERVICE

Municipality: Morro da Fumaça

Brief Description of Problem

Small accounting firm requested assistance in transforming single ownership type companies to a "limited society" type of activity.

Applied Solution

The owners of the accounting service are fairly new in the business and do not have the pragmatic experience that is necessary. The FESSC team gave them informal training and transferred their knowledge by actual on-the-job example. They are now operating independently after this training.

CASE NO. 41

MAIN PRODUCT: FOOD

Municipality: Sao Ludgero

Brief Description of Problem

The two owners have three companies: (a) sawmill, (b) food industry, and (c) manioc flour mill. They are interested in purchasing a 400 HP power generator (hydraulic).

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Applied Solution

The appropriate study was conducted and it became apparent that this small unit was too large for their present use. It was suggested that they sell excess power to a local rural electrification system and thus recover part of the 150,000-cruzeiro investment that would be required. They are presently negotiating with the rural electrification system.

CASE NO. 42 MAIN PRODUCT: TAPIOCA

Municipality: São Ludgero

Brief Description of Problem

Company requested assistance in preparing a plant layout.

Applied Solution

Assisted by EDL staff on site, a new plant layout was prepared for the company. The layout was implemented, and since then productivity has increased about 20%.

CASE NO. 43 MAIN PRODUCT: BUS LINE

Municipality: Urussanga

Brief Description of Problem

This is a small passenger bus service that has been growing in the past few years. The owner became aware of some tax problems and the need to establish better management systems if company was to continue growing.

Applied Solution

The whole system was reviewed by the FESSC team and no tax problems were determined (the owners were misinformed). Recommendations were made on modifications to the present management system. The recommendations are being implemented. Municipality: Sul Santa Catarina

Brief Description of Problem

Following the 1974 flood, special disaster loans were made available with low interest rates--10 years payback and two years of grace. Since then, inflation has more than eroded the advantages offered by these loans. The government agency wanted a study of alternate solutions to this problem.

Applied Solution

An in-depth study was made of this problem by the FESSC team and the recommendations presented to the agency. The government agency presented the recommended solution to the President of Brazil, and on May 26, 1976, by special decree, the President implemented the solution through Decree 231. The persons who borrowed money were relieved of 50% of the amount borrowed, this to be paid by the government.

CASE NO. 45

MAIN PRODUCT: EDUCATION

Municipality: Itajai

Brief Description of Problem

An educational organization wanted to establish a research and development center.

Applied Solution

The organization was studied and recommendations were made on how to set up a research and development center similar to the one in operation at FESSC. Case is still open and recommendations are being considered. Appendix 2

SUMMARY OF TRAINING PROGRAM PRESENTED 1976-1977

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 Fundação 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 presentado 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 técnicofinanciero 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 Fundação 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 dias 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 dias hábiles. Al término de la segunda fase, se otorgarán certificadso 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.

Topicos del Curso - Fase 1

- 1. Evaluación de Proyectos
 - 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 Aula Práctica	FESSC 3 Horas 2 Horas
Total de la Fase l	Aulas Práctica	11 Horas 9 Horas
	Total	20 Horas

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	l 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.

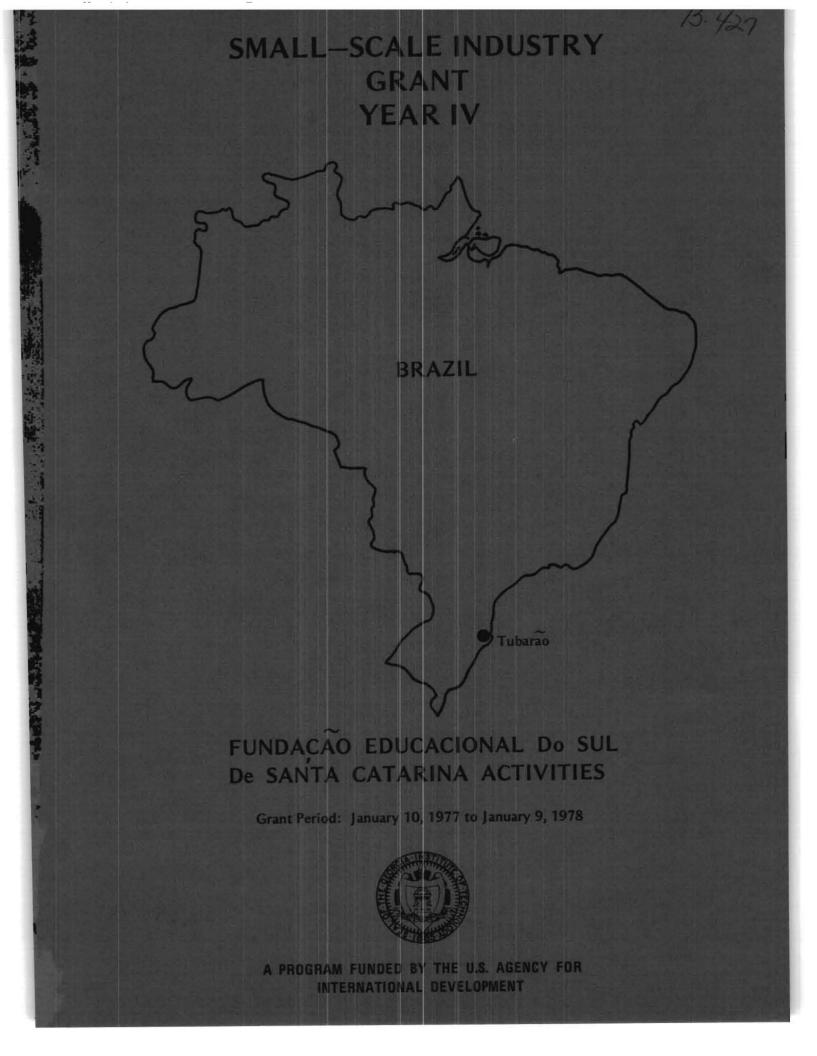
	Facultad Aula	FESSC 4 Horas
Total de la Fase II	Aulas Práctica	27 Horas 7 Horas
		34 Horas
PROGRAMA TOTAL (FASE I Y	11)	
	Aulas	38 Horas
	Práctica	16 Horas
		54 Horas

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.



FINAL REPORT YEAR IV

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

by

Jose Muller and

Nelson C. Wall

Contract No. AID/ta-c-1062

Office of International Programs Engineering Experiment Station GEORGIA INSTITUTE OF TECHNOLOGY Atlanta, Georgia 30332, U.S.A. January 1978

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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:

- 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:

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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 indus-trial 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.

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Background

The Fundacao Educacional do Sul de Santa Catarina (FESSC) is a wellrespected, 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.

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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

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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. By 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 smallscale 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.

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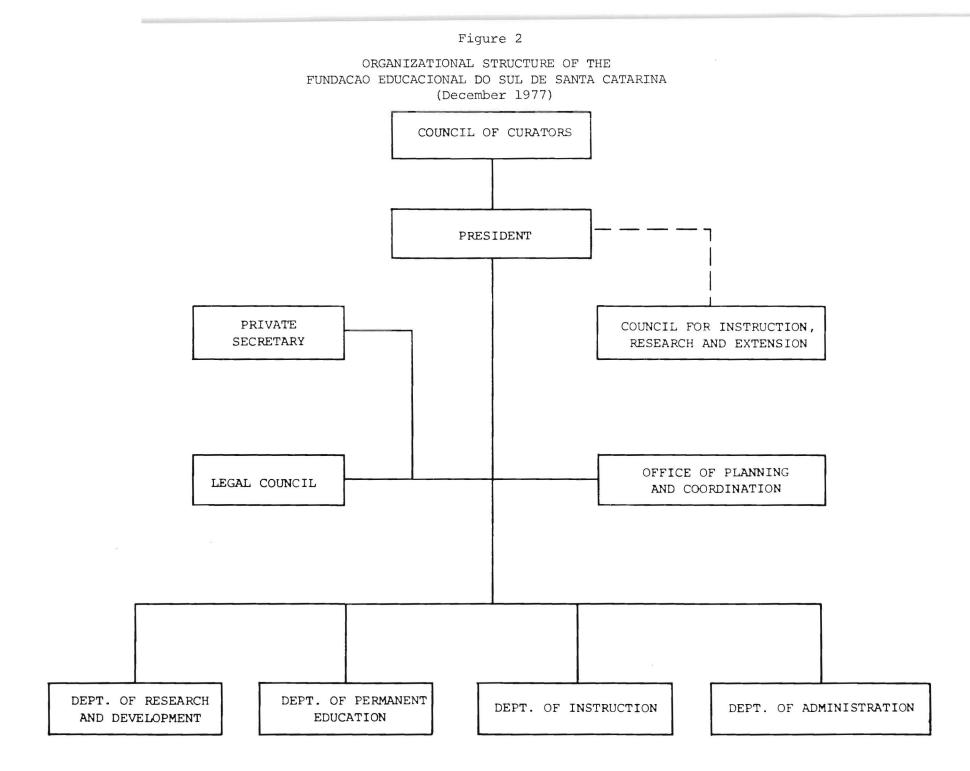
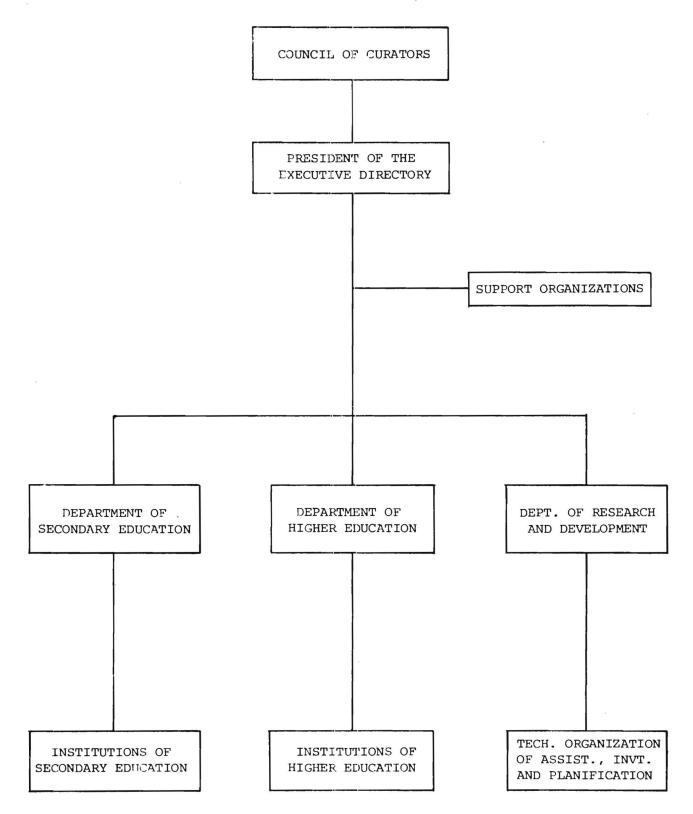


Figure 1

ORGANIZATIONAL STRUCTURE OF THE FUNDACAO 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 smallscale 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 fieldtested 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. <u>Organization</u>. 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 presentday 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.

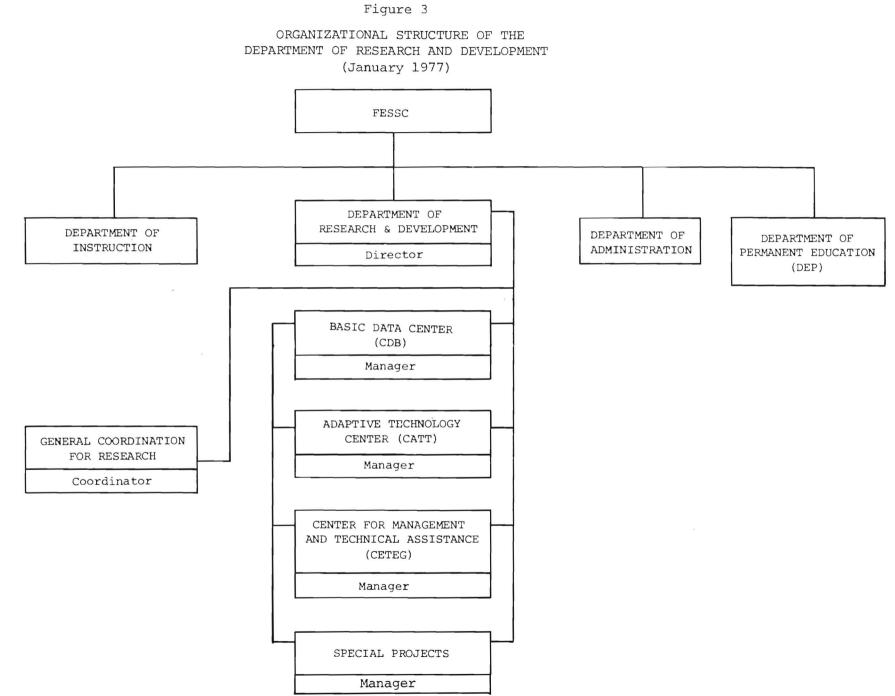
2. <u>Staff and Physical Plant</u>. Twelve persons formed the core program staff for Year IV. They were to be assisted as needed by the staff of the Basic Data Center, Department of Permanent Education, and the Department of Administration. Staff assignments on this project were made on the basis of 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. <u>Project Policy</u>. 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 Indus-tries.

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

a. <u>Basic Data Center (CDB)</u>. 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

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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:

- 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. <u>Center for Management and Technical Assistance (CETEG)</u>. 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:

- 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.

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

c. <u>Adaptive Technology Center (CATT)</u>. 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. <u>Industrial Training and Education</u>. 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. <u>Special Projects</u>. 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.

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

		Sources of Funds	
Expenditures	AID	FESSC	Total
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 fulltime staff of three persons. In accordance with the project plan, the following activities were initiated during Year IV:

 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 <u>Checklist for the Operation of the Basic Data Center</u> by Mr. Richard Johnston of the OIP staff. The translated document was published under the title of <u>Lista de Atividades do Centro de Dados Basicos</u>, 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

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CDB-PUBLICATIONS ACQUIRED (Program Years I-IV)

	Added in Program Year						
Type of Publication	1974-75	1975-76	1976-77	1977-78			
Periodicals	120	477	863	1,187			
Annuals	-	9	10	31			
Articles	-	l	-	-			
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 1. 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. <u>Employment Generation</u>. Records have been kept since Year I to determine if new jobs have been generated and productivity or sales have been

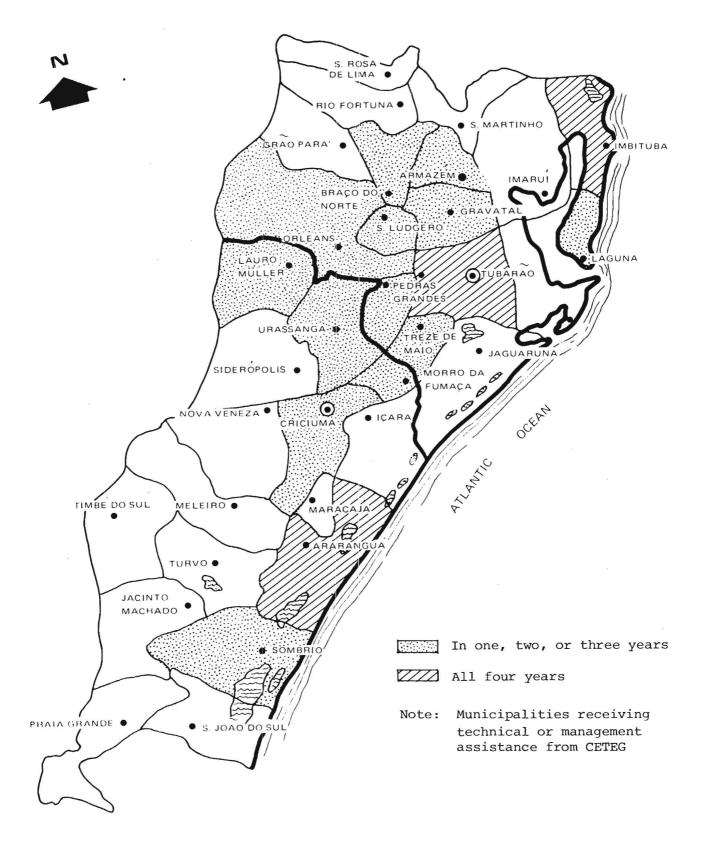
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RECAPITULATION OF TECHNICAL ASSISTANCE CASES BY MUNICIPALITIES, CETEG-YEAR IV

		ical Assistance Ca	ses
Municipality	Continuous	Discontinuous	Total
Ararangua	-	2	2
Criciuma	-	3	3
Gravatal	1	-	1
Imbituba	-	l	1
Laguna	-	1	1
Lauro Muller	-	1	1
Orleans	-	1	1
Sao Ludgero	1	-	1
Sombrio	-	1	1
Tubarao	1	19	20
Urussanga	-	l	1
Other Locations in Region	-	_1	_1
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. $\frac{1}{}$ 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. <u>Published Studies</u>. 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
 - 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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¹/Jose Muller and Nelson C. Wall, <u>Final Report--Fundacao Educacional do</u> <u>Sul de Santa Catarina (FESSC), Small-Scale Industry Grant</u>, Economic Development Laboratory, Georgia Institute of Technology, Atlanta, Georgia, January 1977, p. 17.

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

	Employment	z, 1977-78	BA,000-	ation
Company Name	Start	End	Absolute	Percent
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	48	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

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- (2) <u>A Producao de Cevada</u>. 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) <u>Production of Plastic Briefcases</u>. 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)
 - 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) <u>Correcao Monetaria do Ativo Imobilizado</u>. A management guideline indicating the appropriate accounting system to use in order to compensate for the monetary correction in the case of fixed assets.

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- (2) <u>Capital de Giro</u>. This guideline deals with the importance of working capital and how to determine the amount required for a small-scale industry.
- (3) <u>Fundos de Financiamientos Industriais</u>. Sources of funds for financing industrial projects are identified and discussed in this guideline.
- d. Industrial Studies
 - <u>Diagnostico e Estrategia de Expansao, Isaltino Pandini</u>
 <u>Lima, Ferro-Plast</u>. 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) <u>Diagnostico, Warmeling e Filho</u>. 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) <u>Diagnostico e Analise, INEL</u>. 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) <u>Pequena e Media Empresa--Identificao</u>. 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. -23-

- (2) <u>Atividades e Procedimentos-CDB</u>. 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) <u>Relatorio de Estagio</u>. 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.

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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.

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

Title or Subject		er of Persons	Location	Presented by
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	9 7	Tubarao	FESSC/RONDOM
Health	1	90	Tubarao	FESSC/RONDOM
Brazilian Problems	1	268	Tubarao	FESSC/RONDOM
Management of Soc. Services	1	25	Florianopolis	FESSC/SGSS
	22	1,294		

SUMMARY OF STAFF TRAINING LECTURES, CONFERENCES, WORKSHOPS

Title or Subject	Location	Organization	Number of FESSC Partic- ipants
Tech-Adm. Staff Mgmt.	Tubarao	FESSC	27
Project Evaluation	Tubarao	FESSC/GIT	16
Project Management	Tubarao	annora,	23
Staff Training	Tubarao	FESSC/GIT FESSC	23
Internal Evaluation	Tubarao		31
3		FESSC	2
Personnel Management	Florianopolis	FESSC/FUCAT	
Budget Management	Floriancpolis	FESSC/FUCAT	2
Budgeting	Floriancpolis	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	l
Extension Service	Tubarao	FESSC	2
Psychology	Tubarao	FESSC	1
Brazilian Literature	Florianopolis	FESSC/UFSC	1
Nursing	Florianopolis	FESC/UFSC	1
Literature	Florianopolis	FESSC/UFSC	1
Chemistry	Florianopolis	FESSC/UFSC	1
-	-27-		

Title or Subject	Location	Organization	Number of FESSC Partic- ipants
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

Project NoB-427, Year IV					Þ	Figur ROJE			L				
Project TitleSIG-FESSC						197	7						
Project Director <u>Nelson C. Wall</u>	Jan.	Feb.	Mar.	Apr.	May	1	July	Aug.	Sept	Oct.	Nov	. Dec	
Preparation of Final Report, Year III													
Planning Year IV Program													
Selection of New Municipalities													
Selection of New Companies													
On-Site Assistance, N. C. Wall													
On-Site Assistance, H. Davis													
Technical Assistance Service (CETEG)													
Assistance to CDB													
Technical Assistance to CATT													
On-Site Assistance, H. Davis													
Training (Staff)													
Mini-Conference	_							++++		┡┤┝╎			\downarrow
Audiovisual Filming on Site									┟┥╎┼		$ _{-}$		
On-Site Assistance, N. Wall													
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Quarterly Reports													
Annual Report													

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.

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

Date		Industry or Organization	Location	Contacted by
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
Мау	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
(84)	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)

Industry or Organization	Location	Contacted by
Metalurgica Souza Ltda.	Tubarao	N. C. Wall
Warmeling & Filho	S. Ludgero	N. C. Wall
Industria Extrativa Ltd.	Gravatal	N. C. Wall
Levi Fenilli	Tubarao	N. C. Wall
	Metalurgica Souza Ltda. Warmeling & Filho Industria Extrativa Ltd.	Metalurgica Souza Ltda. Tubarao Warmeling & Filho S. Ludgero Industria Extrativa Ltd. Gravatal

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 smallscale 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.

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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

Case No.	Municipality	Product
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

Case No.	Municipality	Product
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

MAIN PRODUCT: AUTOMOTIVE PARTS

CASE NO. 1

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

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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.

MAIN PRODUCT: METALLURGY

CASE NO. 5

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.

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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

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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.

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.

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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^3 /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.

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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

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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

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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. 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

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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.

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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

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:

- 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 smallscale business to operate. Changes are being suggested by the FESSC team and are now being implemented. Case still open.

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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

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

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 dias 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 dias 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

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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 Aula Práctica	FESSC 3 Horas 2 Horas
Total de la Fase I	Aulas Pr á ctica	ll Horas 9 Horas
		20 Horas

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	l Hora

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

Facultad	N. Wall
Aula	3 Horas
Práctica	l Hora

2. Administración

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

Facultad	N. Wall
Aula	3 Horas
Práctica	l 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	l 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	l Hora

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

Facultad	Ν.	. 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 Pr á ctica	27 Horas 7 Horas			
						34 Horas
PROGRAMA	TOTAL	(FASE	I	&	II)	
					Aulas Práctica	38 Horas 16 Horas
						54 Horas

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 Fundacao 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.

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