a unit basis (79,000). According to a survey conducted by the International Special Tooling Association (ISTA), Portugal ranked thirteenth in the value of production in 1986, and eleventh in 1988. (Table 6-1-11) Total production in the EC is estimated to be around 4 billion ECU.

Thus, the metal mold industry in Portugal is the established industry equipped with modern facilities and advanced technology, as evolved from the traditional glass industry. Furthermore, the unification of the EC creates an opportunity for Portugal to become a major metal mold production base ranking with Northern Italy. Metal mold is a critical tool for basic materials industries in terms of precision, and its applications will expand into powdered metallurgy, fine ceramics, and engineering plastics, beyond conventional casting, forging, and press. ISTA predicts that metal mold demand will grow at an annual 10%. As metal molds are basically custom-made products, relatively small enterprises having advanced machinery and equipment can obtain competitive edges. In Japan, 90% of metal mold makers employ 20 or less workers. With the minimum delivery period, high precision, and high performance demanded by customers, the metal mold industry is inevitably equipment-intensive and needs to be supported by skilled workers.

(2) Textile industry

The textile industry is one of the largest industries in the country and boasts a long history. In 1987/88, it accounted for 20% of industrial production, 30% of exports, 9% of imports and 35% of employees. Most of enterprises in the industry are small and labor-intensive in nature. Cotton products are mainly in Porto and Braga, wool in Castelo Branco, and apparel in Porto, Braga, and Lisbon.

The country exports textile products to the EC countries, accounting for 70% of total, the EFTA countries (20%), and the U.S. (5%). The domestic industry is protected by import quota and tariff barriers. At the same time, the industry has been boosting exports in relatively free competition after the country joined the EFTA. However, the EC countries are required to abolish import duties and import quota on third countries in stages by the end of 1992, although this deadline may be extended for textile products. Furthermore, the industry is expected to face increasing competition from countries outside the EC, including Southeast Asia.

The textile industry in Portugal is labor intensive and export oriented, processing imported materials. As a result, the strengthening of the industry's competitiveness requires improvement of productivity and cost effectiveness, in addition to quality improvement. For this purpose, the industry is expected to increase its supply capacity through indus-

try-wide efforts and improvement of its marketing and distribution system, while meeting market needs by facility modernization, product diversification, and upgrading of design capability. And introduction of technology from foreign countries and diversification of product development are considered to be effective tools toward these goals. The export/import ratios of major textile products, as of 1988, are indicated below.

Wool	abt 0.6
Cotton	abt 0.46
Knitwear	abt 9.00
Apparel	abt 15.08
Lace/embroidery	abt 8.96
Other	abt 1.09

The high level of investment is observed in the cotton product industry.

(3) Paper & pulp industry

As of 1987/88, the paper & pulp industry accounted for approximately 8.7% of the total value of production of the manufacturing sector, 8.1% in exports, 2.6% in imports, and 6% in employment. The industry heavily depends on natural resources; pines (40%), cork oaks (46%), and eucalyptuses (8%) are produced from vast forests which cover one third of national land. These trees grow very quickly (8 years for eucalyptuses) under favorable weather and on rich soil, making Portugal one of major pulp producing countries in Southern Europe. Excepting large corporations, mainly national enterprises, most of enterprises are small in size, with annual production of less than 5,000 tons. Basically, large enterprises produce and supply pulp to smaller enterprises for paper production. 70% of all pulp produced in the country are exported. Eucalyptus-based pulp is a major export product which quality is ranked next to Northern European products. 74% of exports are destined to the EC countries.

Paper is produced from pulp and recycled paper, and 30% of the total volume produced are exported. Major export products are raw materials for corrugated fiberboard box (fluting and liner), accounting for 45% of total production, and 90% are shipped to the EC countries. In recent years, the paper industry seems to oversupply partly due to an increase in imports. Nevertheless, as paper consumption in Portugal is 73kg per person per year, far below the average consumption in industrialized countries (220kg),. there is still sizable growth potential. As the increase in production entails expansion of production facilities and pollution control measures, introduction of advanced technology from foreign countries seems to be inevitable. The export/import ratios of pulp & paper products in 1990 are summarized as follows.

Pulp	abt 28.24
Paper	abt 1.10
Graphic paper	abt 0.50

The high level of investment occurs in the pulp industry.

(4) Chemical Industry

As of 1987/88, the chemical industry accounted for 7.8% of total industrial production (basic chemicals) and 8.6% (allied products), 4.2% and 4.3% in exports, 8.4% and 7.6% in imports respectively, and 9% in employment.

Petroleum refineries in Lisbon and Porto were nationalized after the revolution, and those in Porto have been producing industrial chemicals of aromatic family and those in Lisbon (Sines) industrial chemicals of olefin family. Later, several joint venture companies have been established with foreign corporations. Processing imported materials to supply export products, the chemical industry must rely on the increase in value added for sustainable growth. At the same time, the industry is generally equipment-intensive, thus has to strengthen its competitiveness through capacity expansion, facility modernization, as well as increase in enterprise size. Also, the industry is in a position to supply materials to other industries and is expected to make R&D investment for development and commercialization of high value derivatives which depend upon imported products. Finally, the chemical industry has to initiate effective pollution control and energy saving measures. And all the industry is expected to take these initiatives through technology transfer from foreign countries.

The export/import ratios of major chemical products are summarized as follows.

Basic Chemicals		Allied Products	
Chemicals	abt 0.35	Paints	abt 0.40
Fertilizers	abt 0.47	Medicines and drugs	abt 0.34
Resins	abt 0.49	Soaps, detergents, cosmetics	abt 0.58
Synthetic fiber	abt 0.07	Rubber	abt 0.34
		Plastics	abt 0.33
		Other	abt 0.50

Chemicals and plastics industries make the high level of investment.

(5) Non-metal minerals industry

In 1987/88, the non-metal minerals industry accounted for 5.9% of total industrial production, 4.1% of exports, 1.7% of imports, and 8% of employment. With the exception of cement, the industry is generally export oriented and produces a large amount of mineral resources available in the country. In particular, there are large reserves of marble, granite, and other building stone, which account for approximately 60% of mining output and 70% of exports. The ceramic industry is benefited from high-grade clay, and factories to produce chinaware, porcelain, or building tiles are located throughout the country. Recently, the industry undergoes competition from import products and faces the need for facility modernization, quality improvement, and upgrading of design capability, which are also required for export expansion. At the same time, R&D investment is considered important to meet increasing demand for fine ceramics using alumina as industrial ceramics.

The export/import ratios of major products in 1988 are shown below:

Porcelain/chainaware	abt 2.00
Glass products	abt 1.05
Stone	abt 25.37
Building materials	abt 1.20
Other	abt 0.41

In addition, the high level of investment is observed in the glass industry.

(6) Wood and cork industry

The wood and cork industry is one of traditional industries in Portugal, using natural resources. In 1987/88, it accounted for 4.6% of total industrial output, 7.4% of exports, 0.8% of imports, and 8% of employment. Taking advantage of abundant forest resources, including pines, cork oaks, and eucalyptuses, Portugal is the world largest cork producer with a 50% share and the largest exporter.

The country's cork is exported to the EC countries (49% of total), other European countries, the U.S. Australia, and Japan. Recently, development of new applications for cork materials is underway.

The lumber industry exports pines and other woods. In the recent few year, extensive investment has been made in the area of particle board production, and several medium-sized companies are producing them for export. Furniture is also produced for export markets and receives good reputation for design and quality.

The export/import ratios of wood and cork products in 1989 are shown below:

Fine wood	abt 8.15
Cork products	abt 25.60
Particle boards	abt 11.33
Furniture	abt 1.96
Other	abt 1.32

The high level of investment is made in particle board and plywood industries.

Table 6-1-1 PAST TRENDS OF GROSS VALUE OF PRODUCTION (GVP), GROSS VALUE ADDED (GVA) AND GROSS FIXED CAPITAL FORMATION (GFCF) BY MAJOR MANUFACTURING SUBSECTORS: 1979 TO 1988 (in current prices)

Unit: Billion Escudos

	CAE*)	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	Accumulated 1979-1988
GROSS VALUE OF PRODUCTION												
Food processing, beverage, tobacco industry	31	128.9	157.3	202.2	250.7	342.6	439.8	532.1	610.6	683.3	754.8	4102.3
Textile, garment, footwear industry	32	128.3	167.8	171.3	220.4	291.2	401.2	500.5	596.2	688.6	736.5	3902.0
Wood and cork industry	33	34.7	51.0	51.7	53.2	65.3	81.6	97.3	114.4	140.6	166.9	856.7
Pulp & paper, printing industry	34	38.0	54.2	69.7	81.4	103.5	150.9	184.7	215.2	269.2	325.5	1492.3
Basic chemicals, rubber, plastics industry**)	35	148.2	212.7	289.4	386.4	514.2	657.1	764.0	696.9	736.2	884.7	5289.8
Non-metal minerals industry	36	38.3	52.3	67.4	82.9	101.4	118.2	130.7	151.4	182.3	220.8	1145.7
Basic metal industry	37	32.0	41.8	40.2	58.5	67.1	78.3	87.5	85.8	95.5	114.2	700.9
Metal products, machinery, transport equipm.	38	113.8	156.8	177.4	228.6	281.1	327.3	390.0	433.4	526.4	623.6	3258.4
Other manufacturing industries	39	1.5	1.9	1.9	2.0	2.4	3.3	4.2	4.6	5.5	..	27.3
MANUFACTURING INDUSTRIES	3	683.7	895.8	1071.2	1364.1	1768.8	2257.7	2691.0	2908.5	3327.6	3827.0	20775.4
GROSS VALUE ADDED												
Food processing, beverage, tobacco industry	31	29.5	36.5	47.1	56.6	79.0	101.5	119.6	142.9	167.1	184.3	964.1
Textile, garment, footwear industry	32	47.0	61.0	67.3	79.5	99.1	137.7	168.4	216.2	245.1	266.8	1388.1
Wood and cork industry	33	13.8	21.6	18.5	19.0	23.8	27.8	30.7	36.9	45.7	51.9	289.7
Pulp & paper, printing industry	34	16.0	22.7	29.6	32.9	41.1	63.8	70.9	88.6	120.5	140.2	626.3
Basic chemicals, rubber, plastics industry**)	35	29.6	39.4	38.6	43.6	59.9	91.9	99.9	119.2	166.8	205.5	894.4
Non-metal minerals industry	36	18.6	23.0	28.9	33.1	41.9	50.1	54.5	71.9	91.2	109.5	522.7
Basic metal industry	37	7.1	12.0	12.8	20.8	19.6	18.5	21.3	25.7	33.7	37.3	208.8
Metal products, machinery, tenapsort equipm.	38	47.3	62.4	67.0	85.5	105.7	120.7	147.2	158.4	185.4	222.0	1201.6
Other manufactruing industries	39	0.7	0.9	1.0	0.9	1.0	1.6	1.9	2.2	2.4	..	12.6
MANUFACTURING INDUSTRIES	3	209.6	279.5	310.8	371.9	471.1	613.6	714.4	862.0	1057.9	1217.5	6108.3
GROSS FIXED CAPITAL FORMATION												
Food processing, beverage, tobacco industry	31	6.1	7.7	9.7	11.2	10.5	11.5	12.7	18.2	24.1	34.8	146.5
Textile, garment, footwear industry	32	8.1	11.5	15.9	15.8	12.9	15.0	20.8	34.0	41.0	11.7	186.7
Wood and cork industry	33	2.0	3.2	3.1	2.9	3.7	3.8	3.3	5.4	9.0	8.5	44.9
Pulp & paper, printing industry	34	4.1	4.4	7.3	8.5	28.7	13.5	11.4	19.4	29.4	47.4	174.1
Basic chemicals, rubber, plastics industry	35	18.2	16.5	17.4	25.0	17.6	19.5	11.1	12.9	20.3	3.2	161.7
Non-metal minerals industry	36	4.0	4.6	7.0	16.6	11.1	8.9	10.8	20.8	23.1	21.4	128.3
Basic metal industry	37	1.6	3.3	7.3	13.6	9.8	6.9	7.9	3.8	3.4	4.1	61.7
Metal products, machinery, transport equipm.	38	7.6	10.5	14.0	21.8	19.0	18.0	16.8	17.6	23.6	32.0	180.9
Other manufacturing industries	39	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3	..	1.4
MANUFACTURING INDUSTRIES	3	51.8	61.8	81.8	115.5	113.5	97.2	95.0	132.3	174.2	163.1	1086.2

LEGEND:
.. Data are not available.

NOTES:
*) Portuguese abbreviation for 'Classification of Economic Activities'. This classification system is based on ISIC.
**) Including petroleum refining.

SOURCE:
JICA Study team compilation. Data for the years 1979-1987 are taken from the 'Annual Statistical Yearbook', issues 1980 to 1990. Data for 1988 were provided by the 'Ministry of Industry and Energy (MoIE)'.

Table 6-1-2 RELATIVE SHARES OF GROSS VALUE ADDED (GVA) AND GROSS FIXED CAPITAL FORMATION (GFCF) IN GROSS VALUE OF PRODUCTION (GVP) AND RELATIVE SHARE OF GFCF IN GVA: 1979 TO 1988 ACCUMULATION

(In real terms)

Unit: percent

	CAE *)	SHARE BY SUBSECTOR				RATIOS			
		GVP	(Rank)	GVA	GFCF	GVA/GVP	(Rank)	GFCF/GVP	GFCF/GVA
Food processing, beverage, tobacco industry	31	19.6	(2)	15.9	13.5	23.3	(8)	3.6	15.5
Textile, garment, footwear industry	32	18.3	(3)	22.6	17.2	35.5	(5)	5.0	14.0
Wood and cork industry	33	4.1	(7)	4.2	4.0	30.0	(6)	5.2	17.3
Pulp & paper, printing industry	34	6.6	(5)	10.2	12.2	44.4	(2)	9.8	22.0
Basic chemicals, rubber, plastics industry **)	35	26.7	(1)	14.2	17.7	15.3	(9)	3.5	22.9
Non-metal minerals industry	36	5.6	(6)	8.5	10.8	44.0	(3)	10.2	23.3
Basic metal industry	37	3.4	(8)	3.5	7.2	29.4	(7)	11.1	37.6
Metal products, machinery, transport equipment industry	38	15.6	(4)	20.1	17.4	36.9	(4)	5.9	15.9
Other manufacturing industries	39	0.1	(9)	0.2	0.2	49.1	(1)	7.0	14.3
MANUFACTURING INDUSTRIES	3	100.0		100.0	100.0	28.7		[5.3	18.4

Notes:

*) Portuguese abbreviation for "Classification of Economic Activities", which follows, as regards industry, the ISIC classification system.

**) Including petroleum refining.

Source:

JICA Study team computations from Table 6-1-1

Table 6-1-3 STRUCTURAL COMPOSITION OF THE MANUFACTURING INDUSTRY'S ' ENTERPRISE BASE: DISTRIBUTION OF COMPANIES BY SIZE OVER MANUFATURING SUBSECTORS

Unit: percent

	CAE *)	0	1 - 4	5 - 9	10 - 19	20 - 29	30 - 39	40 - 49	50 - 99	100-199	200-499	500-999	> 1000	TOTAL
ABSOLUTE TOTAL: MANUFACTURING INDUSTRY	3	64099	28672	8991	6492	2728	1587	1012	1994	955	582	149	60	115231
Food processing, beverage, tabacco industry	31	11.2	14.2	13.9	12.0	11.4	9.1	8.7	11.3	15.0	12.9	9.4	13.3	12.1
Textile, garment, footwear industry	32	30.9	20.1	20.7	27.5	33.7	37.5	41.8	42.1	40.0	44.0	43.6	35.0	28.0
Wood and cork industry	33	17.7	24.1	22.3	18.4	14.7	12.5	11.6	9.6	5.9	4.1	4.0	N.A.	19.1
Pulp & paper, printing industry	34	2.8	4.1	6.4	6.9	5.8	6.2	4.4	3.8	4.6	4.6	4.0	5.0	3.8
Basic chemicals, rubber, plastics industry **)	35	1.3	2.5	3.9	4.7	5.2	5.5	6.1	6.0	7.7	7.6	9.4	5.0	2.3
Non-metal minerals industry	36	4.9	6.3	7.9	8.0	7.3	7.9	8.3	8.0	7.4	6.2	9.4	5.0	5.9
Basic metal industry	37	0.7	0.8	1.0	1.2	1.5	1.4	1.4	1.6	1.6	2.1	2.7	6.7	0.8
Metal products, machinery, transport equipm. ind.	38	26.7	24.2	20.8	19.0	19.0	18.0	15.9	16.5	16.6	17.4	16.8	30.0	24.5
Other manufacturing industries	39	3.8	3.5	3.1	2.4	1.4	1.9	1.8	1.1	1.2	1.2	0.7	N.A.	3.4
MANUFACTURING INDUSTRIES	3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

LEGEND:

N.A., not applicable.

NOTES:

Percentages may not add up due to rounding.

*) Portuguese abbreviation for 'Classification of Economic Activities', which follows, as regards industry, the ISIC classification system.

SOURCE:

JICA Study team compilation. Data are taken from: 'Characterization of Portuguese Enterprises', National Institute of Statistics (INE), Lisbon 1991, p.16/17.
Translation of the document's title into English by the Study mission.

Table 6-1-4 STRUCTURAL COMPOSITION OF THE MANUFACTURING INDUSTRY'S 'ENTERPRISE BASE' : DISTRIBUTION OF SUBSECTOR ENTERPRISES OVER COMPANY SIZE; 1988

Unit: percent

	CAE *)	0	1 - 4	5 - 9	10 - 19	20 - 29	30 - 39	40 - 49	50 - 99	100-199	200-499	500-999	> 1000	TOTAL
Food processing, beverage, tobacco industry	31	51.3	27.1	8.8	5.6	2.2	1.0	0.6	1.6	1.0	0.5	0.1	0.1	100.0
Textile, garment, footwear industry	32	61.3	16.6	5.5	5.5	2.8	1.8	1.3	2.6	1.2	0.8	0.2	0.1	100.0
Wood and cork industry	33	51.7	29.3	9.0	5.4	1.8	0.9	0.5	0.9	0.3	0.1	nil	0.0	100.0
Pulp & paper, printing industry	34	41.4	24.8	13.1	10.2	3.6	2.3	1.0	1.7	1.0	0.6	0.1	0.1	100.0
Basic chemicals, rubber, plastics industry **)	35	30.9	24.8	12.8	11.3	5.2	3.3	2.3	4.4	2.7	1.6	0.5	0.1	100.0
Non-metal minerals industry	36	46.6	25.0	10.5	7.7	3.0	1.9	1.2	2.4	1.1	0.5	0.2	nil	100.0
Basic metal industry	37	44.1	23.6	9.2	8.2	4.3	2.3	1.5	3.2	1.6	1.3	0.4	0.4	100.0
Metal products, machinery, transport equipm. ind.	38	60.6	22.9	6.5	4.4	1.8	1.0	0.6	1.2	0.6	0.4	0.1	0.1	100.0
Other manufacturing industries	39	62.0	23.8	7.0	3.9	0.9	0.8	0.5	0.6	0.3	0.2	nil	0.0	100.0
TOTAL MANUFACTURING														
Absolute number of company	3	640,099	26,672	8,901	6,492	2,728	1,587	1,012	1,994	955	582	149	60	115,231
Share (%)		(55.6)	(23.1)	(7.7)	(5.6)	(2.4)	(1.4)	(0.9)	(1.7)	(0.8)	(0.5)	(0.1)	(0.1)	(100)
TOTAL ECONOMY														
Absolute number of company	0-9	574,599	207,656	37,870	18,519	6,011	30,998	1,863	3,517	1,526	847	220	125	855,851
Share (%)		(67.1)	(24.3)	(4.4)	(2.2)	(0.7)	(0.4)	(0.2)	(0.4)	(0.2)	(0.1)	(nil)	(nil)	(100)

NOTES:
*) Portuguese abbreviation for 'Classification of Economic Activities', which follows, as regards industry, the ISIC classification system.

SOURCE:
JICA Study team compilation. Data are taken from: 'Characterization of Portuguese Enterprises', National Institute of Statistics (INE), Lisbon 1991, p.16/17.

Table 6-1-5 RANKING OF MAJOR MANUFACTURING SUBSECTORS BY ABSOLUTE AND RELATIVE IMPORT AND/OR EXPORT INTENSITY OVER THE PERIOD 1981 TO 1987

Unit: percent

	CAE *)	ABSOLUTE RANKING**) PERIOD: 1981 TO 1987		RELATIVE MOVEMENTS OF SHARES			
				1981		PERIOD: 1981 TO 1987	
		IMPORTS	EXPORTS	IMPORT SHARE***)	EXPORT SHARE***)	IMPORT SHARE***)	EXPORT SHARE***)
Food processing, beverage, tobacco industry	31	3	2	27	12	20	11
Textile, garment, footwear industry	32	4	1	10	35	22	60
Wood and cork industry	33	7	4	16	40	17	52
Pulp & paper, printing industry	34	6	3	8	24	10	32
Basic chemicals, rubber, plastics industry ****)	35	2	6	37	10	29	6
Non-metal minerals industry	36	8	7	5	8	5	12
Basic metal industry	37	5	8	27	3	28	4
Metal products, machiner, transport euipm. ind.	38	1	5	41	9	44	14
Other manufacturing industries	39	9	9	..	..	..	..
MANUFACTURING INDUSTRIES	3	N.A.	N.A.	27	18	27	27

LEGEND:

..: Data are not available.

N.A.: not applicable.

NOTES:

*) Portuguese abbreviation for 'Classification of Economic Activities', which follows, as regards industry, the ISIC classification system.

**) Absolute ranking is based on the accumulated real values of total imports and exports over the period 1981 to 1987.

***) The import share is defined as: the accumulated real value of imports devided by the accumulated real value of apparent consumption. The export share is defined as: the accumulated real value of exports devided by the accumulated real value of production. Values have been accumulated over the period 1981 to 1987. For details, please see chapter 6.3.

****) Excluding petroleum refining.

SOURCE:

JICA Study team computations. Base data are taken from 'Annual Statistical Yearbook', issues 1980 to 1990.

Table 6-1-6 ASSEMBLERS AND PRODUCTION

ASSEMBLER	FORM	PARTNER	PASSENGER CAR			COMMERCIAL VEHICLE						TOTAL		
						LIGHT			HEAVY					
			1989	1990	1991	1989	1990	1991	1989	1990	1991	1989	1990	1991*1
RENAULT PORTUGUESA, S.I.C. SA	JV	RENAULT	43,954	38,090	30,152	10,696	10,200	2,770	-	-	-	54,650	48,290	32,922
REICAB-IND. DE COMP. ELC. LDA	N.A	RENAULT	-	-	-	-	4,391	2,962	-	-	-	-	4,391	2,962
GENERAL MOTORS DE PORTUGAL, LDA	F	-	8,926	9,500	10,601	9,810	17,082	13,187	786	508	50	19,522	27,090	23,838
FORD LUSITANA, SA	F	-	-	-	-	21,683	17,605	5,999	-	-	-	21,683	17,605	5,999
CITROEN LUSITANIA, SA	F	-	19,071	12,631	5,627	-	1,272	1,568	-	-	-	19,071	13,903	7,195
SALVADOR CAETANO, I.M.V.T., SA	JV	TOYOTA	-	-	-	11,190	8,561	7,071	1,358	967	484	12,548	10,528	7,555
MOVAUTO-MONT. VEIC. AUT., LDA *2	TC JV	NISSAN PEUGEOT	-	-	-	6,689 3,378	7,132 2,469	3,456 738	182	152	104	6,871 3,378	7,284 2,469	3,560 738
MOVAR-MONT. DE AUT. DE OVAR, LDA	TC	MAZDA	-	-	-	923	763	469	259	170	120	1,182	933	589
SOMA-SOC. DE MONT. DE AUT., LDA	TC	VOLVO	-	-	-	-	-	-	424	172	168	424	172	168
TRAMA GAUTO-MONTAGEM E FABRICACAO DE AUT. LDA	JV	MITSUBISHI	1,230	-	586	3,914	3,712	3,668	1,614	1,310	943	6,758	5,022	5,197
MITSUBISHI MOTORS DE PORTUGAL, SA	F	-	(SALES COMPANY)											
TOTAL			73,181	60,221	46,966	68,283	74,187	41,888	4,623	3,279	1,869	146,087	137,687	90,723

F : FOREIGN CAPITAL
JV: JOINT VENTURE
TC: TECHNICAL COLLABORATION, PORTUGUESE CAPITAL
*1: JAN. TO AUG., 1991
*2: ESTIMATED FIGURES

SOURCE: ACAP - ASSOCIACAO DE COMERCIO AUTOMOVEL DE PORTUGAL, 1991
AIMA - ASSOCIACAO DOS INDUSTRIAIS DE MONTAGEM DE AUTOMOVEIS, 1991

Table 6-1-7 VEHICLES IN USE IN PORTUGAL, 1990

a) TOTAL NUMBER

PASSENGER CARS	COMMERCIAL VEHICLE	TOTAL
1,605,000	593,000	2,198,000

b) UTILIZATION PERIOD

	PASSENGER CAR	COMMERCIAL VEHICLE		TOTAL
		LIGHT	HEAVY	
LESS 5 YEARS	872,355	240,544	42,563	1,155,462
5~10 YEARS	411,483	126,411	28,805	566,699
OVER 10 YEARS	321,162	106,045	48,632	475,839
TOTAL	1,605,000	473,000	120,000	2,198,000

c) NUMBER BY ORIGIN COUNTRY

COUNTRY	PASSENGER CAR	%	LIGHT COMMERCIAL VEHICLE	%	HEAVY COMMERCIAL VEHICLE	%
FRANCE	621,943	38.8	89,830	19.0	7,808	6.5
GERMANY	408,930	25.5	35,729	7.6	11,616	9.7
ITALY	262,027	16.3	9,825	2.1	7,875	6.6
ENGLAND	90,811	5.7	135,217	28.6	23,793	19.8
SPAIN	37,553	2.3	6,973	1.5	1,843	1.5
SWEDEN	19,024	1.2	519	0.1	22,729	18.9
JAPAN	158,257	9.9	183,715	38.8	35,064	29.2
PORTUGAL	1,993	0.1	10,127	2.1	3,550	3.0
U.S.A.	1,284	0.1	120	0.0	28	0.0
U.R.S.S.	888	0.1	-		-	
JUGOSLAVIA	751	0.0	-		-	
CZECHOSLOVAKIA	660	0.0	-		-	
HOLLAND	100	0.0	19	0.0	5,195	4.3
OTHERS	779	0.0	926	0.2	499	0.4
TOTAL	1,605,000	100.0	473,000	100.0	120,000	100.0

SOURCE: ACAP,AIMA, 1991

Table 6-1-8 MOTORCYCLES IN USE IN PORTUGAL

a) BY ORIGIN COUNTRIES ON DEC. 31, 1990

COUNTRY	NUMBER	%
JAPAN	27,121	60.3
ITALY	9,183	20.4
PORTUGAL	4,832	10.7
CZECHOSLOVAKIA	1,318	2.9
U.S.S.R.	25	0.1
GERMANY	1,294	2.9
FRANCE	512	1.1
ENGLAND	308	0.7
U.S.A.	176	0.4
AUSTRIA	101	0.2
SPAIN	69	0.2
SWITZERLAND	29	0.1
OTHERS	32	0.1
TOTAL	45,000	100.0

b) UTILIZATION PERIOD

LESS 5 YEARS	30,750
5～10 YEARS	6,910
OVER 10 YEARS	7,340

SOURCE: ACAP, AIMA, 1991

Table 6-1-9 TREND OF OTHER MACHINES

a) AGRICULTURAL TRACTORS REGISTRATION

YEAR	COMPACT	CONVENTIONAL	TOTAL
1981	3,119	7,285	10,404
82	2,273	5,840	8,113
83	2,606	4,573	7,179
84	1,184	3,607	4,791
85	1,454	3,965	5,419
86	1,349	5,877	7,226
87	1,798	9,184	10,982
88	1,654	7,891	9,545
89	1,162	7,639	8,801
1990	1,365	6,744	8,109

b) AGRICULTURAL TRACTORS IN USE IN PORTUGAL ON DEC. 31, 1990

COMPACT	CONVENTIONAL	TOTAL
23,314	101,188	124,502

c) UTILIZATION PERIOD

LESS 5 YEARS	44,342
5~10 YEARS	33,330
OVER 10 YEARS	46,830

d) OTHER MACHINES SALES

	1988	1989	1990
AGRICULTURAL MACHINES	1,498	1,884	2,036
CONSTRUCTION MACHINES	2,093	2,441	2,105
LOADING AND UNLOADING MACHINES	3,590	4,375	4,997

SOURCE: ACAP, AIMA, 1991

Table 6-1-10 TREND OF COMPONENTS INDUSTRY

a) COMPONENT INDUSTRY EVOLUTION

(Escudos x 10^9)

YEAR	TURNOVER	EXPORT	DOMESTIC
1986	85.0	45.0	40.0
1987	100.0	55.0	45.0
1988	135.0	80.0	55.0
1989	177.4	117.4	60.0
1990	226.0	160.0	66.0
1991*	280.0	212.0	68.0

* Estimated

b) TURNOVER AND EMPLOYEES BY ACTIVITY GROUP

(Escudos x 10^9)

ACTIVITY GROUP	TURNOVER 1989	%	1990	%	NO. OF EMPLOYEES	%
ENGINE, TRANSMISSION AND BRAKE	45.0	25	57.0	25	5,943	28
BODY, SUSPENSION AND CHASSIS	10.0	6	13.0	6	2,140	10
INTERIORS	19.4	11	25.0	11	2,236	10
ELECTRICAL PARTS	43.0	24	54.0	24	4,710	22
TYRES	27.0	15	34.0	15	3,300	15
BUSES, BODIES, DUMPERS	30.0	17	38.0	17	2,296	11
OTHERS (MOULDS, TOOLS, ABRASIVES, STEEL, OIL AND etc.)	3.0	2	5.0	2	875	4
TOTAL	177.4	100	226.0	100	21,500	100

c) MARKET (1990)

(%)

EEC	USA	EFTA	OTHERS
90	2	2	6
FRANCE ITALY GERMANY ENGLAND		SWEDEN	

SOURCE: AFIA 1991/1992

Table 6-1-11 PRODUCTION OF DIES AND MOULDS (1988)

(Million Japanese Yen)

COUNTRY	TURNOUT/YEAR	%
JAPAN	1,376,448	47.3
U.S.A.	813,948	28.0
W. GERMANY	234,919	8.1
KOREA	126,087	4.3
FRANCE	91,321	3.1
SPAIN	80,025	2.8
ENGLAND	67,466	2.3
SWITZERLAND	48,220	1.7
SWEDEN	17,972	0.6
BELGIUM	16,152	0.6
PORTUGAL	14,749	0.5
FINLAND	11,807	0.4
HOLLAND	9,519	0.3
ITALY	N.A.	N.A.
DENMARK	N.A.	N.A.
TOTAL	2,908,633	100.0

SOURCE: INTERNATIONAL SPECIAL TOOLING ASSOCIATION - ISTA

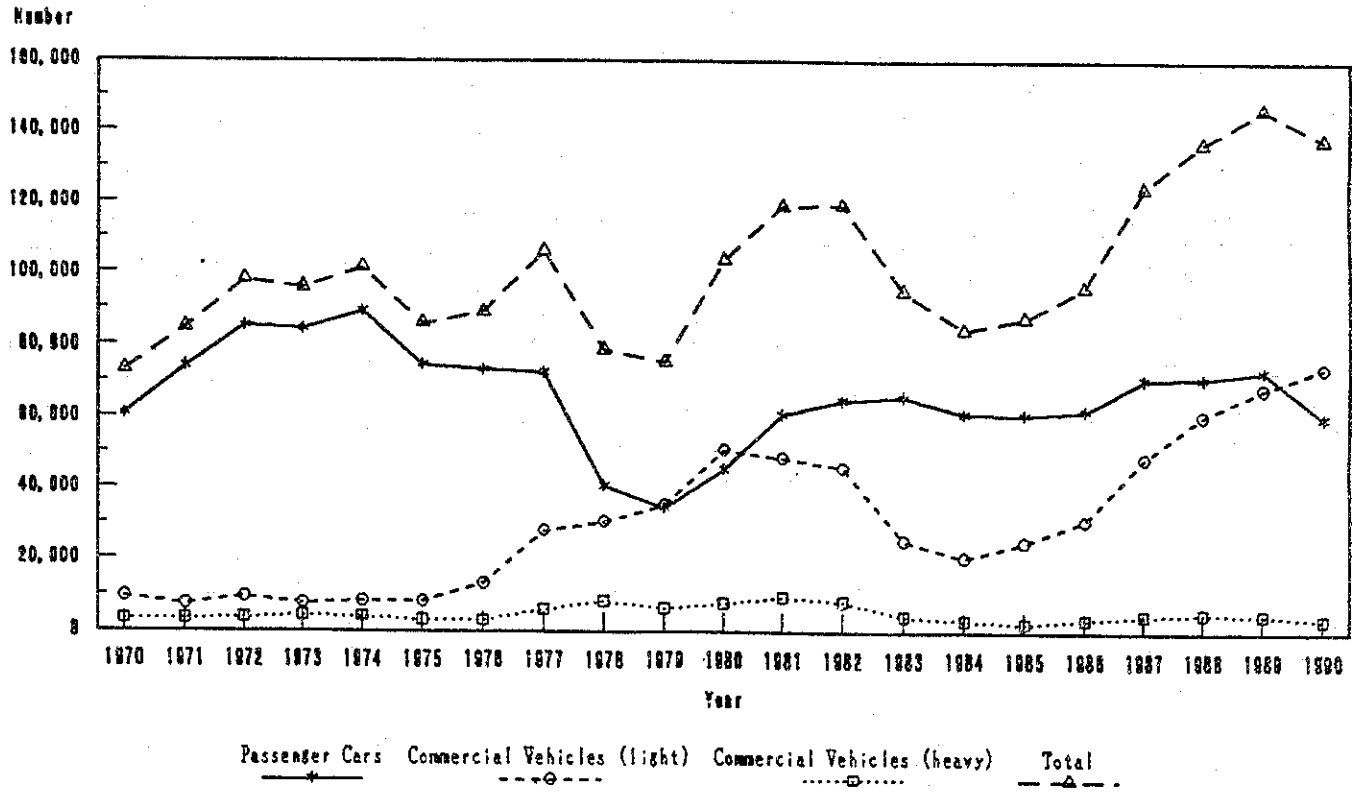


Figure 6-1-1 PAST TREND OF PRODUCTION OF AUTOMOBILES: 1970-1990

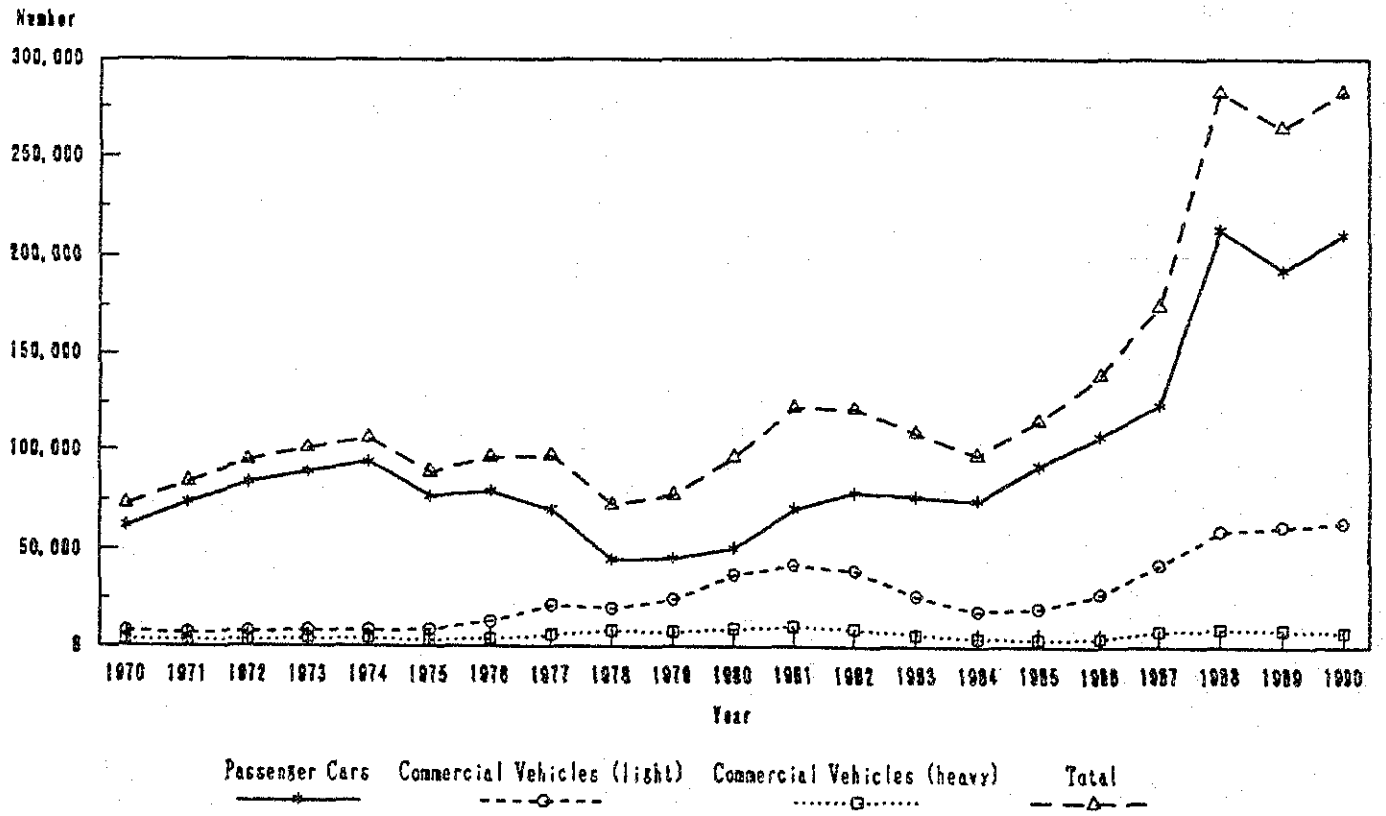


Figure 6-1-2 PAST TREND OF SALES OF AUTOMOBILES: 1970-1990

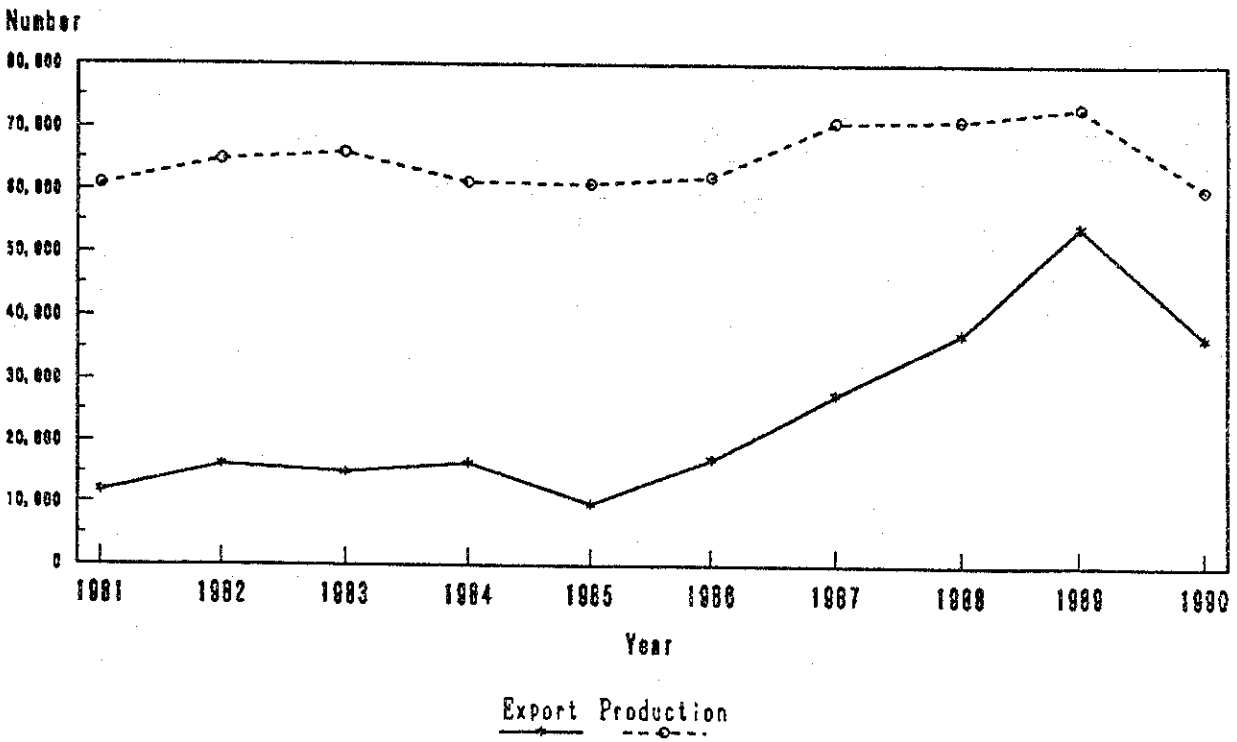
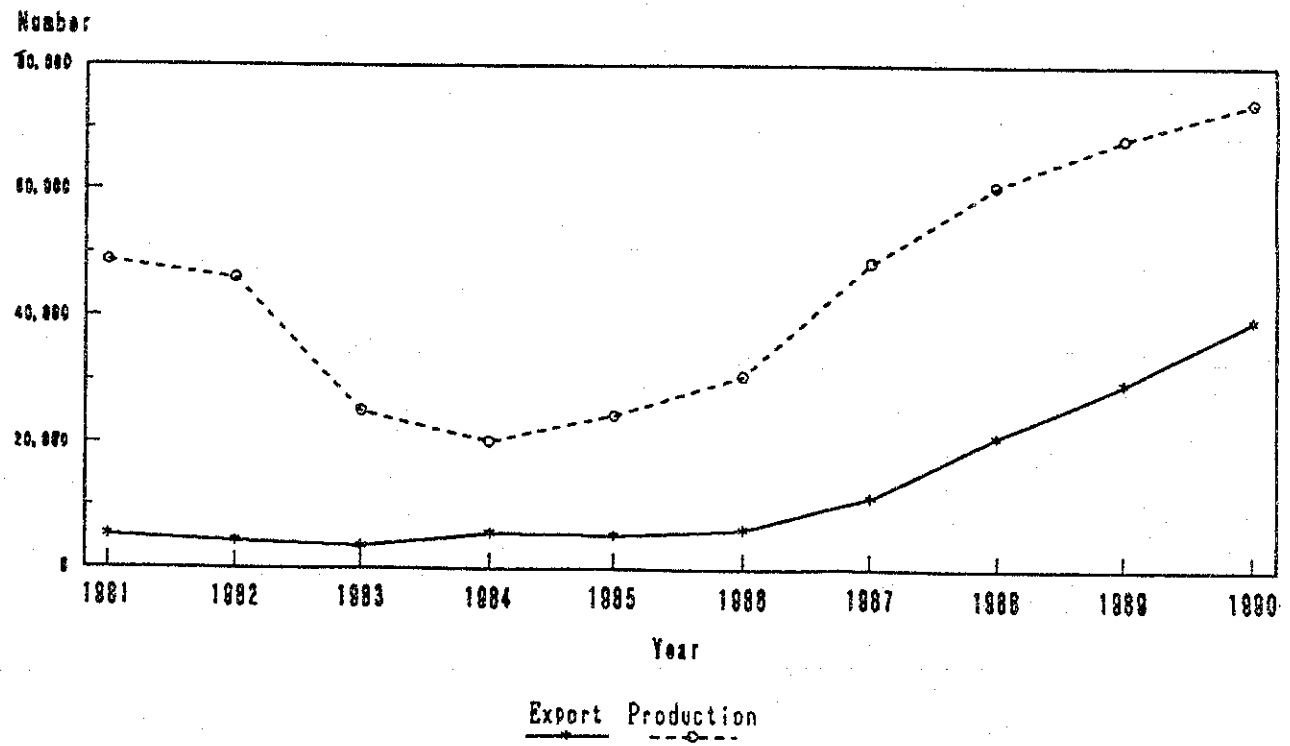


Figure 6-1-3 PAST TREND OF PRODUCTION/EXPORT OF PASSENGER CARS: 1981-1990



Source: ACAP, AIMA, 1991

Figure 6-1-4 PAST TREND OF PRODUCTION/EXPORT OF COMMERCIAL VEHICLES (LIGHT): 1981-1990

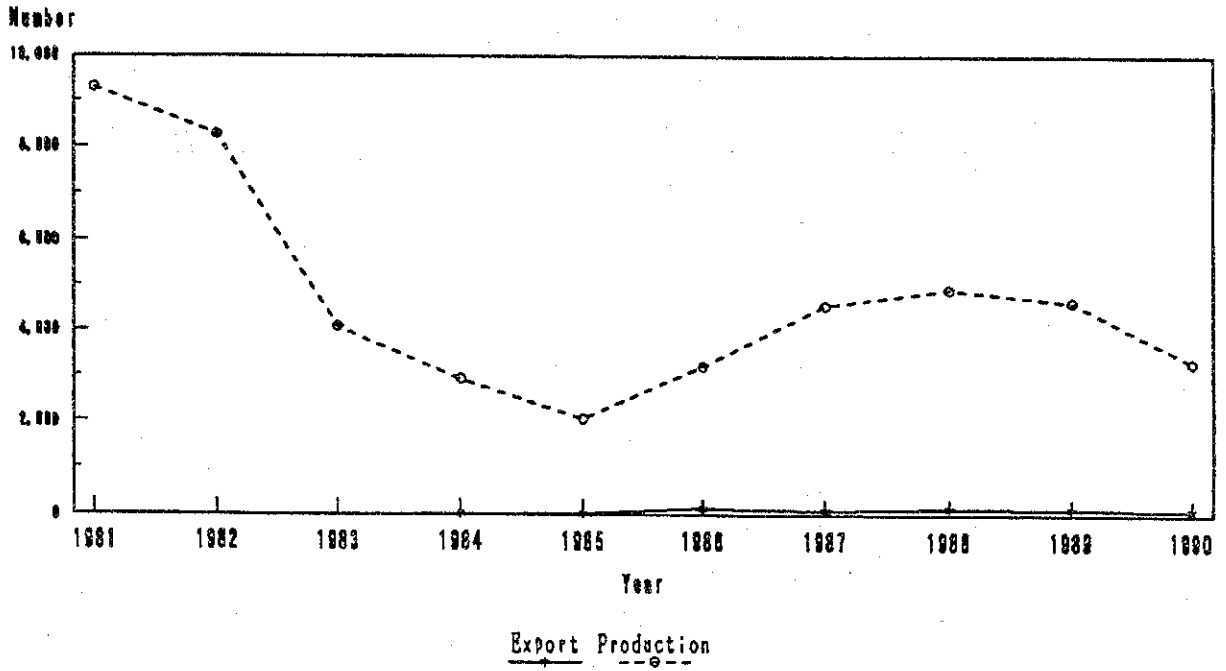
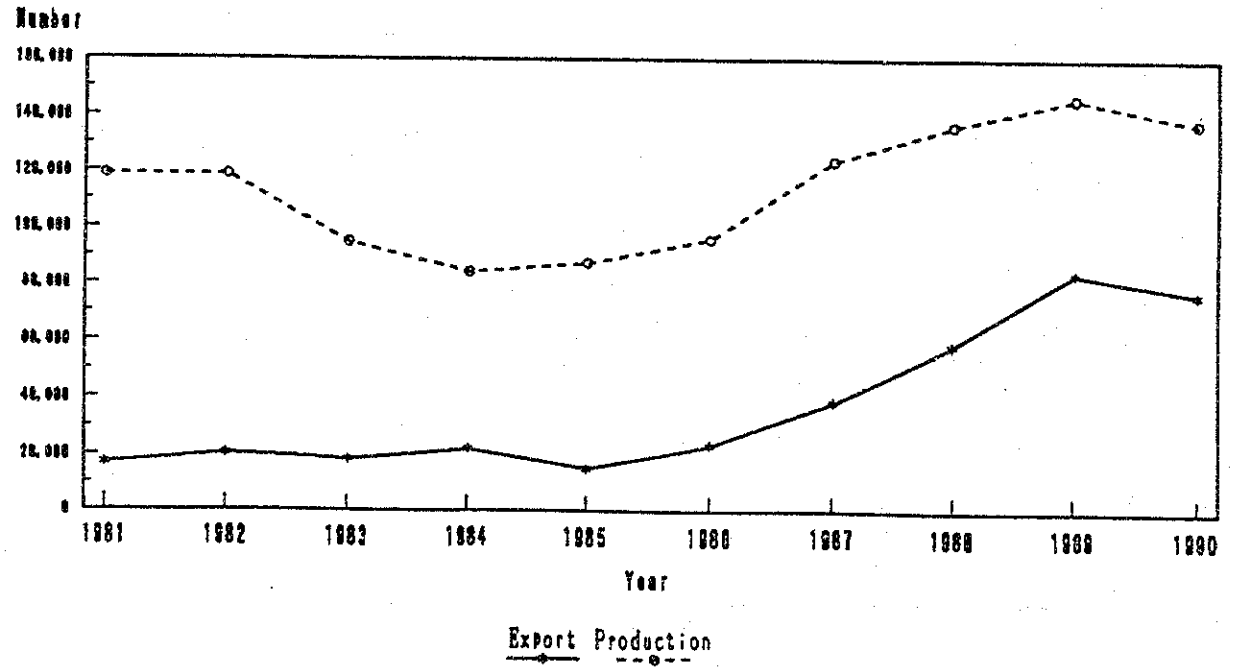
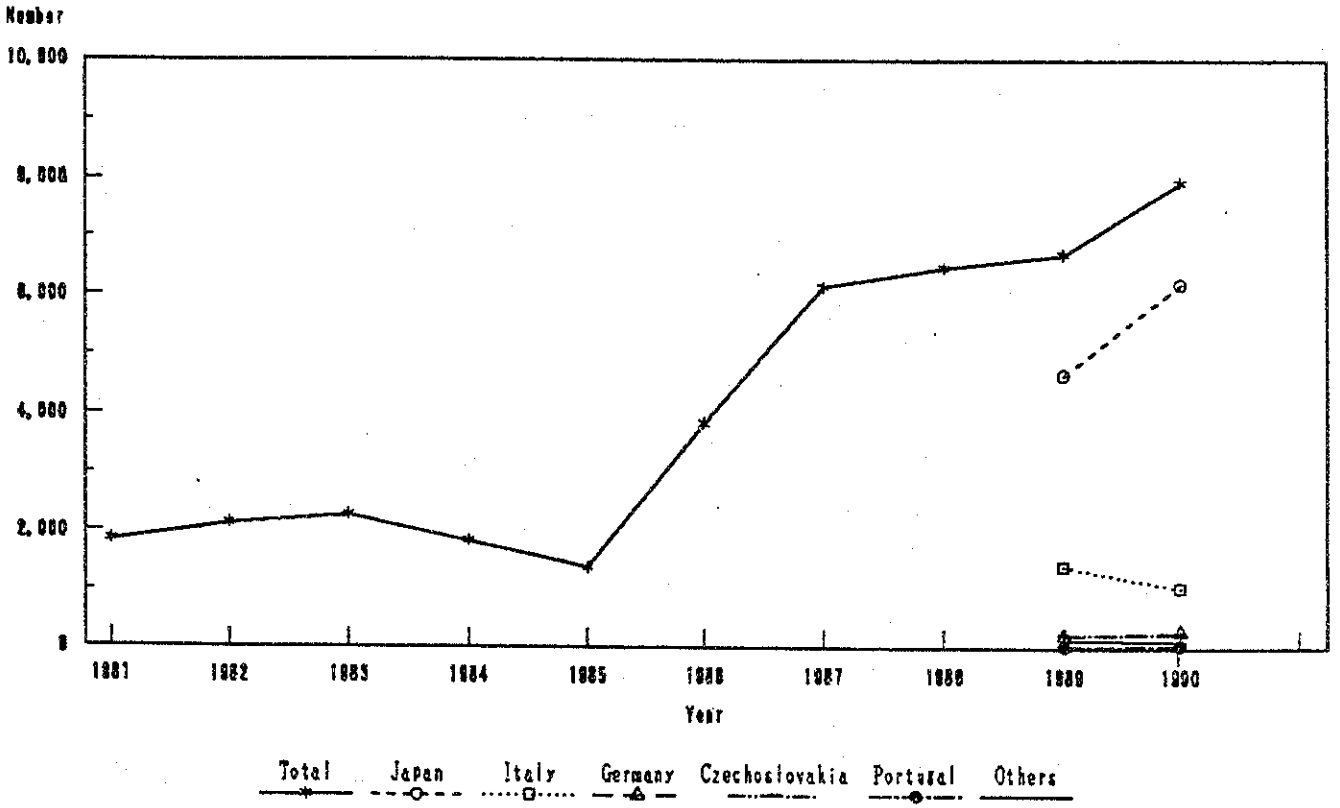


Figure 6-1-5 PAST TREND OF PRODUCTION/EXPORT OF COMMERCIAL VEHICLES (HEAVY): 1981-1990



Source: ACAP, AIMA 1991

Figure 6-1-6 PAST TREND OF TOTAL PRODUCTION/EXPORT OF AUTOMOBILES: 1981-1990



Source: ACAP. AIMA. 1991

Figure 6-1-7 NEW REGISTRATION OF MOTORCYCLES FOR THE YEAR: 1981-1990

6.2 Growth Target of the Economy and Investment Requirements

This division serves two purposes. Firstly, it establishes the growth target for both, the Portuguese economy and its manufacturing sector over the time frame of the current decade, i.e. up to the year 2000. Secondly, it translates the growth needs for the manufacturing sector into investment levels required to support the estimated target growth. Then, the estimated investment requirements will be allotted to the project area only for reference.

6.2.1 Basic Assumptions and Procedure of the Estimation Model

It is common wisdom that predictions contain an element of uncertainty, in particular when determining factors are manifold and heterogeneous in nature, as is the case for growth shaping factors. In addition, they contain elements of judgment, mainly dealing with attaching probabilities to qualitative and quantitative "events" to materialize, or not materialize. It is, therefore, prudent and necessary, to review briefly the basic assumptions and procedures underlying the estimation model.

For that end and for the sake of simplicity, growth shaping factors are broadly grouped into two categories, namely internal and external factors, both of which have qualitative and quantitative elements. In the first step, external factors are reviewed, mainly taking into account major trends in the "global economy" with its increasing interdependences and implications for growth. In addition, factors pertaining to the continuing integration of Portugal into the EC and the integration of the European economies are introduced. Both together constitute the external environment, which will influence Portugal's actual potential to realize a required growth performance.

After a short presentation of Government growth estimations, the internal, mainly quantitative, factors are reviewed in the second step from an analysis of the past growth performance of the economy and manufacturing. This performance is analyzed on the basis of the numeric reflection and, therefore, primary evidence, of the country's overall abilities and constraints to pursue a certain growth pattern.

The third step narrows possible growth alternatives down, separating the unlikely from the likely cases. This step results in the final establishment of the growth target rates for the national economy and manufacturing up to the year 2000.

The fourth and last step translates the growth targets for the manufacturing industry into investment requirements. This is done by using the interrelationship between manufacturing gross value-added and investment input required.

6.2.2 External Factors Influencing Economic Growth

As has been observed above, the likely growth performance of the Portuguese economy and the manufacturing sector will be influenced by external factors. These refer mainly to:

(1) parameters shaping the global economic conditions in finance, trade, energy and policy coordination issues. The major players determining these conditions are the United States, Japan and the European Community

(2) parameters in the "European Arena", i.e. firstly, the future course of enlarging the EC-12 gradually by current EFTA member states, thereby creating the "European Economic Area [EEA]". Secondly, developments as regards former "East-Block" member states, which seek associated status and/or membership with the EC.

A summary of the qualitative assumptions on the trends in global economic conditions is provided in Table 6-2-1. These assumptions are compiled from the results of a recent World Bank study on global economic prospects and devided in two scenarios. A "less likely" case, to which the Study mission attaches a subjective probability of occurrence of some 35% and, a "likely" case, which, the mission believes, has a probability of some 65% of occurrence. The implications of both cases can be briefly summarized as follows.

The "less-likely" case reflects a course of developments required to maintain a somewhat similar impetus in terms of growth performance as has been observed in the past years. However, there would be a modest trend upwards. Real interest rates (on global and Portuguese levels) would remain relatively high, but investor's confidence stable. Foreign direct investment flows would grow modestly.

The "likely" case scenario reflects a course of global developments, in which the foundation for further globalization of the economies would be strengthened, mainly through progress in the areas of policy coordination, international finance and trade (GATT's Uruguay round) and non-volatility of international energy prices. The path of further European integration would be maintained, but not increase protectionist fears in the United States and Japan. Global financial integration would continue and real interest rates would fall to pre 1980s levels. These trends would be accompanied by considerable increases in direct foreign investment flows, somewhat easing the presently fierce competition among those countries, trying to attract increasing direct foreign investment flows.

Within the framework of the "European Arena", the following factors may be singled out:

(1) the conditions and targets to be met by the EC-12 member states towards the achievement of the "European Monetary System [EMS]", involving the reduction of inflation and the pursuance of inflation free, sustainable growth. In the case of Portugal, this may mean further reduction of public debts and deficit spending, the latter having a reductionary effect on Government funds available for public investments

(2) the recent agreement between the EC and the 7 nations of the "European Free Trade Association [EFTA]". This agreement has, in principle, created the foundation for the creation of the world's biggest and richest trading partnership, which can come gradually into effect as of 1993. It must be expected that this move will provide a further strong impact on overall growth and economic efficiency in participating member states

(3) the recent moves of former "East-Block" states to obtain an associate and/or membership status with the EC. These moves are important for Portugal, because some of these states are potential direct competitors for Portugal, in particular as regards the attraction of direct foreign investment.

6.2.3 Government Growth Estimations

There are no publicly available estimations on real gross domestic product (GDP) growth covering the whole decade of the 1990s. In fact, it appears that the only Government estimations on real GDP growth covering the years up to 1995 are contained in the two adjustment plan " National Adjustment Programme For The Transition Towards The Economic And Monetary Union [QUANTUM] ". These policy documents, which were adopted in July 1990 [QUANTUM-I] and January 1992 [QUANTUM-II], investigate in two scenarios the effects of policy changes required to create conditions for membership of EC in the "narrow band option" of the exchange rate mechanism of the "European Monetary System [EMS]".

By the very nature of this exercise, estimations concentrate on the interdependence of macro indicators, such as GDP growth, unemployment rate, current account deficit, public debt and inflation.

However, in view of the absence of other "official" projections, the real GDP growth estimations contained in QUANTUM-II in the scenario "with convergence" to EC averages is taken later into account as an orientation point and check mark for the estimations undertaken by the Study team.

In the QUANTUM-II, since the growth rate estimations by output sector, i.e. Agriculture, Industry and Services are not available, the Study team made an estimation to identify the

growth rate of the manufacturing sector which is necessary for further discussion in this study. The JICA team's estimation is more or less similar to the QUANTUM-II's estimation, but interdependence with the other output sectors was taken into account.

The real GDP growth rate estimated in QUANTUM-II is shown in Table 6-2-2 as 2.5% for 1991, 3.0% for 1992 and 4.0% for the period of 1993 to 1995.

As regards projections for the real growth of manufacturing industries a similar situation, as described above, prevails. The only figures available are contained in a study undertaken by the Ministry of Industry and Energy (MIE) in 1987.

The basic approach of the study covers two scenarios, optimistic versus pessimistic, and it comprises three time horizons: 1990 to 1995, 1995 to 2000 and 2000 to 2010. Estimations have been undertaken for some 23 "product groups", not fully compatible either with the ISIC or CAE code classification systems. Government official warn, however, that these predictions may be out of date, because circumstances have changed since the time the predictions were made. Notwithstanding this fact and in the absence of any more recent projections, these data are likewise employed as cross-checks to estimations undertaken by the Study team. They are summarized in the following Table 6-2-2.

At that time the Ministry estimated the real growth rate for the manufacturing sector in its "optimistic" scenario to be 4.5% for the period 1990 to 1995 and 3.7% for the years 1995 to 2000. For the "pessimistic" scenario these numbers were 3.3% for 1990 to 1995 and 2.5% for the years 1995 to 2000.

Thus the GDP growth rate projected up to 2000, share of manufacturing sector of which are not available with regard to neither its consistency nor freshness. Therefore the JICA team will roughly estimate them taking into account the figures in QUANTUM-II.

6.2.4 Growth Forecast for GDP and Manufacturing Sector

Growth forecast for the manufacturing sector was performed in accordance with the following procedure, with necessary adjustments:

1) To forecast growth rates of each sector on the basis of actual data in the past 11 years, with particular emphasis on recent 5 years, including 1987 data published by the Ministry of Industry and Energy. (see Table 6-2-3)

2) To make adjustment on a trial and error basis, through comparison with the government's GDP forecast in QUANTUM-II.

Through the process, forecast growth rates of the industrial sectors and their shares in GDP are summarized in Table 6-2-4.

Based on the table, analysis and evaluation of growth forecast for each sector are presented below. Note that the growth rate for the manufacturing sector is estimated for every 5 years, while the same growth rate is applied to each of other 4 sectors over a 10-year period between 1991 and 2000. This is because growth rates of non-manufacturing sectors are secondary factors in this study and some deviation among themselves is considered to be acceptable.

(1) Primary sector (agriculture, forestry, fishery)

The primary sector has steadily decreased its share in GDP, from 7.4% in 1980 (10% in other source) to 6% in 1990, and its growth rate was meager 1.3% annually during the same period. Assuming that the primary sector will grow at an annual 2.0% between 1991 and 2000, its share in GDP will be 5.4% in 2000. This is considered to be reasonable, as compared to the average share in EUR 12 countries (5.4%) between 1960 and 1989.

(2) Manufacturing sector (mining)

The manufacturing sector is expected to grow at an annual 5.5% between 1991 and 1995, and at 6.5% between 1996 and 2000. As a result, the sector's share in GDP will increase from 24.6% recorded in 1990 to 30.2% in 2000, which exceeds the 1960 - 1989 average share for EUR 12 countries (28.1%). To improve the country's economic indicators to the EC average level (currently the second lowest) toward the unification of the EC, the manufacturing sector is expected to serve as a major driving force for the future growth, while other sectors do not show significant growth potential. Thus, growth forecast here is set at somewhat higher levels than the past results, serving as target levels.

The average growth rate after the country's joining in the EC (between 1986 and 1990) was 4.0%.

(3) Electricity, gas, water

This sector showed the highest growth rate of 8.7% after participation in the EC, compared to the average growth rate of 2.3% up to 1980. Infrastructure investment financed by the EC Funds fueled this growth. The sector is expected to grow at an annual 5.5% between 1991 and 2000, with some uncertainties about availability of the EC Funds to Portugal in the future. As a result, the sector's share in GDP will grow slightly from 6.3% in 1990 to 7.3% in 2000.

(4) Construction

The construction sector recorded the average growth rate of 3.1% between 1980 and 1990. Again, the growth rate jumped to 7.9% after the country's joining in the EC, because of notable increase in road construction financed by the EC Funds. While there are some uncertainties about future supply of the EC Funds to the country, the sector is assumed to grow at 4.5% annually between 1991 and 2000. As a result, the sector's share in GDP will remain unchanged at 5.3% in 1990.

(5) Industrial sectors in total ((2), (3) and (4) above)

The industrial sector recorded the average growth rate of 2,8% between 1980 and 1990, which increased to 5.3% after the country's joining in the EC as fueled by rapid growth of electricity, water, and gas, and construction sectors. As a result, the industrial sector's share in GDP was 36.2% in 1990. Between 1991 and 2000, the sector will grow at an average 5.7% and its share in GDP will increase to 39.8%. The manufacturing sector is expected to be a major source of this growth. The average share in EUR 12 countries between 1960 and 1989 was 38.9%.

(6) Service

The service sector boasts the highest share in GDP, 58% in 1990. The share increased by 1.7% over the past 11 years. The average growth rate during the same period was 3.4%, and 5.3% after the country's joining in the EC. A major contributor appears to be the financial industry, but as banking service is already in oversupply, the sector's growth rate will slow down in the future.

In addition, no significant growth is expected from tourism, and public service is constrained by government budget. As a result, the service sector will enter the stable growth pattern, compared to other sectors, and its share in GDP will decline accordingly. For these reasons, the growth rate of the sector between 1991 and 2000 is assumed at 2.7%. As a result, its share in GDP will be down to 51.9% in 2000.

The average share of the service sector in EUR 12 countries between 1960 and 1989 was 55.7%.

(7) GDP growth rates

By adding up the above sectors, GDP growth rates between 1991 and 2000 were

estimated as follows, in comparison to those forecast in QUANTUM-II:
Forecast by the study team

	QUANTUM-II	Forecast by the study team
1991	2.5%	3.5%
1992	3.0%	3.6%
1993 - 1995	4.0%	3.7% p.a.
1996 - 2000	Not Available	4.0% - 4.1% p.a.

The average growth rate between 1986 and 1990 was 4.9%. However, QUANTUM-II and the study team's forecast envisage that such high growth rate cannot be sustained, because of oversupply in the service sector, mainly financial service, slowdown in growth of public investment and service due to excess supply and tight government budget, and possible decline in inflow of EC Funds to the country.

Compared to QUANTUM-II, the study team expects that the slowdown will occur at a relatively moderate pace. The growth rate, dropping to a 3.5% level in 1991, is expected to recover gradually as a result of increase in foreign investment in the manufacturing sector, thus bolstering the entire economy.

6.2.5 Forecasting Investment Demand in the Manufacturing Sector

Gross fixed capital formation (GFCF) is expressed as a sum of net investment and replacement investment to cover depletion (depreciation) of fixed assets. As GFCF in the manufacturing sector can be used as a surrogate for investment demand, GFCF for the whole country is first estimated up to 2000, followed by estimation for the Aveiro-Viseu region. Note that the investment demand is also considered as investment required for the manufacturing sector to achieve the grow rates forecast in Table 6-2-4.

(1) Investment demand at the national level

As the first step, actual GFCFs in the manufacturing sector between 1979 and 1988 were adjusted to 1988 prices by using inflation rates during the period. The results are shown in Table 6-2-5, and the average annual GFCF was 1926 million escudos. As no GFCF data are available between 1988 through 1991, GFCF in the 1991 price was estimated by using actual inflation rates and real growth rates of the manufacturing sector during the period. The results are shown in Table 6-2-5. Note that growth rates of the manufacturing sector and GFCF are assumed to be the same level.

Then, the investment demand up to 2000 was estimated, as shown in Table 6-2-5. Note

that the figures in this table represent the growth of investment in real terms, but not do no including increments due to inflation after 1992, in order to prevent inflated figures from deviating our eyes off a real picture of investment growth between 1991 through 2000. The results of calculation are summarized as follows:

Total required investment		
between 1991 and 2000	4,053	billion escudos
Annual average investment	445.4	billion escudos

(2) Investment demand in the Aveiro-Viseu region

The investment demand for the entire country estimated above was allocated to the Aveiro-Viseu region as follows.

Aveiro area accounted for 3.7% of GDP and Viseu area 2.0% in 1988. In terms of GFCF, Aveiro area's share ranges between 10.9% and 15.5%, and Viseu area between 0.6% and 1.2%, during the 1979 - 1986 period. The average figures are 12% for Aveiro and 0.8% for Viseu. Allocation based on the average GFCF shares is called "scenario 1."

Alternatively, the investment demand is expected to increase in both areas; in particular, investment in Viseu area may increase significantly because of increased development potential in response to inauguration of arterial highway IP5. Thus, as "scenario 2", GFCF in Averio area in terms of percentage share in the entire country is assumed to be 15.5% - the highest level between 1979 and 1986 - and that in Viseu area is assumed to jump to a 2% level - the area's share in GDP.

The investment demands in the Aveiro-Viseu region under the above two scenarios are estimated as follows.

Estimated Investment Requirements in the Aveiro-Viseu Region
(Million Escudos, 1991 Price)

Scenario 1	Percentage share in the country	Average between 1991 - 2000	Accumulated total between 1991 - 2000
Averiro area	12.0%	486,468	48,647
Viseu area	0.8%	32,431	3,243
Total	12.8%	518,899	51,890

Scenario 2	Percentage share in the country	Average between 1991 - 2000	Accumulated total between 1991 - 2000
Averiro area	15.5%	628,355	62,836
Viseu area	2.0%	81,078	8,108
Total	17.5%	709,433	70,944

Thus, the above estimation roughly indicates that the manufacturing sector in the Aveiro-Viseu region will require investment in the range between 52 billion and 71 billion escudos annually on the average.

Table 6-2-1 QUALITATIVE ASSUMPTIONS AND PARAMETER ON GLOBAL ECONOMIC CONDITIONS DURING THE PERIOD 1990 TO 2000

CLUSTERS OF CHARACTERISTICS	'LESS-LIKELY' SCENARIO (35 % OCCURENCE)	'LIKELY' SCENARIO (65 % OCCURENCE)
P O L I C Y	1. Improved cooperation among G-3 countries 2. Steady decline of balance of payments imbalances 3. Low G-3 inflation and improved exchange rate stability	1. Policy coordination among the G-3 countries leads to less volatility in exchange rates and interest rates 2. The path of supply side reforms accelerates
F I N A N C E	1. Reforms are introduced in the United States and Japan to revitalize investment and banking 2. The implementation of the Brady plan makes progress 3. Real interest rates fall despite high demand for capital in Europe and Japan 4. Direct foreign investment flows grow	1. The financial integration continues unabated and risks are reduced through regulatory changes 2. Real interest rates decline to pre 1980s levels 3. A more comprehensive debt initiative is implemented 4. Sharp increase in direct foreign investments
T R A D E	1. GATT negotiations achieve modest success, tariff and non-tariff barrieres are lowered 2. Inter and intrablock trade grows relatively rapidly 3. Agricultural trade remains protected	1. GATT suucceeds to bring about a more liberal trading system, covering goods, services and agricultural commodities 2. Regional trade arrangements reinforce global trade
E N E R G Y	1. Oil prices rise at a steady pace reflecting market fundamentals 2. Moderate fuel conservation measures exert downward pressure on international oil prices	1. New political arrangements in the Middle East combined with cooperation between producers and consumers and bold new environmental initiatives result in persistently lower international oil prices

NOTES:
The percentages in parentheses attached to each scenario reflect the subjective probability of occurence.

SOURCE:
JICA Study mission compilation from: 'Global Economic Prospects...'; World Bank, Washington, D.C., 1991

Table 6-2-2 GOVERNMENT REAL ECONOMIC GROWTH RATE ESTIMATIONS

Unit: percent

(1) GDP Growth Rate in QUANTUM II: 1991 to 1995 *)

I T E M	1991	1992	1993-1995
ESTIAMTED REAL GDP GROWTH RATE	2.5	3.0	4.0

(2) Ministry of Industry and Energy Growth Rate Estimations for the Manufacturing sector: 1990 to 2000 **) (1987 Estimation)

S C E N A R I O S	1990-1995	1995-2000
Scenario 'A' (optimistic)	4.5	3.7
Scenarioa 'B' (pessimistic)	3.3	2.5

Notes:

*) Estimations are those contained in the 'with convergence' to EEC averages scenario.

**) Estimations for the period 2000 to 2010 are disregarded, because they are beyond the time frame of the present Study.

Sources:

*) 'QUANTUM Program'; QUANTUM II, January 1992.

**) 'Portuguese Industry - Scenarios 1988 2010', MoIE, Lisbon 1990, page 6.

Table 6-2-3 PAST TREND OF GDP BY MAJOR OUTPUT SECTORS: 1980 to 1990

(1) Real Growth Rate

Unit: percent

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990*)	Average 1980-1990	Average 1986-1990
Agriculture, forestry, fishing	2.3	-10.5	6.1	-1.4	9.1	8.1	3.1	4.1	-11.5	7.5	-3.0	1.3	-1.0
Manufacturing and mining	4.2	2.0	-0.8	-1.3	-3.8	2.6	6.2	3.0	2.0	5.0	6.0	2.3	3.4
Electricity, gas, water	16.4	-18.3	34.8	11.3	8.0	12.3	-6.2	3.3	14.7	7.1	10.0	8.5	8.7
Construction	7.1	4.6	1.9	0.7	-9.4	-5.7	2.5	7.8	11.0	7.9	5.0	3.1	7.9
Sub-total: Industry	2.2	0.0	3.1	0.6	-3.0	2.9	3.6	3.7	5.2	5.8	6.5	2.8	5.3
Services	6.3	3.5	3.1	0.7	-3.4	2.6	4.1	7.5	4.4	5.0	4.1	3.4	5.3
Gross Domestic Product	4.8	1.2	3.3	0.5	-2.4	3.1	3.9	5.9	4.0	5.4	4.5	3.1	4.9

(2) Share

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990*)	Average 1980-1990
Agriculture, forestry, fishing	7.4	6.5	6.7	6.6	7.3	7.7	7.6	7.5	6.2	6.3	5.9	6.9
Manufacturing and mining	26.5	26.8	25.7	25.2	24.9	24.8	25.3	24.6	24.3	24.2	24.6	25.2
Electricity, gas, water	4.3	3.4	4.5	5.0	5.5	6.0	5.4	5.3	5.9	6.0	6.3	5.2
Construction	5.5	5.7	5.6	5.6	5.2	4.8	4.7	4.8	5.2	5.3	5.3	5.2
Sub-total: Industry	36.3	35.9	35.8	35.8	35.6	35.5	35.4	34.7	34.5	35.5	36.2	35.6
Services	56.3	57.6	57.5	57.6	57.1	56.8	56.9	57.8	58.4	58.2	58.0	57.5
Gross Domestic Product	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: *) Preliminary estimations, based on "Bank of Portugal (BOP)" figures.
Source: Bank of Portugal (BOP)

Table 6-2-4 TARGET GROWTH OF GDP BY MAJOR OUTPUT SECTORS: 1991 TO 2000
(In constant 1977 price base)

(1) Real Growth Rate

Unit: percent

	1990*)	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average 2000/1990
Agriculture, forestry, fishing	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Manufacturing and mining	5.5	5.5	5.5	5.5	5.5	5.5	6.5	6.5	6.5	6.5	6.5	6.0
Electricity, gas, water	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Construction	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Sub-total: Industry	5.2	5.4	5.4	5.4	5.4	5.4	6.0	6.0	6.0	6.0	6.0	5.7
Services	2.5	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Gross Domestic Product	3.5	3.5	3.6	3.7	3.7	3.7	4.0	4.0	4.0	4.1	4.1	3.8

(2) Share

	1990*)	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average 2000/1990
Agriculture, forestry, fishing	5.9	5.8	5.7	5.6	5.5	5.4	5.3	5.2	5.1	5.0	4.9	5.4
Manufacturing and mining	24.6	25.1	25.5	26.0	26.4	26.9	27.5	28.2	28.9	29.5	30.2	27.4
Electricity, gas, water	6.3	6.4	6.5	6.6	6.7	6.9	7.0	7.1	7.2	7.3	7.3	6.9
Construction	5.3	5.4	5.4	5.4	5.5	5.5	5.5	5.6	5.6	5.6	5.7	5.5
Sub-total: Industry	36.2	36.8	37.4	38.0	38.6	39.3	40.1	40.8	41.6	42.4	43.2	39.8
Services	58.0	57.4	56.9	56.4	55.8	55.3	54.5	54.0	53.3	52.6	51.9	54.9
Gross Domestic Product	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: JICA Study team computation model, designed as spreadsheet program.

Table 6-2-5 PAST PERFORMANCE OF GROSS FIXED CAPITAL FORMATION (GFCF) OF PORTUGAL: 1979-1988 AT 1988 PRICES (MANUFACTURING SECTOR)

Year	GFCF in Current Prices (Bil. Esc.)	Inflation rate (%)	GFCF at 1988 prices (Bil. Esc.)
1979	51.8	22.7	209.2
1980	61.8	16.1	215.1
1981	81.8	20.3	236.5
1982	115.5	22.0	273.9
1983	113.5	25.5	214.5
1984	97.2	29.3	142.0
1985	95.0	19.3	116.4
1986	132.3	11.7	158.3
1987	174.2	9.4	191.0
1988	163.1	9.6	163.1
Average GFCF per year at 1988 price:			192.0

Source: JICA team estimation based on Table 6-1-1.

Table 6-2-6 PROJECTED GROSS FIXED CAPITAL FORMATION (GFCF) OF PORTUGAL UPTO 2000: AT 1991 PRICES (MANUFACTURING SECTOR)

Year	Real growth rate in mnf'g (%)	Inflation (%)	Projected GFCF (Bil. Esc.)
	Base (1979-1999 average at 1988 prices)		192.0
1989	5.0	12.6	225.8
1990	5.5	13.4	268.5
	At 1991 price: 1991-2000		
1991	5.5	11.4	313.8
1992	5.5	0	331.1
1993	5.5	0	349.3
1994	5.5	0	368.5
1995	5.5	0	388.7
1996	6.5	0	414.0
1997	6.5	0	440.9
1998	6.5	0	469.6
1999	6.5	0	500.1
2000	6.5	0	532.6
1991 to 2000			
	Total GFCF:		4,053.9
	Average GFCF/year:		405.4

Note: Inflation rate of 1992 onwards is disregarded in order to compute at 1991 prices.
Source: JICA team estimation based on Table 6-2-4 and Table 6-2-5.

6.3 First Screening of Promising Manufacturing Subsectors (National Level)

6.3.1 Methodology and Approach

The promotion of the further industrialization of Portugal in general and that of the target area, Aveiro-Viseu region in particular, involve the identification of those manufacturing subsectors and/or product groups, which so far account for a major share in output, exports and imports. Such a global approach allows, firstly, the screening of subsectors for their overall economic relevance (impact). Secondly, it guides to those subsectors/product groups in manufacturing, in which there is or is not accumulated subsector expertise and knowhow. Thirdly, it allows a first glance at those areas of manufacturing, in which there is a potential for import substitution and/or export diversification or which are somewhat self-sufficient.

The Study uses the "total flow analysis approach" for the identification of those manufacturing subsectors, which have a significant overall economic impact. The total flow analysis is based on the standard formula:

Consumption = production + import - export
This formula is redefined into:
Total Flow = consumption + export = production + import

If the "apparent consumption" would be used as a parameter for such identification, those subsectors which have small consumption but large amount of export will be removed from the promising subsectors. Thus the consumption is not appropriate for measuring the impact or share to the national economy.

The total flow is then accumulated over the reference period, 1981 to 1987, under consideration and subsectors are ranked in line with the absolute magnitude of their total flow.

The flows, calculated on real term basis, are further used to determine the export performance and import intensity of manufacturing subsectors. The import intensity is defined as imports devided by total flow, while the export intensity is defined as exports devided by total flows.

The results of the total flow analysis are presented in the following division.

6.3.2 Results of Total Flow Analysis

This approach needs to combine production data, which are classified according to ISIC, with trade data, which are grouped around the SITC system. While there are conversion tables for translating quasi mechanically one code into the other, the best level of disaggregation and grouping will depend often on the particular product or product group being produced in the manufacturing sector under consideration.

Official statistics subdivide the manufacturing sector into single 140 subsectors (the word subsector will be used, in this context, as synonymous to product group) at a 6-digit CAE classification level. This number excludes summarizing subsectors, commonly at a 2-digit level. After a matching with trade statistics, a total of 72 subsectors at the mixture of the 6-, 4- and 3-digit CAE level remain, which allow, in this particular case, for a meaningful computation of total flow.

Table 6-3-1 lists those 43 subsectors out of the 72, which account for 90.6 % of the total manufacturing flow over the period 1981 to 1987, or some 89.6 % of apparent consumption of manufactured goods over the same reference period. In other words, these 43 subsectors are, in terms of overall impact, the essence of Portuguese manufacturing. The balance of 29 subsectors account for only some 10 % of total flow and apparent consumption.

Refinery products, a basically energy related manufacturing subsector, is with rank 1 the single most important subsector, accounting by itself for some 10.2 % of total flow. This subsector is very closely followed by the product group yarn & woven fabrics, which ranked second in terms of absolute accumulated total flow. Both subsectors together account for some 20 % of total Portuguese manufacturing. Motor vehicles is with rank 3 the third most important individual subsector, while in terms of absolute accumulated flow being clearly below the magnitude of yarn & woven fabrics.

Eleven subsectors/product groups make up 50 % of Portuguese manufacturing. They are, in that order of rank and relevance:

(1) refinery products

(2) yarn & woven fabrics

(3) motor vehicles

(4) organic & inorganic basic chemicals

(5) prepared animal feeds

(6) cordage

(7) basic iron & steel products

(8) garments and confectionary articles

(9) synthetic resins & fibres,

(10) flour and cereal flocs, and

(11) radio, TV and telecommunication equipment.

These sectors account, likewise, for some 50 % of apparent consumption in Portugal of manufactured goods.

A qualitative grouping of all 72 subsectors into three groups was made applying the following criteria:

(1) a subsector is considered to be "self-sufficient", if neither import nor export coefficient exceed 10 % of total accumulated flow

(2) a subsector is considered "export oriented", if its export share in total accumulated flow exceeds the 10 % rate

(3) a subsector is considered "import intensive", if its import share in total accumulated flow exceeds the 10 % rate.

Subsectors are furthermore split into consumer, intermediary and capital goods. Table 6-3-2 shows the self-sufficient, Table 6-3-3 the export oriented and Table 6-3-4 the import intensive manufacturing subsectors. The message of this qualitative grouping may be summarized with respect to the 11 product groups accounting for some 50 % of total flow and apparent consumption as follows:

(1) only one subsector, falls clearly into the category of self-sufficient

1) consumer goods, prepared animal feeds

(2) 4 product groups are clearly export oriented. They are:

1) on the intermediate goods: yarn & woven fabrics and cordage

2) on the consumer goods side: garments and confectionary articles and radio, TV and telecommunication equipment.

(Note)
However, the radio, TV and telecommunication equipment subsector and cordage are likewise import intensive, indicating either a relevant degree of inter-industry specialization, or important single products in either imports or exports

(3) out of the eleven subsectors, eight including two subsectors which also are classified in the export oriented goods are found in the import intensive grouping, with six product groups falling into the classification of intermediate goods as below.

1) Intermediate goods: refinery products, organic & inorganic basic chemicals, basic iron & steel products, synthetic resins & fibres, flow and cereal flow

2) Consumer goods: motor vehicles, radio, TV and telecommunication equipment

It is, of course, necessary to add a number of numerical and qualitative analytical parameter, cross references and cross-checks to the above rough sketch for identification of the promising subsectors for the project area. It suffices here, however, to outline the additional and complementary steps to be taken. They are further examined in Chapter 8 on the following:

(1) recall of the groups ranked below 42 subsectors in the national level point of view with regard of the industrial characteristics of the project area

(2) regional constraints and limitations, such as natural resource endowments, market and technology

(3) regional conditions in the project area, such as existing supply side set-up, availability of industrial land and sites and policies and development plan by municipalities.

Table 6-3-1 SUMMARY RANKING OF THE TOP 43 COMMODITY GROUPS BY TOTAL FLOW ANALYSIS OVER THE PERIOD 1981 TO 1987
(IN REAL TERMS)

Unit: Billion Escudos; percent

COMMODITY GROUPING	CAE CODE	TOTAL FLOW RANK	TOTAL FLOW	TOTAL FLOW ACCUMUL. FLOW	TOTAL FLOW ACCUMUL. IN %	CONSUMPTION RANK	CONSUMPTION FLOW	CONSUMPTION ACCUMUL. FLOW	CONSUMPTION ACCUMUL. IN %
Refinery products	3530	1	1625.3	n.a.	10.2	1	1484.3	n.a.	11.5
Yarn & woven fabrics	3211/3212	2	1530.1	3155.4	19.8	2	1171.2	2655.5	20.5
Motor vehicles	3843	3	963.8	4119.2	25.9	3	963.8	3619.3	28.0
Organic, inorganic basic chemicals	3511.0.	4	688.3	4807.5	30.2	4	674.6	4293.9	33.2
Prepared animal feeds	3122.0.0	5	545.4	5352.9	33.6	5	545.4	4839.3	37.4
Cordage	3215	6	496.3	5849.2	36.7	7	432.0	5271.3	40.8
Basic iron & steel products	3710	7	461.5	6310.7	39.6	6	446.3	5717.6	44.2
Garments & confectionary articles	3220	8	457.7	6768.4	42.5	11	-345.5	5372.1	41.6
Synthetic resins & fibres	3513.1.2/ 3513.3.0	9	442.0	7210.4	45.3	9	413.7	5785.8	44.8
Flour & cereal flocs	3116.2.0/ 3116.5.0	10	430.8	7641.2	48.0	8	430.8	6216.6	48.1
Radio, TV, telecommunication equipment	3832	11	400.3	8041.5	50.5	14	308.3	6524.9	50.5
Paper, carton, packing material	3411.2.3/ 3412.9.0	12	395.0	8436.5	53.0	12	333.4	6858.3	53.1
Cement, gypsum, construction materials	3692/3699	13	384.9	8821.4	55.4	13	327.1	7185.4	55.6
Milk & milk based products	3112.0.0	14	356.2	9177.6	57.6	10	356.2	7541.6	58.3
Metal products, not elsewhere classified	3819	15	299.6	9477.2	59.5	15	299.6	7841.2	60.7
Wood pulp	3411.1.0	16	291.6	9768.8	61.3	47	71.8	7913.0	61.2
Pharmaceuticals	3522.3.0	17	266.5	10035.3	63.0	17	231.0	8144.0	63.0
Printed and graphics products	3420	18	264.8	10300.1	64.7	16	264.8	8408.8	65.1
Footwear, excluding rubber & plastics	3240.0.0	19	231.4	10531.5	66.1	65	-15.5	8393.3	64.9
Products from plastic materials	3560	20	219.9	10751.4	67.5	18	219.9	8613.2	66.6
Folios, boards, wooden articles & furniture	3311/3312 3320	21	213.6	10965.0	68.8	20	183.4	8796.6	68.1
Canned meat	3111.2.0	22	185.7	11150.7	70.0	19	185.7	8982.3	69.5
Fertilizer and pesticides	3512.1.0/ 3512.2.0	23	179.8	11330.5	71.1	23	165.2	9147.5	70.8
Professional & scientific equipment	385	24	179.5	11510.0	72.2	27	154.5	9302.0	72.0
Other non-electrical machinery	3829	25	174.4	11684.4	73.3	26	156.5	9458.5	73.2
Coffee	3121.1.0	26	171.5	11855.9	74.4	21	171.5	9630.0	74.5
Cork articles	3319.1.0	27	167.6	12023.5	75.5	60	21.3	9651.3	74.7
Industrial electrical machinery	3831	28	166.7	12190.2	76.5	38	120.1	9771.4	75.6
Soaps, washing powder, detergents	3523	29	166.6	12356.8	77.6	22	166.6	9938.0	76.9
Fats and non-eatable oils	3524	30	163.5	12520.3	78.6	24	163.5	10101.5	78.1
Sawnwood and sawncork	3311.1.0	31	162.3	12682.6	79.6	45	79.5	10181.0	78.8
Bread & other baker's wares	3117.1.0	32	160.1	12842.7	80.6	25	160.1	10341.1	80.0
Conserved fruits and vegetables	3113.0.0	33	159.6	13002.3	81.6	43	85.2	10426.3	80.7
Metalic, non-metalic ships, incl. repair	3841	34	158.8	13161.1	82.6	37	121.0	10547.3	81.6
Food, beverage, construction machinery, scales	3824.1.0/3824.4.0/ 3825.2.0	35	151.2	13312.3	83.6	30	139.6	10686.9	82.7
Rubber products	3551-9	36	150.8	13463.1	84.5	31	137.3	10824.2	83.7
Paints	3521.0.0	37	150.5	13613.6	85.5	28	150.5	10974.7	84.9
Raw & refined sugar	3118.1.0/3118.2.0	38	146.4	13760.0	86.4	29	143.9	11118.6	86.0
Brandy, wine, beer & malt	3131.3.0/3131.4.0 3132.3.0/3133.00	39	144.6	13904.6	87.3	66	-12.1	11106.5	85.9
Conserved fish & fish products	3114.1.0/3114.2.0	40	138.7	14043.3	88.1	42	90.6	11197.1	86.6
Textile & garment machinery	3824.2.0/3824.3.0	41	136.7	14180.0	89.0	35	122.5	11319.6	87.6
Electrical machinery, not elsewhere classified	3834	42	131.1	14311.1	89.8	32	131.1	11450.7	88.6
Tabacco & tabacco products	3140.0.0	43	126.2	14437.3	90.6	33	126.2	11570.9	89.6

Note:
The total flow analysis is based on the standard formular: apparent consumption = production + imports - exports + / - stock movements.Stock movements have been disregarded here due to lack of data.
The total flow is defined as: production + import = consumption + exports. Negative figures in the table indicate considerable stock movements. These figures have been treated with their simple negative value.
The import coefficient caluculated from this analysis is defined as: import devided by total flow. The export coefficient is defined as: exports devided by total flow. Both coefficients are calculated on basis of accumulated real values over the preriod 1982 to 1987.

Source: JICA Study team computation.

Table 6-3-2 SUMMARY GROUPING OF COMMODITIES IN 'SELF-SUFFICIENT' MANUFACTURING SUBSECTORS

MAINLY CONSUMER GOODS			MAINLY INTERMEDIATE GOODS			MAINLY CAPITAL GOODS		
CAE-CODE	RANK TO-TAL FLOW	COMMODITY'S NAME	CAE-CODE	RANK TO-TAL FLOW	COMMODITY'S NAME	CAE-CODE	RANK TO-TAL FLOW	COMMODITY'S NAME
3112.0.0	14	Milk & milk based products	3122.0.0	5	Prepared animal feeds	3834	42	Electrical machinery, n.e.c.
3420	18	Printed & graphics products	3819	15	Metal products, n.e.c.	3842	70	Railroad material
3111.2.0	22	Canned meat	3560	20	Products from plastic materials			
3523	29	Soaps, washing powder, detergents	3524	30	Fats and non-eatable oils			
3117.1.0	32	Bread & other baker's wares	3231.2.0	44	Tanned leather			
3610.0.0	45	Porcelan & pottery products	3691.0.0	48	Clay products			
3134.0.0	52	Non-alcoholic beverages	3720	50	Basic non-ferrous metal products			
3833	55	Electrical household goods	3529	51	Matches, glues & similar products			
3119.1.0/	56	Chocolate & chocolate products	3121.4.0	67	Ferments & yeasts			
3115.4.0	58	Magarine & other prepared fats	3131.1.0	71	Ethyl alcohol			
3812	61	Metal furniture						
3117.4.0	62	Noodles & similar products						
3117.3.0	63	Biscuits & cookies						
390	66	Other manufactured goods						
3811.1.0	68	Cutlery products						
3231.2.0	69	Leather goods for personal use						
3121.0.0	72	Ice						
3844	65	Motorcycles & Bicycles						

NOTES:
n.e.c. = not elsewhere classified.
The grouping is based on a 'total flow analysis' approach.
SOURCE:
JICA Study team compilation.

Table 6-3-3 SUMMARY GROUPING OF COMMODITIES IN 'EXPORT' ORIENTED MANUFACTURING SUBSECTORS

MAINLY CONSUMER GOODS		MAINLY INTERMEDIATE GOODS		MAINLY CAPITAL GOODS	
CAE-CODE	RANK TO-TAL FLOW COMMODITY'S NAME	CAE-CODE	RANK TO-TAL FLOW COMMODITY'S NAME	CAE-CODE	RANK TO-TAL FLOW COMMODITY'S NAME
3220	8 Garments & confectionary articles	3211/3212	2 Yarn & woven fabris	385 *)	24 Professional & scientific equipm.
3832 *)	11 Radio, TV, telecommunication equipm.	3215 *)	6 Cordage	383 *)	28 Industrial electrical machinery
3240.0.0	19 Footwear, excluding rubber & plastics	3411.2.3/ 3412.9.0 *)	12 Paper, carton, packing material	3841	34 Metalic & non-metalic ships including repair
3311-2/33	21 Folios, boards, furniture	3692/3699	13 Cement, gypsum, construction mat.		
3113.0.0	33 Conserved fruits & vegetables	3411.1.0	16 Wood pulp		
3131.3.0/ 3132.3.0/3133.0.0	39 Brandy, wine, beer & malt	3522.3.0	17 Pharmaceuticals		
3114.1.0/ 3114.3.0	40 Conserved fish & fish products	3319.1.0	27 Cork articles		
3214.1.0	60 Carpets, rugs & similar products	3311.1.0	31 Sawnwood & sawncork		
3811.2.0	64 Hand tools	3620	47 Glass & glass products		
		3219 *)	54 Special fabrics		

NOTES:
n.e.c. = not elsewhere classified.
The grouping is based on a 'total flow analysis' approach.

*) Commodity groups marked with an asterix have export and import coefficients larger than 10 % and are, therefore, listed in both tables of export and import oriented subsectors. Such overlapping in grouping may be due to, inter alia, the importance of single products in one commodity grouping. For example, the production and export of simple hand tools, and the import of more sophisticated hand tools. Commodity groups, in which the export coefficient is larger than 10 %, but below the magnitude of the import coefficient are: CAE 3215 Cordage; CAE 3411.2.3/3412.9.0 Paper, carton and packing material; CAE 3522.3.0 Pharmaceuticals and CAE 385 Professional and scientific equipment.
SOURCE:
JICA Study team compilation.

Table 6-3-4 SUMMARY GROUPING OF COMMODITIES IN 'IMPORT' INTENSIVE MANUFACTURING SUBSECTORS

MAINLY CONSUMER GOODS		MAINLY INTERMEDIATE GOODS		MAINLY CAPITAL GOODS	
CAE-CODE	RANK TO- TAL FLOW	COMMODITY'S NAME	CAE-CODE	RANK TO- TAL FLOW	COMMODITY'S NAME
3832 *)	11	Radio, TV, telecommunication equipm.	3530	1	Refinery products
3121.1.0	26	Coffee	3511.0.0	4	Organic & inorganic chemical prod.
3113.0.0	33	Conserved fruits & vegetables	3215 *)	6	Cordage
3140.0.0	43	Tabacco & tabacco products	3710	7	Basic iron & steel products
3115.2.3	46	Refined olive oil & other vegetable oils	3513.1.2/ 3513.3.0	9	Synthetic resins & fibres
3116.3.0	49	Peeled, whitened, glutenized rice	3116.2.0/ 3116.5.0	10	Flour & cereal flocs
3811.2.0	64	Hand tools	3411.2.3/ 3412.9.0 *)	12	Paper, carton, packing material
3521.0.0	37	Paints	3522.3.0	17	Pharmaceuticals
3843	3	Motor vehicles	3512.1.0/ 3512.2.0	23	Fertilizer & pesticides
			3118.1.0/ 3118.2.0	38	Raw & refined sugar
			3219 *)	54	Special fabrics
385 *)	24	Professional & scientific equipm.			
3829	25	Other non-electrical machinery			
383 *)	28	Industrial electrical machinery			
3824.1.0/ 3824.4.9/ 3825.2.0	35	Food, beverage, construction machinery and sclaes			
3824.2.0/ 3824.3.0	41	Textile & garment machinery			
3813.1.0	53	Tanks, vats & boilers			
3823.0.0	57	Metal and woodworking machinery			
3822.0.0	59	Agricultural machinery & equipment			

NOTES:
The grouping is based on a 'total flow analysis' approach.
*) Commodity groups marked with an asterix have export and import coefficients larger than 10 % and are, therefore, listed in both tables of export and import oriented subsectors. Such overlapping may be due to, inter alia, the importance of single products in the commodity grouping. Commodity groups, in which the import coefficient is larger than 10 % but below the magnitude of the export coefficient are: CAE 3311.1.0 Sawnwood and sawncork; CAE 3113.0.0 Conserved fruits and vegetables and CAE 3219 Special fabrics.

SOURCE:
JICA Study team compilation.

Chapter 7
FOREIGN INVESTMENT PROMOTION MEASURES

Chapter 7 Foreign Investment Promotion Measures

In the process of this study, it has become apparent that foreign investment plays a critical role in modernization of the industrial structure in Portugal, and technological advancement and revitalization of the industries as a whole. At the same time, to attract a sufficient flow of foreign investment to a particular country or region requires the environment to satisfy a set of conditions, which are defined as the development of a favorable investment climate in combination with appropriate promotional activities.

Major factors directly contributing to the investment climate are infrastructure, availability of human resources, components and raw materials, tax and other incentives, and low-cost and accessible financial facilities. The previous chapters analyzed and evaluated as to what extent Portugal is satisfying these requirements. Possible improvement of industrial infrastructure - physical infrastructure in particular - and recommended strategies for promotion of industrial development in the target region are discussed in Chapter 8.

Generally speaking, "promotional activities" to attract foreign investment are composed of following programs.

(1) Activities program at the national (central government) level
(2) Activities program at a regional-or local-level (focusing on local characteristics)
(3) Activities program through foreign branch offices of the central government

On the other hand, a foreign investor starts from selection of a country, then selecting a particular region, area and location. For this reason, promotional activities should be carefully designed by taking into account the type, size, and nationality of the industry to be invited, together with local characteristics including natural resources and industrial infrastructure; although there is not much difference between activities carried out by the promoting organization and the foreign investor in terms of nature, scope and methodology, some adjustment is needed to effectively advertise a region or area to be promoted.

This chapter first identifies possible activities to be included in the foreign investment promotion program at a national level, followed by basic design concepts of the same program at a local level, namely the Aveiro-Viseu Region in this case. Finally, promotional activities targeting Japanese industries are proposed, followed by recommendation on an organization to implement the promotional activities.

7.1 Foreign Investment Promotion Program at a National Level

7.1.1 Need for the New program

Portugal has been carrying out foreign investment promotion activities at a national level under ICEP's leadership. While these efforts have resulted in success, there are various constraints that prevent full implementation of activities as well as issues to be solved. In particular, the following points are to be taken into consideration prior to future expansion and strengthening of ICEP-led promotional activities.

(1) Effective use of ICEP's resources

Although ICEP is primarily responsible for promotion of foreign trade and investment, priority is given to the former (promotion of exports in particular); 80% of ICEP's budget is allocated to its activities related to trade promotion. Furthermore, its organization is based on experts who are in charge of specific products. This certainly serves the national interest, as promotion of foreign trade is recognized as one of the most important issues in the country's economic policy, particularly effective in promoting exports of various products. The important point is how to reorganize the present functional set-up, within the scope of ICEP organization and also on the basis of the present organizational framework, in order to further the promotional activities for inducement of foreign investment. In particular, measures should be taken to encourage concerted efforts by the section to promote foreign investment and the one to promote exports, including the sharing of information, the exchange of personnel, and joint seminars.

In fact, cooperation by these sections is carried out to some extent at ICEP's foreign offices, including the sharing of information and mutual work assistance to make up for limited availability of staff. However, local staff are not fully utilized in their efforts, i.e., no or little authority is delegated to them. Obviously, it is important to establish an institutional framework to effectively use knowledge of local staff on each country, including religious, cultural, and social factors, which may affect promotion of direct investment in Portugal. At the same time, Portuguese staff assigned to ICEP's foreign offices should receive basic training on each country they will work, including its language, so that they can promote exports and investment by taking into account conditions peculiar to the country.

The same argument applies to the relationship between different organizations promoting foreign investment. Coordinated promotional activities are crucial in inducing foreign investment in the most efficient way within the limited budget and staff.

One solution is to work with an expert group organized by persons having work experience in Portuguese embassies in target countries, domestic and foreign investment promotion organizations, and corporations which operate in Portugal.

(2) Establishing target-specific strategies

Foreign investors presumably have different needs and wants according to the country, industry type, and company size. As a result, the method of promoting foreign investment and information supplied to potential investors should be modified or adjusted accordingly. For instance, ICEP's representative office in Japan has held small seminars for specific industries, but more elaborate strategies are needed to address the needs of potential investors, in different industry groups and varying sizes, under cooperation of the trade promotion section.

(3) Strategic supplying of local information

At present, ICEP does not appoint staff responsible for promotion of a particular region or area for foreign investment. For example, if some potential investors want to get local investment related information, no places where can provide any kind of information. Many other EC countries also do not have such staff at national investment promotion organizations. However, it should be noted that some countries, such as Germany, Belgium and Spain, have local investment promotion organizations which supply information on a particular region or area in a coordinated manner and provide consultations for potential investors.

At present, CCR is responsible for regional development and provides information service, but there is no organization which specializes in promotion of investment in each region.

(4) Increase in information flow

Over 70% of companies who responded to a survey conducted in Japan pointed out lack of information in evaluating the investment climate of Portugal. More importantly, there is apparent lack of general information on the country, including society, culture, leisure, and so on. The similar situation is observed for other countries which simply have minimal knowledge on Portugal. This clearly indicates an urgent need for much efforts to make the country known to the Japanese public, particularly by increasing an amount of information on Portugal through "publicity" activities.

These problems point to a need for implementation of intensive, strategic, and continuous promotional activities. The following section lists examples of foreign investment promotion programs at a national level, which are to be carried out in a systematic manner from identification of potential investors to a final decision. Also, appropriate programs should be selected by taking into account related factors. This report proposes only a package of draft programs, and the positioning of individual programs in the strategic planning and actual methodology will be presented in the draft final report. Also, these programs may be combined, in whole or part, as a promotional package to increase their effect, or they may focus on a certain area, according to changing economic and business conditions in each country.

7.1.2 Proposed Program Package

Promotion program can be classified into as follows.

1) To establish or improve a public image of Portugal in target countries.
2) To attract and find potential investors
3) To provide consultation and follow-up communication for potential investors who show a general interest in Portugal.

Based on this classification, the following programs are proposed.

(1) Advertisement and publicity

ICEP has been conducting a variety of promotional activities, including preparation and distribution of PR materials, and advertisement on general media. To establish and improve a public image of Portugal, however, these activities should be strengthened and diversified, i.e., programs focusing on potential investors to raise their interest through mass media and ICEP's own network.

1) Preparation and distribution of pamphlets and other PR materials

PR pamphlets should be prepared in languages of target countries, together with translation of existing materials written in Portuguese. Particular care shall be taken to maintain consistency among statistical and other data presented in different materials. Accurate and consistent data are the first step to win confidence of potential investors.

To maximize effectiveness and productivity, pamphlets should be prepared in the following 3 categories:

1) General information on Portugal

- Major investment circumstances
- Comparative advantages

2) Portugal's foreign investment policy

- Government policy
- Privatization
- Labor relations

- Taxation system and incentives

3) Detailed information useful for decision-making of foreign investors

- Questions and answers on foreign investment
- List of industrial estates
- Locally available procurement goods, service and their cost
- Availability of subcontractors by industry subsectors.

At the same time, it is useful to store these data and information in the form of database.

2) Use of mass media

Mass media including newspapers, magazines, radio, and TV are the most effective measures to establish and improve the country's public image. In light of budgetary restraint and effective implementation of programs, a target country(ies) should be selected in each year and a media promotion program should be designed according to local conditions in each country. The process starts from selection of media considered to be effective for the promotional purpose, where major advertisements are placed mainly in the form of PR article. In addition, contribution to "Special Report on Portugal" articles by domestic and international newspapers and magazines, distribution of press release on a regular basis, and meetings with influential media, and guided tours for journalists are considered to be cost-effective programs. These serve as publicity in which media report investment opportunities in Portugal from an objective and neutral position, creating a significant advertising effect emulating to paid advertisement, if information is presented to media in an impressive and appealing manner.

3) Tie-up with foreign investment promotion organizations

This consists of distribution of PR materials to investment promotion organizations, banks, and consulting firms in Portugal and target countries on a regular basis, together with the placing of advertisements and supply of news releases for their publications. Also, a system to provide quick access to databases of these organizations should be developed. These efforts increase a chance of exposure to potential investors, while providing accurate and useful information on Portugal for investment promotion organizations in their consulting and advice.

(2) Programs to explore potential investors

1) Sending of promotion missions and acceptance of investment missions

ICEP has been sending a number of promotion missions to targeting countries, while accepting investment missions from them.

These activities should preferably be conducted as a package program including investment seminars and consulting services. In addition, preparation of attractive pamphlets and PR materials, together with provision of investment advisors and consultants by using networks of ICEP and external organizations, are critical in exploring potential investors within a limited period of time.

2) Investment seminars

ICEP has been holding a number of investment seminars in key target countries. However, they are mainly held in large cities and should be expanded in terms of geography and scope to include regional cities and industrial areas, as well as small- and medium-scale enterprises. In particular, regional seminars should include trade promotion and serve as a place for answering questions and providing consultation by inviting experts having work experience in Portugal. At the same time, participation of local municipalities and trade organizations should be encouraged to provide investment information and knowhow through their network.

In Portugal, investment seminars should be held on a regular basis to provide latest information for foreign companies and investment promotion organizations, while hearing their opinions and requests.

3) Use of direct mail marketing

This approach starts from the listing of potential investors, companies having interest in trade with Portugal, companies in target countries, and companies who operate in neighboring countries. PR materials are sent directly to them, followed by a questionnaire. Interest is measured by response rate and detail analysis of responses then put it in order for next promotion. The questionnaire should ask questions which help depict perception of respondents, and relationship between company size/type and interest in Portugal. Such information should serve as a basis of designing the subsequent approach.

4) Establishment of informal communication network through personal contact

An informal communication network, developed through regular contact with foreign investment promotion organizations, major banks, and trading companies, is an integral part of promotional activities. Such network can only be developed on trustworthy relations on a person-to-person basis, through "grass-root" efforts which fully utilize local staff. Once established, the network often provides vital information that is not made known through an official channel of communication, i.e., actual needs and wants of potential investors, thus enabling realistic and attractive offer. Such "grass-root" approach should be needed in ICEP's present activities to explore investors in the highly competitive environment.

(3) Individual consulting service

Potential investors identified through the above programs and activities should be provided with consulting service by experts according to their level of interest in Portugal.

1) Provision of investment advisors system

To provide timely and useful information and advice for prospective potential investors is a critical factor to affect their decision making. For this purpose, investment advisors should be secured by hiring outside consultants or through in-house training. For certain target countries, these advisors may be organized into a special team with clearly defined position and authority (or country desk) to provide professional service having strategic focus.

2) Visiting counseling service

For potential investors as well as companies which are considered to be a major candidate by ICEP, detailed consultation services and special seminars are the next important step. ICEP staff and investment advisors visit these companies to furnish information and advice customized to specific needs of these companies. At the same time, cooperation of local governments, business organizations, central government offices, and banks is often important.

(4) Follow-up and monitoring activities

The Information Desk should be established at ICEP's headquarters to monitor the progress of promotional programs and to conduct follow-up and support activities. It is

designed to ensure timely action and effective budgetary allocation according to needs in target countries.

The Information Desk should be headed by the key staff who can keep close communication with ICEP's foreign offices and can make prompt decision.

(5) Improvements Related to Operation of the Incentive

The present state of currently available investment incentives and reactions of investors (not limited to those benefiting from PEDIP, SIBR or other incentives, in this case), as described in 3.3.2, indicates that the incentives are transparent to investors in terms of the level and scope of guidance related to application and documentation, the period required for evaluation, and evaluation criteria. Apparently, there are only a few problems requiring urgent improvement, as listed in 3.3.2.

At the same time, however, a few companies which were approved for the incentive program reported that incentives were not in time for the start of the investment project, because the actual process of guidance, application, evaluation, and agreement took longer than expected. Typical examples are seen in PEDIP program 3.1 (SINPEDIP). 7-1-1 shows the outline of activities from application to agreement. As of the end of May 1991, the official incentive agreement was concluded for 276 projects of which only 64.86% (in number) received the first payment; 53.86% on a money basis. Thus, payment is delayed in a large number of projects after the signing of the official incentive agreement.

There are various reasons for such delay, including the delay in budget allocation in the government. In this case, the most important thing is to make effort to maintain confidence of investors through effective follow-up activities, e.g., to keep them informed of progress, and to support them in the form of provisional tax incentive. As actual operation of incentive programs are under jurisdiction of IAPMEI, IFEP and other organizations, ICEP which is responsible for overall investment promotion should act as an intermediary for these organizations, and propose improvements in operation of incentives, and coordinate related activities for implementation and materialization of improvement measures. Regarding the stepped-up promotion of investment from target countries, particularly Japan, the following improvement measures are recommended.

For organizations which manage incentive programs:

1) To increase transparency of evaluation standards thereby maintaining fairness.

2) To limit requirements for documentation to a minimum level, thereby reducing work load for the applicants and evaluators as well.

3) To ensure that every application is processed within a specified evaluation period by establishing a screening system to find an application lacking required documentation or information at the time of initial acceptance.

4) To promptly notify a reason for delay in payment of incentive, if any, followed by a revised schedule.

For ICEP:

5) To provide an one-stop consultation desk for convenience of potential investors.

This desk will be located in one location and served by full-time ICEP staff and IAPMEI and IEFP experts who will provide one-stop information service and advice for potential investors, thereby minimizing their time and cost in the application process, and allowing timely and effective implementation of incentive programs.

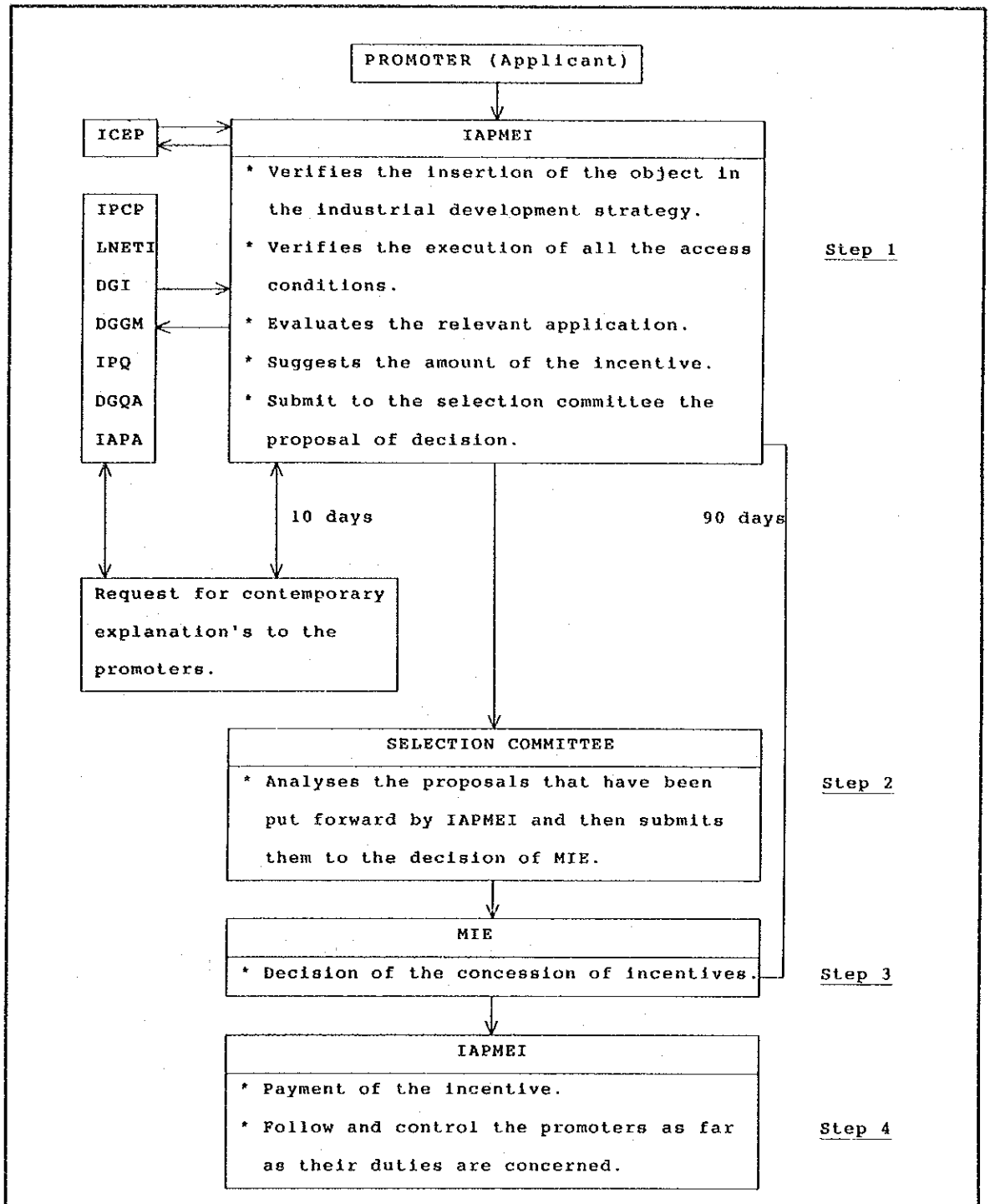


Figure 7-1-1 INCENTIVE PROCEDURES OF INVESTMENT IN INNOVATION AND MODERNIZATION AND INVESTMENTS IN MANAGEMENT QUALITY CONCERNING AND ENVIRONMENTAL PROTECTION

7.2 Foreign Investment Promotion Measures for the Aveiro/Viseu Area and Activity Expansion and Strengthening Programs

Aveiro and Viseu, which have been selected for this study, differ significantly in terms of investment climate, including industrial structure, population distribution, and industrial infrastructure, despite the fact that they are adjoining to each other. Nevertheless, promotional measures to attract foreign investment to this region should consist of programs which can be implemented jointly by the two districts, including governments and industries, so as to form a mutually supplemental economic zone as discussed in Chapter 8.

This section describes the basic concept of foreign investment promotion programs for the region, and proposes a set of programs developed along this line. In particular, proposed programs are basically similar to those proposed at a national level in terms of methodology and tools, but they should incorporate elements which take into account local characteristics. In addition, arrangement should be made to supplement and support program implementation at a local level in areas of staff and budget, by coordinating efforts at a national level.

7.2.1 Framework of Program Formulation

The results of this study has revealed one drawback of foreign investment promotion activities conducted at a local level; it is not clear which organization is responsible for implementation of the promotion activities. The Aveiro-Viseu region is no exception to this. Although the following organizations are involved partially in foreign investment promotion activities, each conducts its own activities based on its policy, organization, and function, without coordination:

1) ICEP's Aveiro office
2) IAPMEI's Aveiro and Viseu office
3) NRC (CCRC Regional Coordination Office) and GAT (CCRC Technical Support Office)
4) Local governments
5) Trade and industrial associations

All of these organizations are partly involved in promotion activities but none of them is responsible for overall management. For potential investors, it is not very convenient as many information sources, Although these organizations are partly involved in promotional activities for the Aveiro-Viseu region, but none of them is responsible for coordination and management of individual activities. For potential investors, this means that there are different information sources and organizations to contact, discouraging them from further

commitment or action.

Thus, it would become a major obstacle to promotion of investment by foreign manufacturers. In this recognition, it is proposed to strengthen human resource and function of ICEP's domestic branch office and to position it as a responsible body for comprehensive promotion programs, particularly foreign investment. For this purpose, programs proposed for promotion of investment in the Aveiro-Viseu region should be implemented by ICEP's headquarters and overseas network as far as practicable, thus minimizing financial and other burdens of local governments. An organizational framework for these programs is described in 7.4.

7.2.2 Investment Promotion Programs

(1) Preparation of pamphlets

This program consists of preparation of pamphlets regarding the Aveiro-Viseu region as well as existing PR materials in English and other major languages. These materials will also be distributed to foreign potential investors through ICEP's overseas network, thereby to help establish public recognition of the region.

In preparing the PR materials, financial assistance should be requested for ICEP and IAPMEI to cover printing and other costs. The PR materials should be published at least in English, and preferably in Japanese to maximize their advertising effect.

(Note) Investment promotion pamphlet for Aveiro-Viseu areas were prepared by the Mission in English and Japanese.

(2) Preparation of the manual/guidebook for foreign companies to operate in the Aveiro-Viseu region

A manual/guidebook serves as a reliable source of information for both domestic and foreign companies intending to operate in the region.
This guidebook should include the following information to help potential investors accurately evaluate feasibility of their operation. In this connection, collection, analysis, and editing of relevant data are important and should be conducted by a reliable organization including the central government.

- Investment opportunities and advantages of the region

- Major characteristics of institutional framework relating to foreign investment, and application procedures

- General description and current state of major industrial estates

- Major incentives and their actual application

- Current state of companies (particularly foreign companies) operating in the region

- Current state of subcontractors by sub-sector

(3) Survey on foreign companies operating in the region, and production of visual PR materials

Videos, films, and slides are one of the most effective PR materials, which should report foreign companies operating in the region, in addition to its major features and advantages. The survey on foreign companies should be conducted by one of central organizations, including financial assistance to cover production costs. Each video and film should be around 15 minutes long, featuring the following information:

- Investment promotion policies in the region, and industry sub-sectors given of priority or preference

- Reasons for foreign companies to site in the region

- Tax and other incentives available to foreign companies

- Current state of foreign companies operating in the region, their impacts on local economy, and reputation in local communities

Investment promotion VTR film for Aveiro-Viseu areas were prepared by the Mission in English and Japanese.

(4) Establishment and strengthening of communication network with foreign embassies and ICEP

As neither Aveiro nor Viseu has own base of investment promotion activities in foreign countries, they should rely on embassies and ICEP's overseas network. In particular, establishment and strengthening of an effective communication network should be promoted through ICEP's headquarters. The network will be used for distribution of PR materials including videos and films. Also, the local governments should actively participate or co-sponsor ICEP-led programs, including the sending of investment promotion missions and the receiving of foreign missions.

(5) Co-sponsoring of investment seminars

Investment seminars held in Portugal and foreign countries should include the Aveiro-Viseu region as a co-sponsor, as far as possible. Also, it is desirable to hold investment seminars in the region under co-sponsorship with various organizations, which would have a significant advertising effect.

The region can co-sponsor the following types of seminars by sending speakers and providing PR materials. In addition, it is important to arrange assistance from central organizations in areas of staff, budget, and scheduling, for successful results.

1) Investment seminars co-sponsored by domestic investment promotion organizations, business organizations, and foreign investment promotion organizations operating in Portugal

2) Group meetings with corporations looking for joint venture in the region

3) Group meetings with subcontractors in the region

4) Investment seminars held in foreign countries

(6) Strengthening of consulting service and staff

Foreign investors are often required to go through a complicated process, including site selection (including evaluation), reporting requirements and application procedures relating to investment and incentives. In other words, potential investors may find a certain country or area attractive if it provides consulting service to assist them in the process by staff who are familiar with applicable requirements and procedures. Such staff seem to be available in ICEP which has human resources trained for promotional programs, but ICEP's Aveiro office is not suitable for this task in terms of resource and authority. Thus, alternative solutions are to train in-house staff to consultants or to hire investment advisors who have been trained in outside organizations.

(7) Joint campaigns with related local governments and private organizations

A joint campaign focusing on the region by local governments, public organizations, and business enterprises should be carried out in target countries, while securing government subsidy as far as possible. Such campaign should aim to establish public recognition of the region and to promote investment as well as tourism. Naturally, it is important to have support and assistance of ICEP's local office and related investment promotion

organizations.

(8) Questionnaire survey and follow-up activities

Series of questionnaire surveys should be conducted in key or strategic areas of target countries to identify interest in the region. Companies who responded to each questionnaire should be contacted regularly. In particular, this program consists of the following activities:

1) Listing of companies for the questionnaire survey under cooperation of ICEP's headquarters, foreign investment promotion organizations, and business enterprises;

2) Preparation of questions under advise from outside experts and investment advisors at ICEP's headquarters; and

3) Periodic contact and communication with respondents, followed by individual negotiations if possible.

(9) Development of the investment information system and database

Data and information related to investment in the region should be classified and stored in a centralized system.

In particular, those suitable for storing in a computer database should be inputted to a database system at ICEP's headquarters, so that they can be accessed from computer terminals at ICEP's Aveiro office.

Such database should consist of at least the following lists:

1) Companies and organizations which show interest in investment in the region;

2) Companies which are interested in joint venture with local companies in the region;

3) Local suppliers and subcontractors;

4) Locally available equipment and materials

5) Foreign companies to which direct mail is sent

6) Foreign companies and organizations to which questionnaire is sent

7) Industrial estates and locations

8) Various cost datas

9) Conditions of infrastructure

10) Supplying conditions of utility and tariff

7.3 Expansion and Strengthening of Japanese Investment Promotion Activities

7.3.1 Building of the Information Network

Clearly, activities to promote industrial investment by Japanese industries in Portugal need to take an approach different from European and the U.S. industries by taking into account decision-making procedures and other characteristics peculiar to Japanese companies.

To this date, a number of investment promotion programs has been successfully carried out in Japan under the leadership of the ICEP Tokyo office. At the same time, however various problems and issues have been pointed out from the results of the study team's field survey, information revealed in the process of collecting and analyzing information through the questionnaire survey conducted in Japan, as discussed in previous chapters. This section proposes the various programs ideas for investment promotion with taking these facts into account.

The process should start from the establishment of a reliable network to provide investment information on Portugal to sources which are frequently used by Japanese companies in studying and planning direct overseas investment. In particular, the following organizations provide useful routes for strengthening the information network. Regular contact with these organizations should help establish quick access to useful information and advice.

(1) Strengthening relationship with public agency such as "JETRO" and the use of its domestic and overseas networks

1) Cooperation with JETRO

JETRO is the place Japanese companies most frequently contact to obtain information related to overseas investment and consulting service. Similarly, foreign corporations and investment promotion organizations often rely on JETRO as the first Japanese organization to contact. JETRO is established by a special law as an extra-governmental organization under the Ministry of International Trade and Industry. It operates a global network of offices, 80 overseas and 30 in Japan, and plans and implements a wide variety of projects worldwide. It provides a wide range of service to meet changing and diverse needs of each region, country, project area. Part of its industrial cooperation project, JETRO offers the following services intended to promote Japanese investment in foreign countries and technical cooperation:

a) Collection and dissemination of foreign investment related information to Japanese companies;

b) Dissemination of information to foreign and Japanese investment promotion organizations;

c) Planning and sponsoring of investment seminars, as well as support and assistance;

d) Assistance in sending and receiving of investment and technical exchange promotion missions;

e) Identification of investment and technical exchange projects, and assistance in their implementation; and

f) Listing of companies interested in foreign investment and industrial sites available in foreign countries, their compilation to a database, and consultation based on the database.

These activities are backed up by experienced staff and strategically allocated budget, so that it is important to keep close contact with a department or division which is responsible for a particular activity.

JETRO has its office in Lisbon, which can be used as a primary contact to use JETRO's resources. Through the Lisbon office, access to a vast network of JETRO headquarters can be obtained.

In particular, investment promotion programs in Japan, especially in regional cities other than major cities like Tokyo and Osaka, can be implemented under cooperation from any of 30 JETRO Trade Information Centers throughout Japan. JETRO's network is very useful in designing effective presentation for a particular region or area and identifying potential investors by taking into account local needs. Thus, JETRO should be the first organization to contact in planning such programs.

Considering its vast resources and capabilities, it is important to keep regular contact with JETRO in order to get acquainted with its organization, authority, budget, and projects, which can be fitted into programs initiated by the Portuguese government and other organizations.

2) Establishing Communication Channel with Japan Small Business Corporation

Japan Small Business Corporation, under Small Business Agency of the Ministry of International Trade and Industry, is spearheading promotion and vitalization of small businesses, including assistance in modernization, structural transformation, and diversification. As a result, the corporation has a wealth of information related to small- and medium-sized enterprises in Japan, as collected through regular communication. Such information presumably includes direct investment by small businesses in foreign countries. Thus, the corporation will serve as a good source of information which may lead to discovery of potential investors or companies looking for local partners in Portugal. Also, the corporation has branch offices throughout Japan, which are useful in promotional activities for small businesses in regions other than major cities. To approach the corporation for possible assistance, the first contact should be made with International Business Affairs Division which provides foreign investment information and advice to potential investors. Also, the corporation appoints the Overseas Investment Advisor in each country (region), thus effective communication with the advisor in charge of Portugal will help obtain assistance from the corporation in the future.

(2) Cooperation with international organizations

The Japan-EC Industrial Cooperation Center is an excellent source of information on industrial partnership and direct investment, as well as opportunities to promote joint venture and technical assistance. Collaboration with the center is possible through information exchanges.

(3) Cooperation with major city banks

Most of city banks have customers who may be interested in direct investment in Portugal. They have been collecting up-dated information, providing and consulting with customers for their overseas investment. Therefore, it is essential for the investment promotion to tie-up with those banks which have branch offices in Portugal and interest in business in Portugal.

It should be noted that a division responsible for such cooperation is different from one bank to another, and the division may be required to have consultation with other divisions. In any case, the first contact should be made with the overseas investment desk established at each bank as part of customer service.

(4) Cooperation with Sougou Shousha (general trading companies)

In Japan most of goods are distributed through a hierarchically ordered channel from makers, primary wholesalers, secondary wholesalers, retailers, and consumers. Sougou Shousha (general trading companies) serve as the primary wholesalers and are responsible for settling accounts with makers and providing information to them. In particular, these functions are important in foreign trade; many makers rely on Sougou Shousha in obtaining market information and in market development. Sougou Shousha plays a similar role in overseas investment. Also, Sougou Shousha offers a wide range of service in foreign investment, ranging from collection of information, consultation, to discovery of potential partners in joint venture business. Again it is very beneficial to establish a communication channel with related departments of Sougou Shousha, which can be developed into personal networks and information sources.

(5) Cooperation with business organizations

Many business organizations in Japan are endowed with resources in terms of organization, fund, and information. In particular, regular contact should be maintained with leading business organizations, such as Keidanren, Kankeiren (covering the Osaka/Kyoto region), and Kyuukeiren (covering the Kyushuu region), through periodical visit and distribution of PR materials, which may lead to investment seminars as well as trade or investment promotion missions. Efforts should be made to provide them with updated and detailed information advertising investment opportunities in Portugal. Each of these business organizations has international division which serves as the first contact for investment promotion. Based on this communication channel, an official request for cooperation by high officials of the Portuguese government and ICEP to these organizations, during their visit to Japan, is effective in creating actual programs. Thus, the two-tier approach - establishment of a regular communication channel and request by high officials - is recommended to obtain cooperation from business organizations.

(6) Use of sister city relationship

Although only a few sister city affiliations exist between Japan and Portugal, such as "Porto-Nagasaki", "Aveiro-Ooita" "Leiria-Tokushima" and "Cascais-Atami", these are good starting points to advertise an image of Portugal to regional cities by holding or sponsoring events to promote economic relationship.

These events should preferably be attended by the ambassador or other high official of Portugal, who is likely to be publicized on local news media to create a significant advertising effect.

(7) Establishing a communication network with journalists

Japanese mass media has excellent information gathering capabilities and strong influence on public opinions. The first step is to select a limited number of media from newspapers, TV and radio stations, and magazines, and to provide them with news releases constantly. In the process, efforts should be made to develop closer relationship by supplying useful information and holding press meetings and invited tours. A goal is to win interest of journalists who become acquainted with Portugal and its relationship with Japan.

7.3.2 Programs to Identify Potential Investors

The final stage of investment promotion programs, as listed above, is to induce or lead potential investors to make a final decision by providing detailed information and useful advice.

In this connection, it is important to identify potential investors quickly by implementing various projects in a timely and coordinated manner.

The following sections describe projects proposed for the final stage of investment promotion for Japanese investors, by taking into account decision-making procedures and other characteristics peculiar to Japanese people and companies.

(1) Etablishment of the Japan Desk within ICEP

In the recent few years, ICEP has been stepping up its effort to attract Japanese investment, by hiring a Japanese person at its headquarters to provide information and advice for Japanese companies who are interested in direct investment in Portugal, and to produce and distribute pamphlets in Japanese.

In fact, many Japanese companies and organizations approach ICEP for inquiry, and it is impossible for one Japanese staff to meet their demand. Moreover, job description and authority of the Japanese staff are seemingly not clear, making it difficult to mobilize and coordinate internal resources and functions in a timely and prompt manner.

As Japanese investors attach importance to their first impression in terms of enthusiasm, quick response, and other desirable attitudes of personnel in contact, careful selection of personnel, including Japanese staff, is very important to establish confidence of potential

investors, followed by the final decision making.

Moreover, companies visiting ICEP's headquarters or its office in Japan are considered to be potential investors, who should be received in a welcoming atmosphere and leave with good impression and sufficient information.

This should be done by a team of persons who can effectively communicate with Japanese people and are familiar with Japanese and Portuguese economies, headed by a key staff of manager class.

Our proposal is to make the team an independent section, namely the Japan Desk, which is responsible for promotion of Japanese investment and trade, in particular management of the entire programs in these areas. Ideally, the Japan Desk should consist of a few members including present export promotion advisors sent by JETRO, and it should directly report to the president or the vide president.

To effectively identify Japanese potential investors and to serve prospective investors, establishment of this task force should be given of priority as the most important project.

(2) Organization of Japanese investment advisory group

This is a team of Japanese experts who support the Japan Desk as investment advisors. The advisory group should be led by a Japanese expert representing a public organization to secure fair and neutral viewpoint, with participation of other people representing Japanese companies.

At the same time, another advisory group should be organized in Japan by a number of experts representing public organizations to support ICEP's representative office by giving advice and proposing programs.

(3) Project focusing on Japanese companies operating in countries near Portugal

Some of Japanese manufacturers operating in countries near Portugal may consider the country as the second or third production/material supply base. In particular, large corporations, globally operated corporations in particular are expected to find importance of Portugal in their strategies relating to the EC and Europe, watching the country's comparative advantages and their changes.

As these corporations always look for latest information, periodic seminars on investment climate and particular industry sub-sectors in Portugal are important. Also

effective are special events including guided tours on local industries, leisure, cultural and educational facilities, and housing, which would advertise an overall image of the country.

These seminars and tours should be planned and held by the Japan Desk under cooperation of the Japanese investment advisory group.

(4) Special seminars and meetings for major corporations

It is widely known that a special seminar or meeting for a major corporation is effective in promoting investment.

In this connection, it is important to plan such seminar or meeting for different departments of the major corporation, which are likely to have different policies, strategies and objectives. Also, a special seminar and meeting for a particular industry, including automobiles, automotive parts and accessories, TV sets, VTRs, and semiconductors - which Portugal considers the key products to future industrial development - is meaningful. In this case, detailed presentation by experts and participation of suppliers and subcontractors are recommended to further increase the effect.

(5) 450th anniversary events related project

In 1993 will be the 450th anniversary of the first Portuguese landing on Japan (Tanega-shima), an extensive image advertising campaigns has already started to celebrate the 450th anniversary of first Portuguese landing on Tanega-shima Island of Japan. A variety of special events are being planned and provide opportunities to establish an accurate and favorable image of Portugal. To raise interest of potential investors, investment and trade promotion seminars as well as Portuguese produce exhibitions should be held in major cities, including sister cities. Again, co-sponsoring with local offices of JETRO and Japan Small Business Corporation, local governments, and business organizations, is recommended to maximize their advertising effect.

(6) Questionnaire survey and follow-up service

The questionnaire survey on potential investors will be conducted to identify their perception of Portugal and its investment opportunities. Potential investors here include companies which attended at previous investment seminars, those which visited exhibitions participated by ICEP and Portuguese industries, and those which participated in seminars in regional cities. Then, for companies who responded to the

questionnaire survey with interest, additional source materials including newsletters should be sent on a continuous basis, with call consultation as required. If these efforts result in field tours, they will become prospective investors and a chance of success will increase.

(Note) The Mission conducted this kind of the questionnaire survey in July 1991. (cf. Chapter 4)

7.4 Organizational Arrangement for Program Implementation

The organization is the key to the success of the proposed promotion programs. In particular, there is a need for arrangement to coordinate operations and opinions of ICEP and other public organizations, and business organizations. Furthermore, organizational arrangement of ICEP relating to implementation of investment promotion programs should be reviewed and restructured for each function.

At the same time, a new organization should be established to implement promotion programs for the Aveiro-Viseu region, as proposed below. Such new organizational structure should be linked to an overseas network consisting of related government authorities and business organization, led by ICEP's representative offices.

7.4.1 Program Implementation and Support at the National Level

(1) ICEP's present organization

1) General background

a) Name: Portuguese Foreign Trade Institute (ICEP)
b) Year of establishment: 1982 (Instituto do Comércio Externo de Portugal)
c) Authority: Law to establish ICEP of 1982
Law to reform ICEP of 1988
Law to reform ICEP in dissolution of IIE
(Foreign Investment Institute) of 1989
Organizational reform under Decree 428/91 on October 31, 1991
d) Organization: Under supervision of the Ministry of Commerce and Tourism (Ministério do Comércio e Turisomo)
(See Fig.7-4-1 for its organizational chart)
Headquarters in Lisbon
6 domestic offices (Oporto, Aveiro, Covilhã , Guimarâes, Funchal, and Ponta Delgada)
42 overseas offices in 35 countries (including Tokyo)
e) 589 employees (including 140 local staff, both domestic and overseas)
f) Annual budget: 5.4 billion ESC in 1990
8.7 billion ESC in 1991
7.3 billion ESC in 1992
g) General council (Corselho Geral) responsible for advice and approval of overall management, organized by 5 representatives of business organizations appointed by public organizations and two ministries (Ministry of Commerce

and Tourism, and Ministry of Industry and Energy) designed by law, and ICEP's president and secretary

2) ICEP's functions

ICEP is a public organization responsible for promotion of Portuguese trade and foreign direct investment in Portugal, and its major activities are classified into the following 4 areas:

a) Trade promotion (mainly exports)

b) Promotion of foreign investment

c) Assistance of Portuguese industries in foreign operation

d) Collection, analysis, and dissemination of trade, investment, and economic information

In the area of foreign investment, ICEP is responsible for the following activities:

e) Dissemination of information, support, and guidance to foreign investors

f) Supervision of legal application related to form and registration of investment application, and approval for investment application

g) Advise and guidance for effective contact between foreign investors and public organizations/private enterprises

h) Promotion and support of industrial cooperation between domestic and foreign enterprises

i) Dissemination of information on industrial sites to potential investors, and assistance in site selection

(2) Proposed reform in ICEP's domestic organization

To further strengthen ICEP's present organization and function, the following reform is recommended.

Establishment of an organization which directly advises ICEP's Foreign Investment Division - liaison council on promotion of foreign industrial investment: Such organization is organized by officials of IAPMEI, which accepts and approves application for investment incentives, and B.F.E. which serves as both development and exports/imports banks, and joined by representatives of business organizations such as CIP and AIP.

1) Management of the liaison council

The liaison council will be organized by members representing investment promotion organizations, banks, and business organizations, under the agreement and approval of the Ministry of Commerce and Tourism and the Ministry of Industry and Energy, and under the leadership of ICEP. The council will serve as a public advisory organ for implementation of foreign investment promotion programs. Its secretariat will be located in ICEP (cf. Figure 7-4-1).

2) Functions of the liaison council

a) To endorse basic policies for promotional activities;

b) To consider proposals, requests and implementation polices referred to by members;

c) To decide on actual programs for promotional activities; and

d) To evaluate the above programs.

e) To estimate the program budget and provide advice on budget request.

3) Integration of information networks for the council members

While each member organization is responsible for its own information resources, an integrated database should be established as early as possible. In particular, as programs for promotion of foreign investment are carried out under the leadership of ICEP, databases of the member organizations should be connected to that of ICEP to process related information quickly and effectively.

4) Need for increase in ICEP's staff and budget

To operate the liaison council and to implement promotion programs in an integrated manner, significant increase in ICEP's staffing and operating budget will be required.

7.4.2 Program Implementation and Support at the Local Level

As pointed out in paragraph 7.2, any of existing investment promotion organizations for the Aveiro-Viseu region does not supervise overall promotional activities.

Lack of leadership in investment promotion should be corrected by establishing an organization which defines responsible bodies of implementing a variety promotion programs. This organization is designed to fit into present situation of the Aveiro-Viseu region, thus offering a feasible solution.

(1) Establishment of Aveiro/Viseu Investment Promotion Council

At present, the following organizations are involved in promotion of investment in the Aveiro-Viseu region:

1) ICEP's Aveiro office
2) IAPMEI's Aveiro and Viseu office
3) CCRC's local office
4) Local governments
5) Private industry organizations

The proposed council will focus on promotion of investment, particularly foreign investment and will be organized by selected organizations, among the above, which are eager to promote foreign investment in the region. The council will have its secretariat at ICEP's Aveiro office, which will provide functional linkage to ICEP headquarters which is responsible for investment promotion at the national level. The entire organization of the council is illustrated in Figure 7-4-2.

(2) Management of the council and its activities

1) Management

a) The council will be organized by members representing selected investment promotion organizations.

b) The secretariat will be established at ICEP's Aveiro office.

c) Each of the member organizations will appoint one staff to support management of the secretariat as required.

d) The council will meet at least once per month.

e) The council will be operated in close communication with ICEP headquarters.

f) Operating expenses will be borne by the member organizations which contribute membership fees, while actual promotion programs will be financed by ICEP's and the central government's budget as far as possible.

g) The council may obtain support and assistance of foreign investment advisors who will be hired by ICEP headquarters.

2) Activities

The council will evaluate actual promotion programs proposed in 7.2.2, select target countries, and set priorities for implementation. Its primary responsibility is to coordinate activities and programs of the member organizations on the basis of generally acceptable criteria including rationale and consistency, thereby to maximize the efficiency of promotional activities by taking into account resources available to each member organization.

Also, the council will set forth basic guidelines for promotion of foreign investment and actual operation, and will lead coordinated activities of the member organizations to offer programs in line of such guidelines.

(3) Upgrading of ICEP's Aveiro office

ICEP, in its present organization, is not capable of effectively promoting foreign investment at a local level. If ICEP is to play a central role in establish the proposed organization as well as coordination of promotion programs, ICEP Aveiro office should be upgraded in terms of staffing and authority related to actual promotional activities. In particular, the manager of the Aveiro office should be delegated with more authority to provide basic service focusing on a certain area and/or industry. In other words, the manager should be capable of evaluating, coordinating and directing local-level investment promotion from the interest of the entire region. In this connection, outside consultants or investment advisors may be useful in providing expertise in performing such functions.

Figure 7-4-1 ORGANIZATIONAL ARRANGEMENT CHART

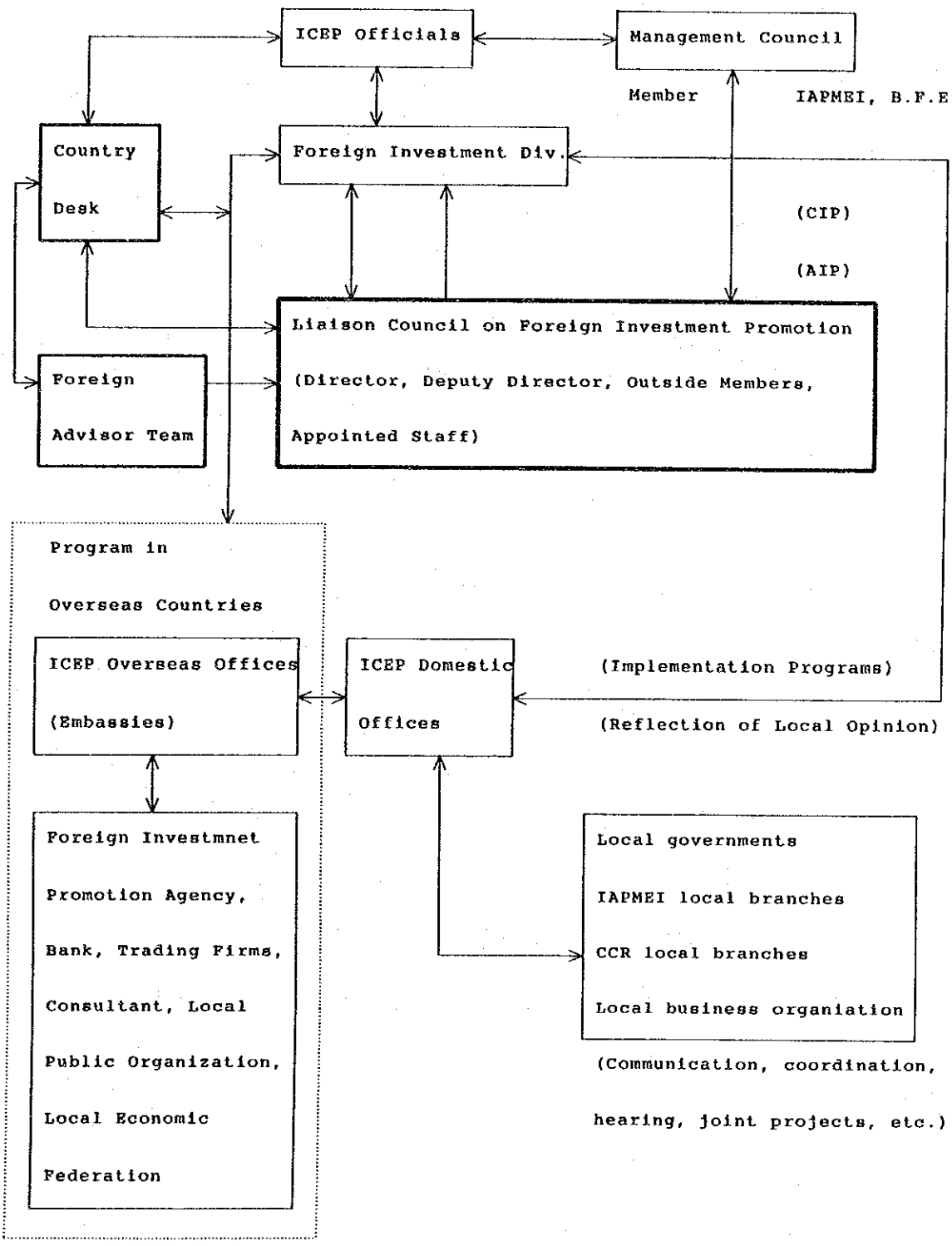
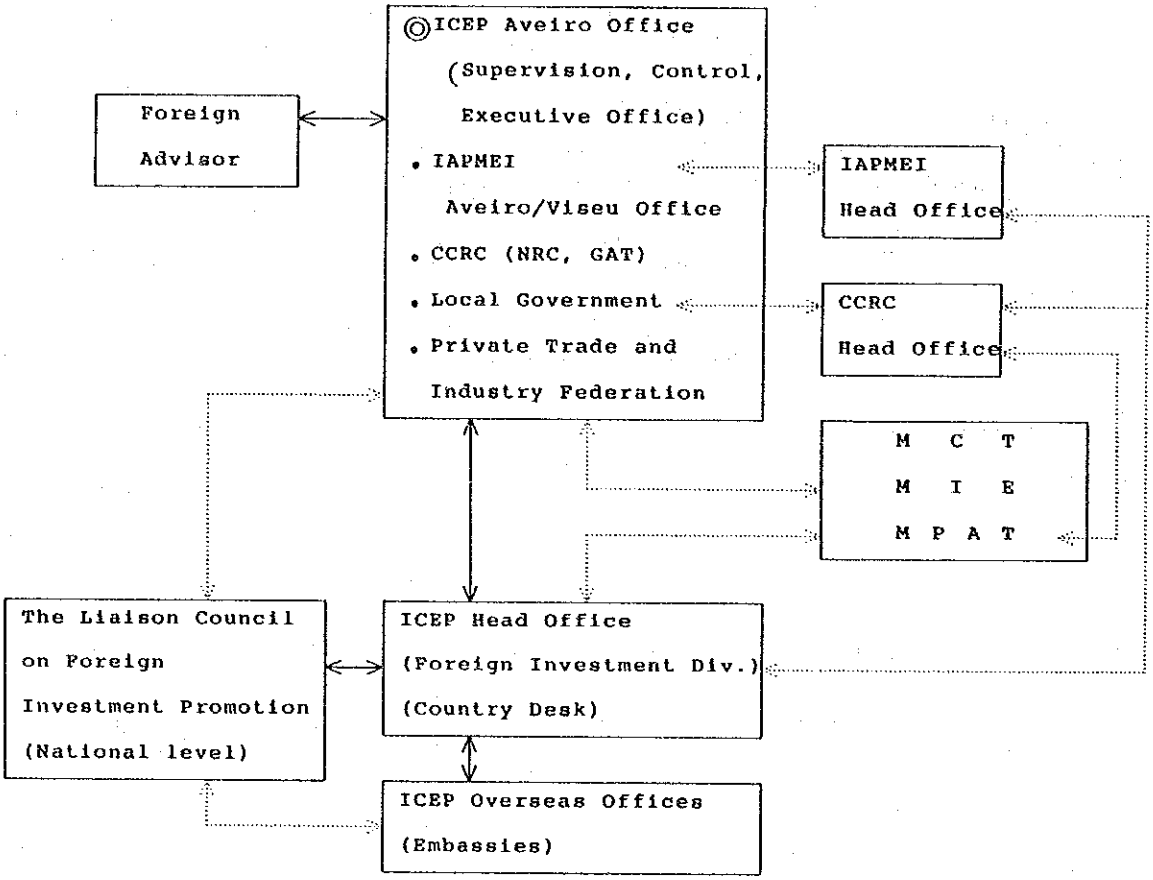


Figure 7-4-2 ORGANIZATIONAL ARRANGEMENT CHART (AVEIRO-VISEU AREAS)



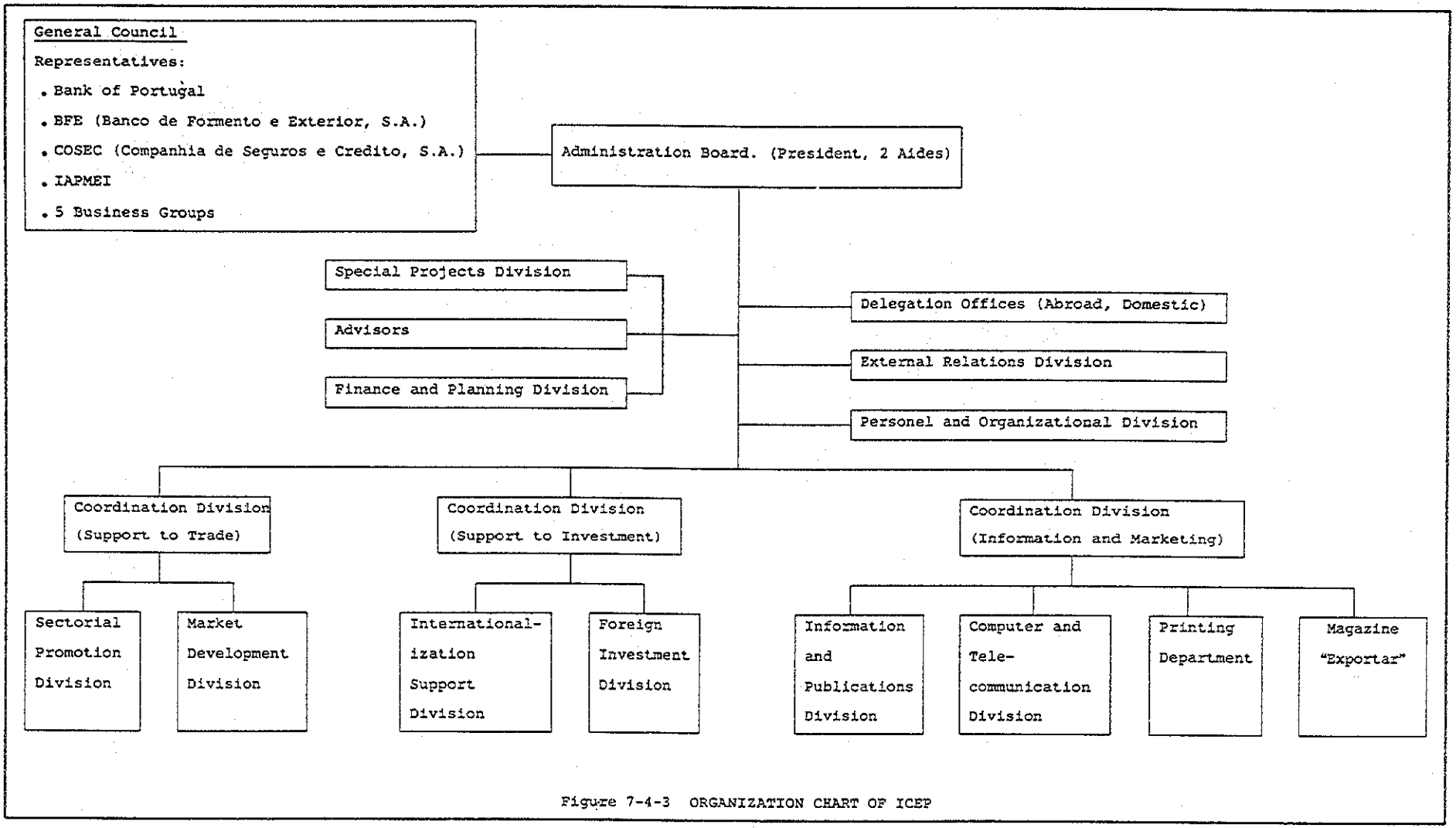


Figure 7-4-3 ORGANIZATION CHART OF ICEP

Chapter 8
INDUSTRIAL DEVELOPMENT PLAN FOR THE AVEIRO-VISEU REGION

Chapter 8 Industrial Development Plan for the Aveiro-Viseu Region

8.1 Prerequisitions for the Industrial Development Plan

This section reviews various prerequisitions for formulation of the industrial development plan for the Aveiro-Viseu region, on the basis of discussions in the previous chapters.

8.1.1 Objectives and Roles of Industrial Modernization in National Economic Development

Before reviewing prerequisitions for the industrial development plan for the Aveiro-Viseu region, major objectives and roles of industrial modernization in the Portuguese economy are described as follows:

(1) General objectives of industrial modernization

A primary purpose of industrial modernization is to increase domestic production of consumer, intermediate and capital goods, thereby to increase and expand income, market, technology and employment for higher standard of living among population. Moreover, modernization of industries in a country improves international competitiveness of domestically produced products to achieve import substitution and/or export expansion, which raises purchasing power of the country from international markets to allow imports of products which cannot be manufactured locally.

Industrial modernization is by no means limited to improve its own sectors in a national economy, rather it directly or indirectly improves productivity of labor in other sectors such as agriculture. As the industrial sector has larger impacts on the national economy, compared to other sectors, industrial modernization is considered as an important means of achieving sound economic growth.

(2) Major Goals for National Economy in Portuguese

As discussed in Chapter 2, when the GDP and working population are analyzed in terms of composition by primary, secondary and tertiary sectors, Portugal already shows a pattern observed in industrialized nations.

Composition by economic sector

Sector	GDP		Employment	
	Portugal ('90)	EUR12 ('88)	Portugal ('90)	EUR12 ('88)
Primary sector	6%	3%	18%	8%
Secondary sector	37%	35%	34%	33%
Tertiary sector	57%	62%	48%	59%
Total	100%	100%	100%	100%

Note: Monetary value is adjusted by purchasing power of each currency for computation of the above.

Source: Table 2-1-4, Table 2-1-5.

In terms of GDP per capita, however, Portugal ranked second from the last among 12 EC countries. Notably, while its economic structure has changed to that of industrialized countries, the GDP per capita was 56 when the average for the EC countries was designated as 100. This indicates low productivity as a total economy. Thus the short-term goal of economic development in Portugal should be set in improvement of productivity in all economic sectors, thereby increasing the GDP per capita toward the EC average.

(3) Industrial Modernization and Improvement of Productivity in the Agricultural Sector

As mentioned in (1), industrial modernization brings trickle-down effects to other economic sectors. This is clearly seen by examining relationship between the manufacturing and agricultural sectors for which urgent modernization is required in the country.

As mentioned before, the GDP per capita was 56 when the average for the EC countries was designated as 100. The low productivity in the primary sector (especially Agriculture sector) has been recognized as a target for modernization by the Portguese government, mainly the Ministry of Agriculture.

Modernization of the secondary sector (particularly the manufacturing sector) would bring the trickle-down effect to the primary sector (particularly the agricultural sector), contributing greatly to productivity of the whole economy, leading to the increase in GDP per capita. This mechanism is illustrated in Fig.8-1-1, which is described as follows.

Today, agriculture in Portugal is dominated by small farms, particularly in the central and northern regions. In Aveiro area, the average size of farmland per farm is just 1ha scattering in several places. Furthermore, farmers often grow different crops in the same crop season, e.g., one farm grows a vegetable on 0.5ha of farmland, while other farm cultivates corn on adjacent 0.5ha.

Such practice prevents intensive farming, resulting in a low utilization rate of agriculture machinery, and farms use different fertilizers and agricultural chemicals even in the same crop season. This deteriorates labor efficiency significantly to lower production per farmer. This is one of reasons why the primary sector shows the lowest GDP per capita. In other words, Portugal - which shows relatively a low unemployment rate - actually has potential unemployment or semi-employment in the agricultural sector.

Now, if industrial investment is made to increase production and labor demand, surplus labor in rural areas is absorbed by the manufacturing sector to accelerate a shift of population from the farming sector. This helps to promote the more integrated use of farmlands, which the Ministry of Agriculture is promoting but faces difficulty. Thus, industrial modernization would contribute to solution for inefficiency in the agricultural sector. However, if productivity in the industrial sector remain at a low level, inefficiency will be handed down from the agricultural sector to the manufacturing sector, so that no increase in GDP per capita occurs.

This is why industrial modernization concurrent with expansion is expected.

(4) Other objectives and roles of industrial development

1) Improvement of balance of payments and stability of the national economy

2) Effective use of resources, and increase in value added

3) Creation of employment opportunities

4) Equal distribution of wealth

5) Correction of various regional difference

8.1.2 National and Local Industrialization Policies

In formulation of regional development program, match-making between the policy of the central government and desire of the local governments is indispensable. The central government pursues a basic policy to modernize and/or develop industries of the following types:

1) Industries utilizing locally available resources (wood, cork, pulp, copper products)

2) Traditional industries (textile, shoes, cork products)

3) Industries which have already established technological prowess

4) Hi-tech industries

5) Information processing industries

6) Export supporting industries

On the other hand, local government authorities in the Aveiro-Viseu region, including district and municipal governments, local organizations of the Ministry of Industry and Energy, and CCRC (Coordination Commission on the Central Region) do not have any uniform policy for industrial development of the area. Nevertheless, industries preferred by these organizations, as compiled from the results of the questionaire survey by the study team (including interview survey on 2 district governments and 10 municipalities) and of the questionnaire survey (responded by 22 out of 29 municipalities), are described as follows (see 5.1.4):

1) Industries ensuring harmony with agriculture and forestry

2) Industries which do not produce pollution problem nor destruct natural environment

3) Industries which do not adversely affect existing small and medium enterprises in the region

Based on the above, the following types of industries can be identified as discussed in 5.1.4 (4):

1) Light industry, preferably hi-tech industry

2) Capital-intensive small- and medium-scale industries (Aveiro area in particular)

3) Modernization of traditional industries

8.1.3 Industrialization and Environmental Preservation

The results of the questionnaire survey which obtained responses from 21 out of 29 municipalities revealed that 20 municipalities selected "industries adversely affecting environment" as the least preferred industry, and 1 municipality selected the same as the second least preferred industry. This clearly indicates that environmental consideration is the most important factor in preparing an industrial development plan for the area. At the same time, any manufacturing industries produce industrial waste. Obviously, the most feasible solution meeting local needs is to select an industry(ies) which produces the least hazardous waste, while developing an effective waste management and disposal system, including hardware and software.

8.1.4 Local Advantages and Constraints

(1) The size of the target region

As examined in 5.1, the Aveiro-Viseu region represents 6% to 7% of the national economy, as measured by various indicators, and this limitted size of economy presents the first constraint in the industrial development plan contemplated in this study; as industrial development is limited to relatively a small area to prohibit diverse or self-sufficiency type of development. Within the context of national economy, the study is to deal with a sector accounting for 6% to 7% of total size of the country.

(2) Socioeconomic and geographical difference between Aveiro area and Viseu area

The project area is made up of two areas which have distinctively different characteristics; Aveiro area which is located in a coastal industrial zone, and Viseu area which is basically a farming area. Although the two areas are located side by side, they have been separated by hills and mountains in between. Recently, however, the two areas have been connected through a high speed road (IP5) which has opened up an east-west route with further access to Europe. Then, another arterial highway (IP3) provides access to a north-south transportation route. Together, these highways have increased development potential of Viseu area significantly.

As mentioned in Chapter 5.1, such significant difference between the two areas, the level of industrialization in particular, calls for two different approaches in planning the industrial development plan. At the same time, a complementary factor should be taken into consideration as these adjacent areas are now linked by the arterial highway (IP5).

(3) Competitive advantages in industrial development and major obstacles

The project area is divided into Aveiro and Viseu areas, and their competitive advantages in industrial development and obstacles are summarized below. They represent a set of conditions to design the development plan.

1) Transportation

Distances between the two areas ;correctly two cities; and major cities by road are summarized as follows.

(Unit:km)

To	From Aveiro	From Viseu	Difference
	(A)	(V)	(V-A)
Porto	68	128	60
Lisbon	255	293	38
Coimbra	58	96	38
Figueira da Foz	64	141	77
V.Formoso (Border to Spain)	192	108	-84
Aveiro	-	84	84
Viseu	84	-	-84

(Aveiro area)

- Two major domestic markets, Porto and Lisbon, are accessible by using either of three highways, IP1, IC1 and IC2. In particular, Aveiro area can be considered as part of the northern economic region centered by Porto.

- As for access to foreign countries within 70 km distance, there are three sea ports, Aveiro, Porto, and Figueira da Foz and an international air port in

Porto, and a high speed road IP5 to Spain which is 192km away.

- Generally speaking, long-distance transport facilities are relatively well developed.

(Viseu area)

- While the area is accessible to major cities via IP5 (east-west) and IP3 (north-south), requiring more time than Aveiro area.

- Access to foreign countries is made by using the same facilities available to Aveiro area after passing the Aveiro city which is 84km away, both air and water, thus requiring more time. As for road access, the Viseu city is located 108km from the Spanish border, with relatively a short distance compared to other major cities of Portugal.

- Located roughly in the mid-point between the coastal industrial zone and the international border, the area has development potential for a distribution center.

2) Industrial base (technological level)

(Aveiro area)

- Aveiro is the third largest industrial city, next to Lisbon and Porto containing a number of factories with relatively high levels of industrial technology.

- Traditional industries are woodworking, metalworking, food processing, paper and pulp, ceramic (tile, porcelain and brick) and leather.

(Viseu area)

- Located in the rural area, Viseu area does not have much industrial base; it is in the first stage of industrialization.

- Traditional industries are woodworking, food processing, paper and pulp, and printing.

3) Natural resource

(Aveiro area)

- Fishery products, agricultural products, wood materials, daily products have been used as raw materials for industrial products, fostering the traditional industries.

- There is few mineral resource available, which could be useful to industrial development of the area.

- Raw materials for ceramic products (porcelain, tile, brick) are still available and consumed by traditional industries.

- There are abundant recreational resources along the coast, and resort development is underway.

(Viseu area)

- Same resources, excepting fishery products, are available in the area. There are abundant supply of raw materials for woodworking and food processing.

- There are uranium mines around Nelas.

- Recreational resources include forest, rivers and lakes, some of which are being developed into resort facilities.

4) Human resources and educational environment

(Aveiro area)

- The area experiences labor shortage, including unskilled workers. The workers with upper and middle skill levels appears short but better than Viseu.

- The area has a higher educational institution, the University of Aveiro. Also, the University of Coimbra and the University of Oporto are in close proximity. All in all, it offers favorable environment for recruiting of university graduates as well as joint projects between universities and private industries.

- Also, there are professional training centers in Aveiro area to offer another advantage in terms of labor market.

(Viseu area)

- The situation is reverse, compared to Aveiro area. While unskilled workers can be employed from rural areas, workers with upper and middle skill levels are in shortage, partly because there has historically been not much demand for them in this area. As a result, there are not adequate township available, making it difficult to recruit them from outside of the area even if demand arises.

- There is an extension facility of a university in Lisbon, and a long-term plan to attract another university which mainly offers liberal arts courses. Thus, Viseu area is not likely to serve as a source of supplying engineers and scientists nor a R&D center in the foreseeable future. As it takes a long period of time to locate an engineering and science university, the University of Aveiro will be possible supply source of engineers and scientists in the area.

- In addition, professional training facilities need to be upgraded significantly in terms of quality and quantity.

5) Industry location

(Aveiro area)

- 7 municipalities classified as industrial level I area (see 5.1 and Figure 5-1-3) as a center of light industries, have reached the stage of reconsidering industrial locations within their communities. Because industrial factories are scattered even within rural areas including resorts. Also, industrial operations are adversely affecting natural environment.

- Murtosa, Vagos, Mira, and Cantanhede, which are classified as the industrialization level III area and contain coastal lines, have economic bases primarily depending upon tourism, fishery, agriculture, and dairy farming. As a result, harmony with these industries is the most important factor to be considered in industrial development. Sever do Vorga (industrialization level III) is located in a hilly area.

- Albergaria-A-Velha and Mealhada (industrialization level II), located wayside of IP1, offer high development potential.

- Industrial estates are developed municipality by municipality in small size having vacancies because of dispersed location and insufficient road network. Also, each locator in the industrial estate is required to develop the site by himself, resulting in variation of fill level and drainage (side ditch) between lots.

(Viseu area)

- As the area is in the initial stage of industrialization, industrial sites can be developed in harmony with natural environment by learning a lesson from the situation in Aveiro area.

- At the same time, a large industrial estate can be developed to attract large corporations. As municipality roads are not well developed, a suitable site should be found along IP5 or IP3.

- With exception of Viseu including municipali-ties to the south, the area is generally located in a hilly area with large difference in elevation, making it difficult to secure a sufficient size of industrial land.

6) Living environment and other factors

Generally speaking, improvement of living environment tends to be neglected in the industrialization policy. In reality, however, living environment is one of the most important concern for recruiting managers, engineers and workers; unless good living environment is provided, it is difficult to promote industrial development under circumstance of near full employment. From this viewpoint, the following compares advantages and drawbacks of the two areas in terms of living environment.

(Aveiro area)

- Aveiro City has most of public facilities and urban services, while it faces the increase in housing cost. On the other hand, surrounding cities are not ready to accommodate residents from other regions or foreign countries.

- One of the most important infrastructure for the industrial development process is a transport network which can move people and goods smoothly at a low cost. Existing roads are, with stone pavement or asphalt covered over stone pavement, likely to become a bottleneck to industrial development.

- The short-distance transportation system within the area is not well developed. In particular, commuter roads and a bus operation system need to be improved significantly. A commuter/industrial road network connected to highways IP5, IC1 and IC2 needs to be newly constructed. Also, development of a residential town for industrial employees in Aveiro area should be planned in conjunction with industrial development projects.

(Viseu area)

- The area is not in a commuting distance from Aveiro (84km away), Coimbra (96km), and Porto (128km). Thus, attractive living environment is needed within Viseu area.

- In particular, as managers and engineers are to be expected coming from other region and foreign countries, there is an urgent need for development of a new community to accommodate these people.

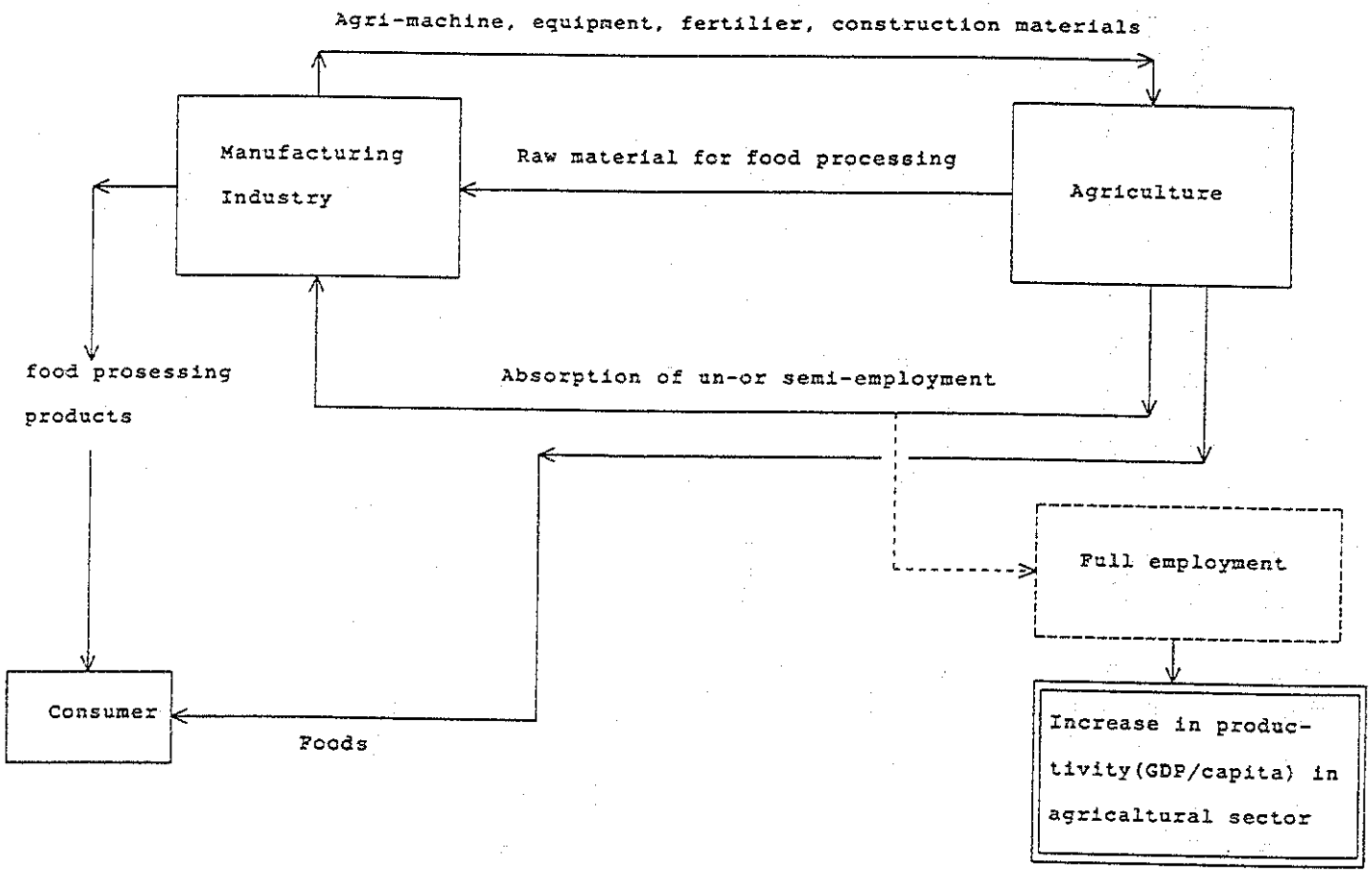


Figure 8-1-1 CROSS RELATION BETWEEN MANUFACTURING INDUSTRY AND AGRICULTURE

8.2 Selection of Prospective Sub-Sectors for Regional Industrialization

In 6.3, product groups were ranked in the order of impacts on national economy by using "total flow method". Then they were classified into "export oriented", "import intensive" or "self sufficiency", and it is known that 43 sub-sectos or product groups occupy 90% of the national total flow. Now, prospective industrial sub-sectors to be included in the regional development plan are selected with reference to the above indices. The first stage of screening conducted in 6.3 relied upon statistical data as selection criteria at a national/macro level. In this section, final selection of prospective sub-sectors is carried out through qualitative analysis which takes account the existing industrial structure of the Aveiro-Viseu region. In the process, 3 negative factors are established for further screening of sub-sectors which have survived through the first screening process. At the same time, sub-sectors rejected in the first screening process, which have a significant value in the region, are re-selected as prospective sub-sectors using a positive factor.

8.2.1 Removal on Negative Factors

(1) Negative factor (A)

1) Daily products, food staff and the like, for which Portugal does not and will not be able to have competitive advantages against other European countries which carry out intensive farming. These products are produced in quantity to supply domestic consumption, thus maintaining self-sufficiency. (e.g., milk and animal feeds)

   Also, familiar products in the Aveiro-Viseu region, which are considered not to have remarkable impacts on contemplated industrial development. (e.g., wine)

2) Food staff and similar products which raw materials are not suitable for cultivation in Portugal due to climate and other natural conditions, and which need to be imported to cover domestic consumption. (e.g., coffee products, and flour-based products)

(2) Negative factor (B)

Products which can obtain international competitiveness by consuming a large amount of petroleum or other mineral resources and by achieving the scale of economy as a result of large investment. Namely products which raw materials are not available in Portugal and which need to be imported because of small domestic consumption.(e.g., petrochemical products, chemical fertilizers)

Note: if these products are to be locally produced, they will be positioned as a national project. Thus it is difficult to select them as prospective sub-sectors for industrial development in a region.

(3) Negative factor (C)

1) Traditionally important export products with a risk of oversupply if further capacity expansion is made. Also, products which are losing competitiveness in export markets and which manufacturers are not much located in the Aveiro-Viseu region. (e.g., spinning and weaving)

2) Traditional export products which raw materials are not produced in the Aveiro-Viseu region and their availability is limited domestically, thus there is no benefit to foster production in the region. (e.g., cork products)

Sub-sectors to be excluded due to any of the above negative factors are selected and listed in Table 8-2-1.

8.2.2 Re-selection Based on Positive Factor

As noted in 6.3, all manufacturing products was categorized into 72 items for which statistical data were available, and top 43 items accounted for 90% of national total flow (= consumption + export = production + import).
However, some of those ranked lower than 43rd were also retained as prospective sub-sector, when they were considered to show the importance specific for the Aveiro-Viseu region.
The product groups re-selected on the positive factor are as follows:

1) Motorcycles and bicycles ranked 65th in terms of total flow at the national level but 90% of them were manufactured in Aveiro area. Thus if modernized in terms of manufacturing technology, they can grow to important export products.

2) Sawn wood is classified under "sawn wood and sawn cork" in statistics. However, wood (cukalyptus and pine) is key products in the Aveiro-Viseu region, while cork is produced in the southern region, so that sawn wood was retained as a prospective sub-sector.

3) Construction materials, which are classified under "cement, gypsum, and construction materials" in statistics, are classified as prospective products, partly because the Aveiro-Viseu region produces tiles and bricks, and partly because demand for other construction materials, such as steel bars, sash, particle boards, and floor materials, is expected to increase with development of the area.

4) Ceramic and leather have a long history in the Aveiro-Viseu region and thus can be used as a technological base.

5) Metal products and machinery and equipment are to be retained as prospective sub-sectors.

So-called hi-tech industries and R&D industries are not reported in official statistics. The former is included in IC and electronic components which are incorporated into electric and electronic products. On the other hand, R&D industries are classified as services, rather than goods, which are not included in industrial statistics. For these reasons and in response to strong request from local people, these industries were designated as prospective sub-sectors.

It should be noted that definitions of hi-tech industries and R&D industries vary with countries, depending upon the level of industrialization in each country; a country calls any non-traditional industries as hi-tech industries.

For the purpose of this study, hi-tech industries are defined as industries manufacturing the following products:

1) Electric/electronic components (e.g., ICs) and electronic products (computers and office equipment)

2) Bio-technology related products

3) Fine chemicals/pharmaceuticals

4) Computerized precision machinery (CAD/CAM)

5) Computer software programs and peripherals, and information processing industry

8.2.3 Prospective Sub-Sectors Selected

Sub-sectors selected through screening on the basis of the negative and positive factors are listed in Tables 8-2-2 (traditional export industry), 8-2-3 (electric/electronic, motorcycles, and chemical products), and 8-2-4 (metal products, and machinery and equipment). Then hi-tech and R&D industries are added as above.

Table 8-2-1 COMMODITY GROUPS REMOVED BY NEGATIVE FACTORS

COMMODITY GROUP	RANKING			
	TOTAL FLOW	PROD'N	IMPORT	EXPORT
I Removed by Negative factor (A)				
1) Prepared animal feeds (ss)	5	3	19	-
2) Flour & cereal flocs (I)	10	-	-	-
3) Milk & milk based products (ss)	14	9	-	-
4) Canned meats (ss)	22	-	-	-
5) Coffee (I)	26	-	-	-
6) Soaps, washing powder, detergents (ss)	29	-	-	-
7) Fats and non-catable oils (ss)	30	-	-	-
8) Bread & other baker's ware (ss)	32	-	-	-
9) Raw & refined sugar (I)	38	-	-	-
10) Brandy, wine, beer & malts (E)	39	-	-	5
11) Tobacco & tobacco products (I)	43	-	-	-
II Removed by Negative factor (B)				
1) Refinery products (I)	1	1	4	7
2) Organic & inorganic chem. products (I)	4	4	2	-
3) Bave iron & steel products (I)	7	11	6	-
4) Synthetic resin & fibres (I)	9	12	7	-
5) Cement, gypsum & construction mat'l (E)	13	-	-	-
6) Fertilizer & pesticides (I)	23	-	18	-
III Removed by Negative factor (C)				
1) Yarn & woven fabrics (E)	2	2	8	2
2) Cordage (I/E)	6	7	11	11
3) Cork arlicles (E)	27	-	6	-
4) Sawn wood & sawn cork (E)	31	-	9	20

Notes: ss = Self sufficiency E = Export oriented I = Import intensive
I/E = Categoliged in both E & I
Production, import and export are ranked by the accumulated value from 1981-1987 upto the top 20.

Table 8-2-2 IDENTIFIED COMMODITY GROUP (Traditional Export Oriented Goods)

COMMODITY GROUP	RANKING			
	TOTAL FLOW	PROD'N	IMPORT	EXPORT
I Garments				
1) Garments, confectionary articles (E)	8	6	-	1
2) Special fabrics (E/I)	54	-	-	17
3) Carpets, rugs & similar products (E)	60	-	-	12
II Food industry				
1) Conserved fruits & vegetables (E/I)	33	-	17	10
2) Conserved fish & fish products (E)	40	-	-	15
III Wood, pulp & paper				
1) Wood pulp (E)	11			
2) Paper, carton & packing material (I/E)	12			
3) Printed & graphics products (ss)	18			
4) Folios, board, wooden furniture	21			
5) Sawn wood	n.a.	included as part of III-4) of Table 8-2-1		
IV Ceramic and glass				
1) Porcelain & pottery products (ss)	45			
2) Glass & glass products (E)	47			
3) Clay products (ss)	48			
4) Construction materials (tiles etc.)	n.a.	included as part of II-5) of Table 8-2-1		
V Leather				
1) Footware excl. rubber & plastic (E)	19	17	-	3
2) Tanned leather (ss)	44	-	-	-
3) Leather goods for personnal use (ss)	69	-	-	-

Notes: refer to Table 8-2-1

Table 8-2-3 IDENTIFIED COMMODITY GROUP (ELECTRICAL, VEHICLES, CHEMICAL)

COMMODITY GROUP	RANKING			
	TOTAL FLOW	PROD'N	IMPORT	EXPORT
I Vehicles				
1) Motor vehicles, parts & components (I)	3	5	1	-
2) Motorcycle & bicycle (ss)	65	-	-	-
II Electrical appliances				
1) Radio, T.V. telecomm. equip. (E/I)	11	14	13	8
2) Electrical machinery n.e.s. (ss)	42	-	-	-
3) Electrical household goods (ss)	55	-	-	-
III Chemicals & Phermaceuticals				
1) Pharmaceuticals (E/I)	17	-	12	19
2) Products from plastic materials (ss)	20	18	-	-
3) Rubber products (I)	36	-	-	-
4) paints (I)	37	-	18	-

Note: refer to Table 8-2-1

Table 8-2-4 IDENTIFIED COMMODITY GROUP (METAL PRODUCTS, MACHINERY)

COMMODITY GROUP	TOTAL FLOW	RANKING PROD'N	IMPORT	EXPORT
I Metal products				
1) Metal products n.e.s. (ss)	15	13	-	-
2) Metal furniture (ss)	61	-	-	-
3) Hand tools	64	-	-	-
II Machinery and equipment				
1) Professional & scientic equip. (E/I)	24	-	5	-
2) Other non-electrical machine (I)	25	-	-	-
3) Industrial electrical machinery (E/I)	28	-	15	16
4) Ships including repair (E/I)	34	-	-	18
5) Food, beverage, construction m/c (I)	35	-	9	-
6) Textile & garments machinery (I)	41	-	10	-
7) Tanks, vats & boiler (I)	53	-	-	-
8) Metal & wood working machinery (I)	57	-	-	-
9) Agriculture machinery & equip (I)	59	-	-	-

Note: refer to Table 8-2-1

8.3 Basic Industrial Development Strategies for the Aveiro-Viseu Region

8.3.1 Objective and Direction of Regional/Industrial Development

Based on classification in Figure 5-1-3, Figure 8-3-1 was developed after several adjustments(Note) to take into account local characteristics pertaining to industrial development as well as measured development potential. This represents the zoning process to establish a basis of industrial development plan; local characteristics in each zone are defined, and objectives and directions of industrial development are established.

As seen in Figure 8-3-1, the Aveiro-Viseu region is divided into the following zones according to their level of industrialization:

1) Industrialized zone
2) Core municipality A
3) Core municipality V
4) Agro-industrial zone
5) Viseu satellite zone
6) Agro-forest zone

(Note): 3 municipalities, Ilhavo, Mealhada, Sever do Vouga, were re-zoned in Figure 8-3-1 from Figure 5-1-3. Reasons for these rezoning are given in each zone.

(1) Industrialized zone
(Local characteristics)

1) This is an industrialized area around Aveiro.

2) 7 municipalities contained in the zone are located old highways, IC1 and IC2, while new principal highway (IP1) runs through them.

Note 1: Ilhavo shows the highest population density as well as the density of manufacturing industry in the region, thus should be classified as the industrialized zone (industrialization level I). However, the municipality is classified as the agro-industrial zone, partly because it does not have direct access to IP1 and partly because it's local characteristics are similar to those of the agro-industrial zone in many respects. Thus, Ilhavo has characteristics of both the industrialized zone and the agro-industrial zone.

Note 2: On the other hand, Mealhada is in the lower level of industrialization (level II), compared to other municipalities classified into the industrialized zone. Nevertheless, it is included in the industrialized zone because of its direct access to IP1 and geographical characteristics similar to other municipalities.

(Advantages and constraints)

Advantages:

1) Established industrial/technological base as the third largest industrial area in the country;

2) Relatively high level of industrial infrastructure (including universities and colleges);

3) Availability of a major market within the zone, and strategic location in terms of access to Porto, Lisbon, and the international border; and

4) Ocean transport access as a gateway to other countries.

Constraints:

1) Limited availability of industrial land and water;

2) Increased risk of environmental impacts, i.e. factories are encroaching in the environmental preservation district;

3) Increase in wage level due to shortage of labor supply; and

4) Increased congestion on road traffic.

(Objectives and directions of industrial development)

1) The zone should be re-developed into a supply center of capital goods, starting from import substitute goods and finally parts and components to the EC.

2) Factories scattered in the environmental preservation district should be relocated to the industrial district.

3) Upgrading of production technology and increase in value added by using the existing technological base, thereby to absorb cost pressure from wage increase.

4) In light of constraints in supply of industrial land and water, small- and medium-scale capital intensive light industries should be attracted.

(Sub-sectors recommended for accelerated development)

1) Automotive parts and components

To meet growing domestic demand in response to large investment products in the automobile industry (including Ford - Volksvagen project).

2) Machinery and equipment/metalworking industries

To upgrade traditional motorcycle and bicycle industries to have international competitiveness. At the same time, to produce import substitutive capital goods and to modernize metalworking industries which support equipment and machinery production, while fostering subcontractors.

3) Hi-tech and R&D industries

To take advantage of opportunities for joint research with Aveiro University and amenities for researchers and engineers.

(2) Core municipality A

Albergaria-a-Velha is positioned as core municipality A (Core-A) in Aveiro area.

(Local characteristics)

1) The municipality is strategically located in terms of road transport, as a crossing point of 2 new principal highways (IP1 and IP5), while having 2 old highways (IC1 and IC2).

2) Relatively high level of industrialization (level II) and availability of industrial land

(Advantages and constraints)

Advantages:

1) Proximity to 2 market and industrial centers, Aveiro and Porto, with good access to Viseu;

2) Relatively high level of industrial/technological base (industrialization level II);

3) Locational advantages in adjacent to the industrialized zone;

4) Relatively abundant supply of industrial land; and

5) Municipality offers very high development potential.

Constraints:

1) Undeveloped road network (physical distribution and commuting) accessible to the new highways;

2) Limit of existing industrial estates which serve as a core of industrial development; and

3) Undeveloped urban amenities and living environment for professional and management class employees.

(Objectives and directions of industrial development)

1) The municipality should be developed to a new industrial and distribution center in Aveiro area.

2) Also, it should be developed as an intermediate point for movement of technology, people and goods to Viseu area.

3) Industrial development to accommodate factories being relocated from the industrialized zone

4) Emphasis on promotion of small- and medium-scale capital intensive light industries and modernization of traditional industries

(Sub-sectors recommended for accelerated development)

1) Machinery and equipment/metalworking industries

The area has a technological base for machinery and equipment production and metalworking by accommodating the largest number of these industries in Aveiro area, while being adjacent to Agueda where less and less industrial land is available.

2) Woodworking industries

There is a large number of woodworking industries using locally available pine and eucalyptus, thus the area can set an example for modernization of traditional industries.

(3) Core municipality - V

Viseu is positioned as core municipality V (Core-V) in Viseu area.

(Local characteristics)

1) Viseu is located at a crossing point of 2 new principal highways (IP5 and IP3). IP3 has been completed for a southward section starting in Viseu, and a northward route is planned to be completed in 1995.

2) Core-V is geographically located in the center of Viseu area, containing relatively large flat land in a basin-like area.

3) The level of industrialization is highest in Viseu area (level II), while there is relatively abundant supply of industrial land.

(Advantages and constraints)

Advantages:

1) Direct access to Aveiro and Coimbra via IP5 and IP3 respectively;

2) Strategically located in the midway between the coastal industrial area and the border with Spain, offering the best access in the country to the rest of European

Continent;

3) Availability of industrial land at relatively a low cost;

4) Abundant supply of unskilled labor with relatively a low wage; and

5) Amenities offered by natural environment.

6) All in all, the area has very high development potential.

Constraints:

1) Limited supply of professional and manager class workers;
2) Remoteness from central markets of Porto and Lisbon;

3) Lack of urban amenities; and

4) Undeveloped local transportation networks accessible to new arterial highways

(Objectives and directions of industrial development)

1) The area should be developed to an industrial and distribution center in Viseu area, as well as a core city for industrial development in the surrounding area.

2) At the same time, it should be positioned as a promotion center for modernization of small- and medium-scale traditional industries in Viseu area.

3) Finally, efforts should be made to develop amenities based on natural environment to attract hi-tech industries in the future.

(Sub-sectors recommended for accelerated development)

1) Electric home appliances and automobile assembly

To attract major investment from foreign countries in industrial areas which are relatively labor-intensive and have a wide range of subcontracting industries, thereby serving as a basis of fostering local industries. Such industries are expected to serve domestic and EC markets. Especially, electric home appliance industries satisfy these requirements.

2) Food processing, woodworking, furniture, leather, ceramic, and printing

These are traditional industries in the area, and their modernization (in terms of design and production technology) should be promoted.

3) Hi-tech (electronics) industries

In particular, the electronics industry requires clean air and water. While Viseu area offers locational advantages, other amenities should be developed over a long period of time.

(4) Agro-industrial zone

(Local characteristics)

1) This zone consists of 5 municipalities located along the coast of Aveiro area. It has developed along old national highway (IC1) and is not served by a new arterial highway. Murtosa is not served by IC1 too.

2) The zone is classified as industrial level III, excepting Ilhavo which is rated as level I. Major industries in the zone are agriculture, fishery, dairy farming, forestry, and tourism. Thus, the word "agro" represents these primary products and services.

3) The above analysis is supported by percentage distribution of manufacturing industries in the zone, where food industries using primary products account for 56%, well above an average 39% in Aveiro area.

(Advantages and constraints)

Advantages:

In terms of industrial development potential, the zone does not have significant advantage compared for further industrialization.

Constraints:

1) It is difficult, in general, to secure sufficiently large industrial land, in light of harmony with other non-manufacturing industries.

2) To use the new principal highway, it is necessary to go to Aveiro first via IC1 and other old roads.

(Objectives and directions of industrial development)

1) To organize and modernize existing small- and medium-scale enterprises as well as microenterprises.

(Sub-sectors recommended for accelerated development)

1) Food processing

Emphasis should be made on food processing industries using locally available products (agriculture, fishery, and dairy) and serving the domestic market.

(5) Viseu satellite zone

(Local characteristics)

1) This zone consists of 5 municipalities located on the south side of Viseu which is expected as a center of industrial development.

2) The level of industrialization is still low (level III). The zone is endowed with water resources and contains wide flat land.

3) It is generally suitable for resort based on rivers and forest.

(Advantages and constraints)

Advantages:

1) Development potential has increased, as IP3 runs through centers of Tondela and Santa Comba Dao, and IP5 passes the northern part of Mangualde.

Constraints:

1) Lack of direct access to Aveiro, Porto, and other European countries (via Viseu), being relatively remote from major markets and industrial areas.

2) Weak industrial base

(Objectives and directions of industrial development)

1) Industrial development should be promoted in close coordination to Viseu (Core-V), to which the zone has strong linkage in terms of road transport and geographical proximity.

2) As the first stage, the priority should be given to Tondela and Mangualde which are closer to Viseu and new principal highways (IP3 and IP5).

(Sub-sectors recommended for accelerated development)

1) Sub-contractor in Viseu

Industries supplying parts and components to major industries to be attracted in Viseu (Core-V), including metalworking, plastic, and rubber.

2) Modernization of traditional industries (woodworking, food processing, and metalworking)

Food processing accounts for 50% of manufacturing industries currently located in this zone, while woodworking represents 19% and metalworking 18%. Emphasis will be placed on developing competitiveness of these industries with foreign products which are expected to be imported in large quantities after the unification of the EC.

(6) Agro-forest zone

(Local characteristics)

1) The zone consists of 10 municipalities; 8 municipalities on the north side of Viseu (Core-V), Mortagua on the southwest side of Viseu, and Sever do Vouga in Aveiro area which is adjacent to Viseu area having similar geographical characteristics to the others. It is rated as the lowest level of industrialization (Level IV) except Sever do Vouga in Level III.

2) The zone does not enjoy much benefits from the new principal roads. Of 9 municipalities classified in Level IV, Oliveira de Frades and Vousela which are

served by IP5, and nearby S.Pedro do Sul show a higher level of industrialization than other 5 municipalities.

(Advantages and constraints)

Advantages:

In terms of industrial development potential in the near future, the zone does not have significant advantage.

Constraints:

1) There are many slopes in the zone, making it difficult to obtain suitable industrial land in sufficient size.

2) Poor road access

3) Weak industrial base

(Objectives and directions of industrial development)

1) For the time being, promotion efforts should be limited to further development of traditional industries. In the long run, diversification of industries should be contemplated to enjoy benefits from a trickle-down effect of industrial development in Viseu (Core-V).

(Sub-sectors recommended for accelerated development)

1) Woodworking industry

To increase value added for the woodworking industry using locally produced materials.

8.3.2 Basic Industrial Promotion Strategies

Policies and strategies to promote industries in a region or means to implement them (programs/projects) are roughly classified into the following two viewpoints:
The first type is characterized as promotion measures at a national level, which cover all regions and industries and aim for improvement of manufacturing technology, promotion of inter-industrial linkage, industrial decentralization, and domestic and foreign investment. Programs and projects to implement these policy objectives include industrial standardization, education and training, inspection of materials and products, quality control, research and development, dissipation of market and technical information, investment incentives, and financial support.

Another type is classified as measures focusing on a certain area and/or industry. Regional industrial promotion on selected regions and promotion of specific sub-sectors are included in this category. Needless to say, industrial promotion on a regional basis can be achieved within the framework of the promotion measures at a national level. On the other hand, industrial promotion measures for a certain region contains various elements applicable to other regions, some of which can be taken up as a national policy.
In this study, issues which need to be dealt with at a national level, or which are considered to be important in the context of the study's purpose, are discussed as "policy recommendations in the section 8.5."

On the basis of the above understanding and the results of the study, the following strategies are established for industrial promotion in the Aveiro-Viseu region.

Clearly, all the local governments (municipalities) in the region do not welcome the industries which may adversely affect the region's environment, and environmental preservation is one of major national policies. Also, the local governments expect industrialization in harmony with existing industry sectors. Thus, the first strategy can be expressed in the following statement, which is also considered as the prerequisite to industrial development.

(Strategy 1) Industrial Promotion in Harmony with Environment

> Industrial development must be promoted in harmony with natural environment, within the context of environmental preservation policies of the national and local governments. In particular, a contemplated industrial development plan should take into account the principles and guidelines of the National Agriculture Preservation Program (RAN) and the National Ecological Preservation Program (REN). At the same time, industrial promotion should be in harmony with other industrial sectors, e.g., agriculture, forest and fishery.

As discussed in detail in Chapter 5, and 8.1 and 8.2, Aveiro and Viseu have significantly different characteristics, in terms of the level of development, geography, topography, and industrial structure, different strategy needs to be established for each area, as expressed in the following statements.

(Strategy 2) Modernization and Upgrading of Industries in Aveiro

The Aveiro area is the third largest industrial area next to Lisbon and Porto. However, it faces its limit for further industrial development, without effective management, due to conflict with other land uses such as farming, forestry and housing, shortage of labor supply, and environmental problems. Thus, industrial development in the area should focus on promotion of more sophisticated, higher value-added, and hi-tech industries by using industrial base which has established to this date, in addition to relocation of existing industries.

(Strategy 3) Accelerated Promotion of Industries in Viseu

Under this strategy, the first priority is given to Viseu, the core municipality having the highest development potential. Then efforts should be directed toward surrounding municipalities with the next highest potential. In this connection, as it is difficult to accomplished the objective by a combination of existing small enterprises with conventional facilities and technologies, large corporations having a diverse range of support industries should be attracted to the core municipality as a basis of accelerated industrial promotion.

Then, another important factor to be considered in the industrial promotion strategy is a new highway (IP5) which has connected the two areas to facilitate interaction. As regional development in Portugal is confined to coastal areas and its expansion to inland areas, so-called "eastward advancement", IP5 provides an opportunity for the region to become a model case of "eastward industrialization". In this context, the fourth strategy is expressed as follows.

(Strategy 4) Industrial Dissemination and Establishment of Industrial Linkage

This strategy first focuses on dissemination of industrialization from the Aveiro area to the Viseu area, as well as the establishment of industrial linkage between the areas. The second priority should be given to industrial decentralization and the strengthening of

inter-industrial linkage in each area or municipality. It should be noted that decentralization, dissemination, and linkage should be induced consistently with economic principles, not forced by law or government action.

The Aveiro - Viseu region have a diverse range of traditional industries; food processing, metalworking (steel furniture), machinery and transport equipment (bicycles and motorcycles), sawn wood and woodwork, paper and pulp, ceramic (tile and porcelain), textile and garment, and leather products (footwear). Although these industries, excepting food processing, supply important export items, they are generally slow in modernization and are likely to competitiveness after the unification of the EC market. Thus, the fifth strategy should address this issue.

(Strategy 5) Modernization of Traditional Industries

The most effective means to maintain or strengthen international competitiveness of traditional industries is to manufacture products which meet changing market needs. Competitiveness in terms of design, quality, and pricing requires modernization of manufacturing technology. Thus, this strategy aims to introduce advanced technology needed for traditional industries.

Now, the above five strategies are incorporated into the industrial promotion concept for the Aveiro-Viseu region, as follows:

To promote industrial dissemination within the context of environmental preservation and harmony with other industry sectors, through separate development strategies for the Aveiro and Viseu areas, which are significantly different in characteristics, while ensuring the stronger linkage between the areas. In particular, effective support and assistance should be provided for traditional industries, dominated by medium- and small-size enterprises, for the purpose of strengthening their international competitiveness in preparation for the unification of the EC.

8.3.3 Selection of Programs/Projects to Implement Basic Strategies

Each of above 5 strategies for industrial promotion in the Aveiro-Viseu region accompanies various objectives. To accomplish each objective, a set of conditions (prerequisites) are required. The results of the survey indicate that the Aveiro-Viseu region has achieved relatively a high level in some conditions, while lacking some of industrial infrastructure.

In this section, conditions which are essential in achieving a development objective but lack or are in sufficient in the region are identified for each strategy as development "requirements". These conditions may be considered as "input" required to accomplish the objective. Then, means to meet these requirements, denoted here as programs or projects, are identified.

(Note) Programs and projects are often used interchangeably by most of organizations. Generally speaking, programs mainly cover guidelines, strategies, policies, movements, systems, educational activities, and other which largely contain "software" part. Beneficiaries of the programs extend wide range of people, thus they are considered as a general plan. A sub-program or a project is a way to achieve an objective of a program and this is positioned below the program.
At the same time, there are wider programs being positioned above other programs to cover a broader concept. For example, the "National Long-Term Economic Development Program" is thought to be at the highest level program in the national planning framework.
On the other hand, projects generally refer to individual projects which accompany capital investment, including facility construction and other "hardware", and which identify beneficiaries by area, group, or etc. In practice, however, as a program is developed to the stage of implementation, the difference between the sub-program and the project becomes blurred.

Assuming that there are "sub-programs" and "projects" to implement or materialize "programs", development policies in this section - as called "strategies" - can be coined as "programs", whereas means to implement them are considered as "sub-programs" or "projects". Identifying requirements for each program (strategy), and means to satisfy such requirements (sub-programs/projects) are summarized as follows:

(1) Industrial promotion program in harmony with primary factor and environment - both areas (See Figure 8-4-1)

(Requirements)

1) Appropriate factory sites well equipped with infrastructure in the industrial zone

2) Well organized industrial waste management system
3) Relocation of factories scattered in the agro-forest zone to the industrial zone

(Sub-programs/projects)

1) Industrial park construction project
2) Centralized industrial waste treatment facilities construction project
3) Support sub-program for factory relocation

(2) Restructuring and upgrading program of industries in Aveiro area (See Figure 8-4-2)

(Requirements)

1) Relocation of factories scattered in the agro-forest zone to the industrial zone
2) Diversification to high value-added capital goods production
3) Groundwork for fostering hi-tech and R&D industry.

(Sub-programs/projects)

1) Industrial park construction projects in Aveiro and vicinity municipalities
2) support sub-program for factory relocation
3) Joint-venture job promotion sub-program for latest/modern technology introduction

(3) Intensive industrialization program of the core municipality in Viseu area (See Figure 8-4-3)

(Requirements)

1) Creation of industrial seeds (large scale industry)
2) Preparation of investment climate
3) Groundwork for inviting hi-tech and R&D industry

(Sub-programs/projects)

1) Large scale foreign investment attraction sub-program - assembling industries
2) Large scale industrial park construction projects
3) Township construction project

4) Viseu airport upgrading project

(4) Industrial dissemination program to potential areas and less-industrialized areas - both areas (See Figure 8-4-4)

(Requirements)

1) Mechanism and infrastructure for easy movements of personnel, goods, capital and information
2) Linkage/subcontracting jobs among areas and municipalities

(Sub-programs/projects)

1) Industrial park construction project
2) Large scale investment attraction sub-program - assembling industry

(Note)

The concept of industrial dissemination is shown in Figure 8-3-2, which is made up of the following directions:

1) Within each municipality, from the existing industrial zone to the area along the new highway;
2) Within the Aveiro area, from the existing densely industrialized area to Albergaria-a-Veiha and Mealhada which are located along the new highway and have industrial infrastructure;
3) Within the Viseu area, from Viseu to its vicinity; and
4) From the Aveiro area to the Viseu area (as well as foreign investment).

(5) Modernization program of traditional industry and introduction of new technology - both areas (See Figure 8-4-5)

(Requirements)

1) Foreign investment in the form of direct investment
2) Investment to capital intensive projects for modernization of technology, equipment and machinery
3) Modern management method instead of traditional family type management skill

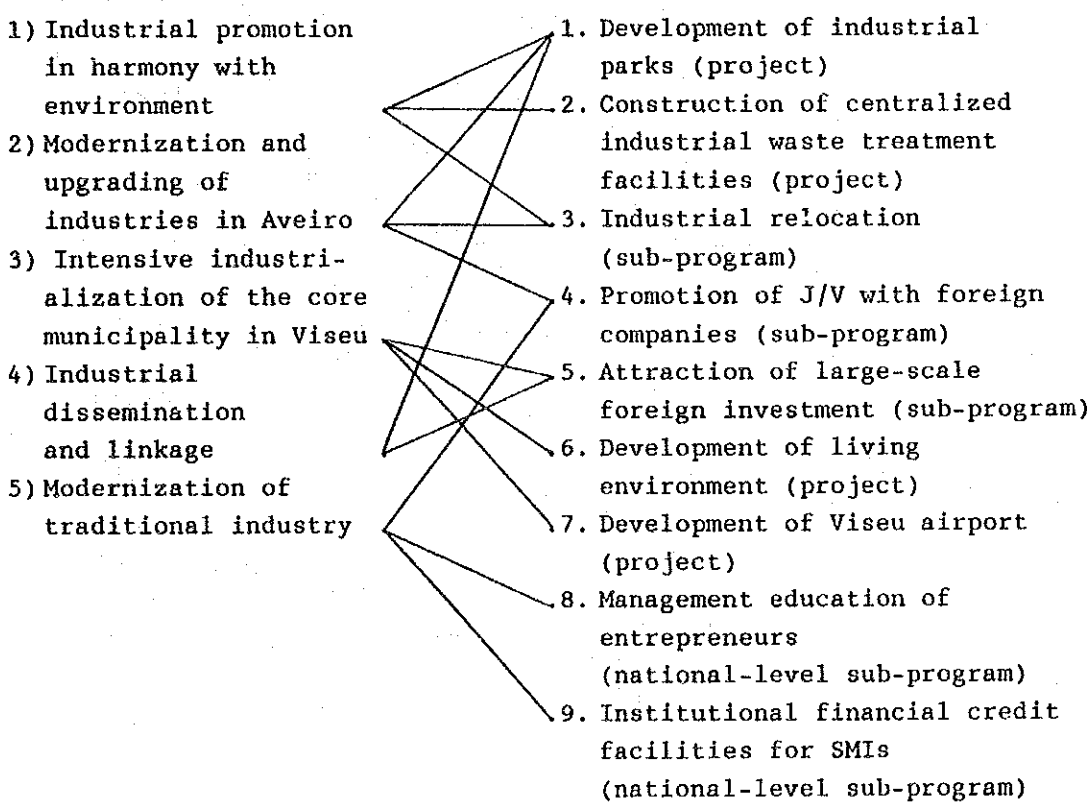
(Sub-programs/projects)

1) Institutional financial credit facilities sub-program for new investment especially for SMIs.
2) Education sub-program for entrepreneurs in managerial skill
3) Foreign investment attraction sub-program for the region

(Note)1) and 2) above should be dealt with at a national level.

Sub-programs/projects proposed above, designed to meet "requirements for development", contain those which address local issues to be implemented under leadership of local municipality, and those which are to be dealt with at a national level. Also it became apparent that one sub-program or project could serve as a means to accomplish the development objective of more than two programs.

Relationship between these programs and sub-programs/projects is summarized as follows:



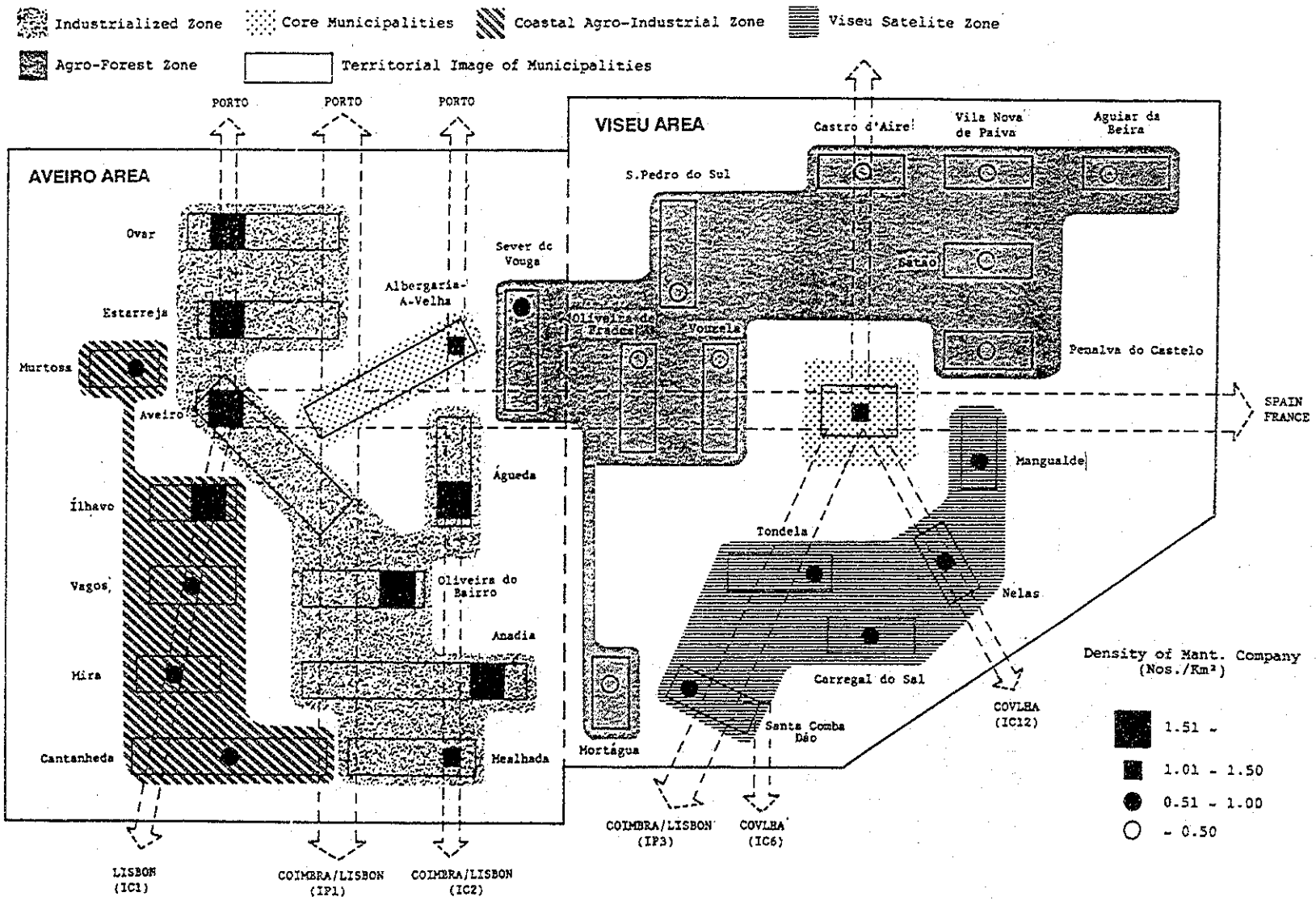


Figure 8-3-1 ZONING FOR INDUSTRIAL PROMOTION PLANNING

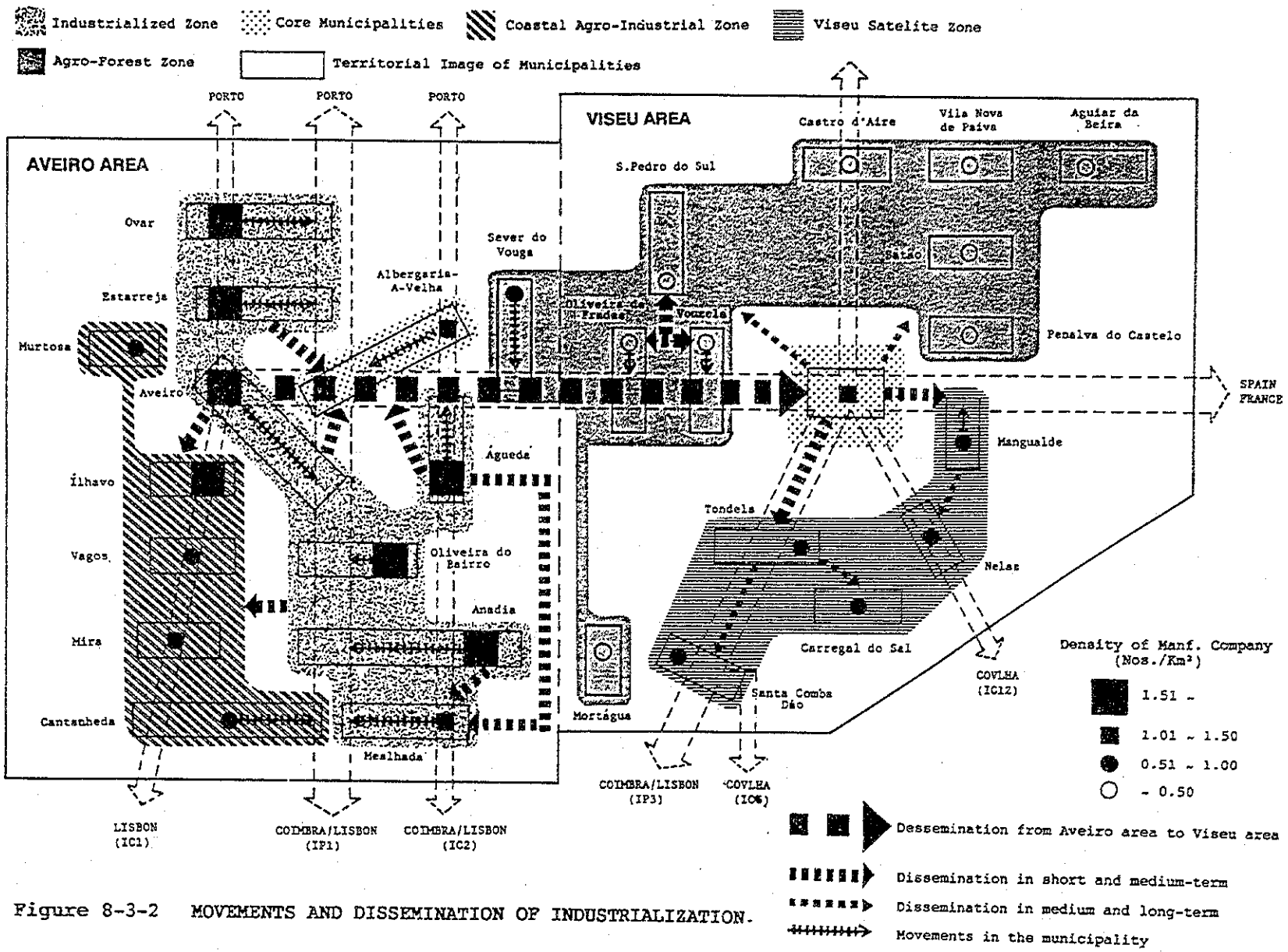


Figure 8-3-2 MOVEMENTS AND DISSEMINATION OF INDUSTRIALIZATION.