

- Support related to quality improvement
- Quality analysis, testing, evaluation, and assurance services
- Promotion of standardization
- Technology transfer
- Education and training of engineers and technicians
- Dissemination of technical information

Currently, the centers are mainly conducting research projects upon request from the member and non-member companies, but they do not yet conduct their own research activities. Nevertheless, they have advanced facilities and equipment and effectively support industries in solving advanced technical problems which cannot be dealt with by private companies in terms of technical level and/or resource. The centers carry out as much as several hundred research projects annually, serving as an important source of revenue. In addition, they conduct joint research projects on technological innovation, corporate management, and technology transfer, with other research organizations, universities and government organizations, as well as foreign research organizations. Also, an effort is being made to improve technical capabilities by sending research staff to other domestic organizations as well as foreign organizations for advanced training, while conducting training projects for middle class engineers in response to request from corporations. The technological centers currently in operation are listed as follows:

- CATIM-Metalmechanics (Porto)
- CTCV-Ceramics and Glass (Covina)
- CTIC-Footwear (S.Joao da Madeira)
- CEVALOR-Ornament Stones (Borba)
- CITEVE-Textile and Clothing (Famalicao)
- CTCOR-Cork (Lourosa)
- CTIMM-Wood (Porto)

The CTIM is the technological center related to the mechanical industry, rendering services to calibrate dimension, pressure and temperature measuring instruments and to issue certificates under the Metrology Law. Organization charts of CATIM and CITEVE are shown in Figures 3-5-15 and 3-5-16.

3) New Technology Research Institutes (Instituto da Nova Techologia)

These are non-profit private research organizations jointly established by the government and the private sector to promote interdisciplinary coordination and

integration of new technologies. Basically, it serves as an interface between universities and related industries for development of advanced technology and improvement of industrial technology. It carries out research activities with the following objectives.

- a) To play a leading role in development of economy, technology and society;
- b) To conduct research and development at national and project levels;
- c) To improve environment related to basic and application researches;
- d) To provide advanced technical training for young engineers and to establish an academic research organization capable of developing advanced knowhow;
- e) To help modernize the university system to meet urgent needs for human resources by industries; and
- f) To foster entrepreneurship among young people through AITEC (Tecnologias da Informacao S.A. - Business Incubator).

Research activities at national levels are conducted by university faculty members, graduate students in Master's or Doctor's program, and undergraduate students. Research budget is financed by grants from the government and the EC, revenues from educational service and entrusted projects from private companies (including foreign-affiliated corporations), while the universities bear labor cost. The new technology centers currently in operation and their research fields are as follows.

- National Systems Engineering and Computer Institute (Instituto Nacional de Engenharia de Sistemas e Computadores - INEC)

Locations:

Porto, Lisboa, Coimbra, Aveiro

Research fields:

- Electronics and microelectronics
- Optical and optoelectronics
- Graphic computer engineering
- CAD and software engineering
- Industrial automation
- Telecommunications

- Institute of Mechanical Engineering and Industrial Management (Instituto de Engenharia Mecanica e Gestao Industrial - INEGI)

Location: Porto

Research fields:

Automation control

Materials and technological processing

Fluid mechanical application and heat transfer

- New Technologies Development Institute (Instituto de Desenvolvimento de Novas Tecnologias - UNINOVA)

Location: Monte de Caparica

Research fields:

Computers

Environmental science

Chemical uniting of elements into a compound

Applied natural science

- INOVA-

Location: Azores

Research fields: Agriculture and daily products

(4) Major findings and issues

- 1) Educational organizations are divided into two groups according to their supervisory ministries; the Ministry of Education and the Ministry of Employment and Social Security. The educational system under jurisdiction of the Ministry of Education consists of compulsory education, secondary education, and higher education. It mainly provides general education, with professional education being offered in part of secondary education as well as higher education. On the other hand, the educational system supervised by the Ministry of Employment and Social Security principally provides professional education, which starts at relatively a low grade. Excepting compulsory education, the two educational systems are clearly divided into specific fields and courses. Although opportunities to select a desired field and course are given to all students, coordinated educational guidance seems to be important to continuously motivate students in the course of study.

- 2) A diploma is issued upon completion of each course to be recognized as an official academic record. At each stage, students are free to find employment or to enter a school of higher grade. Also, no tuition is required for all the educational courses excepting secondary education and higher education under the Ministry of Education. Furthermore, scholarships and subsidiaries to cover transportation and meal costs are available. These are forming well-developed educational infrastructure, while enrollment appears to be limited by various factors such as living environment and transportation systems.
- 3) The educational system as a whole is designed to provide students with opportunities to select their course of study freely and to encourage them to develop own abilities depending upon willingness and effort. The system is relatively new after the recent reform and has not produce noticeable results, but it is expected to contribute greatly to development of human resources in the future, provided that proper guidance for course selection is provided. In essence, it is important to develop abilities of students to identify and solve problems by using course materials containing practical training, built upon basic education.
- 4) There are relatively a small number of university graduates, and a large percentage of them seems to enter research fields, whereas not many of them enter business. Study should be made to find major reasons for this, and effective measures should be devised to supply competent people to the business community.
- 5) While R&D organizations in Europe and the U.S. emphasize basic research, as seen in Japan, application research plays a critical role in promoting industrial development. For this reason, it is recommended to promote application research within corporations, in addition to existing research organizations.
- 6) Although Portugal standards (NP) are being established in coordination with international and EC standards, our survey suggest that they are not widely recognized in the domestic industries, which use foreign standards including DIN, EN, IO, BS, and NF. Public advertisement is required to promote adoption of NP.
- 7) To ensure further development of Portugal amid world trends and drastic changes - centered around information and internationalization, higher education should offer high quality and function. Competent human resources, together with advanced R&D capabilities, are critical in coping with unknown problems related

to the advanced information society, high-technology, globalization of political, economic and cultural systems. These point to increasing importance of the higher education system and the R&D system.

Table 3-5-1 PRODUCTION RECORD OF METALLIC AND NON-METALLIC MINERALS IN 1989 AND 1990

(Unit: tons; million Escudos; percent)

MINERALS	1989				1990				VARIATION 1989 TO 1990	
	Volume t	Share %	Value Mil. Esc.	Share %	Volume t	Share %	Value Mil. Esc.	Share %	Volume percent	Value percent
COAL	229271	14.1	1460.2	4.1	283529	14.9	1477.0	2.9	23.7	1.2
Anthracite	229271	14.1	1460.2	4.1	283529	14.9	1477.0	2.9	23.7	1.2
MINERALS OF IRON	12800	0.8	49.0	0.1	13360	0.7	53.4	0.1	4.4	9.0
Iron manganese	12800	0.8	49.0	0.1	13360	0.7	53.4	0.1	4.4	9.0
METALLIC-MINERALS	413313	25.5	31706.0	89.4	670495	35.3	47694.4	94.0	62.2	50.4
Copper	409347	25.2	28742.3	81.0	661595	34.8	44249.2	87.2	61.6	54.0
Tin	81	0.005	53.5	0.2	4741	0.2	719.2	1.4	5753.1	1243.7
Gold and silver	1327	0.1	372.9	1.1	1641	0.1	415.3	0.8	23.7	11.4
Titanium	110	0.01	0.4	0.001	42	0.002	0.1	0.0002	-61.8	-61.4
Tungsten	2296	0.1	1633.7	4.6	2344	0.1	1526.8	3.0	2.1	-6.5
Uranium (U308)	152	0.01	903.2	2.5	132	0.01	783.8	1.5	-13.2	-13.2
MINERALS FOR CHEM. INDUSTRY AND FERTILIZER	186494	11.5	556.5	1.6	143024	7.5	486.8	1.0	-23.3	-12.5
Baryta	1860	0.1	7.9	0.02	1480	0.1	7.2	0.01	-20.4	-9.7
Lithium	18264	1.1	91.3	0.3	7614	0.4	39.2	0.1	-58.3	-57.0
Pyrites	166370	10.3	457.2	1.3	133930	7.0	440.4	0.9	-19.5	-3.7
SALT	591543	36.4	457.3	1.3	646422	34.0	437.4	0.9	9.3	-4.3
OTHER NON-METALLIC MINERALS	88645	5.5	577.3	1.6	72557	3.8	329.3	0.6	-18.1	-43.0
Diatomite	2690	0.2	32.3	0.1	2270	0.1	21.6	0.04	-15.6	-33.2
Felspa	69584	4.3	421.6	1.2	54873	2.9	248.7	0.5	-21.1	-41.0
Quartz	4720	0.3	7.0	0.02	7252	0.4	10.0	0.02	53.6	43.0
Talc	11651	0.7	116.5	0.3	8162	0.4	49.0	0.1	-29.9	-57.9
STONE, CLAY AND GRAVEL	101029	6.2	659.3	1.9	71151	3.7	285.9	0.6	-29.6	-56.6
Washed kaolin	58297	3.6	633.0	1.8	40151	2.1	265.9	0.5	-31.1	-58.0
Unwashed kaolin	42732	2.6	26.2	0.1	31000	1.6	20.0	0.04	-27.5	-23.7
T O T A L	1623095	100.0	35465.5	100.0	1900538	100.0	50746.3	100.0	17.1	43.1

Notes:

1) Value quotations are in current prices.

Source:

JICA Study team compilation from: Directorate General of Geology and Mines; 'Annual Activity Report 1990'; p. 19.

Table 3-5-2 PRODUCTION AND PRODUCTIVITY IN WHEAT, RICE, CORN, POTATOES AND TOMATOES IN PORTUGAL: 1980 TO 1988

YEAR	W H E A T			R I C E			C O R N			P O T A T O E S			T O M A T O E S		
	Cult.area ha	Product. t	Prodivity t/ha	Cult.area ha	Product. t	Prodivity t/ha	Cult.area ha	Product. t	Prodivity t/ha	Cult.area ha	Product. t	Prodivity t/ha	Cult.area ha	Product. t	Prodivity t/ha
1988	293861	394265	1.342	33027	146102	4.424	250089	646788	2.586	116610	855799	7.339	n.a.	456264	n.a.
1987	323092	532450	1.648	32230	144416	4.481	256873	640393	2.493	123033	1112420	9.042	n.a.	463314	n.a.
1986	315045	499657	1.586	32291	149426	4.627	252729	611369	2.419	118750	1062349	8.946	n.a.	656461	n.a.
1985	282033	394750	1.400	30302	146525	4.832	240776	530770	2.204	125619	1135900	9.042	n.a.	735709	n.a.
1984	291822	465395	1.595	29903	134054	4.483	251164	481090	1.915	122567	1037995	8.469	n.a.	729241	n.a.
1983	330864	326839	0.988	28483	109059	4.118	276322	424357	1.536	120815	905302	7.493	n.a.	557761	n.a.
1982	353071	424530	1.202	33683	143394	4.257	351752	421150	1.197	114430	982750	8.588	n.a.	523095	n.a.
1981	339833	315170	0.927	25210	111887	4.438	347693	376670	1.083	107635	829230	7.704	n.a.	394823	n.a.
1980	350767	429510	1.225	34691	154768	4.461	376575	489240	1.299	113849	1117920	9.819	n.a.	456638	n.a.

Notes:

- 1) Data refer to mainland Portugal only, due to the frequent omissions of data in the Statistical Yearbook for the Azores and Madeira, which make a useful inclusion impossible.
- 2) n.a.= not available, the Statistical Yearbook does not identify the area under cultivation.
- 3) Production data on tomatoes refer only to the production for use in the food manufacturing industry, i.e. mainly for manufacturing of tomatoe paste.

Source:

JICA Study team compilation from "Annual Statistical Yearbook", issues 1980 to 1990.

Table 3-5-3 PRODUCTION OF FRUITS, MEAT, MILK AND WINE IN PORTUGAL: 1980 TO 1989
(Unit: hectare, ton, liter, hectoliter)

YEAR	UNIT	F R U I T S		M E A T			M I L K			W I N E		
		Cult.area ha	Product. t	Prodvity t/ha	TOTAL t	BEEF t	PORK t	OTHER t	TOTAL l	COW l	OTHER l	TOTAL hl
1989		n.a.	n.a.	n.a.	526504	105864	210491	210149	1187231	1059132	128099	n.a.
1988		86980	345800	3.976	504873	100508	191356	213009	1157966	1034064	123902	3602911
1987		85938	396335	4.612	507790	90580	208311	208899	1121193	998497	122696	10741762
1986		82317	365168	4.436	462927	91146	178045	193736	1043807	925937	117870	7615396
1985		82709	401340	4.852	439057	91313	174490	173254	965920	843104	122816	9567298
1984		170121	409141	2.405	453303	92557	183295	177451	912848	792505	120343	8392904
1983		170343	444817	2.611	477714	101901	175763	200050	915368	797025	118843	8249143
1982		170184	472520	2.777	482502	116700	178939	186963	908500	792586	115914	10030972
1981		171552	384726	2.243	483844	113846	177977	192021	902230	790618	111612	8818705
1980		176597	427200	2.419	451057	97310	154794	198953	853227	734457	118770	10035463

Notes:

- 1) Data refer to mainland Portugal only, due to the frequent omissions of data in the Statistical Yearbook for the Azores and Madeira, which make a useful inclusion impossible.
- 2) n.a. = not available.
- 3) All data quoted for the year 1989 are provisional.
- 4) The category "MEAT" covers only the amount, which has been presented to the meat inspector for certification. The category "OTHER" includes: sheep, horse, poultry and game meat.
- 5) The category "OTHER" under "MILK" covers goat and sheep milk.

Source:

JICA Study team compilation from "Annual Statistical Yearbook", issues 1980 to 1990.

Table 3-5-4 PRODUCTION, EXPORT - IMPORT BALANCE OF MAJOR FORESTRY BASED PRODUCT GROUPS : 1980 TO 1987

(Unit: as indicated)

TYPE OF FORESTRY BASED MANUFACTURING ACTIVITY	CATEGORY	UNIT	1980	1981	1982	1983	1984	1985	1986	1987
SAWN-WOOD	TOTAL PRODUCTION	1000 m3	1672	1518	1291	1275	1324	1378	1439	1454
	TOTAL EXPORT	1000 m3	1024	884	900	897	1048	1061	1159	1045
	TOTAL IMPORT	1000 m3	35	32	27	17	19	19	27	34
	EXPORT-IMPORT BALANCE	1000 cont.	6664	5374	6324	8038	12303	14231	16942	19503
PARTICLE BOARDS	TOTAL PRODUCTION	1000 m3	364	379	371	420	490	560	628	725
	TOTAL EXPORT	1000 m3	83	74	86	125	188	290	360	424
	TOTAL IMPORT	1000 m3	0.05	0.08	0.16	0.12	0.03	0.25	3.31	4.69
	EXPORT-IMPORT BALANCE	1000 cont.	600	623	862	1623	2772	4784	6663	9287
FIBRE BOARDS	TOTAL PRODUCTION	1000 m3	74	74	73	77	72	69	69	88
	TOTAL EXPORT	1000 m3	23	16	17	26	33	30	25	28
	TOTAL IMPORT	1000 m3	0.10	0.12	0.07	0.20	0.34	0.35	1.10	2.59
	EXPORT-IMPORT BALANCE	1000 cont.	293	237	261	515	766	809	773	1022
PLYWOOD	TOTAL PRODUCTION	1000 m3	23	26	26	24	21	22	23	21
	TOTAL EXPORT	1000 m3	7	12	11	5	1	4	5	4
	TOTAL IMPORT	1000 m3	0.13	0.09	0.07	...	0.16	0.13	0.37	1.06
	EXPORT-IMPORT BALANCE	1000 cont.	113	188	106	41	50	222	207	5
WOODEN FURNITURE	TOTAL PRODUCTION	1000 cont.	9299	9688	9462	10889	11599	12890	15621	21766
	TOTAL EXPORT	1000 cont.	455	376	395	679	991	2132	2402	3838
	TOTAL IMPORT	1000 cont.	21	24	36	68	94	82	812	2333
	EXPORT-IMPORT BALANCE	1000 cont.	434	352	359	610	897	2050	1565	1504
PULP	TOTAL PRODUCTION	1000 t	814	832	877	991	1097	1306	1375	1406
	TOTAL EXPORT	1000 t	445	463	515	636	663	895	890	1026
	TOTAL IMPORT	1000 t	37	33	21	22	24	46	38	41
	EXPORT-IMPORT BALANCE	1000 cont.	8635	11399	14106	20633	37913	46525	48498	73660

Table 3-5-4 (2)

TYPE OF FORESTRY BASED MANUFACTURING ACTIVITY																	
PAPER	TOTAL PRODUCTION	1000 t	520	537	541	581	598	596	606	598							
	TOTAL EXPORT	1000 t	152	156	171	193	221	220	224	198							
	TOTAL IMPORT	1000 t	69	82	85	80	82	103	136	178							
	EXPORT-IMPORT BALANCE	1000 cont.	244	-127	-677	822	3855	1896	-2265	-9745							
CORK 3)	TOTAL PRODUCTION	1000 t	21	19	17	18	18	17	16	17							
	TOTAL EXPORT	1000 t	19	16	18	19	20	17	18	20							
	TOTAL IMPORT	1000 t	28	17	12	6	11	13	20	23							
	EXPORT-IMPORT BALANCE	1000 cont.	7067	6930	8629	12292	15340	16212	17840	22282							
RESINS	TOTAL PRODUCTION	ton	134339	123827	126602	102035	100000	104000	108438	95042							
	TOTAL EXPORT	ton	92590	94140	117510	115370	95740	107130	11410	8940							
	TOTAL IMPORT	ton	130	319	90	80	150	160	400	2000							
	EXPORT-IMPORT BALANCE	1000 cont.	4107	5173	5259	5050	6991	7484	8016	9278							

PART 2 OF 2

Notes:

- 1) ...: Data are not available.
- 2) Valuc quotations are in current prices and contos. 1 conto is equivalent to 1000 Escudos.
- 3) Production data cover those for 'rolled cork' only, which accounts for roughly 25% of total production.

Source:

JICA Study team compilation from 'Forestry Profile Portugal'. Directorate General of Forestry, Ministry of Agriculture and Fisheries, 1991. (The document is in Portuguese language, translation of the title into English by JICA Study team mission).

Table 3-5-5 SUMMARY OF FISH CATCH UNLOADED AT PORTUGUESE HARBORS BY MAJOR TYPES OF FISH SPECIES : 1980 TO 1989

YEAR	UNIT	TOTAL CATCH (*)	DIADROMOUS FISH	SUB TOTAL	TUNA	S. E. A.				F. I. S. H.		SARDINE	OTHER	CRUSTA-CEOUS	SHELLFISH/AMPREY/	CATFISH
						CODFISH	MACKAREL	SAUREL/HORSE MA.	WHITING/FISH	WHITING/HARROT						
1989	t	304827	1056	265676	13087	19313	7344	33587	10972	11882	91341	78170	3661	34411	13	
	mil. Esc.	60264.6	565.9	47614.7	1566.3	3938.6	331.9	5337.8	3017.8	5457.9	3842.3	24122.1	3975.6	8061.2	46.3	
1988	t	313804	455	291576	17399	13453	9716	37184	11513	22737	95058	84516	3661	18106	6	
	mil. Esc.	58056.2	215.0	47509.6	2022.8	2847.6	624.4	5431.9	2589.6	6639.1	3644.9	23709.4	4721.8	5597.1	12.6	
1987	t	312695	114	291306	14418	6554	15782	35657	12979	24385	90416	91105	3844	17423	8	
	mil. Esc.	50030.3	61.6	41957.4	1737.1	1743.6	786.5	4925.2	2452.1	7737.6	2881.2	19693.9	3705.4	4295.7	10.6	
1986	t	318773	124	304519	14007	20051	16201	34330	7610	26776	103832	81712	3290	10835	5	
	mil. Esc.	44117.8	58.4	39291.6	1492.6	4642.4	707.2	5320.6	1719.3	7080.1	3323.3	15006.2	2246.7	2513.6	7.6	
1985	t	273681	680	261680	9330	16721	15520	23687	5074	22690	111887	56771	1833	9485	3	
	mil. Esc.	31940.4	214.4	28640.3	908.2	4633.9	487.1	3384.5	1263.3	4439.6	3017.8	10505.9	1329.2	1753.2	3.4	
1984	t	243423	659	233283	8573	13651	12432	28341	6793	17381	95343	57769	1618	7859	4	
	mil. Esc.	26391.0	169.4	23671.9	646.6	3317.1	339.4	3655.8	1458.3	3486.9	2217.0	8560.8	1154.7	1391.1	3.9	
1983	t	223486	598	213230	7443	9680	4083	42573	6159	15591	86233	41468	1187	8467	4	
	mil. Esc.	20719.5	128.6	18485.4	452.1	1905.5	169.9	3436.7	1259.3	3040.6	1935.6	6285.4	699.8	1400.7	5.0	
1982	t	239544	782	231213	8282	9311	5986	36357	6211	11898	101057	52111	664	6879	6	
	mil. Esc.	16778.9	113.6	15426.4	468.4	1627.8	154.2	2679.8	962.9	2402.7	1371.1	5769.5	354.2	877.3	7.4	
1981	t	264398	1035	252116	6784	14738	4809	26895	5941	24960	113735	54254	467	10770	10	
	mil. Esc.	16651.8	111.1	15248.8	305.5	2039.9	90.5	2069.4	870.6	3076.2	1322.1	5424.5	256.8	1029.9	5.1	
1980	t	271508	658	259625	9391	19480	6670	30712	6628	28680	106537	51337	609	10615	1	
	mil. Esc.	14432.9	73.1	13016.1	301.4	1603.1	163.9	1929.3	793.5	2869.8	1173.6	4181.6	291.9	1051.2	0.6	

Notes:

*) Refers to the catch made by the Portuguese fishing fleet and unloaded at Portuguese harbors. Volumes do not include those, unloaded by foreign owned vessels in Portuguese harbors. Values quoted refer to the 'selling price' achieved at auctions in the relevant harbors. They constitute, therefore, no retail prices.

Source:

JICA Study team compilation from 'Annual Statistical Yearbook', issues 1980 to 1990.

Table 3-5-6 NUMBER OF REGISTERED VEHICLES BY EC COUNTRIES (1989)

Country	No. of registered vehicles*
Portugal	1,908,231
Spain	13,675,316
France	27,758,000
W. Germany	32,079,645
U.K.	25,737,430
Italy	26,382,000
Netherland	5,928,155
Belgium	4,080,394
Denmark	1,900,033
Greece	2,230,715
Luxembourg	193,787
Ireland	137,778

Note: Passenger and commercial vehicles

Source: 'The Motor Industry of Great Britain' by SMMT

Table 3-5-7 NUMBER OF HOLDING AIRCRAFTS BY TAP

	1985	1987	1989
Total No. of Aircraft	32	25	26
☆Long-Range Aircraft (13)	(13)	(9)	(10)
• Boeing B707	8	4	7
• A-310/300	—	—	3
• Lockheed L. 1011	5	5	—
☆Middle-Range Aircraft (15)	(15)	(16)	(16)
• Boeing B727/100	4	4	4
• Boeing B727/200	4	4	9
• Boeing B737/300	7	8	3
☆Substitution	(4)	(—)	(—)

Source:TAP

Table 3-5-8 FLIGHT SERVICE BY TAP

	1985	1987	1989
No. of Flight	12,100	12,500	17,300
• Regular Flight (%)	87.2	99.8	99.9
• Nonregular Flight (%)	12.8	0.2	0.1
No. of Passenger	1,363,000	1,444,000	1,890,000
(Occupied ratio) %	69.0	70.0	67.0
Cargo Operation (t)	30,300	30,100	39,500

Source:TAP

Table 3-5-9 FLIGHT SERVICE BY AIR ATLANTIS (1989)

Market	No. of Flight	No. of Passenger	Occupied Ratio %
W. Germany	418	92,092	74
Belgium	124	31,643	84
Spain	41	7,880	65
Scandinavia	59	14,485	78
France	139	29,082	65
Holland	158	36,008	80
Italy	85	13,412	53
Portugal	340	54,727	64
UK/Ireland	1,014	253,969	83
Swiss	52	9,492	67
Others	33	8,548	

Table 3-5-10 CORPORATE PERFORMANCE OF TAP, ANA

	1985		1987		1989	
	TAP	ANA	TAP	ANA	TAP	ANA
No. of Employee	9,757	2,757	9,547	2,671	9,711	2,660
Capital Stock (Million ESC)	7,037	2,128	8,037	6,000	16,688	10,000
Expenditure	87,114	9,485	98,892	13,603	141,300	17,123
%						
Personnel Expenses	25.3	51.9	31.2	53.1	27.3	51.5
Financial Expenses	10.4	3.6	9.5	5.3	7.2	4.2
Depreciation	6.0	18.0	2.3	21.3	2.7	21.6
Revenue	81,957	10,818	95,979	16,814	133,680	20,803
Earnings	-5,157	1,333	-2,913	3,211	-7,620	3,803

Source: TAP, ANA

Table 3-5-11 AIRPORT UTILIZATION BY AIRLINE (1989)

Airline	No. of Flight	Passenger (Thousand)	Cargo (Thousand tons)
TAP	33,658	3327.4	61.9
LAR	20,583	565.8	0.1
Air-ATLANTIOS	4,745	533.2	0.0
British Airways	2,466	244.4	1.7
AIR FRANCE	2,367	233.7	2.8
DAN-AIR	2,189	281.3	0.2
BRITANNIA	2,072	300.1	0.0
IBERIA	1,972	192.3	1.7
LUFTHANSA	1,697	135.9	4.8
VARIG	1,453	129.6	3.0
SWISSAIR	1,428	135.8	3.8
KLM	1,405	125.1	4.0

Source: ANA

Table 3-5-12 CARGO OPERATION IN MAINLAND PORTUGAL

(Unit: thousand ton)

	1988	1989	1990
Import	25,967	29,800	32,583
Increasing ratio (%)	8.8	14.8	9.3
Export	9,220	11,003	12,109
Increasing ratio (%)	13.0	19.3	10.0
Total	35,187	40,803	44,692
Increasing ratio (%)	9.9	16.0	9.5

Source: ADMINISTRACAO DOS PORTOS
DOURO E LEIXOES

Table 3-5-13 TRADE CARGO OPERATION SHARE BY MAJOR PORT

(Unit: %)

	1988	1989	1990
Viana do Castelo	0.7	0.7	0.7
Leixoes	18.5	18.4	17.9
Aveiro	3.3	3.0	3.0
Lisboa	24.6	23.3	21.9
Setubal	4.6	8.0	7.6
Sines	31.2	31.7	33.4
Others	2.4	2.0	1.7
Ocean Cargo	85.3	81.7	86.1
Others	14.7	12.9	13.9
Total	100.0	100.0	100.0

Source: ADMINISTRACAO DOS PORTOS
DOURO E LEIXOES

Table 3-5-14 PORT FACILITIES IN PORTUGAL (1989)

	L i f t	Crane	Gantry Crane	Truck	Fork Truck	Light Vehicles
Lisbon	19	45	2	34	—	71
Porto	57	58	2	37	505	24
Sines	2	58	1	2	—	62
Castelo	8	6	9	—	—	—
Aveiro	9	13	17	—	—	—
Foz	8	8	5	—	—	—
Setubal	4	12	6	—	—	—
Portimao	4	4	6	—	—	—
Faro	2	3	1	—	—	—

Source: MOPTC

Table 3-5-15 BERTH FACILITIES IN MAJOR PORTS (1989)

	No. of Berth	Berth Area (1,000 m ²)	Total Length of Berth (m)	Depth of Water (m)
☆Lisbon Port				
• Bulk Cargo Berth	14	134.0	2,249	5~12
• Liquid Cargo Berth	16	—	1,820	4~14
• General Cargo Berth	22	468.0	5,614	4~9
• Container Terminal	12	213.0	2,000	4.5~13
☆Port Port				
• Dock 1-North	3	9.1	455	9
• Dock 1-South	4	8.9	520	9
• Dock 2-North	6	24.3	670	10
• Dock 2-South	6	22.8	691	10
• Dock 4-North	2	25.0	400	11
• South Pier	3	28.0	290	6.6
• North Container Terminal	2	15.5	360	9
• South Container Terminal	2	52.0	400	11
• Oil Terminal	3	—	—	5.5/9.5/14
☆Sines Port				
• Oil Terminal	6	×	×	10~28
• Petro-chemical Terminal	2	×	×	11~12
• Multi-purpose Terminal	1	×	×	18

Source: MOPTC

Table 3-5-16 BERTH FACILITIES AT MAJOR PORTS IN THE CENTRAL & NORTHERN REGION
(1989)

	No. of Berth	Total Length of Berth (m)	Depth of Water (m)	Berth Area (1,000 m ²)
<u>VIANA DO CASTELO</u>				
• General Cargo Berth (South)	5	475	8	160
• General Cargo Berth (North)	—	1,055	4	80
<u>AVEIRO</u>				
• New Commercial Berth	5	500	8	160
• Industrial Port	3	126	5~6	—
• Old Commercial Port	4	400	6	47
• Fishing Port	15	266	4.5	
<u>FOZ</u>				
• General Cargo Port	5	462	6	35

Source: MOPTC

Table 3-5-17 FOUR MAJOR PORTS IN PORTUGAL
CARGO OPERATION VOLUME (1989)

(Unit: thousand ton)

	Bulk	Liquid Cargo	General Cargo	Container
<u>Lisbon</u>				
• Loading	391.6	10.4	598.1	1141.1
• Unloading	4959.1	5030.3	985.9	767.1
<u>Port</u>				
• Loading	294.9	1687.4	814.7	560.0
• Unloading	1245.3	5000.2	1173.6	474.7
<u>Sines</u>				
• Loading	—	8180.5	—	—
• Unloading	2501.6	9242.5	—	—
<u>Setubal</u>				
• Loading	663.9	0.3	317.9	0.3
• Unloading	523.5	1492.9	383.7	2.7

Source: MOPTC

Table 3-5-18 COMPANY PROFILE OF CTT (1990)

1) (1990)

a) Telephones	New Installation	212, 077
	19.3/100 inhabitants	
b) TELEX	25/1000 inhabitants	
c) VIDEOTEX	Total using hour	79, 962
	No. of User	3, 246
d) Car Phones	No. of User	6, 461
e) Investment (10 ³ Contos escudos)		63, 174
f) Employees (1990)		28, 533

2) Balance Sheet of CTT

	(Million ESC)		
	<u>1988</u>	<u>1989</u>	<u>1990</u>
Sale Revenue	97, 723. 6	113, 472. 5	140, 451. 5
Other Revenue	5, 901. 2	6, 692. 3	8, 724. 0
Commission	13, 945. 5	14, 072. 9	16, 817. 9
Total Revenue	117, 570. 3	134, 237. 7	165, 993. 4
Total Expenditure	15, 279. 0	125, 338. 3	155, 296. 3
Earnings	2, 291. 3	8, 899. 4	10, 697. 1

Table 3-5-19 COMPANY PROFILE OF EDP

	1987	1988	1989
Total Generation of Electricity (GWH)	18,469.9	20,612.2	23,945.3
Hydroelectric	9,061.5	12,167.3	5,966.7
Thermal Power	9,408	8,444.9	17,978.6
Purchasing (Import)	3,024.4	2,390.1	1,164.6
Purchasing	46.1	48.2	36.0
Others	45.3	98.6	371.8
• Total Power Supply	21,585.7	23,149.1	25,517.7
• Total Power Consumption	21,495.1	22,951.9	24,774.1
• Revenues (Million ESC)	225,825	254,276	293,057
• Investment (Million ESC)	112,294	106,959	96,777

Source Technical Report 89 EDP

Table 3-5-20 DETAILS OF EDP POWER GENERATION

	1987	1988	1989
POWER GENERATION CAPACITY	6,156 (100)	6,229 (100)	6,600 (100)
Hydroelectric	2,957 (48%)	3,030 (49%)	3,065 (46%)
Thermal Power	3,199 (52%)	3,199 (51%)	3,535 (54%)

Table 3-5-21 TOTAL LENGTH OF TRANSMISSION & DISTRIBUTION LINES

	1987	1988	1989
Transmission Lines (km)	5,753	5,768	5,778
Distribution Lines (km)	41,634	42,786	44,191

Table 3-5-22 POWER CONSUMPTION BY INDUSTRIAL SECTORS (1989)

Textiles	18.4%
Chemistry and plastic	10.8%
Food industry and beverages	9.7%
Cement	8.1%
Iron and steel	5.4%
Porcelain and glass	5.2%
Metalic products	4.9%
Paper	4.7%

Table 3-5-23 AREA OF TRAINING

1	ARTES DO ESPECTACULO
2	PRODUCAO ARTISTICA
3	DESIGN E DESENHO TECNICO
4	ARTES GRAFICAS
5	PRODUCAO GRAFICA
6	CONSTRUCAO CIVIL
7	INFORMATICA
8	TEXTIL, VESTUARIO E CALCADO
9	ELECTRICIDADE E ELECTRONICA
10	QUIMICA
11	METALOMECANICA
12	AGRO-ALIMENTAR
13	HOTELARIA, TURISMO, E OUTROS SERVICOS PESSOAIS
14	AMBIENTE E RECURSOS NATURAIS
15	ACCAO SOCIAL
16	INFORMACAO, COMUNICACAO E DOCUMENTACAO
17	ADMINISTRACAO, SERVICOS E COMERCIO
18	OUTRAS

Source: 'ENSINO TECNOLOGICO ARTISTICO E
PROFISSIONAL' MINISTERIO DA EDUCACAO, 1991

Table 3-5-24 PROFESSIONAL SCHOOL

Region	NO. of Establishment				No. of Students 1991/1992				Average No. of Students per School
	1989	1990	1991	Total	1st year	2nd	3rd	Total	
NORTE	25	19	9	53	2,691	1,603	840	5,134	96.9
CENTRO	9	5	13	27	1,779	713	359	2,851	105.6
LISBOA E VALE DO TEJO	14	15	11	40	2,325	1,268	540	4,133	103.3
ALENTEJO	2	8	2	12	867	426	78	1,371	114.3
ALGARVE	0	2	0	2	162	107	-	269	134.5
TOTAL	50	49	35	134	7,824	4,117	1,817	13,758	102.7

Source: GABINETE DE ENSINO TECNOLÓGICO, ARTÍSTICO E PROFISSIONAL

Table 3-5-25(1)

NATIONAL HIGHER EDUCATION

NAME	FACULTY
A. UNIVERSITY	
1 UNIVERSIDADE ABERTA	
2 UNIVERSIDADE DOS ACORES	
3 UNIVERSIDADE DO ALGARVE	
4 UNIVERSIDADE DE AVEIRO	
5 UNIVERSIDADE DA BEIRA INTERIOR	
6 UNIVERSIDADE DE COIMBRA	CIENCIAS E TECNOLOGIA (SCIENCE AND TECHNOLOGY) DIREITO (LAW) ECONOMIA (ECONOMICS) FARMACIA (PHARMACY) LETRAS (LITERATURE) MEDICINA (MEDICINE) PSICOLOGIA E DE CIENCIAS DA EDUCACAO (PEDAGOGICAL PSYCHOLOGY)
7 UNIVERSIDADE DE EVOLA	
8 UNIVERSIDADE DE LISBOA	CIENCIAS DIREITO FARMACIA LETRAS MEDICINA PSICOLOGIA E DE CIENCIAS DA EDUCACAO
9 UNIVERSIDADE TECNICA DE LISBOA	ARQUITECTURE MEDICINA VETE MOTRICIDADE HRINARIA INSTITUTO SUPERIOR DE AGROUMANA INSTITUTO SUPERIOR DE ECONNOMIA INSTITUTO SUPERIOR TECNICOOMIA E
10 UNIVERSIDADE NOVA DE LISBOA	CIENCIAS MEDICAS CIENCIAS SOCIAIS E HUMANAS CIENCIAS E TECNOLOGIA ECONOMIA
11 UNIVERSIDADE DA MADEIRA	

Table 3-5-25(2)

NAME	FACULTY
12 UNIVERSIDADE DO MINHO	
13 UNIVERSIDADE DO PORTO	CURSO DE LICENCIATURA EM CIENCIAS DA NUTRICAO ARQUITECTURA CIENCIAS ECONOMIA ENGENHARIA FARMACIA LETRAS MEDICINA MEDICINA DENTARIA PSICOLOGIA E DE CIENCIAS DA EDUCACAO INSTITUTO DE CIENCIAS BIOMEDICAS DE ABEL SALAZAR
14 UNIVERSIDADE DE TRAS-OS-MONTES E ALTO DOURO	
15 ESCOLA SUPERIOR DE MEDICINA DENTARIA DE LISBOA	
16 INSTITUTO SUPERIOR DE CIENCIAS DO TRABALHO E DA EMPRESA	

B. PLASTIC ARTS AND DESIGN HIGHER EDUCATION

- 1 ESCOLA SUPERIOR DE BELAS ARTES DE LISBOA
- 2 ESCOLA SUPERIOR DE BALAS ARTES DO PORTO
- 3 INSTITUTO SUPERIOR DE ARTES PLASTICAS DA MADEIRA

C. POLYTECHNICAL EDUCATION

- 1 INSTITUTO SUPERIOR DE CONTABILIDADE
E ADMINISTRACAO DE AVEIRO
- 2 INSTITUTO PLITECNICO DE BEJA
- 3 INSTITUTO PLITECNICO DE BRAGANCA
- 4 INSTITUTO PLITECNICO DE CASTELO BRANCO
- 5 INSTITUTO PLITECNICO DE COIMBRA
- 6 INSTITUTO PLITECNICO DE FARO
- 7 INSTITUTO PLITECNICO DE GUARDA
- 8 INSTITUTO PLITECNICO DE LEIRIA
- 9 INSTITUTO PLITECNICO DE LISBOA
- 10 INSTITUTO PLITECNICO DE PORTALEGRE
- 11 INSTITUTO PLITECNICO DE PORTO
- 12 INSTITUTO PLITECNICO DE SANTAREM
- 13 INSTITUTO PLITECNICO DE SETUBAL
- 14 INSTITUTO PLITECNICO DE VIANA DO CASTELO
- 15 INSTITUTO PLITECNICO DE VISEU

Source: "GUIA DO ACESSO AO ENSINO SUPERIO 1991"
MINISTERIO DA EDUCACAO, 1990

Table 3-5-26 THE NUMBER OF STUDENTS IN THE HIGHER EDUCATION LEVEL

	Public	Rate of Increase (%)	Private	Rate of Increase (%)	Total	Rate of Increase (%)
1987/88	88,114		22,917		111,031	
1988/89	105,923	20	30,531	33	136,454	23
1989/90	116,003	10	38,234	25	154,237	13
1990/91*	127,011	9	45,005	18	172,016	12

* Estimate

Source: SEMANARIO, 29 JUN. '91

Table 3-5-27 AREA OF PROFESSIONAL TRAINING

No.	Technical Area
1	FOOD-AGRICULTURE
2	FISHING
3	AUTOMOBILE
4	FOOTWEAR
5	CERAMIC AND GLASS
6	CIVIL CONSTRUCTION
7	CORK
8	ELECTRICITY AND ELECTRONICS
9	ENERGY
10	MINING INDUSTRY
11	AIRCONDITIONING
12	FOUNDRY
13	PAPER INDUSTRY
14	WOOD AND FURNITURE
15	METALLURGY AND METALWORKING
16	CHEMISTRY
17	TEXTILE
18	FINANCING AND INSURANCE
19	COMMUNICATION
20	HOTEL, RESTAURANT, TOURISM
21	INFORMATION
22	HEALTH
23	SERVICE
24	TRANSPORTATION
25	QUALITY

Source: IEFP

Table 3-5-28 THE NUMBER OF PERSONS, FINISHED THE COURSE

	1987	1988	1989	1990	1991*
Directly Managed	2,796	4,334	6,515	9,576	15,420
Professional Training Center					
Rate of Increase %		55	50	47	61
Jointly Managed	13,004	17,392	21,342	28,674	40,000
Professional Training Center					
Rate of Increase %		34	23	34	39

Source: IEFP interview

* Estimate

Table 3-5-29(1) CENTROS DE FORMACAO PROFISSIONAL DE GESTAO PARTICIPADA
(JOINTLY MANAGED PROFESSIONAL TRAINING CENTER)

ABBREVIATION	FULL NAME	LOCATION
1. CEFPI	CENTRO DE EDUCACAO E FORMACAO PROFISSIONAL INTEGRADA (REHABILITATION OF DISABLE PEOPLE)	PORTO
2. CFPIC	CENTRO DE FORMACAO PROFISSIONAL DA INDUSTRIA DO CALCADO (FOOTWEAR)	MADEIRA
3. CINCOR	CENTRO DE FORMACAO PROFISSIONAL DA INDUSTRIA DE CORTICA (CORK)	LOUROSA
4. CINFU	CENTRO DE FORMACAO PROFISSIONAL DA INDUSTRIA DE FUNDICAO (FOUNDRY)	PORTO, LISBOA
5. CINDOR	CENTRO DE FORMACAO PROFISSIONAL DA INDUSTRIA DE OURIVESARIA E RELOJOARIA (JEWELLERY AND WATCHMAKING)	GONDOMAR
6. CITEX	CENTRO DE FORMACAO PROFISSIONAL DA INDUSTRIA TEXTIL (TEXTILES)	PORTO
7. CFPIMM	CENTRO DE FORMACAO PROFISSIONAL DAS INDUSTRIAS DA MADEIRA E MOBILIARIO (WOOD AND FURNITURE)	PORTO
8. CESAI	CENTRO DE FORMACAO PROFISSIONAL DE INFORMATICA (COMPUTER SCIENCES)	PORTO
9. CICCOPN	CENTRO DE FORMACAO PROFISSIONAL DA INDUSTRIA DE CONSTRUCAO CIVIL E OBRAS PUBLICAS DO NORTE (CIVIL CONSTRUCTION AND PUBLIC WORKS, NORTH)	PORTO
10. CEARTE	CENTRO DE FORMACAO PROFISSIONAL DO ARTESANATO (HANDICRAFTS)	OLIVEIRA DO HOSPITAL
11. CECO A	CENTRO DE FORMACAO PROFISSIONAL DO COMERCIO E AFINS (TRADE)	LISBOA
12. CENCAL	CENTRO DE FORMACAO PROFISSIONAL PARA A INDUSTRIA DA CERAMICA (CERMICS):	CALDAS DA RAINHA
13. CENFIC	CENTRO DE FORMACAO PROFISSIONAL DA INDUSTRIA DE CONSTRUCAO CIVIL E OBRAS PUBLICAS DO SUL (CIVIL CONSTRUCTION AND PUBLIC WORKS, SOUTH)	LISBOA

(Continue)

Table 3-5-29(2)

ABBREVIATION	FULL NAME	LOCATION
14. CINEL	CENTRO DE FORMACAO PROFISSIONAL DA INDUSTRIA ELECTRONICA (ELECTRONICS)	AMADORA
15. CINAGUA	CENTRO DE FORMACAO PROFISSIONAL PARA A INDUSTRIA DE ENGARRAFAMENTO DE AGUAS MINERAIS NATURAIS E TERMALISMO (BOTTLING OF MINERAL WATER AND SPRING)	LISBOA
16. CENFIM	CENTRO DE FORMACAO PROFISSIONAL DA INDUSTRIA METALURGICA E METALOMECANICA (METALWORKS, METALLURGY)	PORTO
17. CIVEC	CENTRO DE FORMACAO PROFISSIONAL DA INDUSTRIA DO VESTUARIO E CONFECCAO (CLOTHING AND READY MADE ART)	LISBOA
18. CENJOR	CENTRO DE FORMACAO PROFISSIONAL PARA OS JORNALISTAS (JOURNALISTS)	LISBOA
19. FORPESCAS	CENTRO DE FORMACAO PROFISSIONAL DAS PESCAS (FISHERIES)	LISBOA
20. CEPRA	CENTRO DE FORMACAO PROFISSIONAL DA REPARACAO AUTOMOVEL (AUTOMOBILE REPAIRS)	SACAVEM, PORTO
21. CEPASA	CENTRO DE FORMACAO PROFISSIONAL DO SECTOR ALIMENTAR (FOODSTUFFS)	LISBOA
22. CITEFORMA	CENTRO DE FORMACAO PROFISSIONAL PARA O SECTOR DOS TRABALHADORES DE ESCRITORIO, COMERCIO, SERVICOS E NOVAS TECNOLOGIAS (OFFICE CLERKS, COMMERCE, NEW TECHNOLOGY)	LISBOA
23. CENTAGRO	CENTRO DE FORMACAO PROFISSIONAL PARA O SECTOR AGRO-PECUARIO (LIVESTOCK FARMING)	SANTO ANDRE
24. CFPJUSTICA	CENTRO PROTOCOLAR DE FORMACAO PROFISSIONAL PARA O SECTOR DA JUSTICA (JUSTICE)	LISBOA
25. CEQUAL	CENTRO DE FORMACAO PROFISSIONAL PARA A QUALIDADE (QUALITY)	LISBOA
26. CINTERBEI	CENTRO DE FORMACAO PROFISSIONAL INTEREMPRESAS DA BEIRA SERRA (INTERCOMPANIES)	ARGANIL

Source: I. E. F. P.

Table 3-5-30 IPQ IN NUMBERS

Item	1990	1986
STANDARDIZATION		
Sectorial Standardization Bodies (ONS)	29	4
Technical Committees co-ordinated by IPQ	18	62
Technical Committees co-ordinated by ONS	109	66
Portuguese Standards in effect	3,218	2,549
Portuguese draft Standards	2,628	2,795
% of Portuguese Standards referred in national law	15%	18%
% of Portuguese Standards harmonized with European or international standards	69%	40%
% of Portuguese Standards aged less than 6 years	44%	41%
CERTIFICATION AND ACCREDITATION		
Sectorial certification bodies (OCS)	4	1
Inspection bodies (OI)	6	0
Accredited test laboratories	39	3
Certified quality systems in companies	12	0
Product certification schemes in effect	24	4
LEGAL METROLOGY AND CALIBRATION		
Accredited metrological laboratories	6	0
Legal metrology schemes in effect (measuring instruments for density, length, mass, surface, speed, volume and time)	18	13
TECHNICAL INFORMATION		
IPQ subscribers	871	956
Enquiry service, Annual number of answers	2,485	3,000
EEC Directive 83/189; Portuguese notifications (draft standards and draft technical rules)	230	404
IPQ HUMAN RESOURCES		
(professional & administrative)	183	137
% of staff with an university degree	47%	32%
Annual budget (10 PTE)	1,900	457
% own sources of revenue	13%	22%

Source: IPQ ANNUAL REPORT, 1990

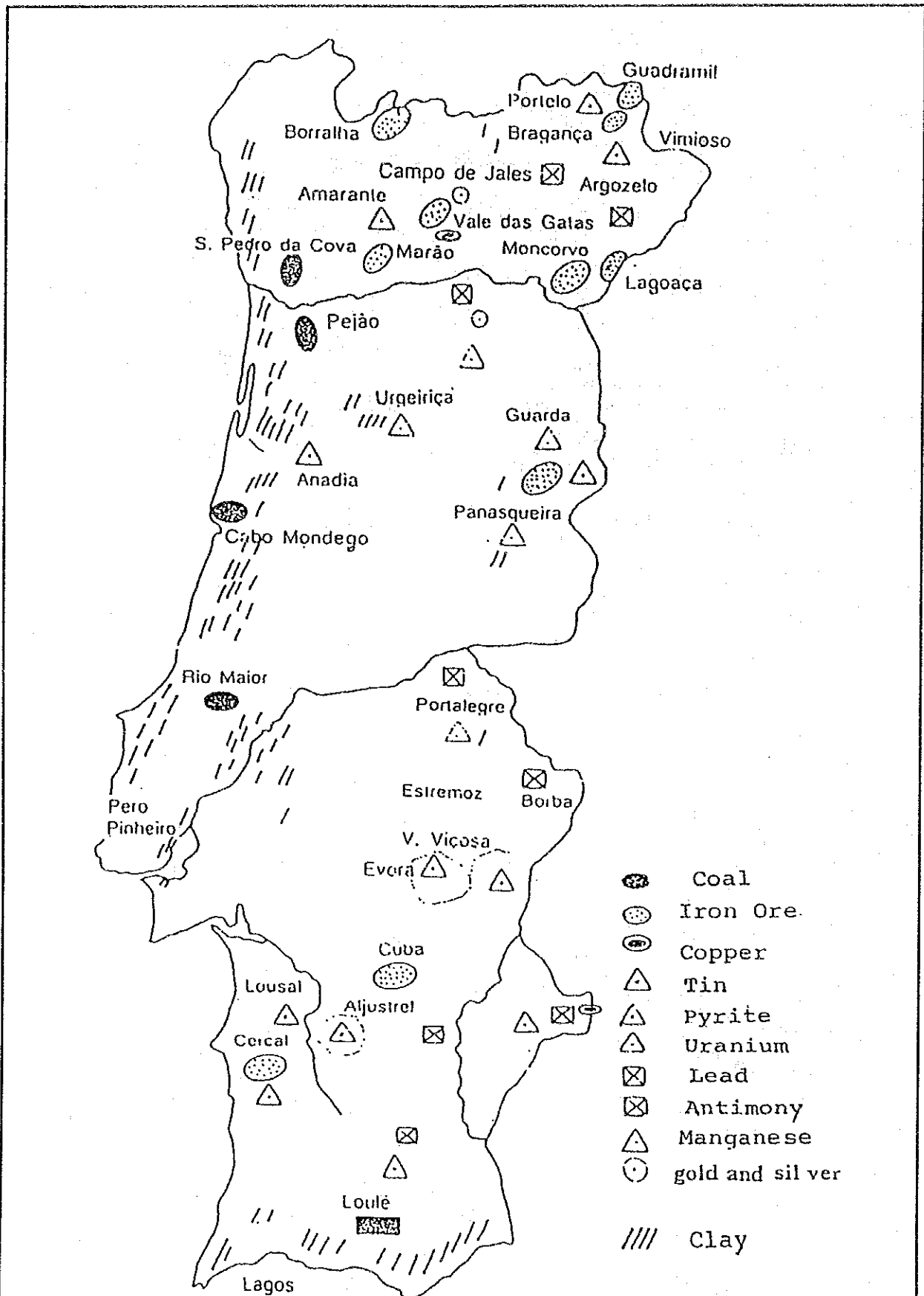


Figure 3-5-1 DISTRIBUTION MAP OF MINERAL RESOURCES

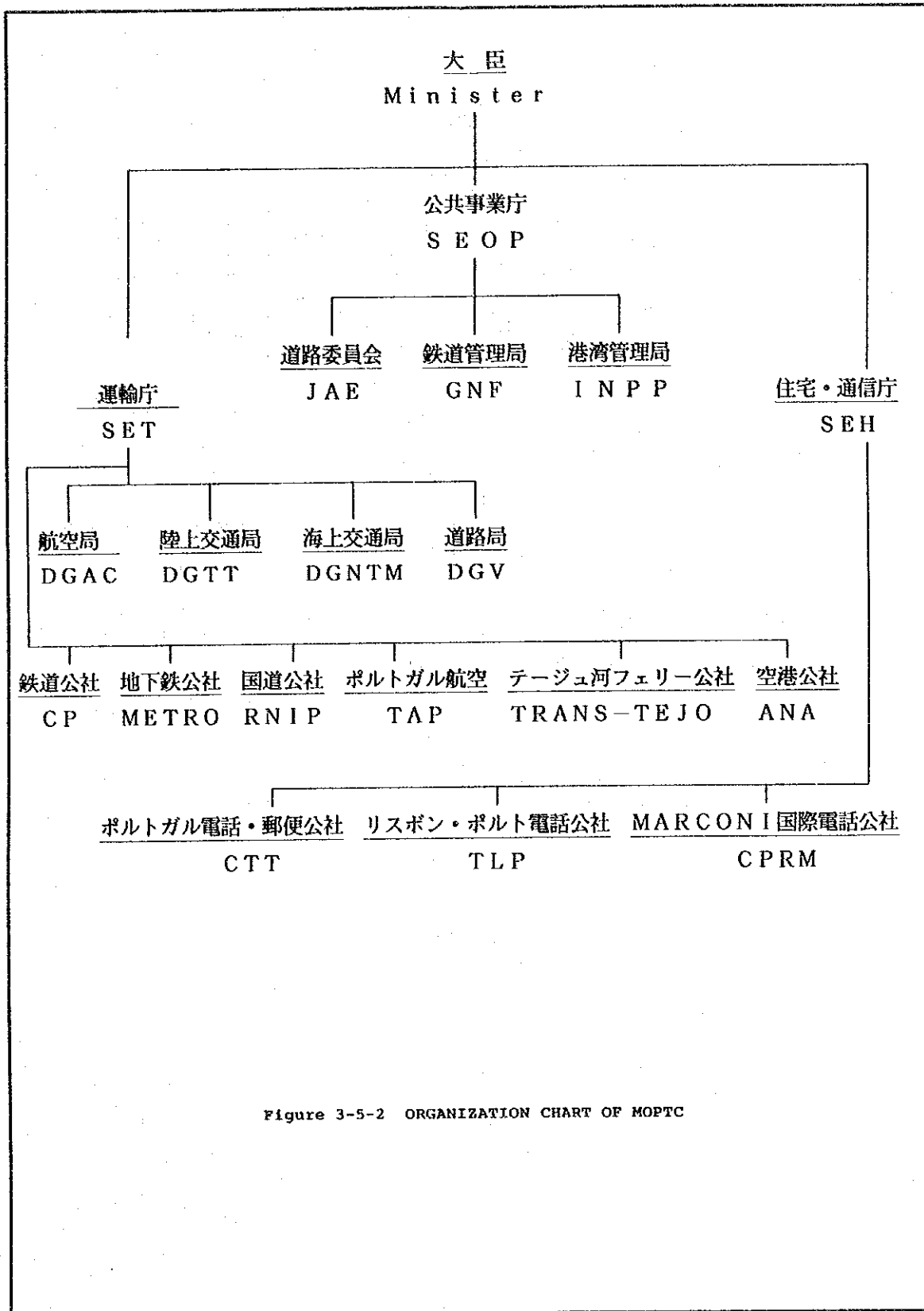


Figure 3-5-2 ORGANIZATION CHART OF MOPTC

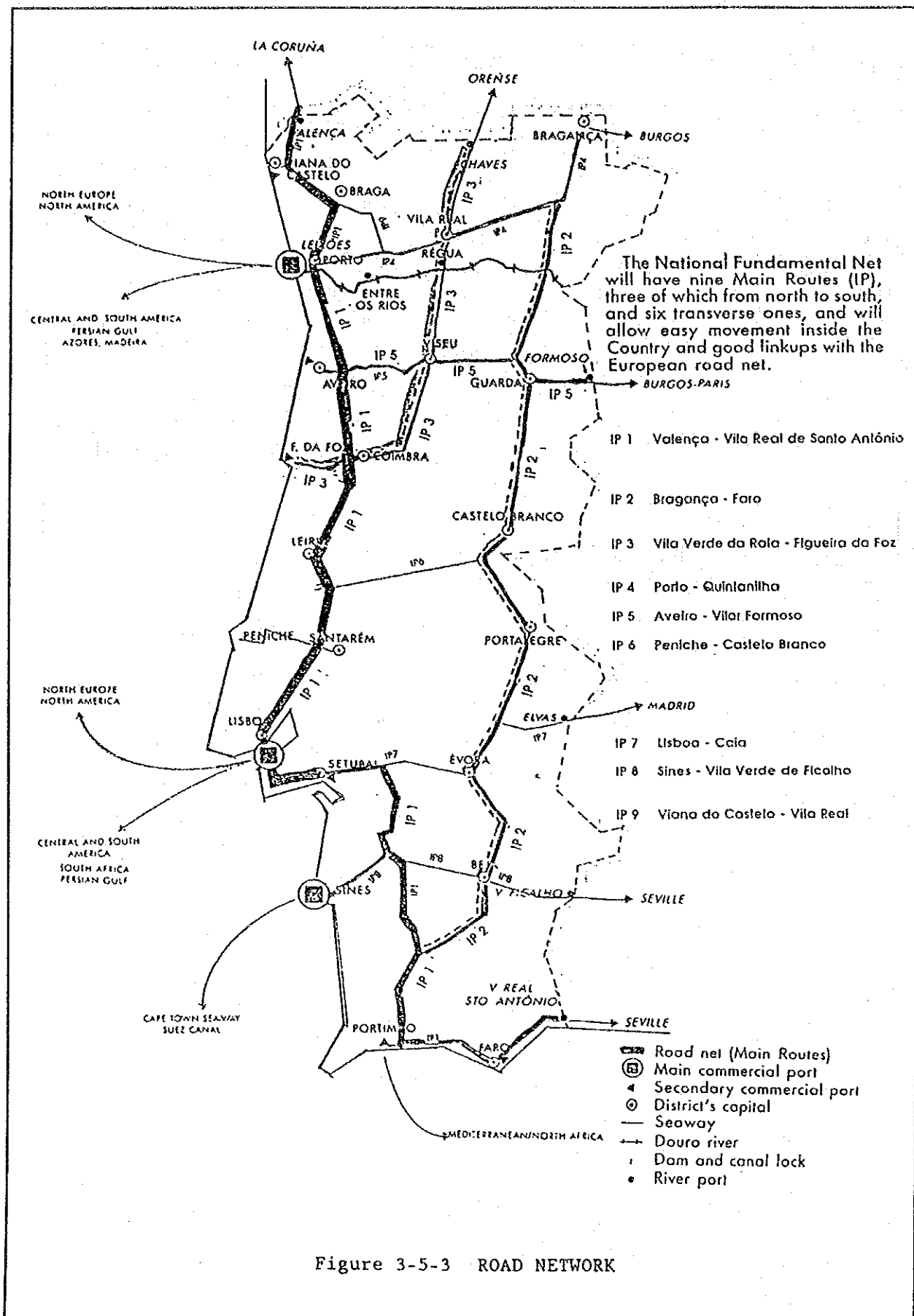


Figure 3-5-3 ROAD NETWORK

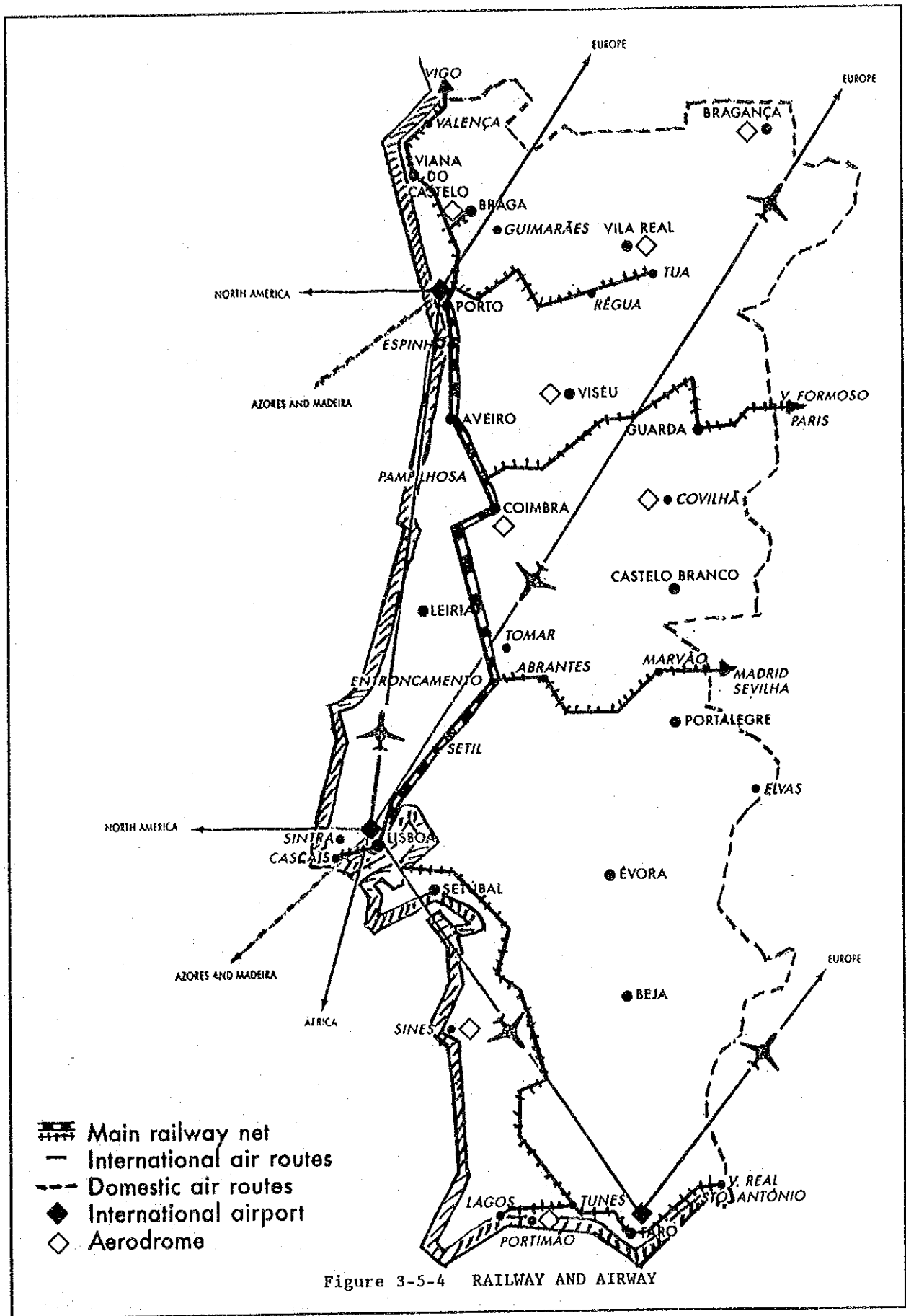


Figure 3-5-4 RAILWAY AND AIRWAY

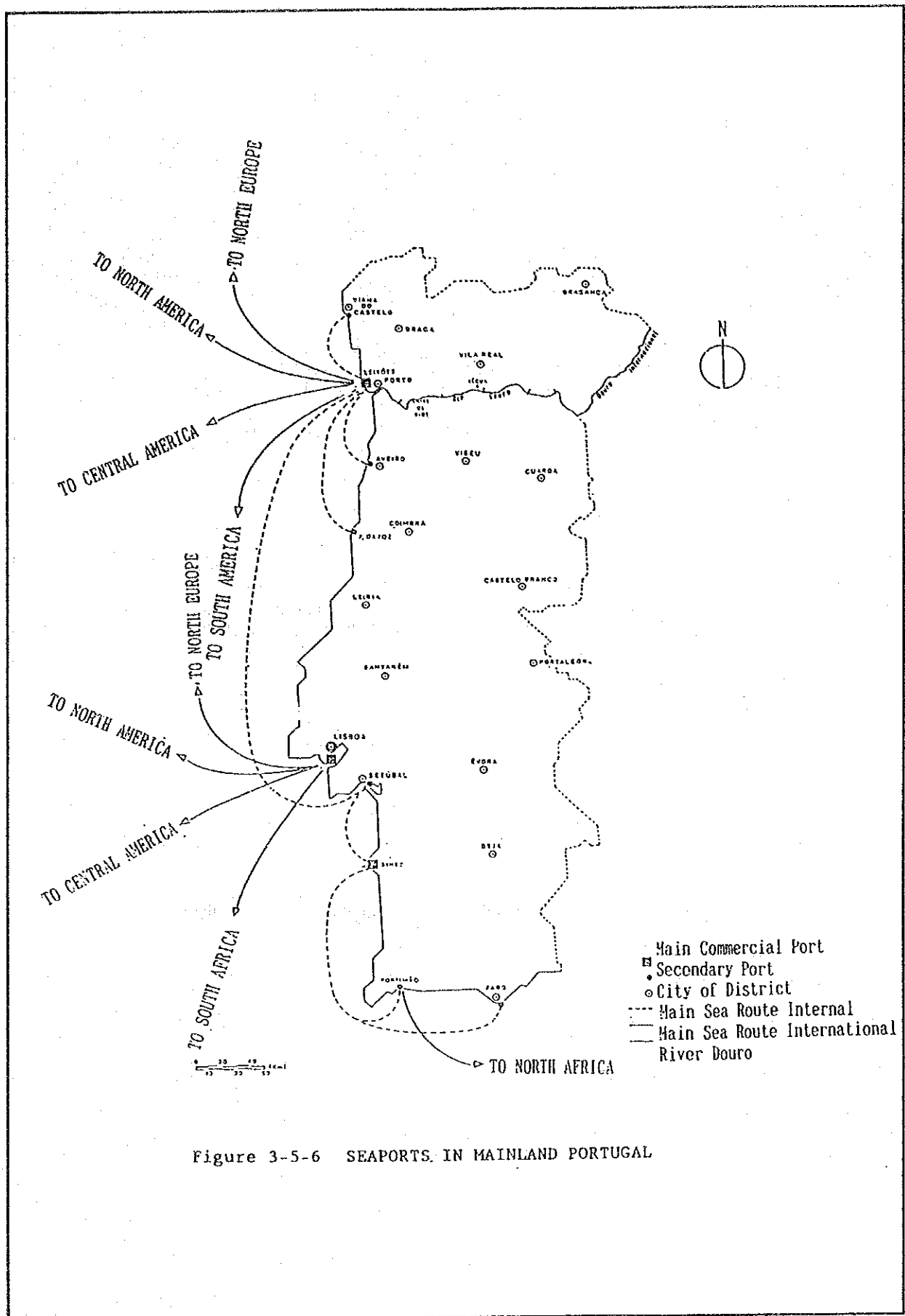
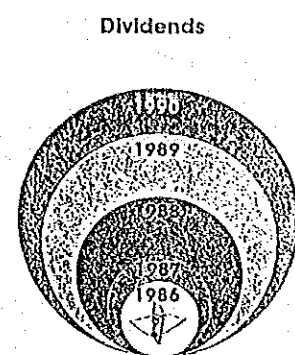
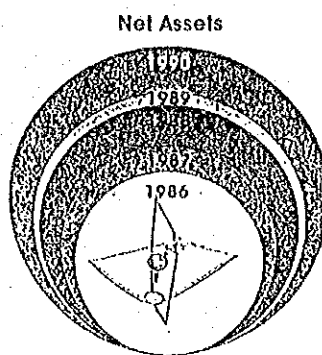
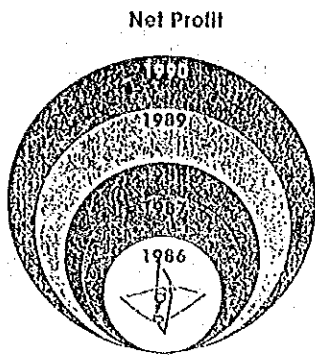


Figure 3-5-6 SEAPORTS. IN MAINLAND PORTUGAL



UNIT: 10⁶ escudios

	1986	1987	1988	1989*	1990*
Revenue	20,662	23,292	28,278	33,173	36,520
Costs and expenditures	14,172	14,856	17,987	21,671	24,849
Net profit	3,421	4,690	5,778	7,487	9,025
Net assets	33,046	37,418	46,027	47,691	56,751
Shareholder's fund	21,332	24,234	30,562	31,836	38,062
Cash flow	5,858	9,167	10,052	10,379	10,792
Gross added value	11,203	12,644	14,318	15,073	16,971
Share capital	3,000	6,000	7,800	7,800	7,800
Dividends	1,008	1,513	2,443	3,453	4,120
Mark up (%)	16.37	15.70	13.48	16.48	15.12
Return on assets (%)	16.04	19.35	18.91	23.52	23.71
General liquidity	1.96	2.25	2.44	3.03	2.41
Number of shares (in millions)	15	6	7.8	7.8	7.8

* Indicators have been evaluated according to the new Official Accounting Plan.

Source: CPRM MARCONI Annual Report

Figure 3-5-7 CPRM MARCONI IN FIGURES

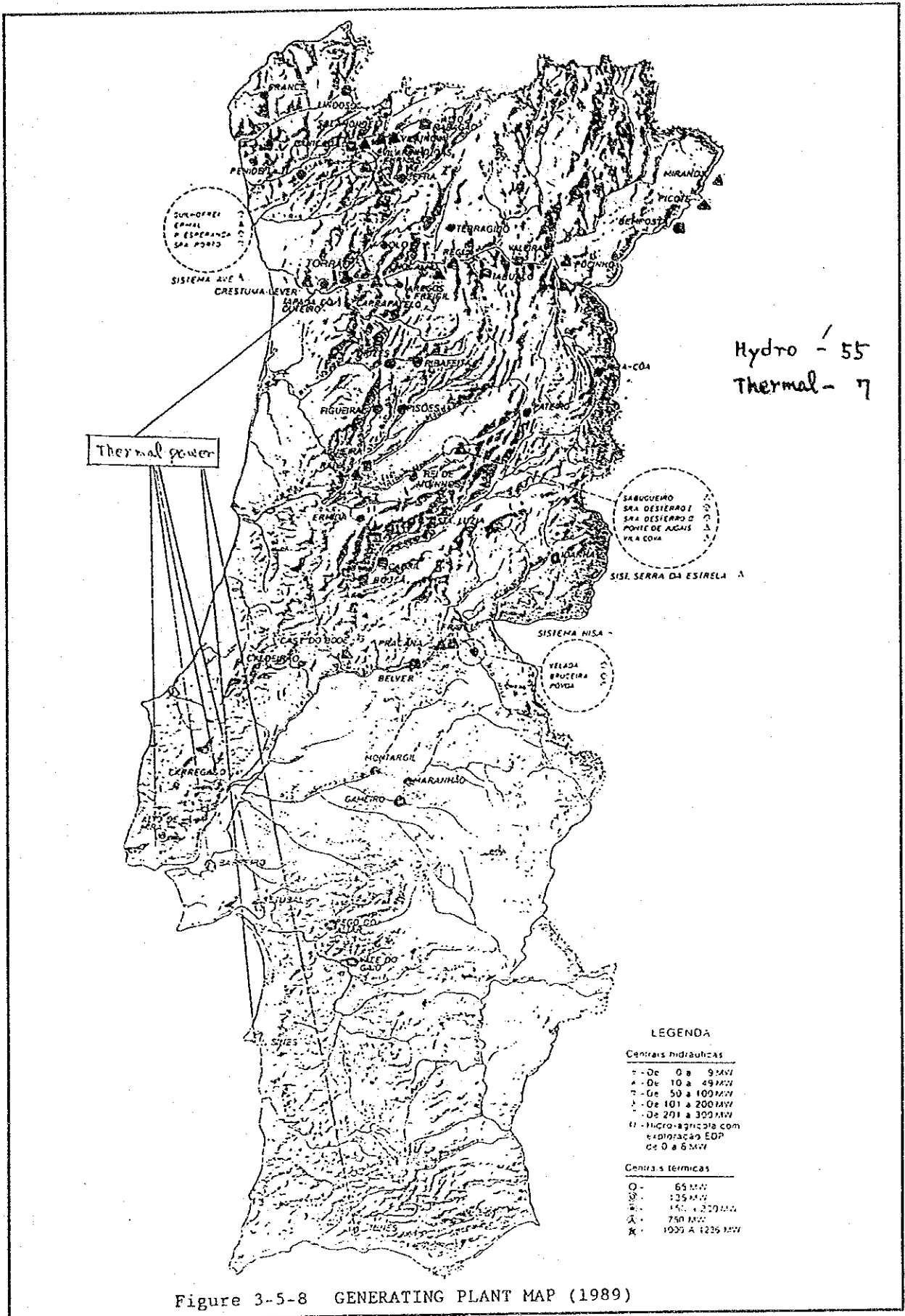


Figure 3-5-8 GENERATING PLANT MAP (1989)

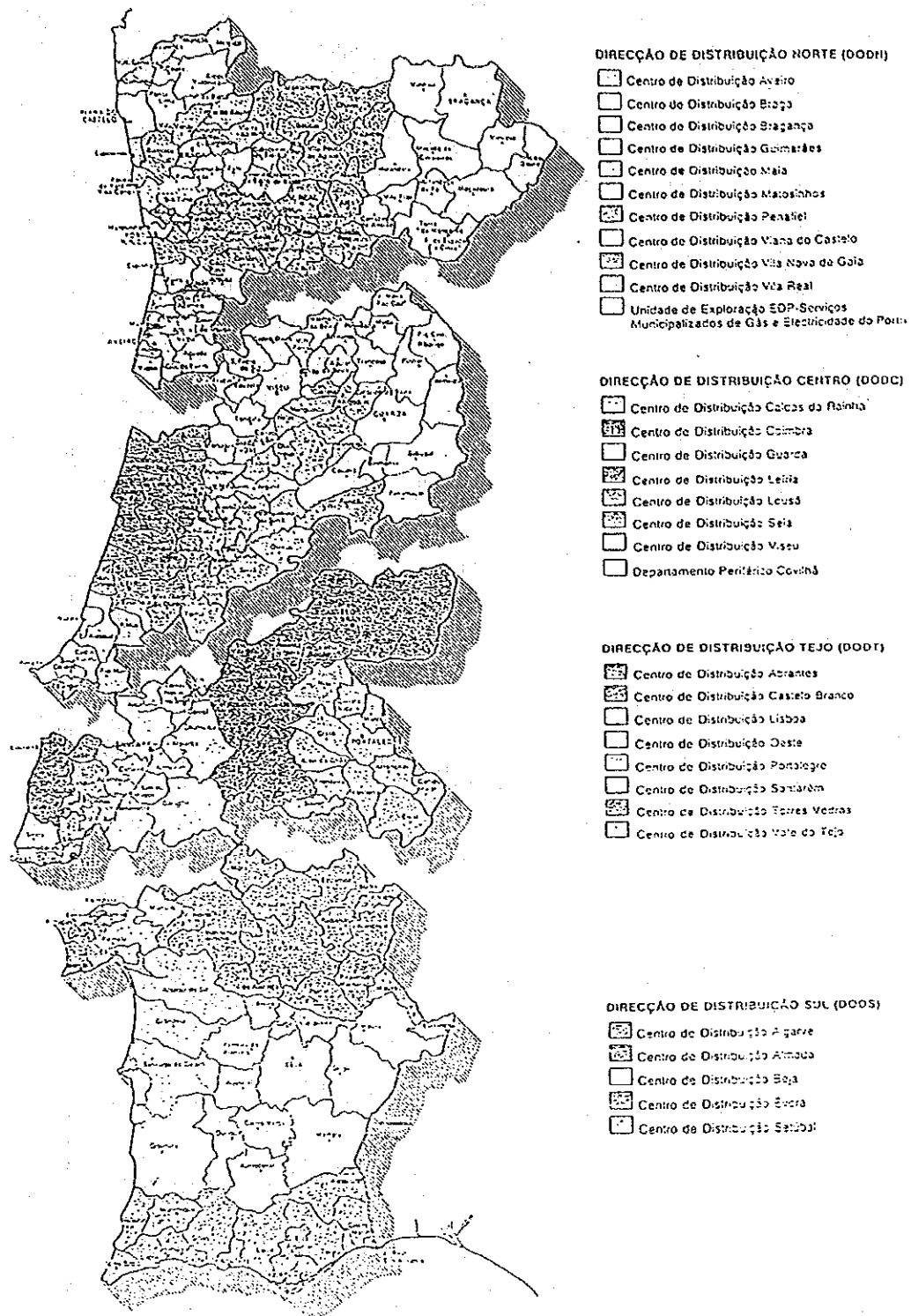


Figure 3-5-10 GEOGRAPHICAL DIVISION OF DISTRIBUTION (1991)

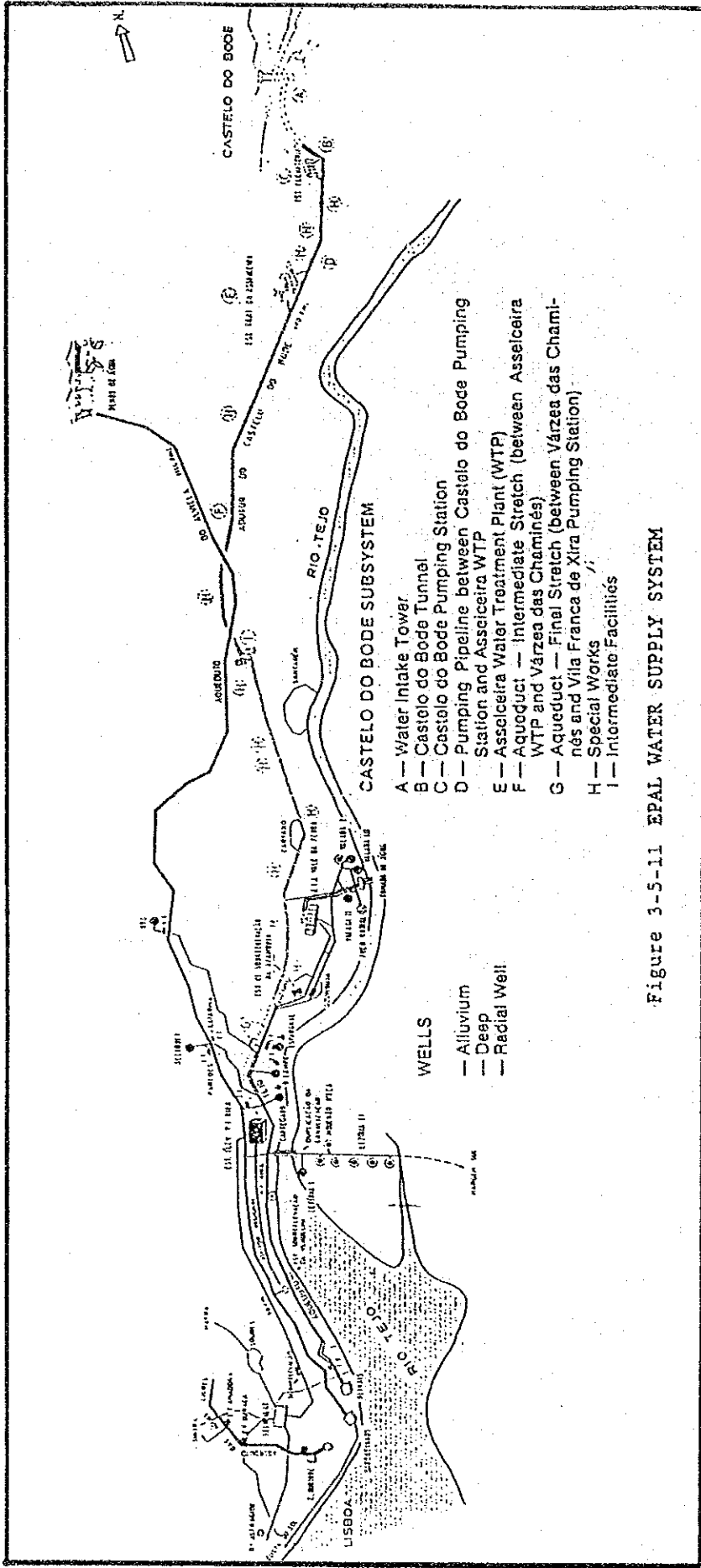


Figure 3-5-11 EPAL WATER SUPPLY SYSTEM

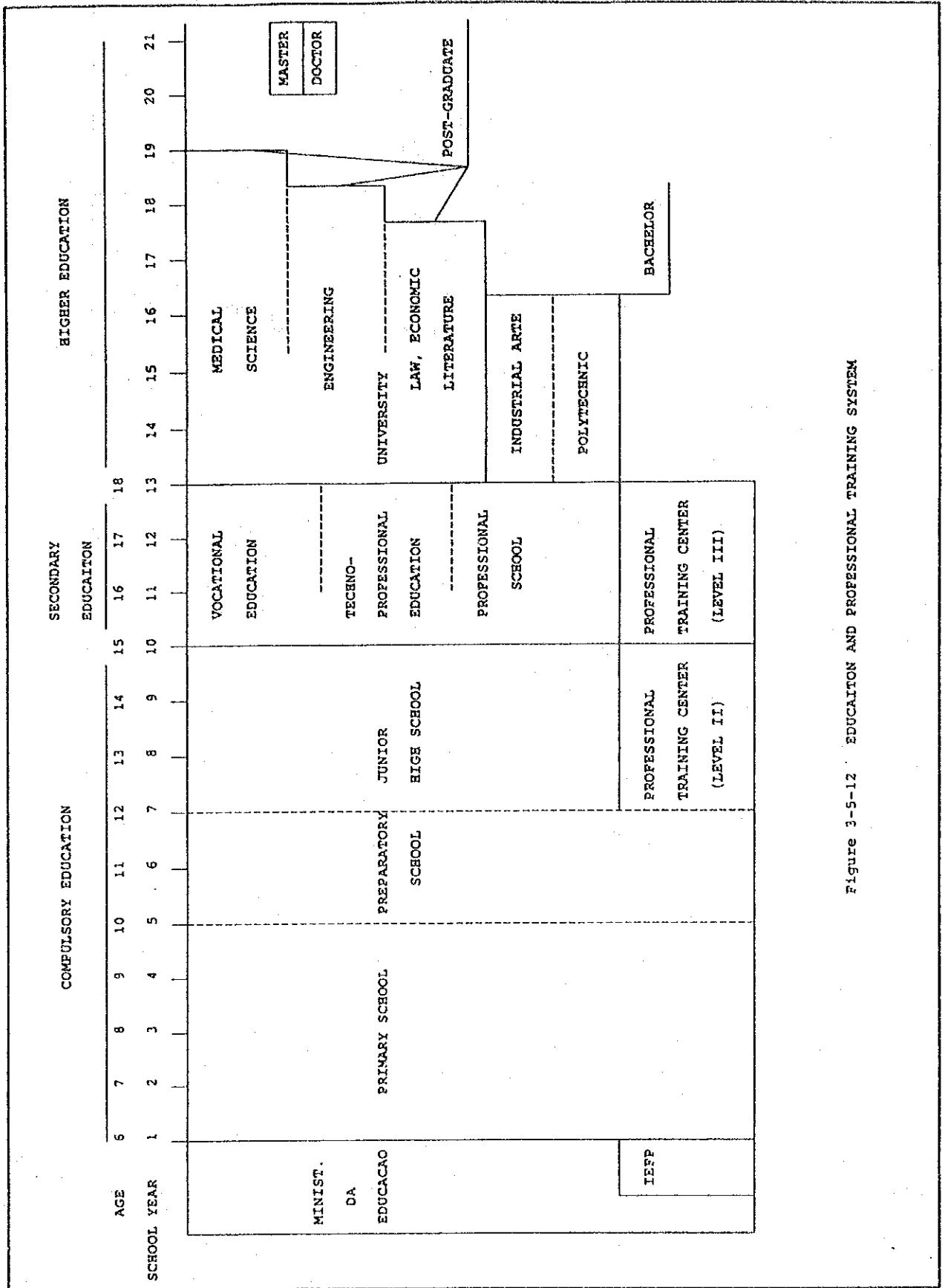
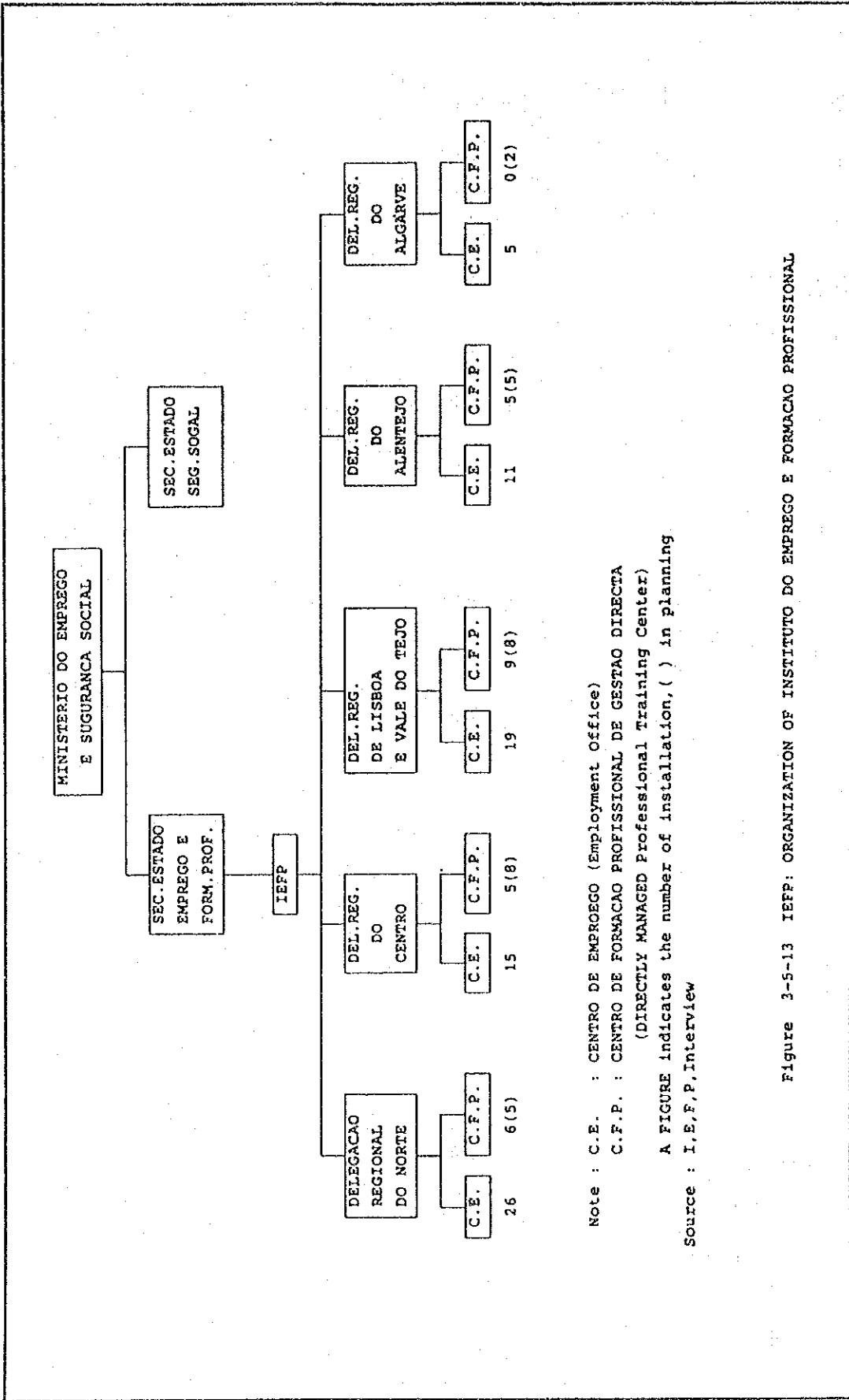
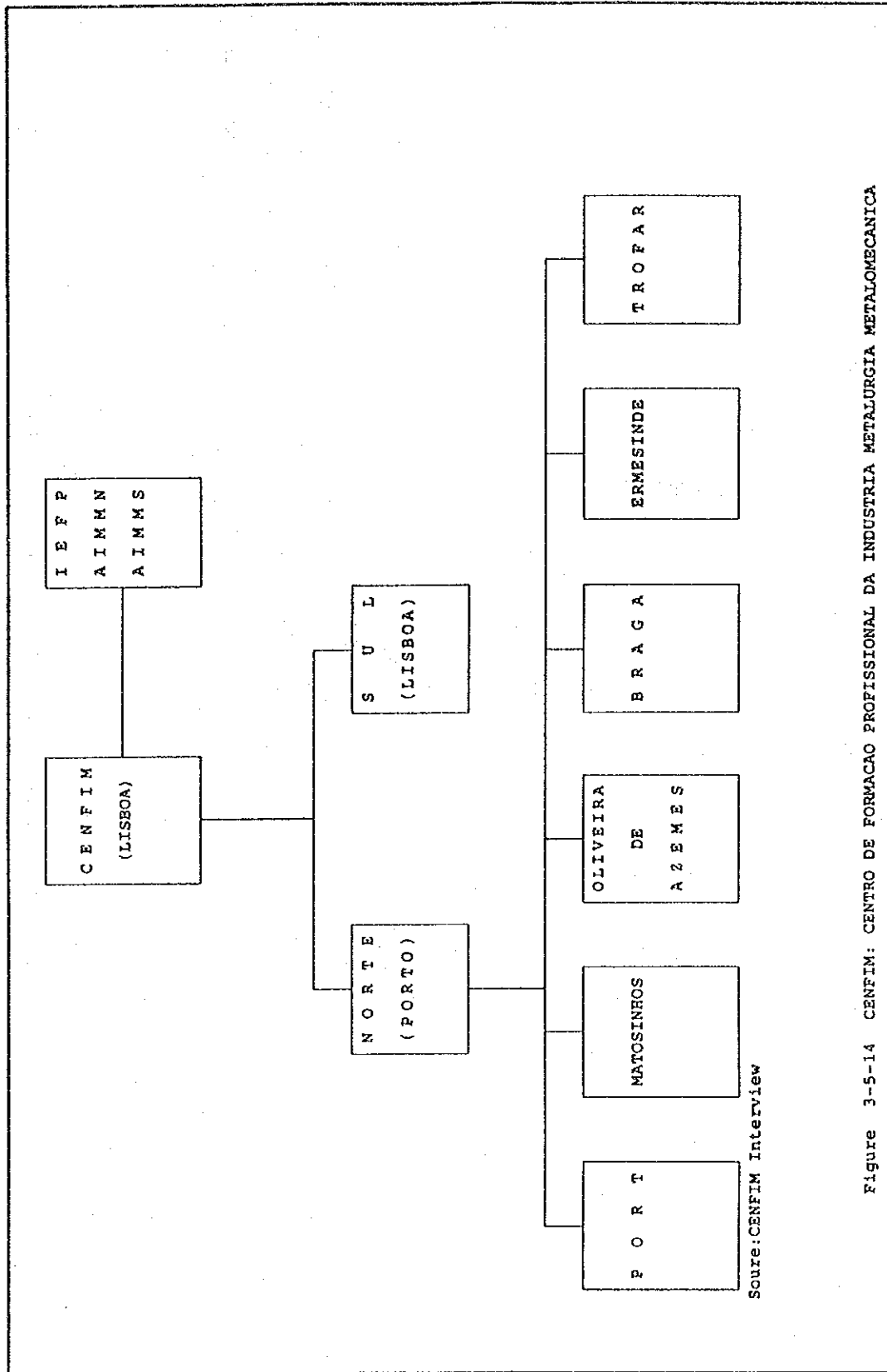


Figure 3-5-12 EDUCATION AND PROFESSIONAL TRAINING SYSTEM



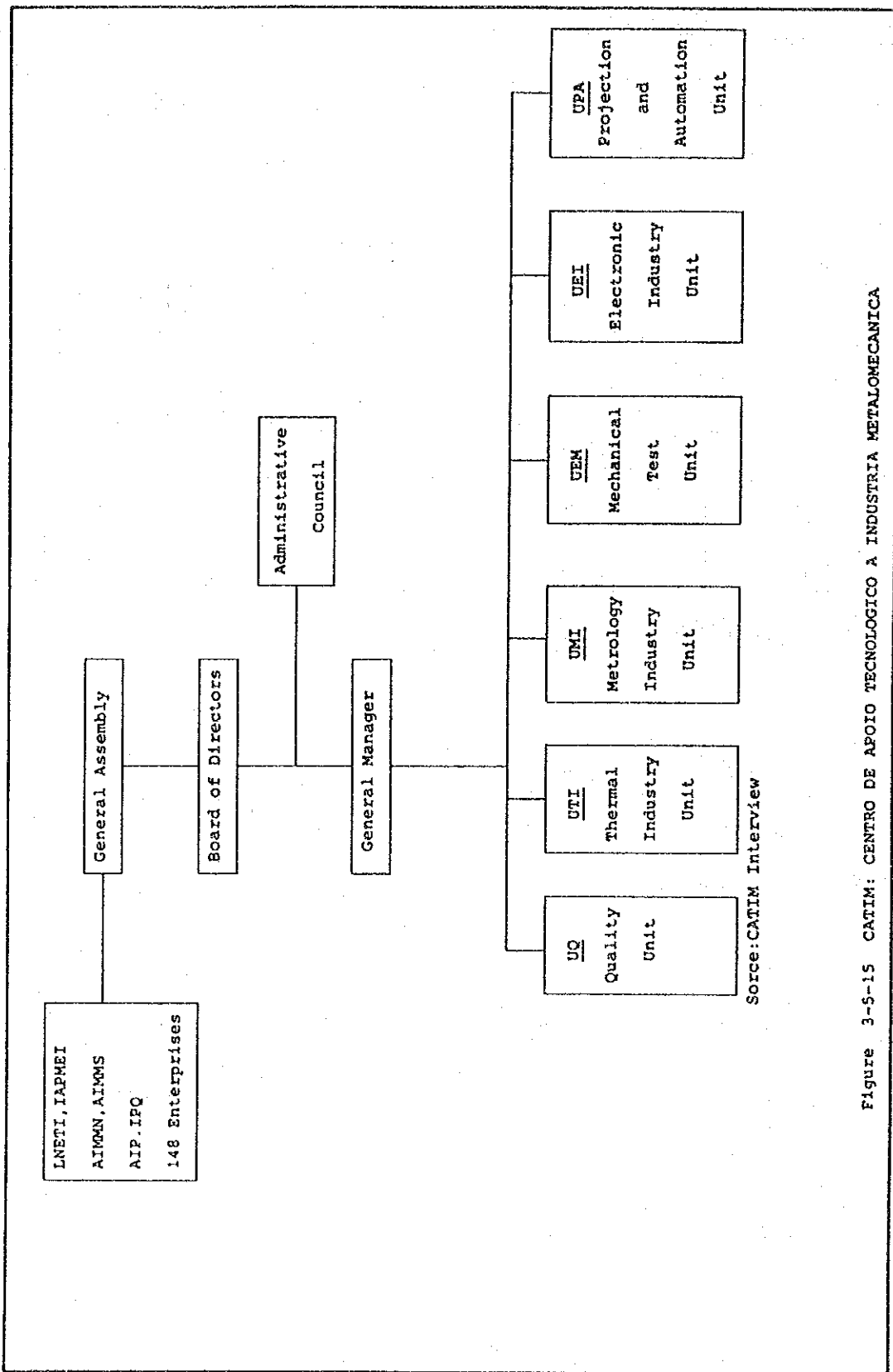
Note : C.E. : CENTRO DE EMPREGO (Employment Office)
 C.F.P. : CENTRO DE FORMACAO PROFISSIONAL DE GESTAO DIRECTA
 (DIRECTLY MANAGED Professional Training Center)
 A FIGURE indicates the number of installation, () in planning
 Source : I, E, F, P, Interview

Figure 3-5-13 IEFP: ORGANIZATION OF INSTITUTO DO EMPREGO E FORMACAO PROFISSIONAL



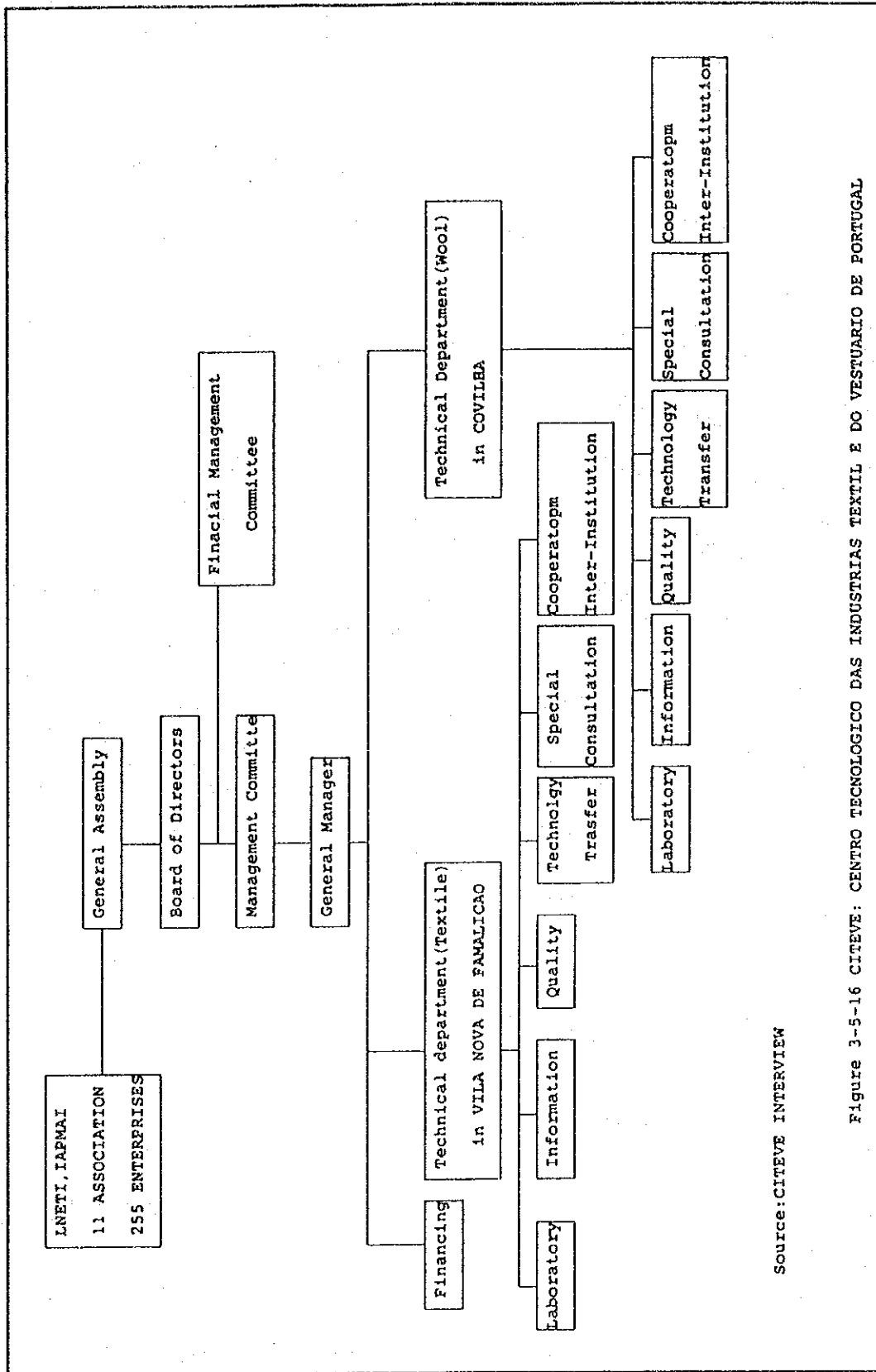
Source: CENFIM Interview

Figure 3-5-14 CENFIM: CENTRO DE FORMACAO PROFISSIONAL DA INDUSTRIA METALURGIA METALOMECANICA



Source: CATIM Interview

Figure 3-5-15 CATIM: CENTRO DE APOIO TECNOLÓGICO A INDÚSTRIA METALOMECÂNICA



Source: CITEVE INTERVIEW

Figure 3-5-16 CITEVE: CENTRO TECNOLOGICO DAS INDUSTRIAS TEXTIL E DO VESTUARIO DE PORTUGAL

Chapter 4
SURVEY ON HOW JAPANESE INDUSTRIES REGARD
INVESTMENT IN PORTUGAL

Chapter 4 Survey on How Japanese Industries Regard Investment in Portugal

The total sum of direct annual foreign investment into Portugal at the end of 1989 was 2,019 million US \$, of which 70% originated from EC countries, 10% from the EFTA countries, 7% from Brazil while Japanese investment only reached a 2% level. A survey of attitudes of Japanese companies to investment in Portugal was carried out using the two methods outlined below 1) and 2) in order to collect the basic data needed to explain why the current level of investment is so low and to help determine a future plan of action for the promotion of investment made by Japanese industries. And also a survey 3) was carried out from a wider point of view, that is, Portugal as a member country of EC.

- 1) to conduct a survey in Japan by questionnaire
- 2) to conduct a survey through direct visits to Japanese companies which are operating in Portugal
- 3) to analyze a motivation and strategy of Japanese companies to invest in EC

In view of the overall objective of the present Study only manufacturing industries were concerned by the above surveys.

4.1 Method of the Questionnaire Survey Made in Japan

4.1.1 Objectives and Special Considerations

The main objectives of the present questionnaire survey can be grouped under the following three headings.

- 1) To investigate the investment trends (level of interest, desire to invest, and demand for investment, etc.) of Japanese companies with regard to Portugal.
- 2) To identify the problems in Portuguese policies and promotion programmes for foreign investment from the investor's viewpoint and to use this as basic data for drawing up improvement proposals.
- 3) To encourage Japanese industries to take an interest in investment in Portugal.

At present, the level of familiarity with and interest in Portugal tends to be low among Japanese companies and it was feared that the level of response to the questionnaire itself might be poor. The following points were therefore given special attention when drawing up the questionnaire questions and selecting questionnaire candidates.

- 1) To organize the questions in such a way that an overall understanding of the advantages of investing in Portugal could be acquired after filling up the

questionnaire, and thus making the respondent consider investment opportunities in Portugal.

- 2) To give priority when sending out the questionnaire, to companies already investing in Europe, so as to focus on industries already having a basic knowledge and experience in Europe.
- 3) To hint to the above companies that Portugal has the potential of becoming the second production base within the EC.
- 4) To include Japanese companies engaged in areas compatible with the traditional industries of Portugal (such as furniture, ceramics, metalworking, etc.)

4.1.2 Questionnaire Method

(1) Documents Sent

The following documents were enclosed and sent by mail to the companies chosen according to the criteria outlined in 4.1.3 to answer the questionnaire. Answers were also confirmed by telephone as necessary. The enclosed materials with a questionnaire form were;

- 1) Questionnaire form (refer to Annex IV-1 for details)
- 2) Documents to introduce a Profile of Portugal

The following materials were sent with the permission of the issuing agencies.

- a) Newsletter of the Institute for the Promotion of Overseas Investment (issued by JETRO), containing an outline of the relative advantages and a profile of Portugal.

- b) Incentives and Cost data in Portugal

This document introduces the main preferential incentives for investment and the main costs relating to production in Portugal.

- c) Map of Portugal

This map of the entire territory also shows the main road networks.

- d) Issue of the Nihon Keizai Shinbun (Japan Financial Times) containing

Special Coverage of Portugal.

Articles in the June 10, 1991 edition of the Nihon Keizai Shinbun giving an objective presentation of the present situation in Portugal.

- 3) Letters of Greeting
 - a) A letter of greeting from the Vice President of the ICEP
 - b) A letter of greeting from Unico International Co. Ltd.
- 4) A stamped, self addressed envelope for return of questionnaire forms.

(2) Selection of Companies to answer the Questionnaire

Of the 2,399 companies listed at this present date of November, 1990 on the First Section of the Tokyo Stock Exchange some 1,232 companies representing 51.4% of the above total have affiliate companies incorporated abroad. Limiting our consideration to the manufacturing industries, we find that 57.9%, that is nearly six tenths of the total are engaged in entering markets overseas. Among the manufacturing sectors the most outstanding overseas activity both in terms of the actual number of companies and the percentage of the total sector engaged in penetrating foreign markets is found in the electric appliance field (taken to include electronics industries) and 165 companies (representing 72.9% of the total) have set up production bases overseas. This is followed in order of importance by the Machinery sector with 124 companies (or 59.9%), and the Automobile sector (automobile related parts industries) with 70 companies (or 72.9%).

Manufacturing industries also account for the main part of direct overseas investment undertaken by small and medium industries, and there were 535 cases of such investment in 1989 accounting for 38.2% of the total. Moreover the share in total direct overseas investment including that from large industries which is accounted for by the small and medium industries reached a 30 to 40% level in the early 1980s and after 1987 had passed the 50% mark. Although direct investment by middle and small enterprises tended to be focused in Asia up to 1989, recently Missions to Europe from the Tokyo Chamber of Commerce and other bodies have become increasingly evident.

In view of the above facts emphasis was placed on selecting listed companies from the following sectors as targeted respondents.

- 1) Automobile Industries (including Parts Manufacturers)
- 2) Electric and Electronics Industries
- 3) Metalworking and Machinery Industries

- 4) Chemical Industries
- 5) Other Manufacturing Industries (furniture; woodworking, foodprocessing, rubber, plastics, ceramics, etc.)

In the case of listed middle and small size companies (and some large companies unlisted in the stock market), emphasis was placed on the following industrial sectors when selecting potential respondents to the questionnaire.

- 1) Listed members of the Chamber of Commerce
- 2) Small scale companies financed by Tokyo Small Business Investment Co., Ltd. and Osaka Small Business Investment Co., Ltd.
- 3) Companies listed as having participated in investment missions to Europe or having attended seminars on investment in Europe.

(3) Return Rate of the Questionnaire

14% of the Questionnaires sent out were returned as follows;

No. of questionnaires sent:	2,065
No. of questionnaires returned:	287 (14%)

In 15 of the above returned questionnaires the companies in question stated that they had no interest whatsoever in overseas investment. Further, 30 companies from non-manufacturing companies were omitted. Therefore, the number of questionnaires which are actually concerned in the present analysis is as follows.

No. of return	287
- unanswered	(15)
- non-manufacturing	(30)
<hr/>	<hr/>
No. for analysis	242

Note: Some answers of the above 242 companies were not necessarily completely filled up by question and so the number of effective replies varies by question.

Table 4-1-1 shows the breakdown of the above 242 companies by subsector and scale of companies.

4.1.3 Analysis of the Questionnaire Results

(1) Preconditions of the Analysis

1) Number of Questions and Numbering

The questionnaire consisted of twelve questions, and the exact details of these are as shown in Annex IV-1. In order to process these by computer it was necessary to break down some of the questions and eliminate others. As the results, thirteen questions, Q1 to Q13 were numbered and used for the computer analysis. However, the correlation in between is easily established if reference is made to Annex IV-1.

2) Group Categories used for analysing Company Answers

Companies answering the questions have been divided into groups according to the following three criteria for the purposes of analysing their answers.

- a) by company scale
- b) into two groups depending on whether they have experience of investing in Europe or not
- c) by industrial subsector

a) Company Scale

<u>Category</u>	<u>Abbreviation</u>	<u>Conditions, definition</u>
- Small & Medium	SMI	A company with less than 100 million yen capital and less than 300 employees
- Large	LARGE	A company which is neither classified in SMI nor GIGANTIC
- Gigantic	GIGANTIC	A company having more than 50 billion yen capital and more than 15,000 employees

Note; the above abbreviations are used in the Computer Output Sheets and also in the present report.

b) Experience on Investment in EC

Q1 was, " Does your company own or has your company invested in manufacturing and/or marketing companies located in any of the 12 EC countries?" The answers received to this question were used as the basis for placing companies in the categories of those with and those without investment experience in the EC.

Experience on EC Investment Abbreviation Conditions/definition

- Invested	YES IN EC	Companies answering "yes" to Q1
- No experience	NO IN EC	Companies answering "no" to Q1

c) Industrial Subsector

Companies returning completed questionnaire forms were divided into the following five categories by industrial sector on the basis of reference materials such as the Directory of Listed Companies etc. which had been used originally when selecting companies to receive the questionnaire. If it remained unclear which group a company belonged to confirmation was made by telephone. In the case of companies producing finished products relating to several industrial sectors a classification was made on the basis of the part of production which accounted for the largest sales of the company in question.

<u>Industrial sector</u>	<u>Abbreviation</u>
1. Automobiles and components/ parts	AUTO/PARTS
2. Electric and Electronic	ELECTRIC
3. Basic metal, metalworking and machinery including precision machinery	METAL/MACHN
4. Chemical and Pharmaceutical	CHEMICAL
5. Others, including woodworking, food processing rubber/plastic, garment/textile and ceramics	OTHERS

3) Method for Counting Up Answers

Three different kinds of answering method were employed in the questionnaire depending on the nature of question, which were: 1. selecting a single answer considered to be the most appropriate from a number of options (single answer), 2. selecting any number of answers considered appropriate (multiple answer) and 3. by selecting five answers considered appropriate which are then placed in order of priority (order of preference).

<u>Question no.</u>	<u>Answering method</u>	<u>no. of choices^{1/}</u>
Q1	Single	2
Q2	Multiple	12
Q3	Single	6
Q4	Multiple	12

Q5	Order of preference	12
Q6	Single	6
Q7	Order of preference	6
Q8	Multiple	4
Q9	Multiple	2

Q10	Order of preference	7
Q11	Order of preference	12
Q12	Single	3
Q13	Multiple	6

Note; ^{1/} Excluding answers indicating 'Others'.

The methods for totaling the number of answers for each of the different kind of question are as shown below.

a) Single Answer Questions

The answers for each of the options were totaled up. The number of answers was matched against the number of answering companies.

b) Multiple answer Questions

The answers for each of the options were totaled up. The number of answers

did not match with the number of answering companies.

c) Preference Order Questions

Although five options are to be given priority in the order of preference, only the first three choices were used for analysis, as it was considered that the reliability and importance of the fourth and fifth options as data is dubious for obvious reasons. Points were accorded to the first three options, the first taking three points, the second option two points and the third option having one point, and these weighted points were totaled up for each of the available choices and the percentages were calculated and analyzed.

(note) the following abbreviations are employed in the Computer Output Sheets shown in Annex IV-2 and in the present report.

NO. = the number of answers

PCT. = percentage

PNT. = weighted points

4.1.4 Analysis of the Questionnaire Survey

Annex IV-2 indicates the collected results to all questions. The present section of this report is concerned with an analysis of these results to clarify the view of Japanese companies with regard to investment in the EC and in Portugal as an EC member, and to identify the future measures to be undertaken by the ICEP with regard to promoting investment from Japanese companies. Further, summary conclusions of the mission on the results of the analysis are presented in the next section 4.1.5 after analysis of these results.

(1) Actual Investment to the EC (Figure 4-1-1)

1) Overall Averages and Performance by Industry

44% of all companies concerned stated that they already have factories or sales outlets somewhere in the twelve countries of the EC. By company size, it was found that 92.3% of the Gigantic companies have EC bases. In the case of Large scale companies 47.3% possess bases, while only 6.4% of the Small and Medium industries (SMIS) had such bases. The number of countries covered by these bases according to company size categories show that the Gigantic companies cover 5.3 countries, the large 2.7 countries, the SMIs 1.0 country, and 3.2 countries on average.

	<u>Yes in EC (%)</u>	<u>No. of Countries per Co.</u>
GIGANTIC	92.3	5.3
LARGE	47.3	2.7
SMIS	6.4	1.0
Overall Average	44.2	3.2

2) By Industrial Subsector

Next data was analysed to show which industrial subsectors were represented among the companies having bases in the EC. The predominant position was taken by the Electrical and Electronics companies with 70.2% followed by the Automobile and Automobile Parts companies with 57.1%. These were followed by the Chemical industry with 46.2%, the Metal and Machinery industries with 31.6%, and other industries with 21.6%. Looking at the average number of countries covered by one industry holding bases in the EC, we find that the same order is followed as that noted above, and the respective figures are 3.8 per Electric company, 3.3 countries per Auto/Parts company, 3.3 per Chemical company, 2.5

per Metal/Mach company and 2.4 for Others.

	<u>Yes in EC (%)</u>	<u>No. of Countries per Co.</u>
1. ELECTRICAL	70.2	3.8
2. AUTO/PARTS	57.1	3.3
3. CHEMICAL	46.2	3.3
4. METAL/MACHN	31.6	2.5
5. OTHERS	21.6	2.4
OVERALL AVG.	44.2	3.2

(2) Plans for Future Investment in the EC (Figure 4-1-2)

1) Overall Averages

Companies which answered that they "Have already decided on investment in the EC" or are "In the planning stage for investment" are taken to have a high probability of future investment, so that 47 of the 237 companies who returned answers are concerned (representing 19.8%). Companies which replied that they have "a general interest in investment to the EC" or are "thinking about evaluating investment" are taken to have a medium probability of future investment. There were 61 companies who returned answers to this effect representing 25.7% of the total. Adding these two figures together, we find that there are about 108 of the companies, or 45.5%, which have a positive attitude towards investment in the EC.

Taking answers such as "No investment plans held at present" or "Do not find investment in the EC attractive" together we find that 129 companies (54.5%) hold a negative view.

	<u>No. of Companies</u>	<u>(%)</u>
Positive		
-High Probability	47	19.8%
-Medium Probability	61	25.7%
Negative	129	54.5%
	237	100.0%

Looking at large and gigantic industries, we find that the positive position on EC investment represents 48% and 46% of these respectively. With the small and middle size industries there is a sharp drop in interest since only 17% of these expressed a positive interest in the EC. Of the above, 20 of the large companies

and 7 of the gigantic had already decided to undertake investment while only one of the small and medium size companies had already decided on investment.

2) Whether Experienced in EC Investment or Not

More than half of the companies with experience of investment in the EC held a positive view on investment (59%). On the other hand companies which had no experience tended to be negative and only 22% of these held a positive view on investment in EC.

3) By Industrial Sector

The following list shows the extent to which the different industrial subsectors expressed a positive view on investment in the EC.

AUTO/PARTS	62%	(21 companies)
ELECTRIC	60%	(34 ")
METAL/MACH	36%	(30 ")
CHEMICALS	13%	(52 ")
OTHERS	10%	(27 ")

There is a high ratio of large and gigantic companies in the Auto/Parts sector and in the Electronic/Electric sector. In the case of Metal/Machinery industries there is a mixture of small, middle, large and gigantic companies, while the Chemical industry tends to be mostly large size companies. The Others category tends to have a higher relative proportion of small and medium size companies. These company size trends by sector tend to be reflected in the above percentages. (cf. Table 4-1-1)

(3) EC Countries Chosen for Investment (Figure 4-1-3)

Next questions were posed to find which of the twelve EC countries received the most investment and which country companies contemplated investing in. EC countries which Japanese companies have already invested in or which they plan to invest in are first Germany, second Great Britain and others. This order is taken to be in proportion to the economic strength and maturity of industrialisation of the country selected.

Portugal came number eight on this list with 9 companies already involved in investment and 7 companies planning investment to give a total of 16 companies. However, among the 12 EC countries Portugal has the highest ratio of companies planning investment

relative to companies already investing. This is interpreted as a sign of a recent focus in interest on Portugal as an investment target among Japanese companies.

(4) Comparison of Attitudes Regarding the EC and Portugal as Investment Environments (Figure 4-1-4)

In general, the image of the name of the "EC countries" current among Japanese companies is one of a group of economically advanced nations and of industrially advanced nations. We conducted a survey on the view of Japanese companies of Portugal taken individually as an investment environment and in terms of investment potential. This view was then compared to the overall vision of the EC (hereinafter called as the "general-EC") in this respect.

To effect the comparison answers to Q5 on the general EC and Q11 concerning Portugal were compared. Q5 asks, "Which factors do you consider to be important for investing in the general EC?". Q11 asks "What concerns or anxieties would you expect assuming that you were to invest in Portugal?". In both Q5 for EC and Q11 for Portugal, there are 12 answers each to be chosen from, which are responded to on a one-to-one basis.

Note; analysis of the results to these answers has been done by giving weighted points to the order of preference accorded in answers. Figure 4-1-4 shows overall trends in answers together with separate data for the trends of companies which have bases in the EC already. The following discussion is only based on the trends observed in the overall trends.

The factor given most emphasis was "Market size" with regard to investment in Portugal, and in the general-EC as well. This aspect accounted for around 24% of the total points. The heading "Market Size" also includes the question of how difficult access to the center of the EC market is taken to be.

The second point of concern in the case of Portugal was "Technological base and level", which accounted for 23% of the total points. This factor only accounted for 10% in the case of the general-EC, taking fourth place in importance. This would seem to show a marked difference in attitude.

The third point causing concern in the case of Portugal was "Preparation of Infrastructure" with 11% of the total points, while this factor accounted for 10% in the case of the general-EC, coming fifth in importance there. Given the percentages it would seem that there is no gap in perception here.

The fourth cause for concern among Japanese companies with regard to investing in Portugal is the "language barrier" which accounts for 11% of the total points. A large percentage of Japanese companies expressed worries about having to use Portuguese to manage factories and supervise personnel should they undertake investment. In the case of the general-EC this particular concern corresponds to the factor of "intangible factors" (welcome and hospitality towards Japanese, national traits, culture, language, etc.) which was not taken to be of any great importance in that context since it only accounted for 3% of the total points.

In the context of the general-EC the second factor given emphasis was "Political stability", which accounted for 23% of the total points. In the case of Portugal only 3% of the companies answering expressed any concern with regard to this factor. The disparity may be due to concern among Japanese firms regarding the Re-unification of Germany (the first recipient country of Japanese investment in EC), the change of government in Great Britain (the second recipient of Japanese investment) and the recent toughening of position against Japan taken by France.

The third factor given emphasis in a consideration of investment to the general-EC was the "cost factor" accounting for 11% of the total points. In the case of Portugal this concern only accounted for 5% of the total points. This is taken to be due to the fact that Japanese companies take the view that Portugal has a particular superiority in terms of cost factors.

The fifth factor given emphasis with regard to both the general-EC and Portugal was "the national economy including inflation", which received 10% and 7% of total points respectively. In the case of Portugal the concern expressed in all cases was with a high rate of inflation.

The above completes the overall comparison of the perception of Japanese companies regarding Portugal and the EC in general as investment environments as seen in the top five concerns in both cases. The factor of distance ("far away from Japan, and no direct flight") was not given any particular emphasis especially in the case of companies already possessing bases in the EC. This factor accounted for only 0.3% (last in order of importance) of the total points of answers regarding the general-EC, and for 1.2% (ninth in importance) in the case of Portugal.

(5) Views on Investment in Portugal and Investment Plans (Figure 4-1-5)

The views regarding investment in Portugal were analysed on the basis of the weighted points accorded to the order of choices on the questionnaire. Further, with regard to

companies which at present expressed no interest in Portugal as a potential investment target, we asked them to suppose that they were to invest in Portugal in order to examine their latent attitudes.

The answer which gained the most points overall was that "Portugal is an appropriate country for setting up a primary production base in the EC". This reply accounted for 27.2% of the total having gained 286 points. In second place of preference was that "Portugal was appropriate for setting up a secondary production base for subcontract work delegated from a primary production base located in another of the advanced industrial nations of the EC". This reply took 245 points representing 23.2% of the total. Together these two replies accounted for 50.7% of the total points.

The third most popular answer was that "the Portuguese government shows great enthusiasm to encourage investment from Japan, there is favourable feeling to Japan and the Portuguese people get on well with the Japanese." This accounted for 20.5% of the total with 217 points. Fourth was "the positioning of production bases in Portugal before the unification of the EC market would be a way to circumvent the creation of an economic block against Japan", which accounted for 147 points representing 13.9% of the total. Fifth was "the potential of Portugal's geographical position between the continents of Europe, the Americas and Africa" which received 11.1% of the total points with 117 points. The reply given least emphasis as a motive for investment was "the importance of production bases in Portugal in order to strengthen economic ties with the Portuguese speaking nations" which only received 43 points or 4.1% of the total.

(6) Investment Plans in Portugal

Although not shown in the figure, the results of the replies regarding investment plans in Portugal are as follows.

	<u>No. of Co.</u>	<u>S.M.I.s</u>	<u>Large</u>	<u>Gigantic</u>
1. have decided on investment in Portugal	1	0	1	0
2. Investment in planning	0	0	0	0
3. Thinking of starting evaluation	2	0	1	1
4. Has general interest	12	3	8	1
5. No plans, no particular interest in Portugal	217	32	51	24
TOTAL	232	45	61	26

(7) Markets for Portuguese Products (Figure 4-1-6)

1) Overall Average of Companies

The following presents the overall averages of answers from companies as to where they would sell products if they possessed production bases in Portugal (multiple answers permitted).

	<u>No. of answers</u>	<u>% of total</u>
1. EC market as a whole	175	59.1
2. On the domestic Portuguese market	68	23.0
3. Develop reexports to Japan	29	9.8
4. In Portuguese speaking countries	24	8.1
	<hr/> 296	<hr/> 100.0

2) Breakdown by Company Size

The larger the company size considered the more companies give importance to developing sales markets both on the Portuguese domestic market but also on the unified EC market as a whole. On the other hand, in the case of Japanese companies considering re-export to Japan or sales to external Portuguese speaking markets, the bigger the company scale considered the fewer the companies concerned. For example, 18.5% of the small and middle size companies contemplate re-exporting to Japan, while the figure for large companies is only 9.4% and there are no Gigantic companies whatsoever.

3) Whether Experienced in EC Investment or Not

A similar trend to that mentioned for the large and gigantic scale companies above is also found for companies with EC investment experience. Companies without investment experience show the same trends as the small and middle size companies. Since only 6.4% (cf. Figure 4-1-1) of the small and medium size companies have any experience of investment in the EC these correlations are quite natural.

4) By Industrial Subsector

Industrial subsectors showing the same overall trend observed with the large and gigantic companies are the Auto/Parts industries, the Electrical Industry and the Metal/Machn Industry. Other industries show the same overall trend as those observed with the small and middle size companies. Chemical industry showed particular strategy in marketing, that is, this subsector was interested in the EC market at the rate of less than 50%, the lowest among all subsectors. And re-exports to Japan accounted for 25.6%, the highest among all subsectors. The subsector is aiming at the Portuguese domestic market at the similar level to the total average, or 25.6%.

The highest share of interest in the unified EC market came from the Electrical and Electronics Companies which accounted for 64.8% , while the auto and related companies accounted for 62.8%. The greatest interest in the Portuguese market came from the Automobile and related industries with 27.9% followed by Chemicals with 25.6%.

(8) Characteristics of the Target Markets (Figure 4-1-7)

1) Overall Averages

This question is that; provided that your company would invest in Portugal aiming at the target market not only in the EC countries but also in Japan, USA and others as indicated in (6) above, whether such target market is one your company already entered, or the other your company intend to newly penetrate. The following replies were received.

	No. of companies	
	<u>answering</u>	<u>%</u>
1. Market already entered	115	57.2%
2. Market to newly penetrate	86	42.8%
TOTAL	201	100.0%

Nearly 60% of the companies seem to see a production base in Portugal as a way of maintaining or expanding an existing market share. The remaining 40% envisage establishing a base for opening up a new market.

2) By Company Size

Half of SMIs considered that investment in Portugal is for maintaining or expanding the existing market share, while 55.9% of the large scale companies and 75% of the gigantic companies were interested in the market they presently shared.

3) Whether Experienced in EC Investment or Not

Quite naturally, 70.6% of the companies which had already possessed production bases in the EC were interested in the existing market. Almost half (43.3%) of the companies which had no experience of investment in the EC were also interested in maintain and expansion of the existing market spread over the world.

4) By Industrial Sector

Naturally, the industry subsectors having more bases in the EC show stronger preference to the existing markets.

	<u>YES in EC</u>	<u>Interest in Existing Market</u>
1. ELECTRICAL	70.2%	67.9%
2. AUTO/PARTS	57.1%	53.3%
3. CHEMICALS	46.2%	52.2%
4. METAL/MACH	31.0%	57.4%
5. OTHERS	21.6%	44.4%

(9) Evaluation of the Cost Competitiveness of Portugal
(Fig. 4-1-8)

1) Overall Evaluation

The following indicates the overall averages for answers received to the question, "Assuming that you were to invest in Portugal, which of the following cost factors would you give emphasis in order to maintain an internationally competitive price?".

	<u>weighted points</u>	<u>%</u>
1. labour cost	454	40.9
2. land cost	242	21.8
3. subsidies and incentives	136	12.3
4. raw materials cost	113	10.2
5. transportation costs	86	7.7
6. tax exemption	49	4.4
7. utilities cost	30	2.7
TOTAL	1,110	100.0

Figure 4-1-8 does not indicate data concerning trends in relation to company size, investment experience in EC and industrial sector. We have made some brief remarks below in this connection on the basis of Annex IV-2.

2) Trends By Company Size

The trends observed among the small-medium size companies and large companies both do not greatly differ from the overall average values. In the case of gigantic companies it is observed that the factor of land cost (13%) is given less emphasis than the overall average, while there is a tendency to give greater emphasis to transportation costs (10.1%) and to tax exemption (10.1%).

3) Whether Experienced in EC Investment or Not

Companies which have experience of investing in the EC show the same general pattern of response observed in the overall averages. Companies which do not have such experience however tend to give greater emphasis to the factors of land cost (24.6%) and raw materials costs (12.5%) than is shown in the overall averages.

4) By Industrial Sector

The automobile and related parts industries give almost twice as much emphasis to the factor of transportation costs (14.3%) than was the case in the overall averages. Conversely, the metal and machinery industries emphasised raw materials costs (13.9%). In the chemical industry, less emphasis was given to the factor of labour cost (37.0%) than the overall average (40.9%), and instead emphasis tended to go onto the factor of land cost (25.4%). This is seen as a peculiarity of industries depending on elaborate installations. The emphasis given to subsidy and incentive considerations by the chemical industry (16.7%) was also found to be higher than in the case of the other industrial subsectors.

There were no other noteworthy disparities with the overall averages in connection with other industrial subsectors or particular cost factors.

(10) Attractiveness of Portugal for Investment
(Figure 4-1-9)

This question was placed at the end of the questionnaire. Effort had been made in the explanations and wording of previous questions to introduce favourable aspects of the investment context in Portugal. By the time companies came to answer this question, they should have absorbed a considerable amount of information relating to the conditions of investment in Portugal. At that point we reconfirmed their overall feeling on the attractiveness of Portugal for investment.

1) Overall Average

The overall average responses were as follows.

	<u>No. of companies</u>	<u>%</u>
1. More information needed for evaluation	140	70.0
2. Not attractive as investment opportunity	45	22.5
3. Attractive (deserving further consideration)	15	7.5
	<u>200</u>	<u>100.0</u>

2) By Company Size

The bigger the size of the company answering, the lower the ratio of companies who answered "more information needed" (small and medium companies; 75.7%, large companies; 69.6%, gigantic companies 64.0%). This is taken to reflect the increased access to information of the larger size of companies.

There were more companies in the small-medium and large size ranges who found the Portuguese context unattractive rather than attractive. However, in the case of the gigantic companies the reverse ratios were observed, and while five such companies found the proposition "attractive" (equaling 20.0% of the total in this range) only four companies stated that this was "not attractive" (equaling 16.0% of the total).

3) Whether Experienced in EC Investment or Not

Quite naturally, a higher ratio of the companies who had no experience of investments in the EC replied that "more information is needed". Further, a large number of the companies with investment experience were found to reply that Portugal was an attractive investment opportunity.

4) By Industrial Subsector

Subsectors are listed below in the order of the higher percentage of replies stating that Portugal was found to be an attractive investment proposition. It is not possible to find specific difference among industrial subsectors.

	No. of companies replying "attractive"	Answers	Z
AUTO/PARTS	3	29	10.3
CHEMICALS	2	21	9.5
OTHERS	2	28	7.1
METAL/MACH	5	71	7.0
ELECTRIC	3	51	5.9
	15	200	AVG. 7.5

(11) Method of Acquiring Information about Portugal
(Figure 4-1-10)

Companies were asked what institute or organisation had been contacted to gain investment information concerning Portugal. 51 companies in total said that they had contacted 95 bodies. This means that 21% of the total number of 242 companies answering the questionnaire had undertaken some information collecting activities. The results relating to the particular organisation applied to for data in order of importance are as follows.

	No. of companies
1. JETRO	37
2. Banks/Financial institutions	17
3. ICEP	14
4. Trading Companies	12
5. Field Survey incl. Participation in investment	11
6. Chamber of Commerce	4
TOTAL	95

4.1.5 Overall Evaluation and Proposals

(1) Overall Evaluation

- 1) 15 Companies representing 7.5% of the total of the 200 companies answering the questionnaire stated that they considered Portugal an attractive investment opportunity. Further, seven companies representing 7.4% of the 94 companies answering, said that they were considering investment in Portugal. These figures are not considered small. Because if one remembers that over the thirty year period from 1960 to present only 24 Japanese manufacturers have undertaken investment in Portugal. Further, of the 15 companies expressing an interest in investing in Portugal, five of these were classed as gigantic companies. This is also an extremely favourable indication not to be overlooked.
- 2) It is possible to interpret the above figures as revealing the gradual effect of the energetic efforts of the ICEP to promote investment from Japan. However, 70% of the companies still pointed out a lack of information. In particular 76% of the small and middle size industries were left without sufficient information regarding the investment context in Portugal.
- 3) In the experience of the Study Mission, there is a direct correlation between increase in investment by Japanese companies in a country and that in country information available. The usual pattern observed is for a rapid increase in investment to take place from Japan to a country one to two years after a considerable release of information concerning that country in Japan. The focus for investment promotion strategies is how to turn the attention of companies interested in investing in the EC (45% of the total) towards Portugal in particular as an opportunity.
- 4) 22.5% of companies answering indicated that they did not feel that Portugal was an attractive opportunity. Such a response is not confined to the Portuguese case but is repeated to a lesser or greater extent in all questionnaires whatever the country concerned. For example, 8% of the companies answered that they had no interest in investing in any of the twelve EC countries. This 8% is included in the above 22.5%. Therefore, such negative responses are not to be unduly emphasised. It is more important to stress investment promotion activities focused on the 70% of companies who expressed a lack of information in this regard.
- 5) JETRO was named as the organization most contacted by Japanese companies to obtain information about Portugal. It is advisable to strengthen the liaison of

operations between the Tokyo and Lisbon offices of JETRO. Further, private sector institutes such as banks and trading companies were also frequently mentioned in replies as important advisors in relation to foreign investment. This reflects what is perhaps a peculiarity of the Japanese business context. It is necessary to reinforce relations with banks and trading corporations as part of future promotion policy.

6) The overall impression held by Japanese companies of Portugal in terms of investment opportunity as shown in the replies to the questionnaire can be summarised as follows.

a) There is interest in establishing production bases in Portugal before the unification of the EC market. Favourable aspects of the Portuguese context are seen to be in the comparative low costs resulting from the cost effectiveness of labour costs and land costs. Other favourable aspects include the political stability, the favourable feelings to Japan and a Japanese presence and the complementary national character of the Portuguese and the Japanese.

b) However, the limited size of national territory and small population means that a domestic market enough to invest in economic size cannot be expected. It is therefore necessary for companies to aim at the EC market as a whole. Companies compare how Portugal's industrial and technical foundations look against those of other EC countries. Are infrastructures needed for production activities provided or not? Is there an easy access to the entire EC markets? Is Portuguese the only language which can be used? Is management carried out smoothly? These are the main concerns for Japanese companies in such a context.

(2) Specific Trends by Company Size

1) Gigantic Size Companies

92% of the gigantic size companies, largely concerned in the automobile, and electrical /electronic industries, already possess production bases inside the EC countries. In this size range companies on average invest in more than five of the EC countries, and there is a high level of interest in investment into Portugal. Since overseas investment forms part of a global strategy in the case of such companies one reason for investment is to further the international division of labour within the company. If we take the example of an automobile company this

will develop a system whereby parts are manufactured in country A, taken to country B for partial assembly and then for full assembly in country C. Even if full assembly is carried out in the same country there are frequent examples where products are specialised by country so that one country assembles Pick up Trucks and another handles the assembly of Automobiles.

Another strategic aspect is the effort to reduce trade friction caused by direct exports from Japan by carrying out production inside the target market. This is illustrated by the fact that in the present questionnaire 75% of the gigantic companies asked to assume that they were to invest in Portugal gave existing markets as likeliest sales market for such production and no gigantic companies mentioned possible re-export to Japan.

Decision making on investment in the case of the gigantic companies depends on a thorough evaluation of opportunities in relation to the above mentioned global strategies.

2) Small and Medium Size Companies

The main objectives envisaged by small and medium size companies when considering overseas investment differ from those emphasised by the gigantic companies. The loss of international competing power of domestic production in Japan due to the strong yen, increased labour costs, the difficulty of securing workers for hard or dirty manual work in Japan, balanced against the need to avoid losing sales in the domestic and export markets form the main background leading to overseas investment. Investment relates to a relocation of the production base from Japan to another country. Therefore such investment for relocation tends to take place in Asia where labour costs are low and distances to the Japanese market small.

Only 6.4% of the small and middle size companies answering the present questionnaire had production bases in the EC, while 19% of the companies assumed re-export to Japan as the likeliest reason for investment abroad, and these figures corroborate the above trends.

As the size of company decreases, final decisions on the choice of country to be invested tend to be made by the company president-owner. Of course such decisions are based on thorough prior evaluation. But compared to large or gigantic companies greater emphasis is given to factors such as the eagerness of the country considered to attract investment, hospitality towards Japanese, the national character, etc. In these terms, Portugal enjoys considerable advantages to attract

small and medium size companies. Moreover, in the present Mission's previous experience we have found that Owners of small and middle size companies are relatively quick in making decisions about selection of a country for undertaking investment.

3) Large Size Companies

The results of the present survey show that, in all regards, the position of the large companies is one between that adopted by the gigantic companies on the one hand and by the small-medium size companies on the other. However, considering the number of investments, it is concluded that the companies with the greatest likelihood of investment are to be found among this size range of companies.

(3) Trends in relation to Experience of EC Investment

- 1) Since 92.3% of the gigantic companies had experience of investment in the EC followed by 47.3% of the Large industries and only 6.4% of the small-medium size companies trends relating to experience necessarily reflect trends indicated for the different size categories, with the gigantic companies and half of the large industries representing companies with experience and the small-medium size companies representing the companies without experience of EC investment.
- 2) 78% of the companies without any investment experience in the EC expressed a negative view on such investment whereas 41% of companies with some experience of investment in the EC were negative in their view of EC investment.
- 3) More of the companies with experience of EC investment expressed a clear attitude of either a positive or negative stance as to their interest in investment to Portugal. This reflects the fact that such companies already investing in the EC have access to considerable information about Portugal and so have been able to form a clear opinion.
- 4) In response to the question concerning which market would be aimed at supposing that investment in Portugal had been undertaken, the companies with experience of investment in the EC focused on the EC and domestic Portuguese markets in their answers, and the emphasis in their strategies was on maintaining or expanding existing market shares. With the companies which had no experience of investment in the EC, there was a greater percentage of companies which saw investment in Portugal as a means to effecting re-exports to Japan or to participating in other new markets. It would seem reasonable to explain this by the fact that

many of the companies without investment experience in the EC (mostly small and medium size companies) have not yet determined their basic position on investment to the EC.

(4) Trends by Industrial Subsector

1) ELECTRICAL Industries

The percentage of companies in the electric and electronic industry which already have production bases in the EC is 70% which is higher than in other industrial subsectors. Also 32% of the companies in this subsector said that they were considering new investments in the EC, and the same level was registered for the automobile and related parts industries. Since SMIs are included a few in this subsector; namely 14 companies in the gigantic range (24.6%), 38 companies (66.7%) in the large range, and 5 companies (8.8%) in the SMIs, the above trends can be the natural. However the percentage of companies wanting more data regarding Portugal deserves special note since this represents the highest figure for any of the industrial sub sectors considered.

2) AUTO/PARTS Industries

The breakdown in company size of the automobile and related industries was 2 companies (5.7%) in the small-medium size range, 27 (77.1%) in the large size range and 6 companies (17.1%) of a gigantic size. This subsector showed the largest interests in investment in the EC (35%) despite that 57.1%, ranked in the second, of the subsector possessed production base in the EC. This subsector also reveals quite clear positive and negative responses to the idea of investment in Portugal, and the number of companies which gave a clear indication as to whether they found Portugal an attractive or unattractive investment proposition was relatively large. Responses as to what market would be aimed at were almost equally divided between companies answering that their main target would be to maintain existing EC markets and others aiming at the penetrate into new markets. It would seem that companies in this sector look to expand into new markets on the basis of their existing EC market share.

3) CHEMICALS Industries

The composition of replies from the chemical industries was 11.5% (3 companies) for SMIs, 88.5% for the large scale (23 companies) and none for the gigantic. 46.2% of companies already possessed bases in the EC, while 52% of the compa-

panies indicated a forward looking stance. Companies in this subsector had the most clearly stated views on Portuguese investment. 9.5% of the companies expressed an interest, while 28.6% of the companies said they had no interest and only 61.9% of the companies expressed a desire for more information which was the lowest figure of all subsectors. The chemical and pharmaceutical industries are capital intensive industries requiring a large equipment provision. It is therefore quite natural that companies in this subsector emphasised the element of land cost more than other subsectors in their consideration of cost factors relating to investment in Portugal. In contrast to other industrial subsectors, 46.5% of the companies of this subsector stated that their market strategy would be to re-export to Japan from Portugal. Companies aiming at the internal EC market amounted to 48.8% which was lower than the other sectors. On the assumption of investment in Portugal more than 50% of the companies said that they would aim for entry into new markets, so that this sector shows a marked difference from the other sectors of the electric/electronic, automobile and related industries, and metal and machinery industries, where existing markets were given as the main target.

4) METAL and MACHINERY Industries

The company size in this subsector was that 21 companies (21.6%) were small-medium, 60 companies (61.9%) large and 6 (6.2%) gigantic. 31% of these companies already have bases in the EC while 36% take a forward looking attitude towards investment in the EC. Five companies or 7.0% expressed an interest in investment Portugal. There were certain peculiarities of this subsector in comparison to other industrial sectors. Firstly, the highest percentage of companies (32.6%) emphasised their interest in Portugal as a secondary production base for providing parts within the EC.

Also, there was a very high percentage of companies (12.4%) expressing concern about the technical levels in Portugal.

5) Other Industrial Subsectors

Included under this heading are the food processing, woodworking, furniture, rubber, plastic, textiles, garments and ceramics industries. An overall breakdown of companies replying shows that 16 companies (43.2%) were in the small or medium range and 56.7% in the large range of company. The attitudes towards foreign investment are almost exactly the same as those already outlined for the small and medium size industries in (2) above.

4.1.6 Advice Concerning Investment Promotion for Japan (Based on the Results of Analysis)

The present Mission Team has cooperated in the past on a number of investment promotion programmes organised by foreign countries to lure investment from Japan. In the light of this previous experience and in conjunction with the findings of the present Questionnaire survey, a few general proposals will be made below:

- (1) The first step in investment promotion activities should be directed to informing Japanese entrepreneurs about the present situation in Portugal. The efforts realised to date through the cooperation of the Portuguese government and the ICEP have already shown a positive achievement in this direction.
- (2) An Asian country carried out campaigns to publicise and celebrate 200 years of friendly relations with Japan. The celebration of the 450 years of friendly relations between Portugal and Japan should be given maximum publicity possible and offers a unique and important opportunity for focusing the attention of Japanese companies on Portugal.
- (3) Seminars held in Japan have served as a publicity campaign to make Portugal better known generally in Japan. In addition to such publicity campaign, various types of information supply are required.
- (4) It is necessary to reinforce PR relations aiming at Japanese manufacturers through seminars, small meetings, use of the mass media, newsletters, etc. Japanese companies desire to have more concrete and detailed information. The ICEP has not yet done enough to satisfy this demand for more information. In general, private sector companies will not undertake investment just on the basis of a history of friendly relations with another country.
- (5) It is necessary to hold a large number of seminars directed by men in practical fields and businessmen. It is not always necessary that such meetings be attended by top level representatives of Portugal and Japan. Arrangement of such seminars could be assigned to the Tokyo office of the ICEP.
- (6) Regional seminars (in Tokyo, Kanagawa, Osaka, Nagoya, etc.) should be held for small and medium size companies. Discussions in the form of small group meetings would be appropriate in the case of trading companies, banks and financial institutions.
- (7) It is necessary to consider holding seminars and meetings for specific industrial subsectors in the case of large and gigantic companies. For example, when planning a meeting for a gigantic company it should be remembered that the different production divisions

of the same organization will differ as greatly as if they were different companies (the gap separating the departments of a company for televisions, refrigerators, video equipment, air conditioners, radio cassette players, etc for example will differ to this extent). If a seminar is planned for a given company which covers its sub contractors and affiliate companies in addition to the various departments then it can be expected that there will be at least 20 to 30 participants belonging to different departmental sectors.

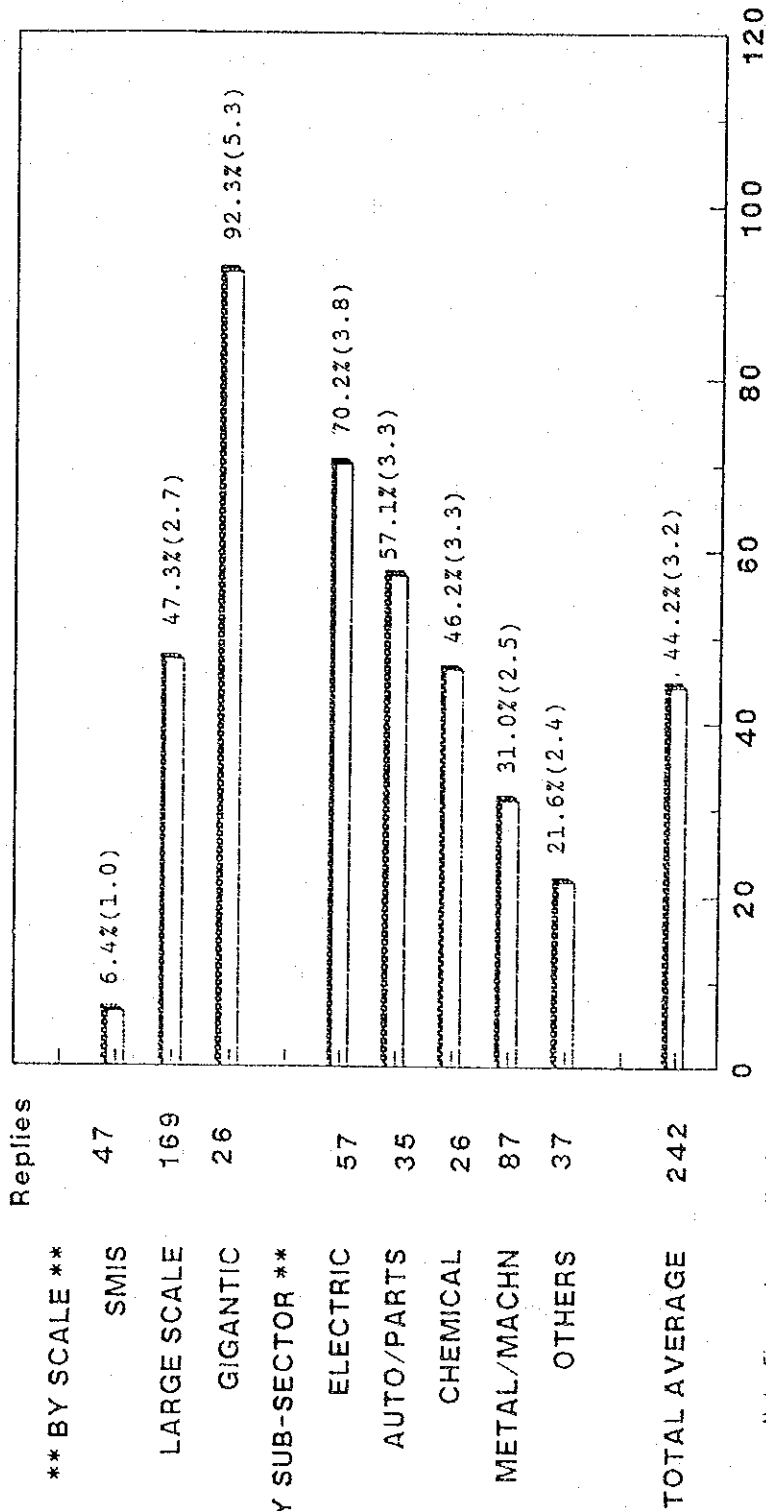
- (8) Japanese entrepreneurs undertake to collect as much concrete data as they can inside Japan and then proceed to confirm this when they undertake a local survey in the country considered. The fine points of data concerning costs, labour and occupational regulations, living conditions, etc. will be scrutinized with surprisingly meticulous thoroughness. It is therefore essential to ensure that data bases are created and kept up to date.
- (9) It is necessary to improve the functions of the ICEP Lisbon for receiving Japanese companies during their local surveys. It is necessary to ensure that a sufficient and appropriate response can be made by the reception of the ICEP Lisbon when a visit is received, even should this be without appointment. It is necessary to promote a good initial impression of the ICEP since this will probably be the first Portuguese governmental organisation to be visited in Portugal.

Table 4-1-1 BREAKDOWN OF REPLIES TO BE ANALYZED

Unit: Number of replies(=companies)

SUBSECTOR	(1)SMIS[1]	(2)LARGE SCALE[3]	(3)GIGANTIC[2]	TOTAL
1 Automobiles and their components and parts	2	27	6	35
2 Electric and Electronic products	5	38	14	57
3 Basic metal, metalworking and machinery	21	60	6	87
4 Chemical and pharmaceutical products	3	23	0	26
5 Other incl. food, wood, rubber, plastic, textile, garments and ceramics	16	21	0	37
Total	47	169	26	242

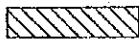
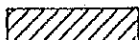

DO YOU HAVE PRODUCTION BASE IN EC MEMBER COUNTRIES? (Q.1): Replies=242 companies
 IN WHICH COUNTRIES DO YOU HAVE PRODUCTION BASE IN EC? (Q.2): Replies=107 companies
 composition of those companies which have investe in EC



Note: Figures in parenthesis shows number of countries investe per company

Figure 4-1-1 THE EXISTING PRODUCTION BASE IN EC MEMBER COUNTRIES

DO YOU HAVE PLAN TO INVEST IN EC? (Q3) : Replies=237 companies

Answer to be checked	Investment Probability	Legend
1. DECIDED ON INVESTMENT IN EC	High = 47 (19.8%)	
2. UNDER PLANNING FOR INVESTMENT IN EC		
3. ABOUT TO CONSIDER FOR INVESTMENT IN EC	Medium= 61 (25.7%)	
4. GENERALLY INTERESTED IN EC		
5. NO PLAN FOR INVESTMENT IN EC SO FAR	Low = 129(54.5%)	
6. EC IS NOT ATTRACTIVE FOR INVESTMENT		

**** BY SCALE OF ENTERPRISE ****

Scale	No. of Replies	Composition (%)		
SMIS	46	17	83	
LARGE SCALE	165	20	28	52
GIGANTIC	26	54	27	19
	237			

**** BY EXPERIENCE IN EC ****

Experience	No. of Replies	Composition (%)		
YES IN EC	105	25	34	41
NON IN EC	132	3	19	78
	237			

**** BY SUBSECTOR ****

Subsector	No. of Replies	Composition (%)		
AUTO/PARTS	34	35	27	38
ELECTRIC	57	32	28	40
METAL/MACHN	84	11	25	64
CHEMICAL	25	28	24	48
OTHERS	37	3	24	73
	237			

Figure 4-1-2 INVESTMENT PLAN IN EC

IN WHICH COUNTRY(IES) DO YOU HAVE PRODUCTION BASE IN EC? (Q2)
 : Replies=107 companies
 IN WHICH COUNTRY(IES) DO YOU HAVE PLAN TO INVEST IN EC? (Q4)
 : Replies=94 companies

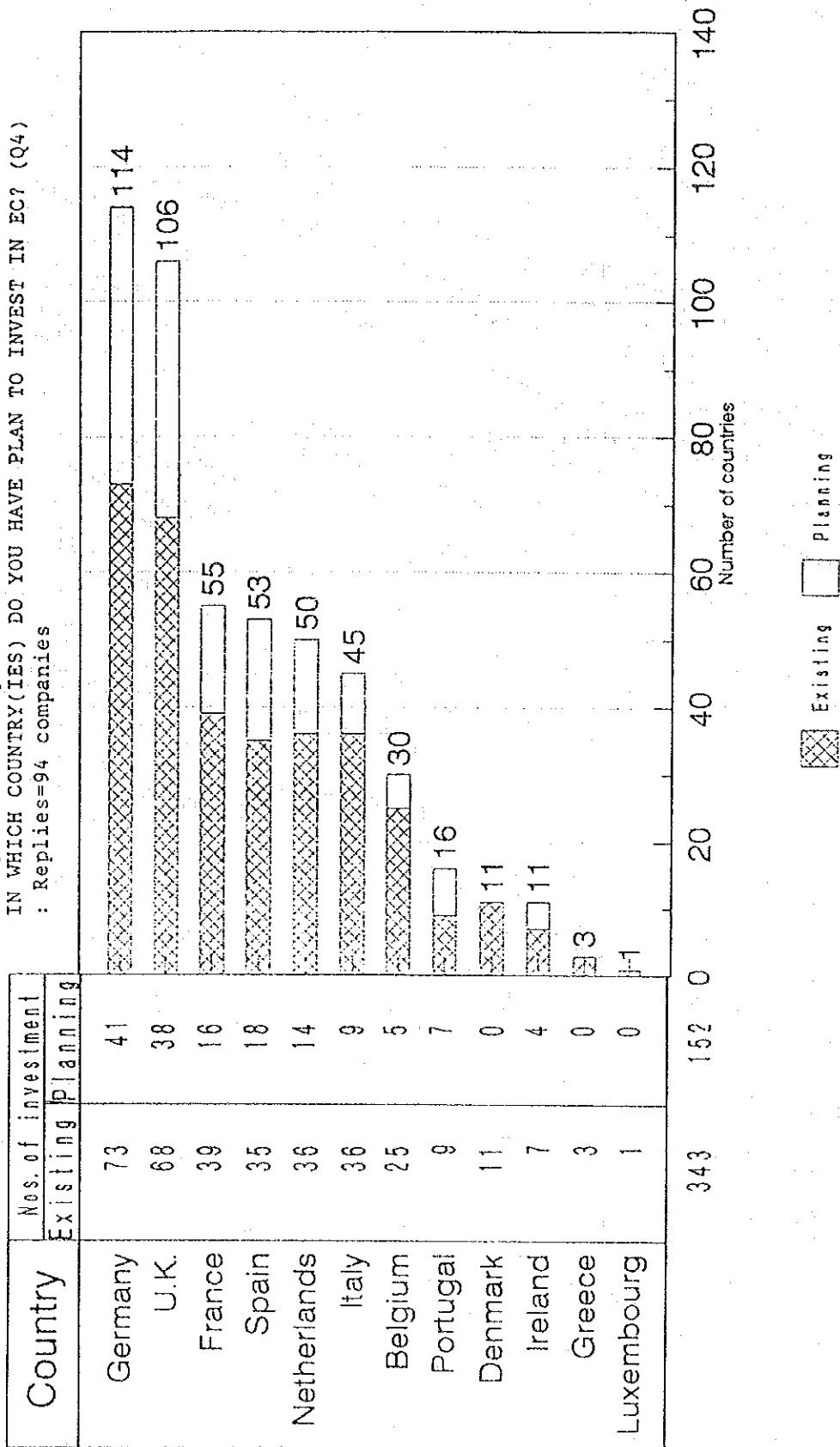
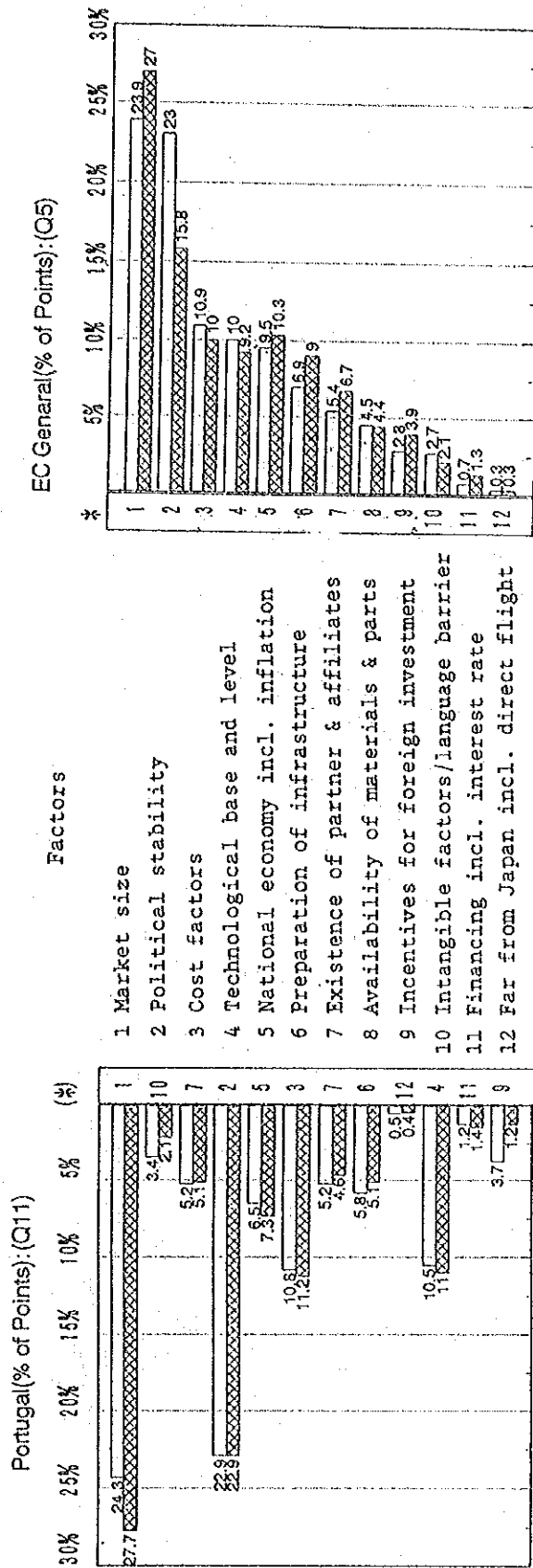


Figure 4-1-3 COUNTRY(IES) FOR PRODUCTION BASE IN EC

WHICH FACTORS DO YOU CONSIDER TO BE IMPORTANT FOR INVESTING IN EC? (Q5)
 WHAT ARE YOUR ANXIETIES WHEN ASSUMED TO INVEST IN PORTUGAL? (Q11)



Composition of the total replies
 (Q5) Replies=201 companies (1206 points)
 (Q11) Replies=184 companies (1104 points)

Composition of replies from those companies which have production base in EC
 (Q5) Replies=102 companies (612 points)
 (Q11) Replies= 94 companies (564 points)

Note: (*) Order of priority for the total replies

Figure 4-1-4 IMPORTANT FACTORS AS INVESTMENT ENVIRONMENT IN COMPARISON BETWEEN EC AND PORTUGAL

WHAT ARE ATTRACTIVE FACTORS CONSIDERING PORTUGAL AS INVESTMENT OPPORTUNITY? (Q7)

Replies=176 companies

(Unit: % of points weighed by order of priority)

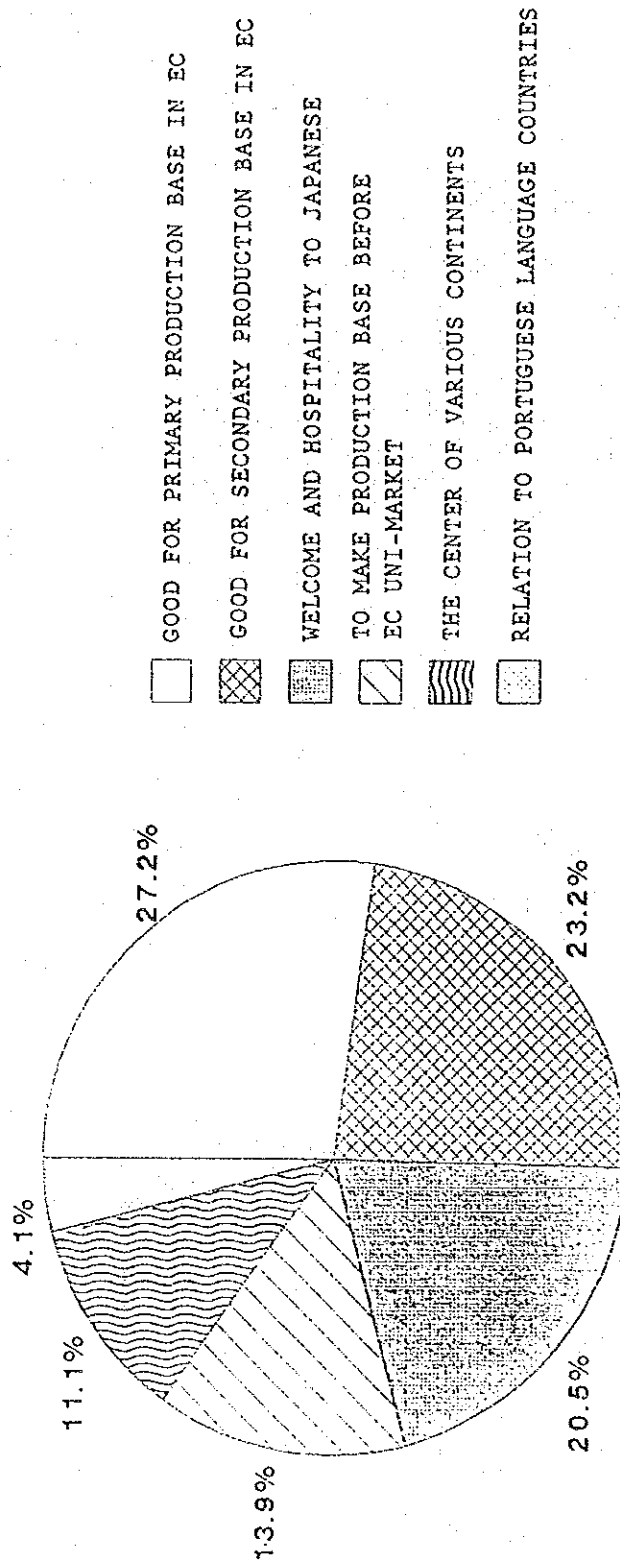
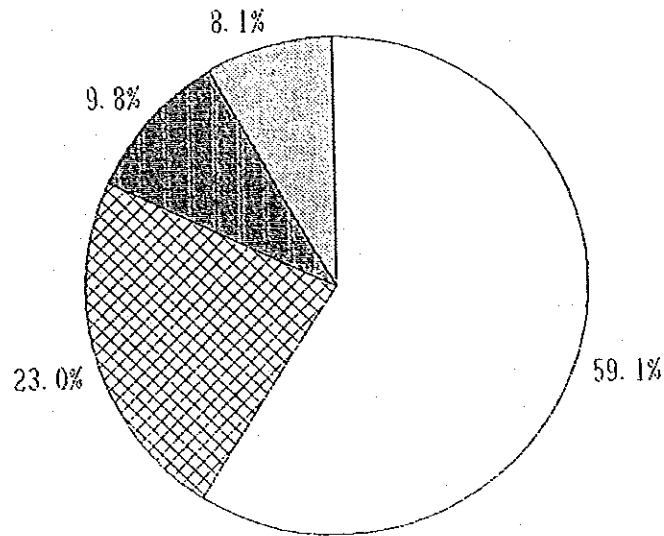


Figure 4-1-5 ATTRACTIVE FACTORS FOR INVESTING IN PORTUGAL

WHERE IS THE TARGET MARKET WHEN ASSUMED TO INVEST
IN PORTUGAL?(Q8):Replies=202 companie

Composition of total replies



- EC market(1)
- Portuguese domestic market(2)
- Re-export to Japan(3)
- Port. language market(4)

(1)	Break-down(%)				Total
	(2)	(3)	(4)		
(BY SCALE OF COMPANY)					
	55.6	14.8	18.5	11.1	100.0
	59.1	23.2	9.4	8.4	100.0
	64.1	33.3	0	2.6	100.0
(BY EXPERIENCE IN EC)					
	61.1	27.5	2.7	8.7	100.0
	57.1	18.4	17	7.5	100.0
(BY SUBSECTOR)					
	62.8	27.9	4.7	4.7	100.0
	64.3	24.3	7.1	4.3	100.0
	61.2	20.4	11.7	6.8	100.0
	48.8	25.6	4.7	20.9	100.0
	51.4	18.9	21.6	8.1	100.0

Figure 4-1-6 TARGET MARKET WHEN ASSUMED TO INVEST
IN PORTUGAL

WHICH TYPE OF MARKET DO YOU MAINLY ASSUME IN THE TARGET MARKET IN Q6?(Q9)

Replies= 193 Companies

TOTAL REPLIES: EXISTING MARKET=57.2%, NEW PENETRATION=42.8%

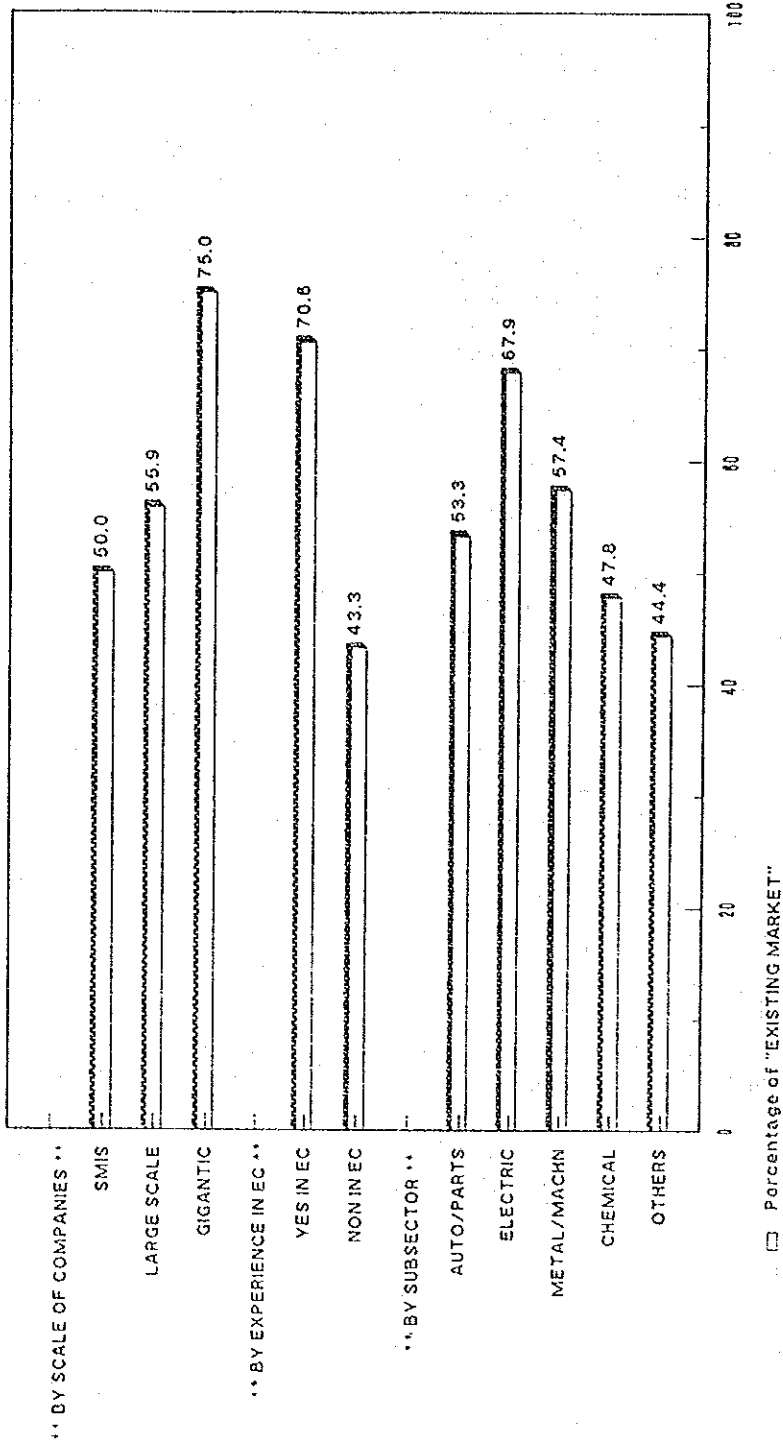


Figure 4-1-7 TYPE OF THE TARGET MARKET WHEN INVEST TO PORTUGAL

WHICH COST FACTORS DO YOU CONSIDER ASSUMING TO INVEST IN PORTUGAL? (Q10)

Replies=185 companies

(Unit: % of points weighed by order of priority)

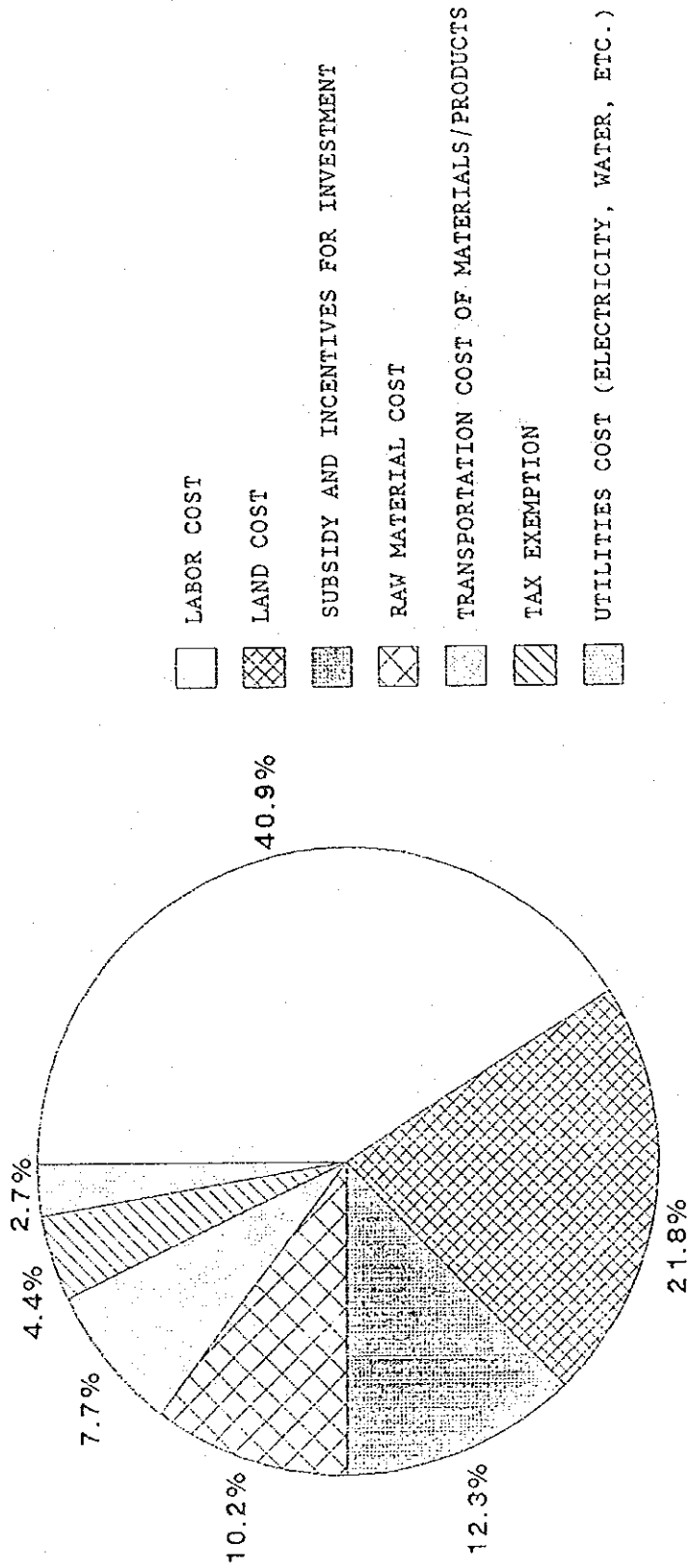
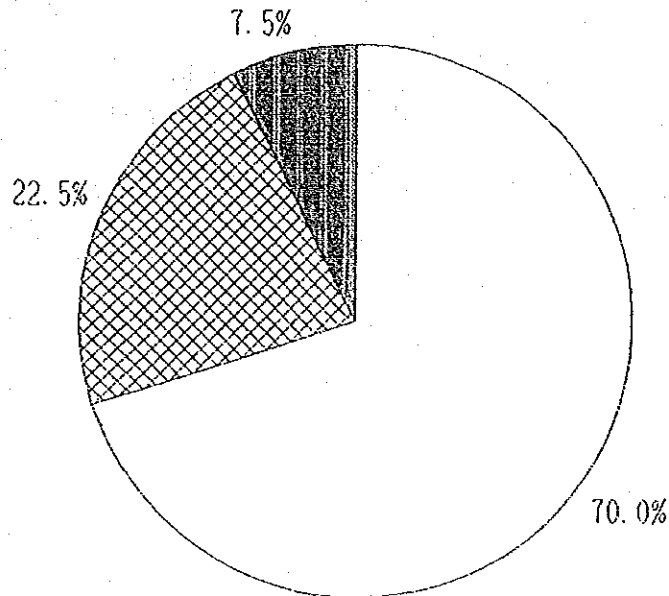


Figure 4-1-8 IMPORTANT COST FACTORS IN PORTUGAL

WHAT IS YOUR EVALUATION, AS A CONCLUSION,
OF PORTUGUESE INVESTMENT OPPORTUNITIES(Q12) :
Replies=200companies

Composition of, total replies



- More information needed(1)
- Not attractive(2)
- Attractive(3)

Break down (Number of companies)

	(1)	(2)	(3)	Total
<u>(BY SCALE OF COMPANIES)</u>				
SMIS	28	7	2	37
LARGE SCALE	96	34	8	138
GIGANTIC	16	4	5	25
	<u>140</u>	<u>45</u>	<u>15</u>	<u>200</u>
<u>(BY EXPERIENCE IN EC)</u>				
YES IN EC	65	25	9	99
NON IN EC	75	20	6	101
	<u>140</u>	<u>45</u>	<u>15</u>	<u>200</u>
<u>(BY SUBSECTOR)</u>				
AUTO/PARTS	19	7	3	29
ELECTRIC	40	8	3	51
METAL/MACHN	47	19	5	71
CHEMICAL	13	6	2	21
OTHERS	21	5	2	28
	<u>140</u>	<u>45</u>	<u>15</u>	<u>200</u>

Figure 4-1-9 OVERALL EVALUATION OF PORTUGAL
AS INVESTMENT OPPORTUNITIES

WHICH ORGANIZATION WAS YOUR INFORMATION SOURCE FOR PORTUGAL (Q13)

Replies=51 companies

(Unit: number of replies - plural answers allowed)

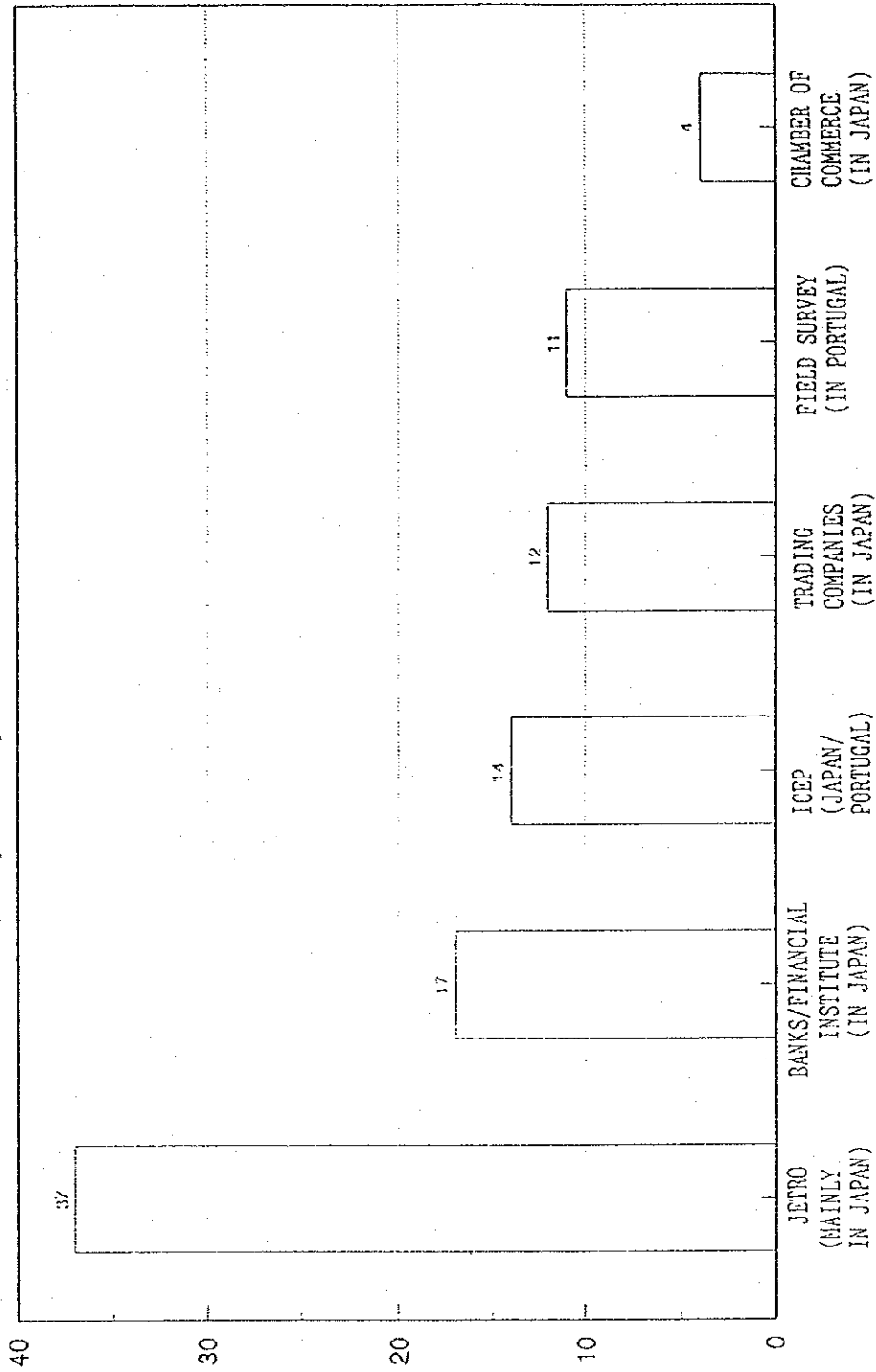


Figure 4-1-10 INFORMATION SOURCE OF INVESTMENT CLIMATE OF PORTUGAL

4.2 Results of Interview Survey to Japanese Companies located in Portugal

For the sake of effective investment promotion to Japanese potential investors, it is important for ICEP to know past experience of and problems faced by the Japanese companies presently operating in Portugal. Because most of potential investors will hear from the operating companies on investment climate including advantages and disadvantages of Portugal during their pre-investment survey. In this regard, the JICA team made an interview survey visiting the Japanese companies operating in Portugal and the results will be summarized in this section. Those comments mentioned by the Japanese companies shall be examined for setting up suitable countermeasures.

According to statistics issued by the Japanese Ministry of Finance concerning direct investment from Japan to Portugal (Table 4-2-1) there were 47 investments undertaken up to the end of 1990. The breakdown of these shows that 24 cases were undertaken by the manufacturing sector (becoming 25 at the present date of July, 1991), 11 cases in the commercial sector, 4 cases in the financial and insurance sectors with only 2 cases in the real estate sector. Another characteristic is the small number of large scale investments in the manufacturing sector which accounts for the largest share of overall investment. Investments are under 5 billion Escudos per case in this sector. Also in the list of the top 500 Portuguese large scale companies published in the Portuguese Economic Journal "Exame Melhores E Maiores" most of the companies represented are key industries with a large percentage of American or European multinationals. The only Japanese companies included in the list are Toyota Motors which has a 27% equity in Salvador Caetano ranked at number 12, Mitsubishi Portugal S.A. ranked at number 69, Shinetsu Chemicals- Mitsui Bussan which have a 50% equity in CIRES ranked at number 81, and Yazaki Corporation which is ranked at number 380 in the list.

Table 4-2-2 shows 25 Japanese manufacturing companies which have made investment in Portugal. 12 companies under No.14 are manufacturing companies in Japan but they don't have manufacturing base, only having a sales companies in Portugal. The result of hearing survey for 10 Japanese manufacturing companies among them are as follows.

4.2.1 Status Quo and Characteristics of Japanese Companies located in Portugal

(1) Motives for Investment to Portugal

There are 25 manufacturing companies which have invested in Portugal (as of July 1991 including companies with a minor equity under 25% of total). This is not a very large number compared to the situation in other European countries. There is a considerable variety of reasons given as motivation for investment from one company to another but the following summarizes the main representative positions.

- 1) To strengthen and reinforce relations existing prior to the actual investment

Some Japanese companies had already arranged for sales of their finished goods by concluding a distributing agent agreement with a local company. However, as the volume of sales increased the Japanese company decided to undertake capital participation in the Portuguese company.

- 2) Request from an associated Japanese company

Since an associated company undertook the establishment of a production base in Europe, the company was requested to invest in Portugal in order to produce and supply parts for this base in Europe.

- 3) In conjunction with the Parent Company's Overseas and European Strategy

In cases where the setting up of a base in Portugal continues and extends an ongoing strategy to establish bases inside European countries.

- 4) To enjoy high productivity of labor

In the case of labor intensive industries entry is undertaken in order to reduce production costs.

- 5) In order to make use of previous investment experience in Portuguese speaking countries

Companies which have some experience of business in Brazil or other Portuguese speaking countries and have accumulated an in house expertise in relation to the Portuguese speaking world or which feel an interest in continuing business relations with the Portuguese speaking nations.

- 6) Indirect Reasons

In cases where necessary parts or raw materials are available in Portugal the question of supply is facilitated. Also, there are cases where the investment incentives offered although not a direct motivation still constitute an important factor in the final decision to invest.

In general, it was remarked during the present survey that many of the Japanese companies now represented in Portugal had some form of relation with the country before

undertaking their initial investment. In fact, there was no company which had undertaken such an investment without some form of prior business relation. Moreover, spent considerable time in gathering information and marketing activities through the offices of locally posted representatives or dealing agents and were extremely prudent and thorough before making any final decision on undertaking investment.

(2) Location

1) Production Bases

Figure 4-2-1 indicates the locations of the production bases of Japanese companies which have invested in Portugal.

This shows that the bases tend to be concentrated either in the northern region around Porto City or otherwise in the southern coastal region around Lisbon. In the case of the seven companies whose bases are in the northern region this was due to the fact that the joint venture partner was already located here or because of the presence of related industries in the vicinity. However, in general most of the Japanese companies which located in the northern region gave the following factors as reasons for their choice, 1. labor costs were lower here compared to the southern regions, 2. the region was designated for investment incentives, 3. the active policies to attract investment undertaken by the local government.

In the southern region, four companies possess production bases. Since they have been located here since before 1970 in some cases they have a relatively long history since investment. It would seem that a thorough comparative evaluation of possible sites had not been undertaken at the time of investment. Sites were chosen near to the main national routes or in regions with a comparatively good access to Spain, and since satisfactory sites had been lacking at the time of selection the present sites were said to have been the only options.

2) Sales Outlets

In most cases outlets are located in Lisbon or along suburban routes, and advertising and show windows used to effect sales. Companies possessing such sales outlets remarked that land acquisition did not always go as planned (Figure 4-2-2).

(3) Managerial Context

There are always special problems confronted in industrial management overseas, whatever the country involved. The most fundamental problems for Japanese businesses in Portugal are the great physical distance involved and the lack of familiarity among Japanese themselves with the Portuguese language, customs and ways of thinking. The following is a consideration of the basic factors which are likely to be concerned when deciding on whether to undertake entry to Portugal or not.

1) Equity ratio and Relations with Partner Firm

Looking at the equity participation of Japanese manufacturing firms in Portugal reveals that the firms tend to have a predominant majority of equity. Among the 25 Japanese firms in Portugal 19 have an equity ratio superior to 80% while 14 of these actually account for 100% of the capital provision. Of the 13 Japanese companies which have production facilities located in Portugal 9 of these have a majority equity.

Even in cases where the Japanese partner has a minority equity, only two companies fall below a 25% level and since the majority with more than 25% equity secure veto rights they are involved in the actual management processes. Despite the high level of equity the number of personnel dispatched from Japan is usually only 1 to 3 staff per company which is much smaller than the average of 7 personnel in the case of other European countries. Therefore Portuguese executives and managers are employed and the actual factory administration and personnel administration is their responsibility. As a result the Japanese style of management is not rigidly enforced but relations with business partners and the local workforce is judged to be good.

2) Labor

The general view of Japanese companies located in Portugal concerning their Portuguese workers is that, "the workforce is extremely responsible and fits in well with the general ethos of Japanese companies", and "even simple, repetitive work is carried seriously without complaint", etc. On the other hand it was sometimes remarked that, "workers tend to be slack about time", or "operators are poor at creative innovation and lacking in dexterity".

It is easy to secure a labor supply through newspaper announcements but there is a continuing shortage of engineers and mid level managers. Moreover, since

wages for this latter class tend to be on a par with those paid in Japan there is a large disparity between their wages and those paid to the general unskilled workforce. Most companies pay high wages in order to secure capable secretaries, engineers and managerial staff. There are also regional differences in wage levels; southern regions is generally higher than northern regions around Porto in wage level.

The general push to bring national wage levels more in line with other European countries evident since entry into the EC in 1986 has resulted in companies being forced to accord annual wage increases at a level superior to the rate of inflation (of 13.4% in 1990). Concern was expressed about this recent tendency for continuing wage increases. In particular, Japanese companies of a labor intensive nature experience a squeeze on their profit margins which is regarded as a serious problem.

Due to the above trend to wage increases together with the social security burden of 24.5% of the social security expenses of employees which is placed on the employer and the burden of subsidies towards lunch and commuting expenses, many employers feel that the present level of labor costs in Portugal is no longer significantly advantageous than the levels in other European countries.

3) Availability of Raw Materials, Intermediates and Parts

Many of Portugal's local industries on a small-middle scale are managed by a single family and the separation of capital and management has been slow. This results in certain inefficiencies in production, high costs relative to quality and inability to meet delivery dates. Moreover, there are intermediate goods and components which cannot be produced domestically because industries lag behind in technology and in modernization. Therefore the ratio of local supply in the Japanese companies in Portugal remains at a low level around 20% to 30%. The major part of intermediate goods and parts supplies are dependent on imports from Japan or other European countries. In interviews mention was often made of imports from Spain.

However, certain parties complained that delivery of these imports is often behind schedule because of the harbour conditions (insufficient capacity of harbour warehouses) or labor problems (dockworker strikes occur frequently).

4) Buyers and Competitors

It is possible to divide the Japanese manufacturing companies in Portugal into two groups in terms of the market aimed at ; firstly, there are companies aiming at the domestic market and secondly, there are companies aiming at foreign markets.

The first group of Japanese industries aiming at the Portuguese market are dominated by the automobile and transport vehicle industries. The companies which carry out production by local assembly on a complete knockdown system experience fierce competition for market shares from other Japanese, American or European companies in the same sector. In the case of other industrial sectors Japanese companies stated that they are in competition with two to three domestic manufacturers but that product differentiation and diversification means that direct competition is avoided. Japanese companies in Portugal aiming at the domestic market which do not compete directly with American or European affiliates have still been able to achieve reasonable results.

The export orientated Japanese companies have invested Portugal relatively recently and a large scale of investment has been undertaken to effect entry. Many of such companies see such investment as integrated in a global plan of development focusing on the American, European and Japanese markets.

5) Use of Investment Incentives

The main incentives received by Japanese companies when entering into business in Portugal and those mentioned several times during interviews with companies are the following.

1. provision of factory site
2. subsidy to modernization investments under the SINPEDIP programme.
3. assistance for personnel training expenses under the IEFPP programme.
4. exemption of import duties on imports of raw materials for articles which are to be exported.

Incentives 1 and 2 above represent the most important incentive factors. For companies desiring to keep down the initial costs incurred when establishing a company abroad provision of these incentives will influence companies in their choice of country and region for investment.

Many companies apply for application of No. 3 above after investment in Portugal. However, it was pointed out by several companies that since complicated procedures involving the prior establishment of a detailed training schedule in line with the standards of the IEFP are required of the employer a considerable time is required for approval.

6) Local Funding

In order to restrain a rapid inflow of foreign capital and to reduce inflationary pressures (the annual rate of inflation in 1990 was 13.4%) the Central Bank of Portugal announced a number of restraint measures which are to be applied for the time being. Also the bank interest lending rate of 23% is extremely high. Furthermore, permission of the Central Bank is required for foreign currency loans which are not for trade transactions, and there are considerable restrictive aspects to policies such as the compulsion to place on deposit with the Central Bank 40% of the sum borrowed.

A lending agreement was concluded between Export -Import Bank of Japan which is the Japanese government financial institution for Portugal and the Portuguese National Saving Corporation (Caixa General de Depositos; CGD) in January, 1990 allowing for bank loans up to a total amount of 5 billion Yen in funding assistance to projects undertaken by an unspecified number of Japanese companies. However, this system has not been used yet as the procedures on the CGD side are complicated and a high rate of roll over interest applies.

On the other hand, in July, 1990 the Bank of Tokyo began commercial operations at its branch in Portugal, and undertakes to support Japanese companies already in Portugal or those newly investing in the country with a full range of advisory services. In any case, because of the high cost of capital funding by borrowing, most of the Japanese companies in Portugal refrain from using loans and meet needs by capital increase.

4.2.2 Main Requests of Japanese Companies in Portugal

(1) Provision of Infrastructures

1) Communications

Telephone and Facsimile devices are posted throughout the country but lines remain busy and it is difficult to get through. There is no problem within Lisbon

itself, but at certain hours it is impossible to get a line from Lisbon out to Porto because of the limited number of lines available. Japanese companies assume the provision of communication infrastructures as a necessary precondition for business, and feel that "doing business is impossible if it takes a whole day to make contact by telephone or facsimile".

2) Roads

Construction of main trunk roads is proceeding with EC funding. However, there are many sections of regional trunk roads which are in bad repair or which only have a single lane per one way of traffic so that when large lorries transport goods traffic jams result. The construction of industrial roads is desirable from the point of view of transport efficiency.

(2) Applications and Approvals

It was felt that the bureaucracy of the relevant authorities caused an unnecessary delay. For example, a company which has decided to invest in Portugal must obtain working visas from the immigration authorities for the personnel it wishes to send but since these can not be obtained even though visas for a stay of longer than six months validity is needed, companies are forced to use Tourist Visas. Personnel must then leave Portugal every six months and travel to neighboring countries to reindorse their tourist visa, and this process has to be repeated. The impression of some companies is that while their decision to invest in Portugal is welcomed and encouraged when they start to take practical action to realize entry approval is not forthcoming. Companies sometimes lose faith in the ability of the Portuguese authorities to cope with and process the administrative aspects involved. These incidents make many companies feel frustrated and dissatisfied.

(3) Legal Aspects

Companies feel that the frequent changes in laws and regulations create confusion in actual practice and are lacking in consistency as to underlying principles. Interpretations differ according to Solicitors consulted and companies expressed dissatisfaction with the situation.

(4) Labor Relations

1) Strikes and Union Action

The number of strikes has decreased recently, but these are still common among bus drivers, dock workers and airport personnel. Many companies hoped that there would be improvements in the strike situation of workers in public service sectors.

2) Life time Employment

Labor laws in Portugal guarantee life time employment to workers. For companies with small personnel numbers entering into Portugal this does not pose such a great problem. However for companies attracted by the low cost of labor, wage rises superior to the annual inflation rate constitutes a major factor creating an adverse situation in management.

Table 4-2-1 DIRECT INVESTMENT TO PORTUGAL FROM JAPAN
(APPROVAL BASE, AS OF 1990)

Year	Amount		(Structure of Foreign Direct Investment by Sector)			Unit: Million \$US
	Number	Amount	Sector	Number	Amount of Investment	
1951						
-77	18	12				
78	1	1	Manufacturing	24	115	63.0
79	1	1	Industries			
80	-	-				
81	1	2	Commerce	11	28	15.0
82	1	4				
83	1	4	Banks and Insurance	4	10	5.0
84	2	0	Financial Instruction			
85	1	0				
86	2	3	Services to Company	-	-	-
87	2	6				
88	4	7	Real Estate	2	6	3.0
89	10	74				
90	3	68	Miscellaneous	6	23	13.0
Total	47	182	Total	47	182	100.0

Source: Statistics of Ministry of Finance, Japan

Table 4-2-2 DIRECT INVESTMENT FROM JAPAN
(MANUFACTURING)

No.	Name of the Company Established in Portugal	Year of Establishment	Name of the Japanese Investor	Equity Share (%)	Amount of Investment (million ESC)	Sector (main product)	Number of Employees (Japanese Staff)	As of March, 1991	
1	CIRES-Cia Industrial de Resinas Sinteticas S.A.	1960	Shin-Etsu Chemical Co.-Ltd. MITSUI & CO., LTD.	50	1,808	chloroethylene	234(1)		
2	Mitsubishi Motors de Portugal S.A.	1965	Mitsubishi Motors Co.,Ltd. Mitsubishi Corp.	99.5	942	automobile	316(3)		
3	Salvador Caetano, Industrias, Metalurgicas e Veiculos de Transporte S.A.	1972*	Toyota Motor Corp	27.1	5,000	automobile	2,200(3)		
4	FISIPE-Fibras Sinteticas de Portugal S.A.	1973	Mitsubishi Rayon Co.,Ltd. Mitsubishi Corp	20.8	3,718	acrylic resin	422(0)		
5	YKK-Yoshida Portuguesa LDA	1981	YKK-Yoshida Kogyo K.K.	100	250	fastener	42(3)		
6	Yazaki Saltano de Portugal C.E.A, LDA	1986	Yazaki Corporation	90	4,200	Automotive wiring harness	2,071(17)		
7	Firestone Portuguese, S.A.	1988*	Bridgestone Corp Firestone	96.39	150	tire	587(0)		
8	Matrena-Sociedade Industrial de Papeis S.A.	1988	Settsu	14.3	800	paperboards	263(0)		
9	Textile Tsuzuki LDA	1988	Tsuzuki Spinning Co., Ltd.	100	3,000	cotton yarn	180(11)		
10	Optec DD Portugal Components Electricos, LDA	1989	OPTEC DAI-ICHI DENKO (U.K.)	100	500	magnetic wiring harness	3(1)		
11	Nemoto Portugal Quimica Fina	1990	Nemoto Tokushu Kagaku Co., Ltd. Nissho Iwai Corporation	85	138	fluorescence paint	15(3)		
12	Isobe Miura-Aparelhos Terapeuticos e Productos Directeticos, LDA (Nikken Europe)	1989	Nihon Kenkou Zoushin Kenkyu-kai (Association for the improvement one's health)	100	10.5	apparatus for health	20(2)		
13	Emcaco	1991*	Teisan Industries Corporation	25	600	automobile parts /accessories	220(1)		

Note: -Marked by (*) are those companies visited by JICA mission

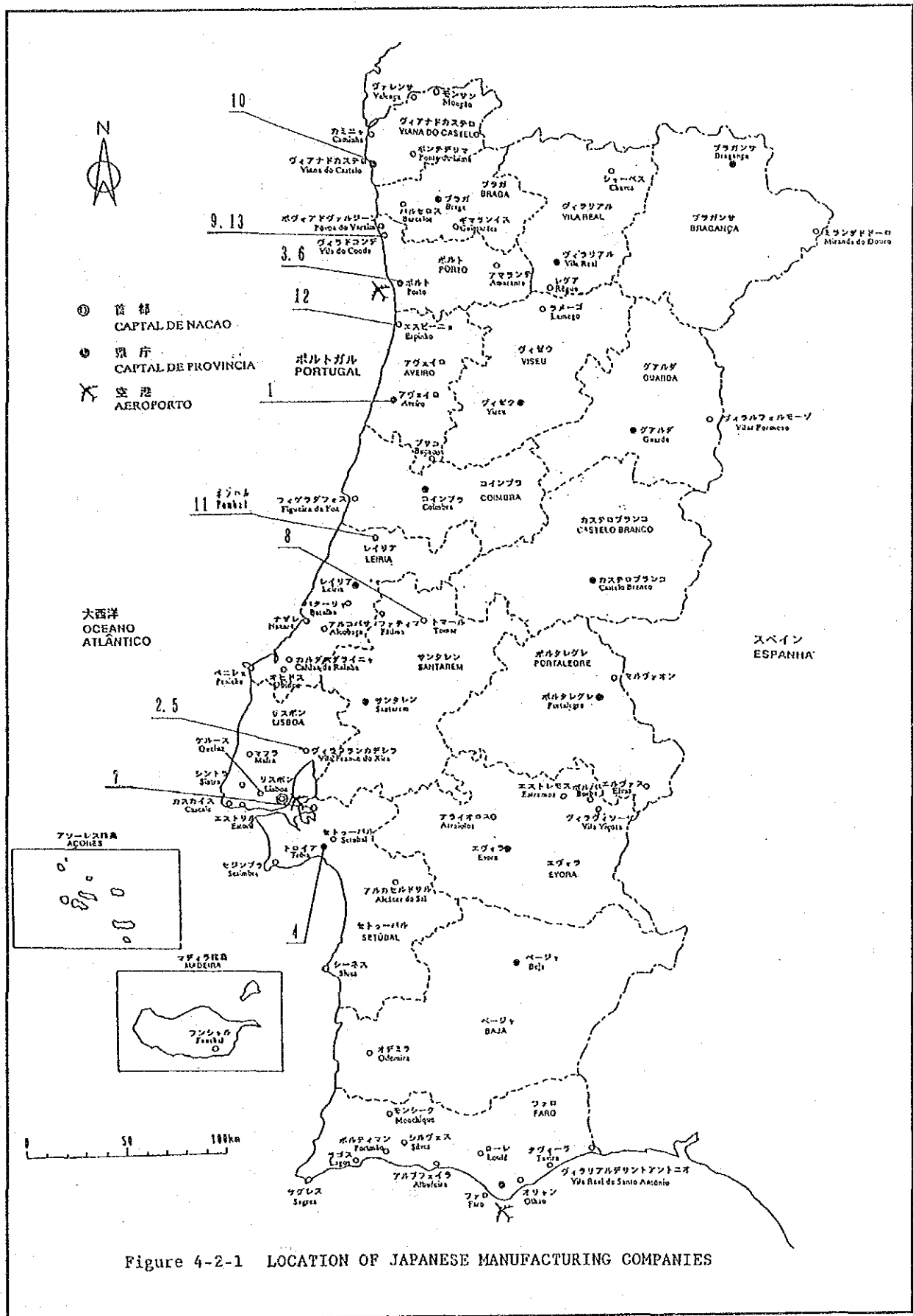
-Marked by (*) indicates the year when the Japanese company made equity participations to the existing local company

Source: JETRO

Table 4-2-3 DIRECT INVESTMENT FROM JAPAN
(SALES)

No.	Name of the Company Established in Portugal	Establishment Date	Name of the Japanese Investor	Equity Share (%)	Amount of Investment (million ESC)	Sector (main product)	Number of Employees (Japanese Staff)
1	Brother International Portugal	1971	Brother International	100	2.85	sewing machine	8(0)
2	Hoya Lens Portugal Artigos de Optica Ltd.	1983	Hoya Europe B.V.	100	60	frame of the glasses lens for glasses	22(0)
3	Honda Motor de Portugal SARL	1986	Honda Motor Co., Ltd.	80	33	motor cycle	8(2)
4	Sony Portugal LDA	1986	Sony Espana S.A.	100	52	electronic product	99(1)
*5	Iseki Portugal Equipamentos e Acessorios LDA	1988	Iseki Agricultural Machinery Mfg Co., Ltd	100	50	tractor	5(1)
6	Omron Electronics LDA	1988	Mitsui & Co., Ltd Omron Electronics Europe B.V.	100	30	electric parts	13(0)
7	Minolta Portugal-Importacao	1988	Omron Electronics S.A. Minolta Camera Co., Ltd Minolta GMBH	100	80	office supply	77(0)
*8	Honda Automovel De Portugal S.A.	1988	Honda Motor Co., Ltd	67	500	automobile	13(1)
9	Idetex	1988	Idemitsu International (Europe) PLC	49	500	gasoline	10(1)
10	Sanyo Portugal Electronica S.A.	1990	Sanyo Electric Co., LTD Sanyo Espana	30	500	electronic product	91(1) 30(1)
11	YAMAHA Motor Portugal	1990	YAMAHA Motor Co., LTD	70	200	motor cycle	(0)
12	Omron Administracao de Imveis LDA	1990	Omron Electronice S.A. Omron Electronice LTDA	100	20	medical equipment	

Note: -Marked by (*) are companies visited by JICA mission
Source: JETRO



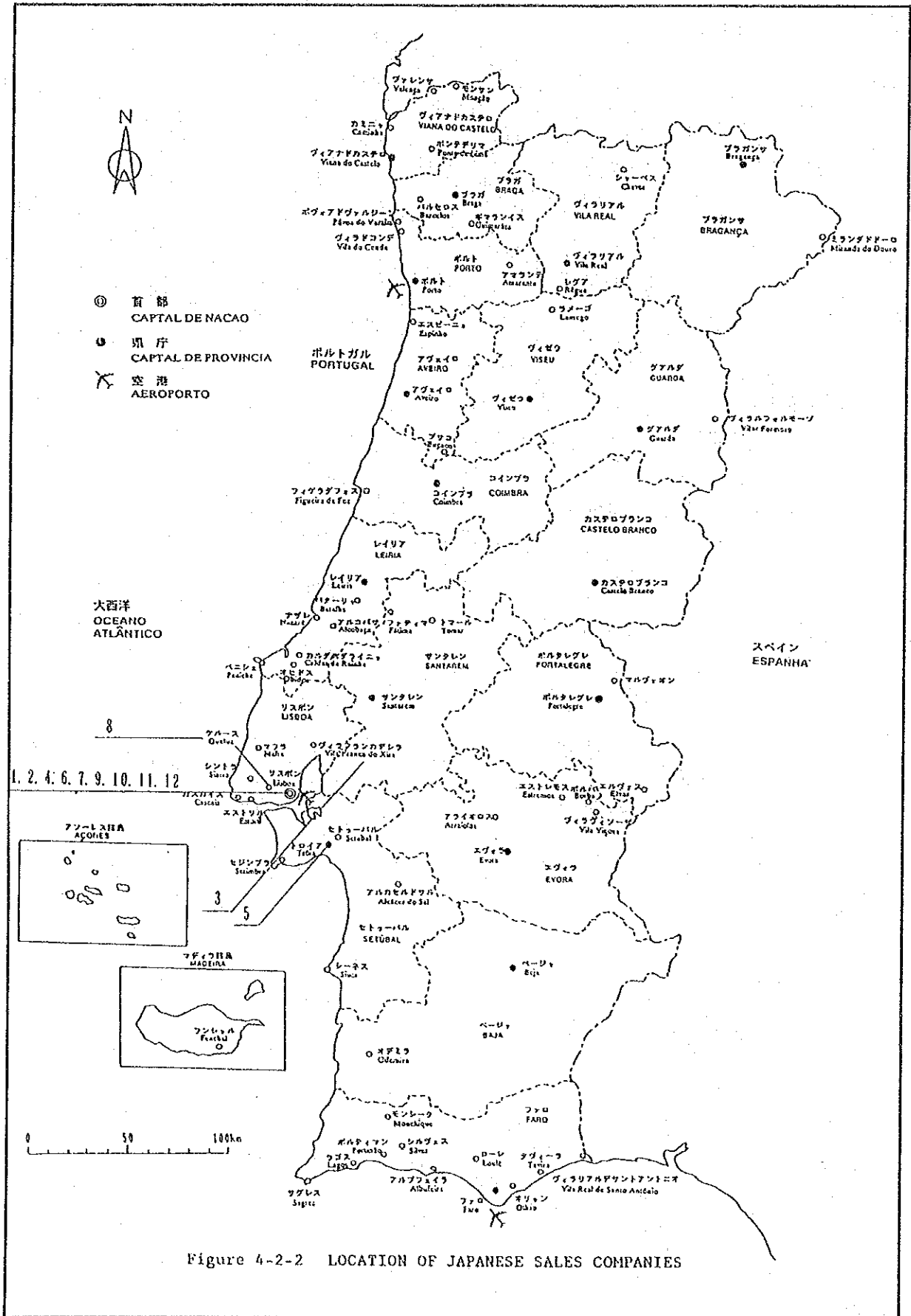


Figure 4-2-2 LOCATION OF JAPANESE SALES COMPANIES

4.3 Trends of Japanese Investment in the EC

In reply to questions in the Questionnaire survey explained in 4.1 above which was posed to Japanese companies about the place accorded to Portugal within their investment framework the second most important answer chosen in terms of overall average was the suitability of Portugal to act as a base for the supply of parts within the EC zone. In the case of the gigantic industries represented by the automobile, electric and electronic industries this was the answer most chosen. In the present section we shall review the present situation of Japanese companies in the EC focusing on large scale investment and examine the investment strategy of companies in the auto, electrical appliance, and semi-conductor sectors in the EC. The following analysis is intended to serve as reference data for future planning of activities to lure Japanese investment.

4.3.1 Overseas Investment by Japanese Companies

Table 4-3-1 indicates direct foreign investment by all Japanese industries analyzed by region and industrial sector for the fiscal year of 1990. Investment from the manufacturing sector accounts for 27.2% of the total industrial investment. Also investment in the three regions of North America, Europe and Asia accounts for 93% of the total world investment carried out by the manufacturing sector. The same three regions account for 95% of the actual investment actions.

	Investment sum (million US \$)	no. of investment actions	amount per investment (million US\$)
North America	6.793	444	15.3
Europe	4.593	248	18.5
Asia	3.068	759	4.0
<u>Others</u>	<u>1.032</u>	<u>77</u>	<u>13.4</u>
Worldwide	15.486	1,528	10.1

The above shows that the region with the highest number of investment actions is Asia, but the investment amount per action there is low, only representing one-fourth to one-fifth of the sums expended on actions in North America or Europe. This reflects the fact that much of the investment into Asia is carried out by small and medium size companies transferring their base of production overseas because of the problems of the strong yen, high labour costs and the shortage of manpower in Japan. By contrast, there is a large proportion of investments in North America and Europe which are of a strategic nature undertaken by large or gigantic companies. Figure 4-3-1 indicates the number of investment actions undertaken by the manufacturing sector by region over a fifteen year period from 1976 to 1990 with figures

companies. Figure 4-3-1 indicates the number of investment actions undertaken by the manufacturing sector by region over a fifteen year period from 1976 to 1990 with figures shown on a five year cumulative basis. This data shows that the order of importance of the three regions with Asia first, followed by North America and Europe has not altered. Moreover, this reveals the rapid increase in the number of investments which have taken place over the last five years.

Table 4-3-2 shows the investment sums for the ten countries receiving the largest investment sums from Japan. However, these figures are only for the manufacturing sector. These ten countries together account for 85% of Japanese overseas investment in this sector. Looking at the figures for the particular countries reveals the marked importance of the USA as the prime investment market, accounting for 41% of total investment and outstripping the 13% for investment in Great Britain, the second market, nearly on third of the USA. However, if the four EC countries in this list (i.e. Great Britain, Holland, France and Germany) are taken together these account for 27% of the total investment sum while the three Asian countries (Thailand, Malaysia and Indonesia) in the list taken together account for 12% of the total.

4.3.2 Characteristics of Japanese Manufacturing Investment in the EC

(1) Number of Investments and Industrial Sectors

According to JETRO (Japan External Trade Organization) statistics, 676 Japanese companies had production bases in Europe in January, 1991, of which 651 representing 96% of the above were located in the twelve countries of the EC zone. By country and in order of importance there were 187 in Great Britain, 122 in France, 109 in Germany, 64 in Spain and 39 in Italy (refer to Table 4-3-3 and Figure 4-3-2). In the case of Europe the industrial sectors most represented are in the electrical, machinery and chemical sectors, thus reflecting the overall trends in foreign investment by Japanese industry.

By particular country, besides a marked concentration of vehicle industries and their related parts manufacturers in Great Britain, there is also a greater number of companies in the electrical appliance and electronic machinery industries (including parts industries) in Great Britain over Germany and France. Companies in the chemical, general machinery and precision machinery sectors are scattered across Europe while there are a large number of companies relating to Foodstuffs located in France and in vehicles and related parts in Spain. Also there are many manufacturing industry investments in Holland for unifying direction of a company's European bases and for carrying out Physical Distribution functions.

(2) Locations

1) Production Bases

The following is an outline of the main locations of Japanese companies in the various European nations.

Great Britain:

Besides South Wales and Scotland, there are a large number of Japanese companies located in the West Midland and Yorkshire.

France:

Besides the Ile de France region centered around Paris, Japanese companies are located scattered about the industrial zone of the three Benelux countries, the Southern district of Aquitaine, the area of the Rhone Alps and in the Alsace region which has good access to Germany.

Germany:

Companies are scattered throughout the country, with the main focusing being in Nordrhein-Westfallen, Hessen and Bayern.

Spain:

Mostly concentrated in the Catalonia region.

The governments of the EC countries provide investment subsidies and subsidies for employment promotion to promote development in regions designated as ailing industrial regions or areas of low development. Subsidies for vocational training and research and development activities are also accorded. Many companies decide on entry in response to governmental requests to participate in employment promotion and regional development, but in the case of Great Britain and France there are very few companies actually moving into the areas of low development covered by the subsidies.

Another characteristic trend is the shift observed in the kind of industries undertaking entry from the traditional industrial sectors of textiles, machinery and steel to the advanced technology sectors centering on semi-conductors.

2) Sales Outlets

Many Japanese manufacturers establishing production bases in Europe also set up sales outlets as part of an overall strategy of investment. Further, locally incorporated companies are often set up to provide financial, research and other services so that companies construct an integrated company system encompassing research and development, production and sales within the European zone.

(3) Industrial Scale

325 of the 338 companies concerned in the Survey carried out by JETRO on the situation of Japanese companies in Europe in January, 1991 returned answers on their capital holdings, while 300 gave details of their personnel numbers (refer to Table 4-3-4). The figures on the scale of capital holdings show that 99 companies had between 1.01 million US \$ to 4.99 million US \$ (representing 30.5% of the total) and 58 companies held between 5 and 9.99 million US \$ (12.2%). Just under half of the companies have capital holdings between 1.01 and 4.99 million US \$.

The average capital per company is 29 million US \$ which considerably exceeds the figure of 11.1 million US \$ registered in the survey for the previous year, however this is seen to reflect the fact that whereas in the previous survey only 3 companies held capital in excess of 100 million US \$ this had increased to 17 companies in the 1991 survey. As to personnel numbers, 91 companies employed less than 49 staff (30.3%), 132 companies employed between 50 and 299 staff (44%), while 77 companies employed more than 300 staff. In overall terms, three out of four companies employ less than 300 staff while one out of four employs 320 on average.

(4) Motives for Undertaking EC Investment

1) Trade Friction Between Japan and EC

One reason for export industries to undertake investment is to avoid the trade regulations and anti-dumping excises of the EC. In particular, the recent large increase in investment in the sectors of electric appliances, electronics, automobiles and machine tools is seen to result from this situation.

In response to the expanding trade surplus registered by Japan in trade with the EC, the EC beginning with France adopted import restrictions against color television sets as of 1968, while import monitoring regulations were instituted against motor cars, video tape recorders (VTR), and machine tools as of 1981 and 1982. Then as of 1983 the EC begin to place anti-dumping tax on Japanese miniature

ball bearings, copy machines, printers, and VTR. Further, microwave ovens, semi-conductors, car telephones, and cassette tapes were placed under investigation. As of 1987 it was declared that even in the case of Japanese companies which were undertaking local production in order to avoid the above anti-dumping measures that if more than 60% of the parts used in production were found to be of Japanese origin the products would be treated as Japanese imports of finished goods and anti dumping excise duties be exacted. Moreover there was increasing criticism from France and Italy that the motor cars assembled in Nissan's British factories for export to the continent could not be regarded as of European make since the local supply content of these fell below 80%.

Against the above background, a large number of Japanese companies undertook investment in the EC to begin local production. Local production bases were set up one after another for the production of color televisions in the late 1970s, and then in the early 1980s for machine tools, VTR systems, semi-conductors, followed by copy machines and motor cars in the mid-Eighties. A notable increase of investment in the EC was seen among companies in the sectors of electric appliances and automobile parts between 1988 and 1990.

While the initial objective of the import restrictions and anti-dumping measures undertaken by the EC had not been primarily intended to promote direct investment into the EC by Japanese companies the result was to promote such a trend. EC-based Japanese companies which had imports from Japan kept down because of import quotas and self-imposed controls saw investment to the EC as a necessity if sales and output were to be maintained.

2) Comparative Advantage of Local Production

The second main motive for investment in the EC is the cost competitiveness of local production in Europe in certain cases. Such investments are located in countries where the production costs can be reduced by undertaking local production as there are readily available, cheaply priced raw materials or energy costs are low or because of the incentives or subsidy programmes existing in the country.

Many Japanese companies also look to securing greater business opportunities not only in the present European markets but also look forward to the creation of a unified single market in the EC in 1992. On the other hand, the measures regarding the local supply content of parts, the anti-dumping duties, etc. are increasingly seen as discriminatory against Japanese companies by Japanese indus-

try. Therefore many companies see the best response to be the establishment of local bases in order to promote recognition of these ventures as European. As a result, there has been a recent trend for companies to establish fully integrated company functions in the EC including sales outlets and research functions as well as production bases in order to increase company presence and competence.

3) Global Trends in Local Production

The third main motive behind investment in the EC is the global company strategy. Companies which have already accumulated overseas management expertise through their investment experience in the USA and South East Asia have built up effective production systems and are strengthening their international competing power in terms of pricing. These industries set up production systems suiting the markets where products will be consumed in order to secure markets on the basis of general commodity superiority not only to be judged in terms of price superiority.

As a result, international division is carried out on a global scale, and company globalization results with the particularities of the American, European and Asian markets being taken into account in an integrated industrial approach incorporating research, production and sales.

The above represents an outline of the three main motives behind overseas entry, though of course these motives are mutually reinforcing and work together to promote overseas investment. As can be seen from Table 4-3-4 there are a large number of industries which give globalization as a reason for entering overseas markets.

4.3.3 Investment in the Main Industrial Sectors (Automobiles, Electrical Appliances and Semiconductor Industries)

(1) Automobiles Industries

The situation of investment undertaken by Japanese automobile companies in the EC is as shown in Table 4-3-6 and Figure 4-3-3. The main production bases in the EC are the two actions in Great Britain (of Nissan Motor Manufacturing for motor cars, undertaken as of 1984 and of Honda Motor Co., Ltd. in a tie-up with the Rover Group for commissioned production of motor cars upon capital participation undertaken in 1985) and one action in Spain (Nissan Motor Iberica, for commercial vehicles, on an investment under-

taken in 1980). Besides the above there are a number of small scale KD production investments so that by country investment actions are 4 in Great Britain, 2 in Portugal, 2 in Spain and 1 in Germany. Japanese investments in the EC for this sector can be said to be limited to a few countries.

In the case of Great Britain the introduction of foreign capital is largely in response to the active efforts undertaken by the British government to attract such investment in order to further industry and the creation of employment opportunities. In the case of Portugal and Spain in addition to the energetic measures of the government to attract foreign investment another factor is the cheap manpower available.

Japanese motor car manufacturers inevitably face competition from a number of European motor car manufacturers which have a strong position in the field of small models, such as Peugeot (France), Renault (France), Fiat (Italy) and Volkswagen (Germany). Moreover, since these companies enjoy the protection of the EC or of particular countries there are measures such as import quotas taken to limit the import of complete motor cars from Japan in the five countries of Great Britain, France, Italy, Spain and Portugal. Moreover, the local production of Japanese companies has to clear a number of restrictive conditions such as a more than 80% local content before output is recognized as an EC motor car.

After EC unification in 1992 as a measure of transition towards complete liberalization a framework for import quotas and monitoring measures by country has been set for the above five countries for a seven year period from 1993 to 1999, which has been agreed on between the EC Commission and the Japanese government. It is therefore expected that the complete liberalization of the EC market for Japanese automobiles will require considerable time.

The following is an outline of the investment plans of individual Japanese automobiles manufacturers adopted in response to the above context.

1) Toyota Motors

Decided in April, 1989 to enter England on a sole company basis for the production of motor cars in order to increase its overall output supply. Production is scheduled to commence in 1992. Scheduled annual output is for 200,000 cars.

2) Nissan Motors:

Already has factories operating inside the EC zone and systems for expanding production are in place.

- Nissan Motor Manufacturing UD: Two new models to be added in 1992. Annual output of 200,000 cars.

- Nissan Motor Iberica : improvements throughout for the existing four models produced. Increase in production output.

3) Honda Motors:

Tie up with the Rover Group through capital participation, with factory under construction. KD production to begin at the end of 1991, with full production starting in 1993. Annual output of 100,000.

4) Isuzu Autos:

Undertaking strategic production of vehicles for the EC market via IBC Vehicles Ltd. which is a joint venture set up with the American company General Motors.

5) Mazda:

production with Ford Europe of motor cars in 1992 after tie up of the two companies, also considering a tie up with the Spanish firm Enasa to produce commercial vehicles.

6) Mitsubishi Motors:

Signed an agreement in August, 1991 for joint venture production project for mini size motor cars in conjunction with the Swedish car firm Volvo, the Dutch government and Volvo Holland.

In conjunction with the above undertakings there has been an increase in recent years in the number of car parts manufacturers taking steps to penetrate the EC market. Of course, the sector of auto parts manufacturers embraces a wide variety of industrial sectors. Figure 4-3-4 indicates the production bases of the parts manufacturers located inside the EC. In order to clear the 80% local content ratio required of Japanese auto manufacturers within the EC it is expected that an increasing number of parts manufac-

turers will undertake a partial transfer of production and more capital participation in the EC in response to requests from the car manufacturers and as part of a strategy of globalization on the part of the parts manufacturers themselves.

The impact of this penetration of primary and secondary parts manufacturers in order to increase the ratio of local content is expected to have extremely significant results in terms of technology transfer and job creation.

(2) Household Appliances

Even prior to moves to undertake genuine overseas inroads severe competition existed between domestic Japanese manufacturers, especially in the sectors of Video Tape Recorders (VTR) and Color TVs so that companies in these areas had already been forced to effect the establishment of mass production systems and push through streamlined rationalization. In the early 1960s excess domestic production was disposed of through exports, but in the latter half of the 1960s the trade deficit registered by South East Asian countries with Japan became a problem. Therefore in order to avoid this deficit problem while continuing to secure a share in the South-East Asian markets an increasing number of Japanese firms adopted a policy of changing over from export to local production, establishing production bases on a small scale. In this way, the electric appliances sector had undertaken overseas investment at an early stage compared to other industrial sectors, so that companies have accumulated considerable managerial expertise relating to factory management and labour management overseas.

Table 4-3-7 indicating the evolution of investment in the EC by Japanese companies shows that establishment of many of the production bases occurred in the early 1980s. While Japanese manufacturers had taken the lead in VTR manufacture, European electrical appliance manufacturers such as Phillips (Holland), etc. caught up with their Japanese competitors and started their own production. Further, import quota restrictions were placed on VTR as of 1981 when European production of VTR began, and France even decided to limit customs clearance procedures for VTR to the inland town of Poitiers in 1982. Against the background of such political pressures Japanese firms are undertaking a movement into Great Britain and Germany, and some companies have chosen to undertake joint ventures with European manufacturers despite the low levels of these in terms of processing technology and semi-conductor production technology.

From around 1985 Japanese companies confronted with the entry of fierce competition coming from Korean and Taiwan firms decided to raise the level of local content for parts even further in order to reduce costs and strengthen production capacity. As a

result, at the end of 1985 it was possible to clear EC requirements by and large with a local supply ratio of 45% for parts. However, as this pressed European companies with weak production systems hard the EC commission decided to exact anti-dumping duties on parts whereas previously these had only applied to complete products previously. In response to which, from 1985 a large number of Japanese companies undertook the establishment of production bases for parts needed to support local production systems in Germany or France.

(3) Semi-conductor Industries

The EC represents 20% of the world market for semi-conductors, and is the third most important market after the USA and Japan. The major part of demand comes from a small number of large industries, and so there are a limited number of specific users in this sector with whom business is done. This means that competition to secure these clients is fierce between manufacturers. On the other hand, there has been a certain belatedness on the part of European manufacturers with regard to research and development of the semi-conductor and other advanced technology sectors of the electronic industries and so sales have been slowed down too.

This context explains the imposition of the relatively high rate of customs duty of 17% in the EC on semi-conductor imports from Japan, although these products are not listed as import items for monitoring. However, in 1985 the income and expense for semi-conductor trade in the EC zone registered a 95.4 billion Yen export excess on the Japanese side and the sales shares of Japanese manufacturers reached a level of 12% of the market.

This increased presence in the market excited an adverse reaction from EC manufacturers. Concerned about the possible inflow of Japanese semi-conductors via the USA with the signing of the American-Japanese Semi-conductor Agreement in July, 1986, the EC manufacturers represented by the Association of European Electronic Parts Manufacturers lodged a charge of dumping. As a result the European Commission decided on a new ruling in 1987 which stated that production of semi conductors which only involved the later processes of simple parts assembly without the undertaking of the earlier wafer processing stages of production requiring higher levels of technology and skill in the workforce could not be considered as an EC product.

Whereas the transfer from Japan of the latter processing stages had occurred in the early 1980s, as a result of the above trade friction the transfer of the early processing stages was also undertaken in the late 1980s, and a process of full integration of production overseas was stimulated. The main Japanese semi-conductor manufacturers which made inroads overseas are shown in Table 4-4-7. The promotion of the production systems of

these companies within the EC zone is proceeding at rapid speed in view of the forthcoming unification of the EC in 1992.

Table 4-3-1 DIRECT INVESTMENT FROM JAPAN BY INDUSTRY AND REGION
(IN THE FISCAL YEAR OF 1990)

Type of Industry	North America		Latin America		Asia		Middle East		Europe		Africa		Oceania		Total	
	Number	Amount Share	Number	Amount Share	Number	Amount Share	Number	Amount Share	Number	Amount Share	Number	Amount Share	Number	Amount Share	Number	Amount Share
Food	46	346 1.3	3	33 0.9	63	118 1.7	0	0 0.0	16	206 1.5	0	0 0.0	11	116 2.8	139	820 1.4
Textile	17	108 0.4	1	12 0.3	136	298 4.2	0	0 0.0	45	376 2.6	0	0 0.0	1	1 0.0	200	796 1.4
Lumber & Pulp	20	214 0.8	4	3 0.1	51	75 1.1	0	0 0.0	5	3 0.0	0	0 0.0	6	20 0.5	86	315 0.6
Chemical	53	1,243 4.6	5	173 4.8	69	584 8.0	1	0 0.0	31	305 2.1	0	0 0.0	2	5 0.1	161	2,291 4.0
Iron & Nonferrous Material	33	527 1.9	2	64 1.8	79	226 3.2	0	0 0.0	16	204 1.4	0	0 0.0	7	27 0.6	137	1,047 1.8
General Machinery	54	696 2.6	0	31 0.9	53	282 3.7	0	0 0.0	24	455 3.2	0	0 0.0	4	10 0.2	135	1,453 2.6
Electrical Machinery	80	2,413 8.9	6	102 2.8	121	827 11.7	0	0 0.0	48	2,308 16.1	0	0 0.0	5	38 0.9	259	5,684 10.0
Transportation Equipment	38	577 2.1	6	214 5.9	35	373 5.3	0	0 0.0	20	547 3.8	0	0 0.0	1	161 3.9	100	1,871 3.3
Others	94	689 2.5	2	18 0.5	152	325 4.6	0	0 0.0	43	189 1.3	0	0 0.0	10	5 0.1	301	1,206 2.1
Sub-Total	444	6,793 25.0	29	648 17.9	759	3,068 43.5	1	1 3.7	248	4,593 32.1	0	0 0.0	47	383 9.2	1,528	15,486 27.2
Agriculture, Forestry	5	18 0.1	5	15 0.4	31	33 0.5	0	0 0.0	3	8 0.1	0	0 0.0	20	79 1.9	64	153 0.3
Fishery	6	28 0.1	1	5 0.1	21	18 0.3	0	0 0.0	2	3 0.0	2	3 0.5	6	2 0.0	38	61 0.1
Mining	19	200 0.7	8	47 1.3	27	233 3.3	0	0 0.0	23	143 1.0	0	0 0.0	23	703 16.9	100	1,328 2.3
Construction	21	161 0.6	0	4 0.1	31	97 1.4	0	0 0.0	5	33 0.2	1	1 0.2	3	5 0.1	61	300 0.5
Commerce	319	2,837 10.4	39	420 11.6	193	1,217 17.3	0	0 0.0	198	1,286 9.1	3	1 0.2	52	384 9.2	804	6,156 10.8
Manufacturing Finance & Insurance	54	2,397 8.8	35	935 25.8	46	843 9.1	0	0 0.0	94	3,871 27.1	0	0 0.0	4	201 4.8	233	8,048 14.1
Service	505	8,703 32.0	24	214 5.9	170	888 12.6	0	0 0.0	181	777 5.4	15	15 2.7	109	893 16.6	1,004	11,292 19.8
Transportation	27	99 0.4	194	1,328 36.6	49	113 1.6	0	0 0.0	20	72 0.5	49	531 96.2	4	25 0.6	343	2,189 3.8
Real Estate Business	1,007	5,912 21.7	3	11 0.3	163	640 9.1	0	0 0.0	164	2,928 20.5	0	0 0.0	300	1,616 38.8	1,637	11,107 19.5
Others	0	0 0.0	0	0 0.0	1	6 0.1	0	0 0.0	0	0 0.0	0	0 0.0	1	1 0.0	2	8 0.0
Establishment of Office, Expansion	19	42 0.2	0	0 0.0	8	96 1.4	0	25 92.6	18	569 4.0	0	0 0.0	3	74 1.8	49	805 1.4
Grand Total	2,426	27,190 100.0	339	3,628 100.0	1,499	7,054 100.0	1	27 100.0	955	14,293 100.0	70	552 100.0	572	4,165 100.0	5,863	56,911 100.0

Source: Ministry of Finance of Japan

Table 4-3-2 TOP 10 COUNTRIES INVESTED BY JAPAN
(Manufacturing, 1990)

Unit: US\$ Million

Order	Country	Amount	Portion
1	USA	6,388	41.3
2	U.K	1,999	12.9
3	Netherlands	1,319	8.5
4	Thailand	714	4.6
5	Malaysia	582	3.8
6	Indonesia	536	3.5
7	France	491	3.2
8	Canada	405	2.6
9	W. Germany	386	2.5
10	Australia	361	2.3
Top 10 Total		13,181	85.1

Source: Ministry of Finance of Japan

Table 4-3-3 JAPANESE COMPANY ESTABLISHED IN EUROPE BY COUNTRY AND BY SUB-SECTOR (MANUFACTURING)

	As of January 31, 1991																		
	Europe Total	England	France	Germany	Holland	Belgium	Luxembourg	Ireland	Spain	Italy	Denmark	Portugal	Greece	E.C total	Sweden	Norway	Finland	Austria	Iceland
[Grand-Total]	876	187	122	109	36	33	2	29	64	39	4	14	3	551	6	0	4	14	1
Food	28	4	19	3	1				1					28					
Textile	14	5	1	1	1		2	2	1	1		3		14					
Clothes	19	4	6	1				1	1	7				19					
Furniture and Equipment	5	1	2	1	1				1					5					
Pulp, paper	4			1					1			1		3			1		
Chemical	110	28	16	13	11	8	4	4	12	7		2	3	105	3			2	
Medicine	20	1	3	6	1	1	3	3	3	1			1	20					
Rubber Products	17	2	4	2	1	1	1	1	2	1		1		15			1		1
Ceramics	18	2	4	2	1	5	1	1	2	1				18					
Steel	5			1	1	1			1					5					
Nonferrous Metal	1			1										1					
Metal Products	32	12	6	4					3	1		1		26				4	
General Machinery	80	21	12	19	6	4	3	3	5	5	2		1	77	1			1	1
Electrical Equipment	111	39	24	23	3	4	1	1	8	7		1		111					
Electrical parts	67	19	6	18	4	2	1	11	4	2				66					1
Transportation Equipment	16	5	2			1			5	2		1		16					
Transportation Component	44	15	5	4	3	1			10	1		2	1	42	1				1
Precision Machinery	31	9	5	7	2	1	1	1	1				2	29	1			1	1
Others	54	20	6	4	1	5	2	2	3	3	2	2	1	50	1		1		3
Design, R&D Center	140	51	18	28	4	8	0	2	15	9	1	1	0	138	1	0	0	0	1

Source: Japanese Company established in Europe : JETHO