

METDAC Project

**“Managing European Technology,
Defence and Competitiveness Issues”**

SPAIN

METDAC Discussion Paper Number 3

Prepared for Budapest workshop, 8-10 October, 1998

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This work was carried out under the European Commission's Targeted Socio-Economic Research Programme, TSER PC Project 1272, Contract SOE1-CT97-1079

* The authors thank Arcadi Oliveras for his helpful comments. Any errors remain our own.

Introduction

This document presents the Spanish contribution to the national elements of Work Package 1. Some of the graphics and data still need updating and checking. Besides the data readily available from domestic sources for Spain, the document includes some tables that have had to be researched and elaborated. Not even then could we come with reliable estimates for variables like the sectoral distribution of defence production. On the positive side, there are a number of new “official” Web pages offering information on Spanish defence-related firms; some of the data on firms has been collected from such sources.

Task 1: BASIC MEASUREMENTS

This section presents the basic published statistic data on the Spanish military innovation system. The period covered is 1992-1998. It includes data on:

- Spanish defence budgets, in absolute and relative to the State budgets and GDP.
- Defence R&D, in absolute and relative terms (both OECD data and own elaboration)
- Expenditure in R&D, “Armed Forces modernisation”, and R&D.
- Direct employment in the Spanish defence industry.
- Main defence R&D projects, and investment in defence R&D centres.
- Main defence procurement programmes (budgets and expenditures).

1.1. Defence sector in Spain: framework

In line with changes in Europe, Spanish defence budgets have significantly fallen, reducing the levels of defence investment and negatively affecting the Armed Forces modernisation plans. However, indications of a change in trend are apparent, particularly since the right-wing Partido Popular came to power in 1996. In the State budgets for 1998 the increase of defence budgets allocations is already noticeable.

It is also government policy to move towards the professionalisation of the Spanish Armed Forces and eliminate compulsory draft. It is expected that the Armed Forces will be fully professional by 2003. This programme is accompanied by a plan to renew and modernise the Armed Forces equipment. The main defence policy objectives were laid out in 1996 “*Directiva de Defensa Nacional*”.

1.2. Defence budgets

In absolute terms Spanish defence budgets have oscillated around an annual figure of Ptas.800.000 million (Table 1). The minimum level was reached in 1993. Since then small increases have followed until 1997, but in 1998 the defence budgets have grown by almost 8%.

Table 1

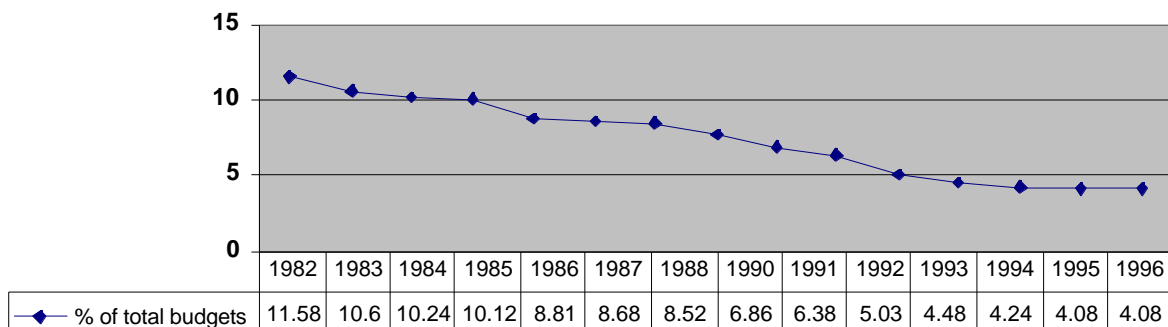
Spanish defence budgets (millions current Ptas)						
1992	1993	1994	1995	1996	1997	1998
784819	764296	803892	858098	862416	866734	932786

Source: Spanish State budgets, adjusted for 1996 due to the extension of the annual budgets.

This evolution is partly explained by the general budgetary constraints imposed by the economic crisis in the early 1990s, the need to comply with the Maastricht convergence criteria, and the general downward evolution of defence expenditures in most European countries following the end of the Cold War. However, it appears that the political change after 1996, with the coming into power of the Partido Popular, is resulting in a change in this trend. In the first two years of the new administration defence expenditures have recovered substantially.

When compared to total government expenditure, the fall in the defence budgets is even clearer (see figure 2). In ten years, between 1986 and 1996, the Ministry of Defence share in total government expenditure fell from 8.81% to 4.08% (a fall of 54%).

Figure 1: Ministry of Defence Budgets over total State budgets (%)



Similar trends appear when comparing the defence budgets with the evolution of domestic product. In 1986, the Spanish defence budget accounted for 1.95% of GDP, a figure that had been reduced to 1.16% by 1996.

A note on Spanish defence expenditures: are budget figures reliable?

This section is based on publicly available official aggregate figures; they refer to defence *budgets* rather than defence *expenditures*. Different sources have estimated the total volume of Spanish defence expenditures as much higher than the budgeted figure. There are several reasons for these differences. First, expenditure estimates usually include a varying portion of the Civil Guard budgets. The Civil Guard is Spain's paramilitary internal security force, and is responsible also for tasks like border controls and they

are also the traffic police. Second, final expenditures have at times diverged from initial budgets (this is a problem that will become apparent in the following section). Third, some defence-related expenses have been moved to other Ministries' budgets (some procurement programmes are for instance being funded with soft loans from the Ministry of Industry). Fourth, the criteria to estimate defence expenditures used by NATO includes outlays like pensions, and those of "autonomous" agencies linked to the Ministry of Defence. It must be noted that, under these broader definitions, the reduction in Spanish defence expenditures in relation to GDP is much smaller than when using defence budget figures.

As it is known, there are some international sources of defence expenditure (SIPRI, NATO...) that have provided a constant source of data that can be used for longitudinal analysis. "Domestic" estimates exist too, and some analysts (like Vicenç Fisas) have elaborated figures throughout the years.

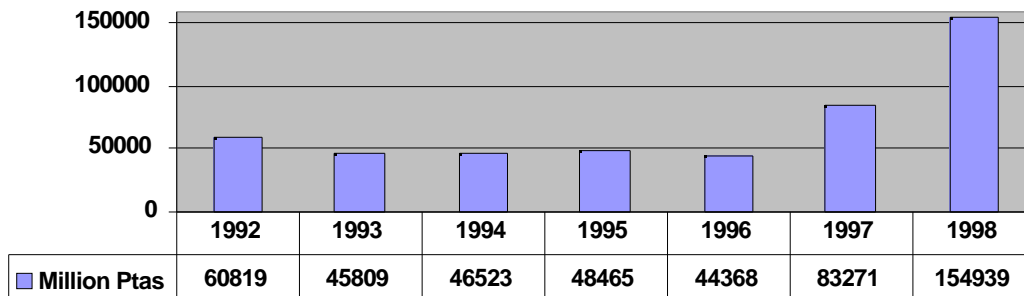
The budgeted figures must be treated with care. They do not provide an accurate evaluation of the economic effort that Spain spends in military matters. However the trends they describe are, by and large, accurate. Although other sources will disagree on the total volume, with few exceptions there is broad agreement on the downward trend of Spanish defence expenditure over the past decade.

1.3. Defence R&D budgets

Defence R&D budgets over the past years have oscillated around Ptas40 billion, in current terms (figure 3). The highest point in the defence R&D budget was reached in 1992, with a total of Ptas60 billion. This year marked the summit of rapid growing trend that had been initiated in the mid-1980s, when Spanish defence R&D budgets were almost negligible. The trend is broken in 1992, when there is a sharp decline, with small recoveries in 1994 and 1995, and falls again in 1994 and 1995. There could be in 1998 a new change of trend given the growth in defence budgets discussed above.

As we will see later in this section budgeted R&D figures are not necessarily a reliable guide to final expenditure, but again the relatively large volume of defence R&D budgets remains an important feature of the Spanish defence industrial innovation system.

Figure 3: Spanish defence R&D budgets (millions current Ptas)

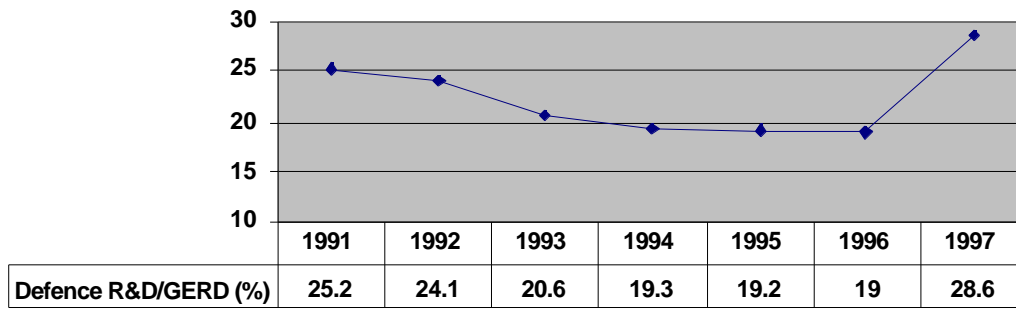


Source: General State Budgets (*“Presupuestos Generales del Estado”*) 1991-97. Adjusted for 1996; due to the budget extension. Data for 1997 and 1998 include the contributions of the Ministry of Industry to the R&D programmes of three main weapons systems.

Defence R&D budgets account for a large portion of total government expenditure in R&D. Although this share had been falling until 1996, in 1997 and 1998 there has been a sharp increase in defence R&D budgets, apparently will be sustained over the coming years. In 1997 the Ministry of Industry started to provide soft loans for the funding of the development of three major weapons projects (Eurofighter, F-100 Frigates, and the Leopard Main Battle Tank). The Ministry of Defence is expected to return the loans when it takes delivery of the systems (approximately from the year 2002).

This sharp increase appears to be changing the nature of the Spanish science and technology system. OECD data has already reflected this change: after the sharp increase in 1997 defence-related government-funded R&D accounts for a major share of government-funded R&D expenditure.

Figure 4: Defence and space R&D over total Government R&D expenditure (OECD data)



Source: *Main Science and Technology Indicators 1997 (OECD)*.

Figure 4 adds OECD data on defence *and* space R&D. Intramural Government expenditure on defence R&D is channelled through INTA an autonomous agency of the Ministry of Defence, which acts as the main Ministry of Defence research agency. Although the OECD has not customarily included INTA’s research budget within the defence function, its linkage to the defence Ministry recommends its inclusion within the defence research activities.

Given the defence R&D budgets for 1998 it is to be expected that the share of defence R&D over total Government expenditure in R&D will grow further during the present year. In 1998, the levels of Spanish defence R&D will be unprecedented, both in absolute terms and relative to the levels of private and government-funded defence R&D. However, although these funds will be officially assigned to R&D, it is doubtful whether they will all be assigned to research and development tasks. Eurofighter, for instance, continues to be the most important project supported by these funds, and as it comes into the production stage, it is likely that many of the tasks now funded could not be considered as R&D according to the Frascati definition. It must be noted that the possibility that these assignments could not be considered as R&D would affect the estimate, not only of defence R&D, but of the trends of the *total* Spanish R&D investment.

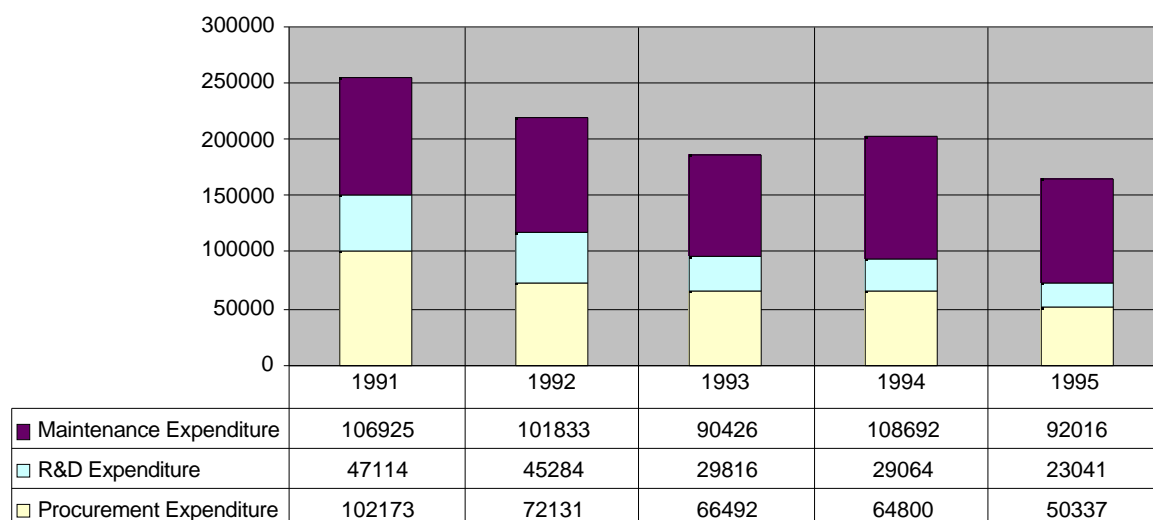
1.4. Procurement, maintenance and R&D expenditure

It is not clear whether OECD data refers to budgeted amounts or final expenditure. In Spain, total government annual expenditure figures can be obtained from official sources. The Estadísticas de Ejecución del Presupuesto present the evolution of government expenditure for the main programme headings under which the budget is divided. In this way we can have an indication of real government expenditure in defence R&D, systems procurement (included under the heading “modernisation of the Armed Forces”) and maintenance. These figures can be different from the initially budgeted amounts.

Figure 5 presents the evolution of expenditure under these headings over the last years. R&D figures in particular are much lower than the budgeted amounts presented in the previous section. This is due to two main causes; first, expenditure levels have rarely matched available budgets. Second these figures do not include expenditure in the Ministry of Defence Government Research Establishments (particularly INTA). Because the Ministry itself does not carry R&D intramurally, these figures reflect the R&D contracts that have been effectively placed with industry and other research organisations

The Spanish Association of Arms and Defence Materiel Producers (AFARMADE) has expressed concern during the past years about the evolution of this indicator. From over Ptas47 billion in 1991, R&D expenditure contracted to industry fell to Ptas23 billion in 1995 (although this trend is likely to have changed over the past two years).

Figure 5 : Ministry of Defence extramural investment in R&D, procurement, and maintenance (million current Ptas)



Source: AFARMADE¹

Figure 5 also shows a considerable fall in procurement expenditures during the first half of the 1990s. Understandably, maintenance expenditures remained more stable.

1.4. Defence R&D projects: Distribution of budgets and expenditures

This section illustrates in more detail the differences between R&D budgets and expenditures using official data on main project groups. It also provides the best approximation available to the sectoral distribution of defence R&D expenditures by the Ministry of Defence. As we can see the project groups in which the budget is presented do not fit a sectoral classification, although they may provide a useful approximation to it. Groups like “rockets and missiles

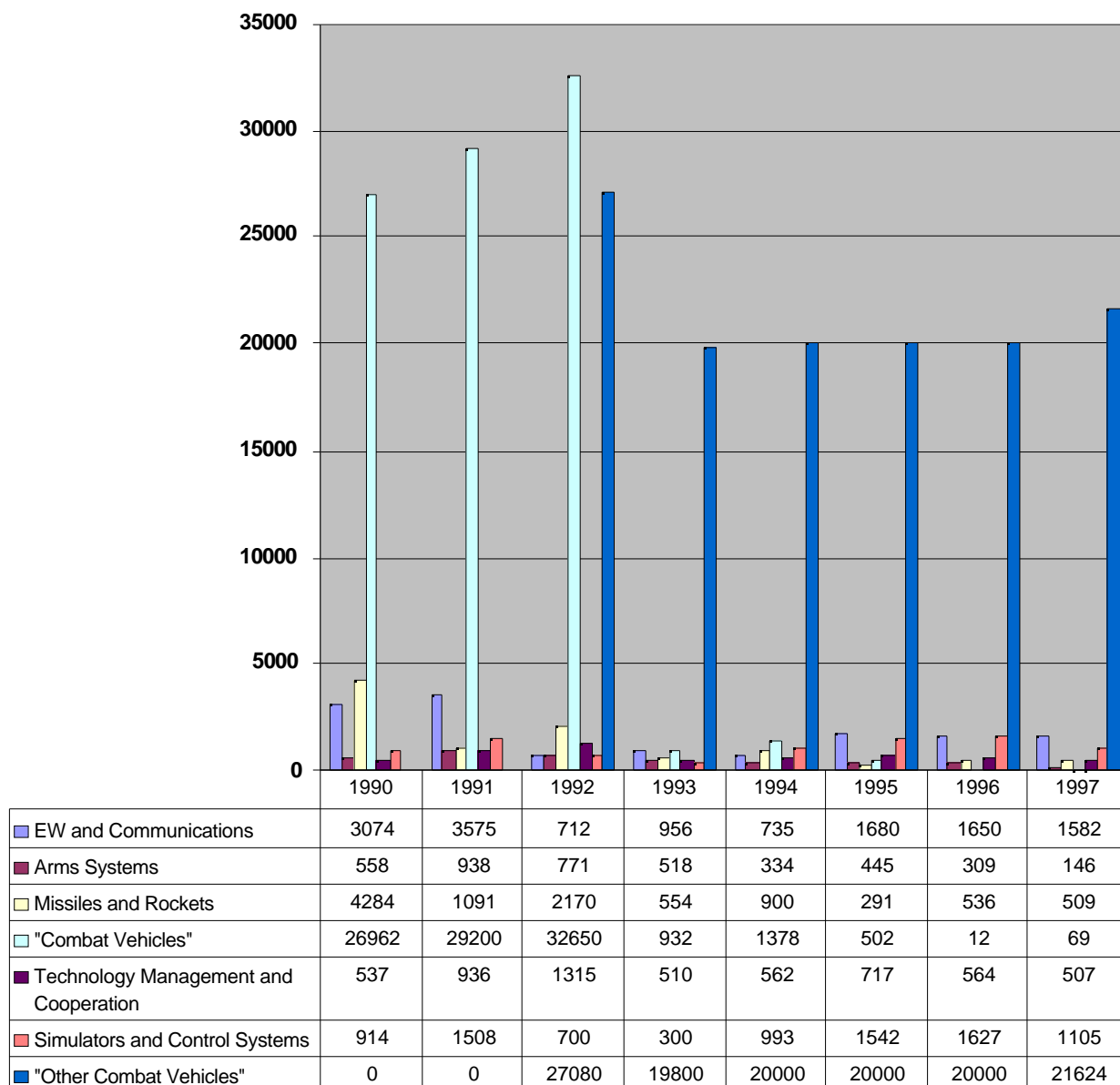
¹ These figures are provided by the Association of Spanish Defence Manufacturers, and are therefore probably based on reports from companies. This would explain the differences with Ministry of Defence budgeted figures and the amounts reported by the OECD.

can include everything from propulsion (chemicals) to guidance (electronics). The same is applicable to arms systems, and to the group of projects listed as “technological management and co-operation” (which includes mainly Spanish participation in the Euclid programme).

Figure 6 displays the initial budgets for each group of projects, while figure 9 presents the final real investment. Defence R&D in Spain is dominated by the projects classified under “Combat vehicles” and “Other combat vehicles”. It is known that these entries reflect Spanish participation in the European Fighter Aircraft project (now known as EF-2000). Aerospace concentrates therefore most of the Spanish defence-related R&D investment; yet this investment will involve apart from the main Spanish aerospace producer (CASA), a number of electronics firms involved in the avionics projects, software firms, and mechanical engineering companies.

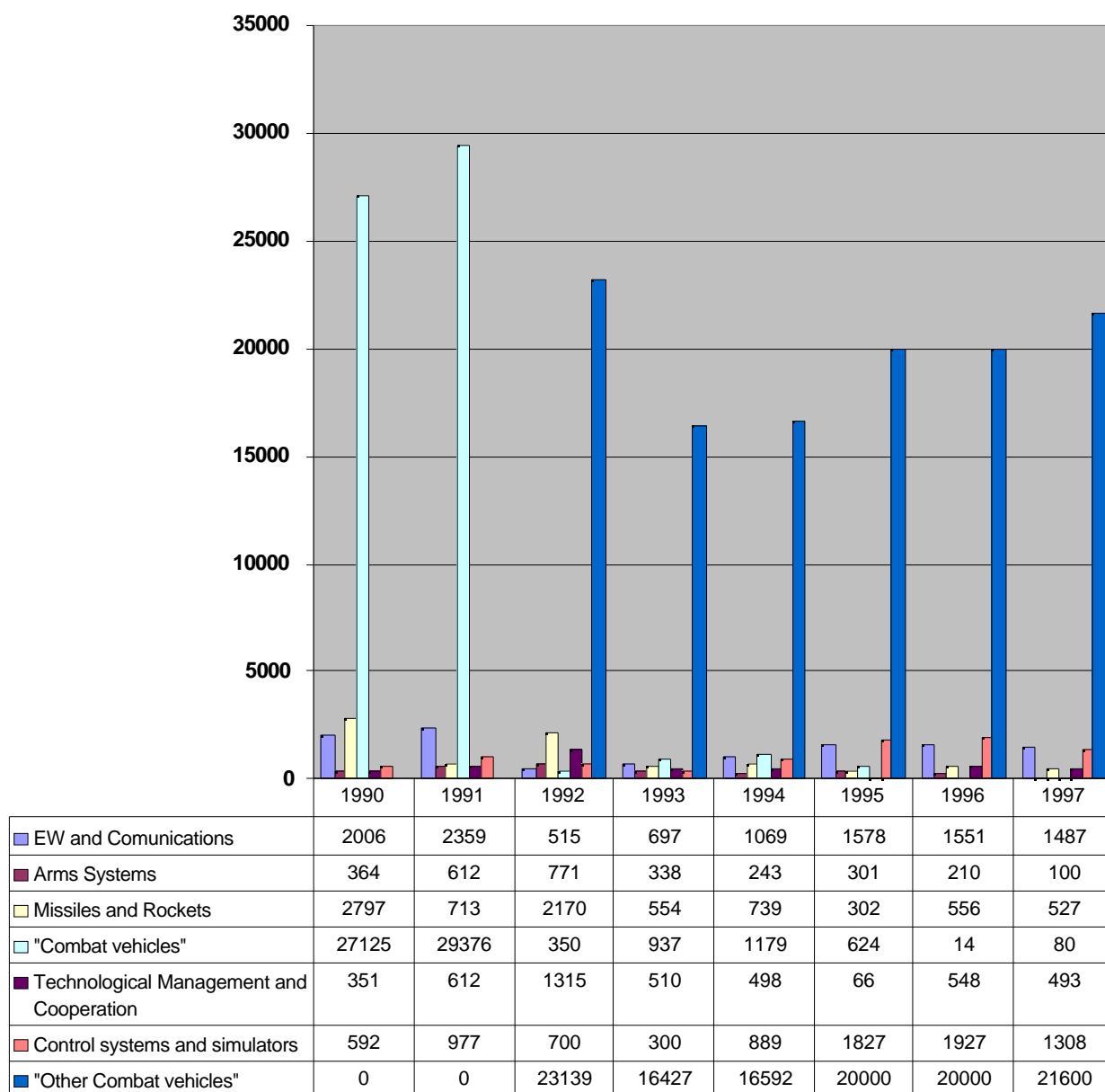
The comparison between budgets and effective expenditure shows the variations to which we have been referring to. These are summarised in Figure 8. The area where expenditure has more noticeably failed to keep up with budgeted R&D is weapons systems (period 1993-97), combat vehicles –European Fighter Aircraft (1992-1994), and communications and EW (1990-93).

Figure 6: Budgets for the main R&D project groups (millions current Ptas.)



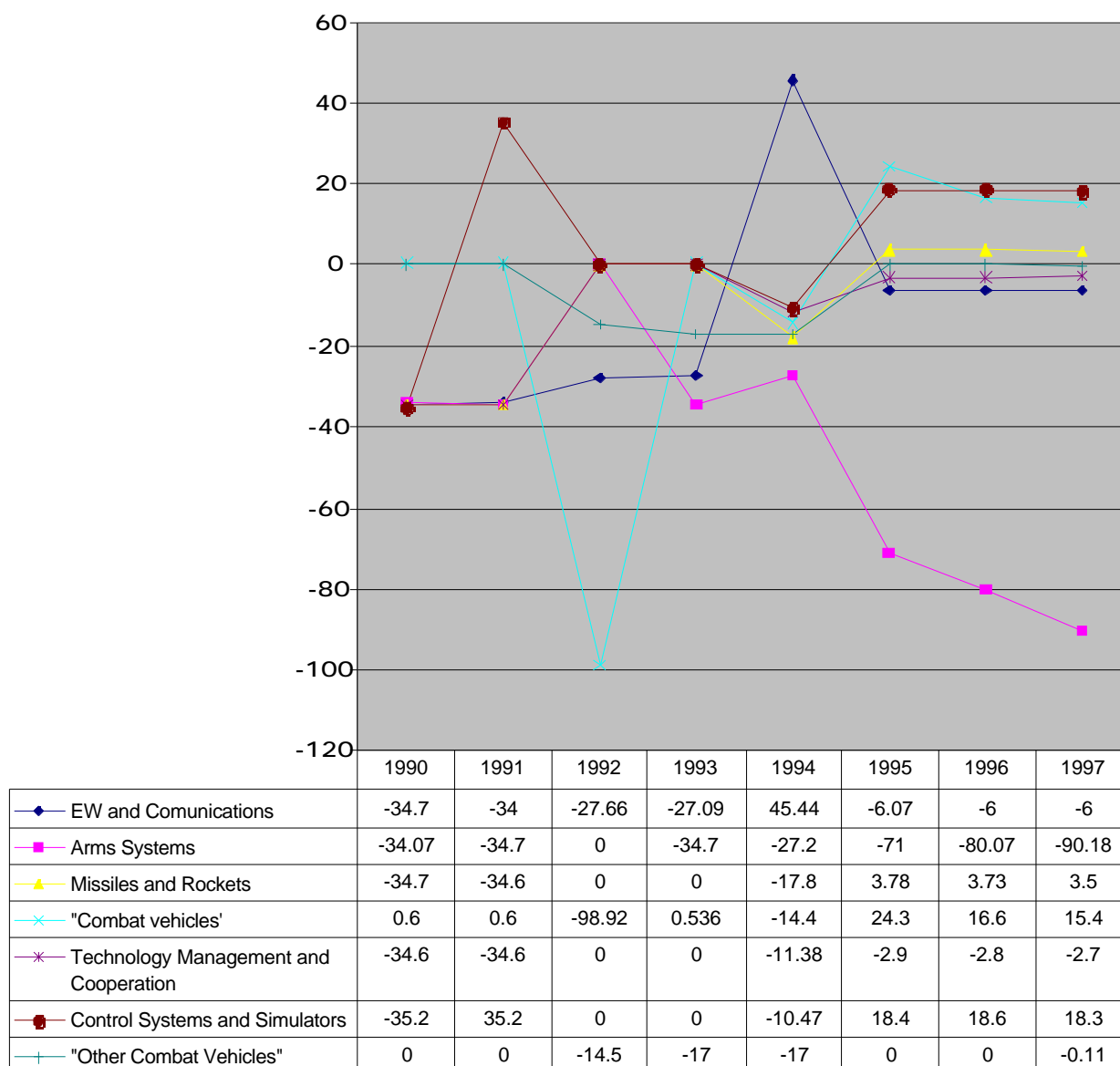
Source: Spanish national budget ("*Presupuestos Generales del Estado - Defensa sector 14*").

Figure 7: Ministry of Defence final expenditures for the main R&D project groups (millions current Ptas).



Source: Spanish national budget (*"Presupuestos Generales del Estado - Defensa sector 14"*).

Figure 8: Difference between budgeted R&D and final expenditure (%).



Source: Own elaboration of Spanish national budget figures ("*Presupuestos Generales del Estado - Defensa sector 14*").

Task 2: ELEMENTS OF AN INSTITUTIONAL MAP

This section presents a brief description of the different actors in the Spanish “defence innovation system”. We will refer to:

- Institutional map of government organisations in charge of defence procurement and R&D.
- Main (government-controlled) industrial groups involved in defence production.
- Others.

2.1. Organisations responsible for defence procurement and R&D

Defence procurement and R&D responsibilities lie within the organisation of the Spanish Ministry of Defence (figure 9)

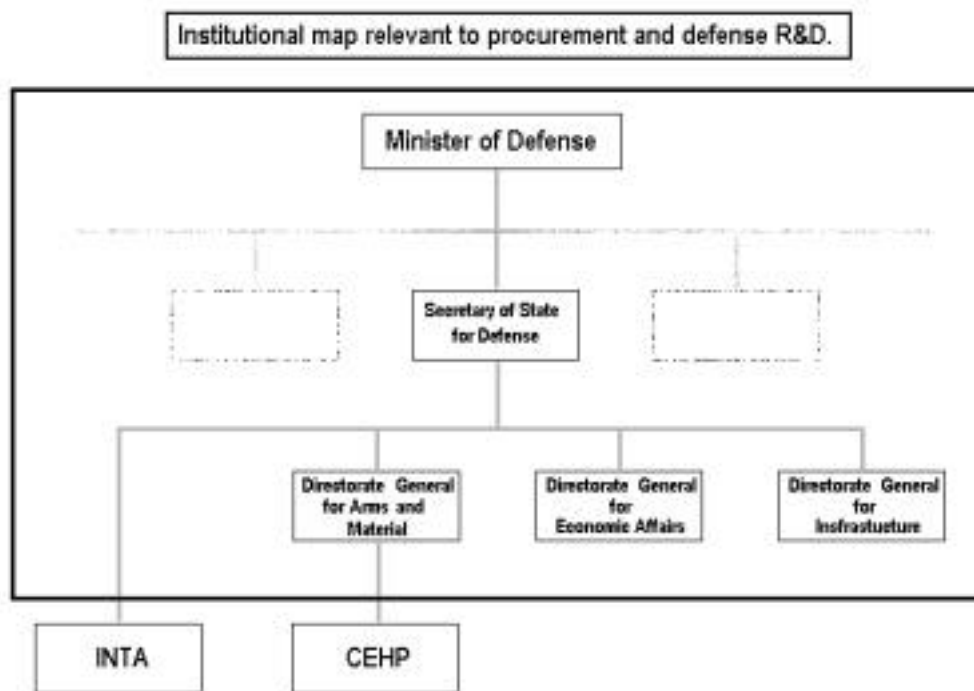


Figure 9: Organisational structure of the Spanish Ministry of Defence and associated Research Establishments (INTA and CEHP) (only departments with procurement and R&D responsibilities)

The organisation of the Spanish Ministry of Defence was changed in September 1996. The objective of the organisational reform was to achieve a leaner, more streamlined organisation. The Ministry of Defence is structured into 6 main sections:

- Joint Chiefs of Staff
- State Secretariat for Defence.
- Under-secretariat for Defence.
- Army.
- Navy.
- Air Force.

There are several departments with advisory functions (to the Chiefs of Staff, Minister, etc.). In the Ministry there are two additional sub-directorates in charge of preparing, planning and executing the Ministry's public relations and cultural activities. The Chief of Staff is the main assistant of the Minister in the development and execution of the operational aspects of defence policy.

The State Secretariat for Defence is the main assistant of the Minister in the preparation, development and management of the economic aspects of materiel and infrastructure policy. It has three main Directorates: Arms and Materiel (DGAM), Infrastructure and Economic Matters.

DGAM is in charge of planning, negotiating and executing weapons development and procurement programmes. It is the main organisation in the definition of the Spanish defence industrial policy, and it is also in charge of all major defence systems acquisitions. The main defence research establishment organisations in the country (INTA and CEHP) are also "associated" to DGAM. The number of sub-directorates under DGAM was cut down to four in the 1996 ministerial reorganisation.

2.2. Defence-related industrial groups

The main Spanish defence industrial suppliers are controlled by the public holding SEPI (*Sociedad Estatal de Participaciones Industriales*). This holding depends from the Ministry of Industry and Energy, and it is now involved in a process of reorganisation of Spain's public sector firms. The policy was defined in the "Programme of Modernisation of Spain's Public Firms" (*Programa de Modernización del Sector Público Empresarial*) approved by the Spanish government in June 1996. Together with the policies outlined in this document, SEPI is in charge of carrying out a privatisation programme.

All the main Spanish defence-related firms are controlled by SEPI. They are:

- BAZÁN (*Empresa Nac. Bazán de Construcciones Navales Militares, S.A.*); shipbuilding.
- CASA (*Construcciones Aeronáuticas, S.A.*); aerospace.

- Grupo INDRA; electronics and Information Technologies.
- SANTA BÁRBARA (*Empresa Nac. Sta. Bárbara de Industrias Militares, S.A.*); land-based weapons systems.

Table 2 shows the main economic indicators for these groups for the year 1997.

Table 2: Spanish defence industrial groups. Main economic indicators for 1997 (in million Ptas)

	SEPI share	Income	Results	Employees
BAZÁN	100 %	74.822	-12.381	7.352
CASA	99,28 %	123.234	6.500	7.695
Grupo INDRA	66,09 %	60.666	2.052	3.385
SANTA BÁRBARA	100 %	7.181	-6.265	1.802

Source: SEPI Web Page

While BAZAN and SANTA BARBARA are almost exclusively defence producers, CASA and INDRA are diversified corporations where commercial markets account for more than 50% of turnover.

The only main defence-related firm with substantial private shareholding is INDRA (1/3 of the shares are owned by Thomson-CSF). Yet, the present administration is committed to launch privatisation programmes for most public firms within their present term in government. Based on press reports and other available information, Table 3 presents the privatisation outlook for SEPI's defence-related firms.

Table 3 Privatisation outlook for the main defence-related Spanish industrial groups.

FIRM	PRIVATIZATION OUTLOOK
BAZÁN	No privatisation plans. It is involved in several international development and production programmes (like the F100 frigates), and is considered a strategic firm.
CASA	Privatisation was initially planned for 1999, although delays have already emerged. It is hoped that CASA will be integrated within the emerging structure of the European aerospace sector (participation in the Airbus corporation, etc.).
Grupo INDRA	To be fully privatised. A reduction of Thomson's share is now being negotiated to achieve a diversified private ownership structure.
SANTA BÁRBARA	Its privatisation is being negotiated with the German firms Rheinmetall and Krauss-Maffei, and also the Spanish Patentes Talgo.

Apart from the main, state-controlled, defence groups there is a substantial number of private firms involved in different degree in defence production. Most of them, together with the main State-owned producers are members of the Spanish association of defence producers (AFARMADE). AFARMADE publishes regularly a list of firms detailing the industrial and technological capabilities of its associates. In 1993 AFARMADE had almost 500 members, with total sales of Ptas2620 million, of which 9.4% was considered defence. Table 4 displays the sectoral distribution of AFARMADE's members.

Table 4. AFARMADE members: sectoral distribution and defence dependence

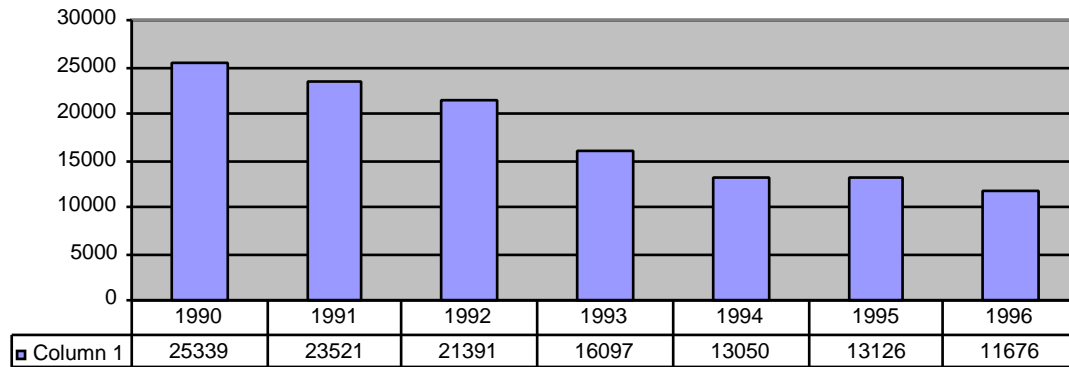
SECTOR	NUMBER OF FIRMS	% OVER TOTAL NUMBER OF AFARMADE FIRMS	% OF DEFENCE SALES OVER TOTAL SALES
Services	105	21,5	2,9
Commercial	47	9,6	5,3
Arms and munition	28	5,7	55,0
Raw and basic materials	15	3,1	0,6
Automobiles & maintenance	61	12,5	2,6
Ancillary	113	23,2	10,4
Shipbuilding	27	5,5	63,0
Aerospace	20	4,1	57,7
Electric equipment	22	4,5	1,9
Electronics and computing	50	10,2	9,0
TOTAL	488	100,0	---

Source: AFARMADE. *Industrias Españolas de Defensa* (1993). (we are expecting new Afarmade data)

Task 3: RELATIONS BETWEEN ELEMENTS IN THE INSTITUTIONAL MAP

This section presents a brief description of the formal relationship among the main institutional actors in the Spanish defence sector, and particularly between the Ministry of Defence (MINDEF) and the Ministry of Industry (MINER). On the supply side MINDEF defines and executes the defence procurement policies (mainly through DGAM). On the supply side, MINER, through its industrial holding SEPI, controls the main defence-related firms.

Figure 10: Direct employment in defence production



Source: *“El sector industrial de la defensa” (AFARMADE).*

During the 1980s, the two ministries developed at times an antagonistic relationship, with the Ministry of Industry pressing for a substantial participation of domestic producers while the Armed Forces favoured the direct purchase of foreign systems offering more “value for money”. Recently, this relationship appears to have changed. MINER is partially funding defence projects carried out in SEPI firms, thus providing a financial contribution to the defence mission. This trend has become apparent particularly over the past two years, since the Partido Popular came to power. A new industrial policy has involved MINER in defence policy issues to an extent not known before.

As we have described above, during 1997 MINER has funded defence production projects for a total value of Ptas.35 billion, with the commitment from MINDEF to buy the systems later on.

The three main programme being funded under this scheme are:

- the development and production of four F-100 frigates by Bazan (the frigates are planned to enter service between 2002 and 2007) (Ptas.23 billion, increased to Ptas 26 billion in May 1998)
- Spanish participation in the EF-2000 programme (Ptas 70 billion)
- the programme to procure German-designed Leopard tanks (Ptas 3 billion).

Also in May 1998, MINER decided to advance funds to BAZAN’s up to a maximum of Ptas.227 billion over six years (1999-2004) to pay existing debts.

This is a very large figure considering BAZAN's turnover, and even the total level of defence sales by the Spanish defence industry.

Table 5 displays the main economic indicators for 1997 of the state-controlled defence-related firms. Defence activities generated a turnover exceeding Ptas160 billion for the four firms.

Table 5 Main economic data for Spain's state-controlled defence companies (1997). (million Ptas.).

	SECTOR	TOTAL INCOME	% DEFENCE	DEFENCE-RELATED INCOME
BAZÁN	Shipbuilding	74.822	95 %	71080
CASA	Aerospace	123.234	42 %	51.758
Grupo INDRA	Electronics and IT	60.666	46 %	27.906
SANTA BÁRBARA	Vehicles, arms and munition	7.181	100 %	7.181
TOTAL	----	----	----	157.925

Source: Own elaboration of SEPI data, and own estimates.

Private firms play a minor role in the Spanish defence market, but this is already growing even before privatisation. In some cases, this has been actively supported by the policy measures of the Ministry of Industry and, also, regional governments. For instance, ITP (the company set up with Rolls Royce to lead Spanish participation in the Eurojet consortium, in charge of the development and production of jet engines for the EF-2000), received substantial economic support from the Basque government. The Ministries of Industry and Defence were also actively involved in the negotiations that led to ITP creation; these were difficult because setting up IPT meant CASA would lose its aero-engine capabilities –until then limited to maintenance- to the newly created firm. The Andalusian government has also provided assistance to CASA, SANTA BARBARA and BAZAN facilities near Seville and Cadiz, and a cluster of smaller private supplier firms that has emerged in the region. .

Figures do not exist on the volume of defence turnover generated by private companies compared with that generated by public firms. However, private companies still account for a very small percentage of Spanish defence turnover. AFARMADE offers estimates on the total volume of Spanish industry defence sales (see Tables 6 and 7)

Table 6: Spanish defence industry: total defence sales (millions current Ptas).

SUBSECTOR	1990	1991	1992	1993	1994	1995	1996
Aerospace	59185	53394	65570	73720	77300	71810	67080
Armament	20400	23606	17880	14235	13100	13155	14891
Electronics	34180	37153	25013	23830	22600	31525	40996
Shipbuilding	43970	37256	39925	42590	39000	40390	40171
Land	21285	13518	9375	4795	2800	6540	4949
TOTAL	179020	165927	157763	159170	145800	163420	168420

Source: AFARMADE.

Table 7: Spanish defence industry: foreign defence sales (millions current Ptas.).

SUBSECTOR	1990	1991	1992	1993	1994	1995	1996
Aerospace	36175	16670	42680	42472	51000	58525	51112
Armament	6950	9990	10735	7520	8300	3440	5267
Electronics	6575	10480	4725	5455	3500	2305	12153
Shipbuilding	1353	1580	4170	3980	4400	12600	13058
Land	2575	470	Not avail..	30	30	130	310
TOTAL	53628	39190	62310	59457	67330	77000	81900

Source: AFARMADE.

It can be seen that the total volume of defence sales estimated by AFARMADE, is very similar to the total defence sales we have estimated for the publicly-controlled industrial groups. There is a possibility that AFARMADE may be slightly underestimating the total volume of defence-related production (see below), but, in any case, it is clear that the bulk of defence production is still generated in the four main state-controlled groups.

Employment figures

According to figures published by AFARMADE direct defence employment in the Spanish industry has fallen rapidly over the last few years. This trend is set to continue; for instance, it has been recently announced that Bazán shipbuilders will reduce its workforce by one third. AFARMADE estimates of total employment have however been traditionally on the low side. In the past, independent researchers have estimated figures for direct defence employment in Spain which double or even treble AFARMADE data; however these estimates are only available for limited periods of time.

The only long-term series of defence employment estimates are those provided by AFARMADE. The methodology behind the construction of this data is not public. It is possible that the low figures may be due to the way in which defence-related activities in dual-use areas like electronics and aerospace are treated. In most cases, firms producing for both military and civilian markets, do not publish regular estimates of the distribution of their activities across civilian and military markets. It would appear that in many of these cases AFARMADE has not included these companies in its estimate of *direct* employment in defence production.

AFARMADE has also published figures on the sectoral distribution of the defence employment figures. Again, AFARMADE provides the only existing source of sectoral composition of Spanish defence-related industries available for relatively long periods.

Table 8: Direct employment in the Spanish defence industry

SUBSECTOR	1990	1991	1992	1993	1994	1995	1996
Aerospace	6476	5984	5701	5300	5240	4790	4289
Armaments	6217	5228	4672	1512	1640	2762	1491
Electronics	3325	3374	2587	2082	1790	1666	1700
Shipbuilding	8421	8182	7903	6713	3870	3470	3779
Land	900	753	528	490	510	421	417
TOTAL	25339	23521	21391	16097	13050	13126	11676

Source: AFARMADE.

Task 4: DEFINING THE SYSTEM BOUNDARY

The main “system boundary” issues briefly addressed in this section are:

- Spanish participation in joint arms development and production programmes.
- The relationship between civil and military production in the public sector firms active in both areas (particularly, CASA and INDRA).

Spanish participation in international development and production of arms systems is still dominated by the Eurofighter programme. It must be noted however that, at present, all the main procurement programmes are being procured within the framework of international collaboration agreements. Table 9 summarises the main international co-operation programmes with Spanish participation.

The Spanish Eurofighter budget almost trebles the investment planned for the other main procurement projects: the main battle tank Leopard (planned investment (317.709 MPTA.), and the development and production of the F-100 frigate (280.000 MPTA). Other smaller programmes are the armoured vehicles Pizarro (budget not available) and the Scorpene submarine.

Table 9 MAIN INTERNATIONAL COOPERATION PROGRAMMES

Programme name	Duration	Budget to 1997 (or total)	Objective															
				Austria	Germany	Belgium	Finland	France	Greece	Spain	Portugal	Switzerland	U.K.	Italy	Denmark	Netherlands	Turkey	U.S.A.
EUCLID	1991 – 2010 aprox.	3.189 MPTA.	General basic and applied European research programme.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
LEOPARD	1996 – 2006 aprox.	317.709 MPTA.	Production of 225 units of a Main Battle Tank for the Spanish Army		✓					✓								
PIZARRO	1996 – 2009	Not available	Development and production (463 units) of a new armoured vehicle for the Spanish Army.	✓						✓								
F-100	1997 – 2002 aprox.	280.000 MPTA. (Total budget)	Development and production (16 units) of a new frigate for the Spanish Navy.		✓					✓						✓		✓
SCORPENE	1997 - 2004	Not available	Development and production (2 units) of SSK submarines for the Spanish Navy					✓		✓								
EF-2000 (Eurofighter)	1997 – 2006 aprox.	987.899 MPTA. (Total budget)	Development and production of a new fighter plane (87 units for Spain).		✓					✓			✓	✓				
FUTURE LARGE AIRLIFTER	1994 – 2000 aprox.	1.864 MPTA.	Development and production of a new large transport aircraft.		✓					✓			✓	✓				

Source: Own elaboration from budget data, Ministry of Defence web page (www.mde.es), Bazán web pages (www.enbazan.es), Eurofighter (eurofighter.org) and press reports.

The specific nature of the relationship between military and civilian production within INDRA and CASA is difficult to assess. Long-term series of data adequate for longitudinal comparison do not exist. Recently, press reports indicated that, in 1997, CASA obtained 58% of its income from civilian markets. (*Gaceta de los Negocios*, 19/06/98); yet, it is to be expected that the EF-2000 production phase will result in a recovery of the weight of military activities. INDRA is alone in providing data (through its annual report) of the distribution between military and civilian activities (in 1997 46% of its sales were in the defence and security areas). It is possible that the share of defence-related production will grow in the near future at the large weapons programmes mentioned above enter their production phases.

Data available that we have discussed in previous CREDIT papers, indicated that there had been a modest trend towards reducing the share of military production within these two, diversified companies. This trend would be confirmed by the 1997 figures. However, we had pointed out that this evolution did not seem to respond to clearly laid out diversification plans or dual-use policies. It reflected instead the evolution of the markets, particularly the stagnation of domestic defence markets during the early 1990s. Any reversal in market trends is bound to change again the balance between military and civilian production. In the end, the structure of production within these firms will depend on whether the government assumes the production commitments it has taken over the past few years. EF-200 fighter, F-100 frigates, and Leopard tanks are three large modernisation programmes, whose production phases will run in parallel into the early 2000s. They will also coincide with the implementation of the full professionalisation of the Spanish Armed Forces and the substantial additional costs that this will require. Whether the economic and political environment will allow all these projects to go ahead according to present plans is still doubtful. However, the Partido Popular government has been able to introduce substantial increases in R&D investment, and large defence procurement funding through soft loans from the Ministry of Industry without much public debate; there is therefore some scope for growth in Spanish defence expenditures.