

**Calculating the Statistics of  
MOD Research and  
Development Expenditure in a  
RAB Environment**

**April 2004**

## **ABSTRACT**

MOD invests significantly in R&D, and the reporting of such expenditure is important, particularly for those concerned with economic growth and productivity. This Bulletin outlines the method that is now employed to calculate MOD expenditure on Research and Development (R&D) in a Resource Accounting and Budgeting (RAB) environment. The Organisation for Economic Co-operation and Development (OECD) produce ‘Frascati’ guidelines for the categorisation of R&D to enable comparisons of expenditure between countries. MOD follow these Frascati definitions as closely as it can, although this is not easy in practice. Divergences from the Frascati guidelines with regard to expenditure on capital equipment and VAT, are briefly described. The alignment of R&D expenditure with the Acquisition Cycle and the accounting treatment of R&D expenditure are also briefly described. In order to provide a consistent time series MOD R&D statistics have been revised back to 1996/97: in the early years of this period numbers pre-date RAB. A consistent approach has been employed. These figures are provided. Planned changes to the Research Building Block (RBB) may have implications for the future reporting of MOD R&D expenditure; these changes are also briefly outlined.

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## 1. BACKGROUND

1.1 In order to provide the armed forces with the technical capability that will permit them to perform efficiently, the Ministry of Defence (MOD) invests significantly in Research and Development (R&D). Research is undertaken into innovative technologies and techniques. New equipment is developed and major development of existing equipment is carried out. Statistics on R&D expenditure provide an important guide to the levels of investment being made in the economy. They can be used as an indication of the future growth and competitiveness of a country. MOD expenditure on R&D is of significant interest: it currently accounts for around 40% of Net Government Expenditure on R&D.

1.2 Defence Statistics Bulletins 1 & 2 on the MOD's Research and Development Statistics were published in July 1993 and July 1994 respectively. Since then a number of changes within the MOD have affected the treatment of R&D expenditure. These are:

- The merger of the Defence Research Agency (DRA) with a number of other MOD divisions<sup>1</sup> on 1 April 1995 to form the Defence Evaluation and Research Agency (DERA). DERA continued to operate under a Trading Fund.
- The introduction of Smart Acquisition (following the Strategic Defence Review (MOD, 1998)), including the establishment of a revised project cycle, in 1999.

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<sup>1</sup> These were: Army Personnel Research Establishment; Institute of Aviation Medicine; Directorate General of Test and Evaluation; Defence Operational Analysis Centre; Chemical and Biological Defence Establishment; Joint Acoustic Analysis Centre; Defence Research Information Centre; Strategic Systems Performance Assessment Group; Defence Operational Analysis Organisation (Germany), *together with units from:* Institute of Naval Medicine; Air Warfare Centre; & Maritime Warfare Development Centre.

- The move from cash accounting to Resource Accounting and Budgeting (RAB) throughout Government. The old MOD cash systems ceased to run in 2000/01.
  - The disestablishment on 1<sup>st</sup> July 2001 of a large proportion of DERA to form QinetiQ PLC. The balance remained as a Trading Agency within MOD and is called the Defence Science and Technology Laboratory (Dstl).
- 1.3 In 2002/03 a National Statistics Quality Review (NSQR) of MOD's R&D statistics (DASA, 2004) proposed a number of changes to the methodology used to calculate its R&D statistics. This bulletin outlines the revised method of calculating MOD R&D expenditure. Planned changes to the Research Building Block (RBB) from 1 April 2004 are also briefly outlined.

## 2.1 DEFINITIONS

2.2 The Organisation for Economic Co-operation and Development (OECD) produce guidelines on the categorisation of R&D (OECD, 2002). These permit comparison of R&D expenditure between countries. The 'Frascati' guidelines split R&D expenditure into 3 categories:

- *Basic Research*: "Basic Research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view."
- *Applied Research*: "Applied Research is also original investigation in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective."

- *Experimental Development*: “Experimental Development is systematic work, drawing on existing knowledge gained from research and practical experience, that is directed to producing new materials, products and devices; to installing new processes, systems and services; or to improving substantially those already produced or installed.”

2.3 In compiling its statistics, MOD follows the Frascati definitions as closely as it can.

A certain amount of judgement is required in interpreting the definitions: these judgements are not always easy to make. Changing MOD systems mean that following the detail of the Frascati guidelines is problematic. Divergences from these are discussed below.

2.4 R&D expenditure is also categorised into intramural and extramural elements.

Intramural R&D is undertaken within MOD and Defence Executive Agencies, which although established as Trading Funds are wholly owned by the MOD, and staffed by civil servants. Extramural R&D is commissioned by MOD with UK industry, institutes of higher education, Research Councils and overseas organisations.

### **3. USING DEPARTMENTAL ACCOUNTS AS THE PRIME SOURCE FOR DATA ON AGGREGATE R&D**

3.1 The methods of compilation used by DASA have always depended on information from the MOD accounting systems supplemented by additional information gathered via a survey. With the move to resource accounting the DRAc has become the major source of R&D expenditure information. Strictly this conflicts with the Frascati guidelines as is explained below. The net R&D figures that are reported in UKDS represent a breakdown of what the MOD pays for its R&D. The gross figures include income from other sources for R&D work undertaken by MOD and its Agencies. This may not always be for ‘defence’ purposes.

3.2 For publication in the DRAc, the MOD complies with Accounting Standards. On R&D the current applicable standard is the Statement of Standard Accounting Practice (SSAP) 13 (The Institute of Chartered Accountants, 1989). SSAP 13 uses definitions for “pure (or basic) research”, “applied research” and “development” based on the Frascati definitions. As well as research expenditure that is undertaken pre-concept and in the very early stage of some programmes significant development expenditure is spent during ‘procurement’ as equipment follows the project cycle (Figure 1). Being ‘prudent’ the MOD writes all research sums and some of the development expenditure to the Operating Cost Statement. Some development expenditure, however, is capitalised on the Balance Sheet: these are then subsequently depreciated during the in-service life of the relevant equipment. The relationship between the expenditure on R&D and the Acquisition Cycle are shown diagrammatically below:

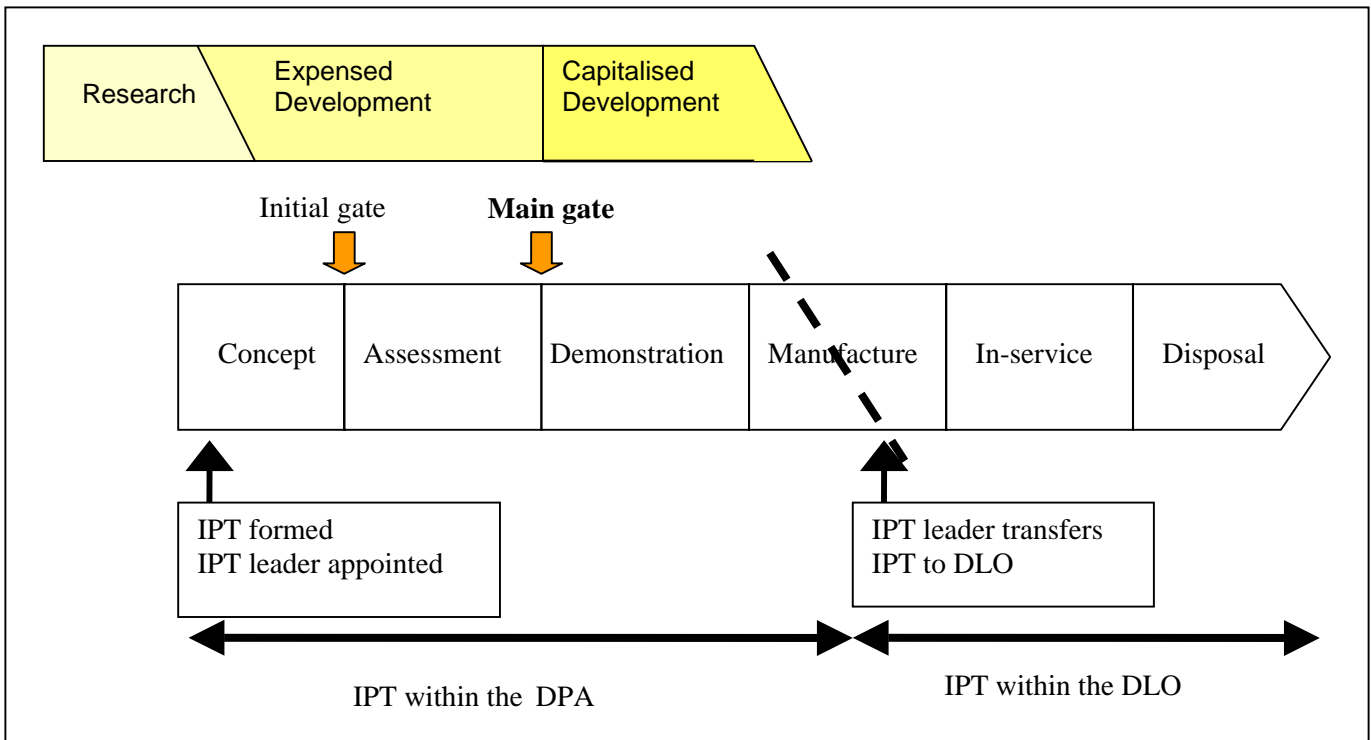


Figure 1: Research and Development in the Acquisition Cycle.

- 3.3 Research expenditure occurring in the early stages (the concept and pre-concept phases) of a project is ‘written off’ to the Operating Cost Statement. Development expenditure pre-main gate is also ‘written off’ to the Operating Cost Statement. No project is assured of passing main gate so this is ‘prudent’ accounting. Development expenditure post-main gate is capitalised and subsequently depreciated in the DRAc: the project has been approved and is expected to proceed to in-service. The latter appears as intangible assets in the DRAc.
- 3.4 The Frascati guidelines call for intramural expenditure on capital equipment purchases to be incurred on acquisition, i.e. depreciation should not be employed. The move from cash to resource accounting and the arms length (trading) relationship between MOD and its (intramural) research and development suppliers means that this cannot be readily achieved. MOD now record such expenditure on a resource basis, and we have similarly reported the figures. The ONS were informed. Analysis of DERA’s turnover on research activities on a resource basis compared with the RBB cash data indicated that in practice the difference between the cash and resource figures was small.
- 3.5 The Frascati Manual (2002) mentions the difficulties of categorising expenditure on large defence programmes. The House of Lords Select Committee on Science & Technology’s report of 1989-90 on Definitions of R&D had earlier drawn attention to this problem. Subjective assessments are required to separate development from pre-production expenditure. These decisions are faced in the many projects that the DPA and DLO control. The need to make such decisions is indicated by the diagonal line at the right-hand end of “capitalised development” in figure 1.

#### **4. SUBCONTRACTING OF R&D ACTIVITIES**

- 4.1 We are required for ONS/OECD reporting purposes to separate spending (strictly now resource consumed) into intramural and extramural elements. For the DRAc, Trading Funds are considered outside the Departmental boundary. For our reporting they are within, otherwise this information on MOD R&D activities would not be available to the ONS.
- 4.2 The Frascati guidelines indicate that intramural expenditure includes spending on employees, appropriate overheads (for gas, electricity, management costs etc) and materials that are 'bought in'. Items of R&D that are sub-contracted to outside bodies are classed as extramural. Using information from survey returns and their published accounts, we (DASA) calculate the relevant figures for the MOD Trading Funds significantly involved in R&D: i.e. the Meteorological Office and Dstl.

#### **5. VAT**

- 5.1 Further complications arise with regards to VAT. The DRAc excludes VAT paid on research: this is wholly recoverable by MOD as Contracted Out Services VAT (COSVAT).
- 5.2 Development activities may include non-recoverable VAT. Such sums are included in the DRAc and are difficult to remove from the accounts. Although this leads to a mismatch in comparing research and development expenditure, to maintain alignment with the DRAc, our figures are also inclusive of non-recoverable VAT.

## **6. RECEIPTS**

- 6.1 MOD Trading Funds (in particular the Meteorological Office and Dstl) also undertake R&D for bodies outside MOD such as other government departments (OGDs) and industry. This “income” which may be for non-defence purposes is included in our ‘gross’ figures. ‘Dividend’ payments that may be made by Trading Funds to MOD are reflected in our net expenditure calculations, although strictly might be considered to reduce the ‘net’ cost of R&D to MOD. We suggest that such payments are relatively small: they remain in the DRAc and our figures as part of the costs of R&D to MOD.

## **7. FUTURE DEVELOPMENTS**

- 7.1 The Research Building Block (RBB) up to March 31 2004 has been categorised into the Corporate Research Programme and the Applied Research Programme. From 1<sup>st</sup> April 2004 this is to change: the funds will be associated with seven corporate science and technology outputs. These are: Advice to Ministers; Advice to Policy & Planning; Advice to Capability Management; Advice availability; Advice on Technology awareness; Technology/capability in the supplier base; Innovative solutions to Defence challenges. A ‘Defence Science & Technology Board’ will allocate a central corporate science and technology budget amongst the outputs, with a Research Acquisition Organisation planning and acquiring research in support of output owners. This may impact on figures in future years.

## 8. CONCLUSION

- 8.1 The revised method DASA has adopted for calculating MOD expenditure on Research and Development has been outlined. This approach is not without difficulties, and these have been briefly explored.
  
- 8.2 MOD R&D figures have been revised back to 1996/97 on a basis consistent with the method that has been described above. It is not possible to revise statistics for earlier periods because the detailed information required is not available. Revised figures on this new basis were first published in UKDS 2003 (DASA, 2003). Figures published prior to the revisions, and the figures on the new basis, are shown at Annex A.

## REFERENCES

- DASA, *National Statistics Quality Review of MOD Finance and Economic Statistics*. 2004.  
[http://www.statistics.gov.uk/methods\\_quality/quality\\_review/other.asp](http://www.statistics.gov.uk/methods_quality/quality_review/other.asp)
- DASA, *UK Defence Statistics*, The Stationery Office. 2003
- OECD, *Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development*. 2002
- MOD, *Ministry of Defence Consolidated Departmental Resource Accounts*. The Stationery Office.
- The Institute of Chartered Accountants, *SSAP13: Accounting for research and development*. Issued December 1977; revised January 1989.
- MOD, *Strategic Defence Review White Paper*. July 1998.

## Annex A: Effect of the changes on R&D statistics

Former:

### Defence Research & Development expenditure outturn, calculated as described in Defence Statistics Bulletins 1 & 2.<sup>1,2,3,4</sup>

VAT inclusive at current prices (£ million)

Research & Development	1996/97	1997/98	1998/99	1999/00	2000/01
<b>Total gross expenditure on R&amp;D</b>	<b>2244</b>	<b>2427</b>	<b>2268</b>	<b>2513</b>	<b>2560</b>
Of which: Intramural	804	774	818	780	828
Extramural	1440	1653	1450	1733	1732
Receipts	<b>101</b>	<b>116</b>	<b>172</b>	<b>168</b>	<b>181</b>
Allocated: Intramurally	86	98	121	132	144
Extramurally	15	18	51	36	37
<b>MOD expenditure on R&amp;D</b>	<b>2144</b>	<b>2311</b>	<b>2096</b>	<b>2345</b>	<b>2379</b>

<sup>1</sup> The figures are calculated as described in Defence Statistics Bulletins 1 and 2.

<sup>2</sup> From 1993/94 the Defence Research Agency (DRA) became a Trading Fund. Although the relationship with MOD became "arms length", work carried out within DRA was classified as intramural: R&D subcontracted by DRA was extramural.

<sup>3</sup> From 1993/94 R&D expenditure at the Atomic Weapons Establishment, which became contractor-operated, is classified as extramural.

<sup>4</sup> From 1995/96 DRA was expanded to form the Defence Evaluation and Research Agency (DERA).

## Annex A (cont.)

New:

### MOD Research & Development expenditure outturn calculated as described in Defence Statistics Bulletin 6

Inclusive of non-recoverable VAT at current prices (£ million)

Research & Development	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
<b>Total gross expenditure on R&amp;D</b>	<b>2285<sup>f</sup></b>	<b>2371<sup>f</sup></b>	<b>2240<sup>f</sup></b>	<b>2350<sup>f</sup></b>	<b>2321<sup>f</sup></b>	<b>2117</b>
Of which: Intramural	862 <sup>f</sup>	750 <sup>f</sup>	801 <sup>f</sup>	798 <sup>f</sup>	932 <sup>f</sup>	419
Extramural	1424 <sup>f</sup>	1622 <sup>f</sup>	1438 <sup>f</sup>	1551 <sup>f</sup>	1389 <sup>f</sup>	1698
Receipts	<b>52<sup>f</sup></b>	<b>57<sup>f</sup></b>	<b>100<sup>f</sup></b>	<b>77<sup>f</sup></b>	<b>81<sup>f</sup></b>	<b>60</b>
Allocated: Intramurally	37 <sup>f</sup>	39 <sup>f</sup>	49 <sup>f</sup>	43 <sup>f</sup>	45 <sup>f</sup>	44
Extramurally	15 <sup>f</sup>	18 <sup>f</sup>	51 <sup>f</sup>	34 <sup>f</sup>	36 <sup>f</sup>	16
<b>MOD expenditure on R&amp;D</b>	<b>2234<sup>f</sup></b>	<b>2314<sup>f</sup></b>	<b>2140<sup>f</sup></b>	<b>2272<sup>f</sup></b>	<b>2240<sup>f</sup></b>	<b>2057</b>

Note: The main differences with the method described in Defence Statistics Bulletin 1 & 2 are:

- to cease including 'associated costs';
- to cease abating the intramural figures by 15%;
- to remove industrial income received by the Defence Evaluation and Research Agency (DERA) from the backseries. Dstl have indicated that a small amount of income received from industry is for R&D activities. This is included from 2001/02;
- to cease to include recoverable-VAT paid by the Research Building Block (RBB);
- to reverse attempts to convert DERA figures to cash;
- to use the Departmental Resource Accounts (DRAc) as the prime source for aggregate R&D figures from 2000/01, and to treat all MOD expenditure prior to 2000/01 consistently with similar expenditure's subsequent treatment in the DRAc.

Full details of the reasons for implementing these changes are explained in the National Statistics Quality Review of Finance and Economic Statistics.

## Annex B: UKDS 2003 Table 1.7 MOD Research & Development expenditure outturn <sup>1,2,3,4</sup>

This table details the MOD's annual expenditure on Research and Development (R&D) activity. Expenditure is broken down into intramural (i.e. R&D activity undertaken within the department) and extramural (i.e. R&D activity undertaken outside of the department). The data included in this table are derived from an annual survey of MOD R&D expenditure conducted by DASA and information from MOD accounting systems. DASA seek to classify R&D activity within the Organisation for Economic Co-operation & Development Frascati Guidelines. Following a National Statistics Quality Review conducted during 2002/03 the MOD's R&D statistics have been revised for the years 1996/97 to 2000/01. The main changes are: the removal of associated costs, a review of the treatment of VAT and the reclassification of R&D in relation to the OECD Frascati definitions. The marked shift from intramural to extramural expenditure in 2001/02 is a result of the disestablishment of the Defence Evaluation and Research Agency on 1st July 2001.

		Inclusive of non-recoverable VAT at current prices (£ million)						
Research & Development	1985/86	1990/91	1995/96	1997/98 <sup>5</sup>	1998/99	1999/00	2000/01 <sup>6</sup>	2001/02 <sup>7</sup>
<b>Total gross expenditure on R&amp;D</b>	<b>2444</b>	<b>2453</b>	<b>2169</b>	<b>2371<sup>f</sup></b>	<b>2240<sup>f</sup></b>	<b>2350<sup>f</sup></b>	<b>2321<sup>f</sup></b>	<b>2117<sup>f</sup></b>
<i>Of which:</i>								
Intramural	693	902	746	750 <sup>f</sup>	801 <sup>f</sup>	798 <sup>f</sup>	932 <sup>f</sup>	419 <sup>f</sup>
Extramural	1752	1551	1423	1622 <sup>f</sup>	1438 <sup>f</sup>	1551 <sup>f</sup>	1389 <sup>f</sup>	1698 <sup>f</sup>
Receipts <sup>8</sup>	<b>178</b>	<b>116</b>	<b>99</b>	<b>57<sup>f</sup></b>	<b>100<sup>f</sup></b>	<b>77<sup>f</sup></b>	<b>81<sup>f</sup></b>	<b>60<sup>f</sup></b>
<i>Of which used:</i>								
Intramurally	60	53	88	39 <sup>f</sup>	49 <sup>f</sup>	43 <sup>f</sup>	45 <sup>f</sup>	44 <sup>f</sup>
Extramurally	118	63	11	18 <sup>f</sup>	51 <sup>f</sup>	34 <sup>f</sup>	36 <sup>f</sup>	16 <sup>f</sup>
<b>MOD expenditure on R&amp;D</b>	<b>2266</b>	<b>2337</b>	<b>2070</b>	<b>2314<sup>f</sup></b>	<b>2140<sup>f</sup></b>	<b>2272<sup>f</sup></b>	<b>2240<sup>f</sup></b>	<b>2057<sup>f</sup></b>

		Inclusive of non-recoverable VAT at current prices (£ million)						
Research	1985/86	1990/91	1995/96	1997/98	1998/99	1999/00	2000/01	2001/02
<b>Total Gross Expenditure on Research</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>577<sup>f</sup></b>	<b>578<sup>f</sup></b>	<b>566<sup>f</sup></b>	<b>612<sup>f</sup></b>	<b>616<sup>f</sup></b>
<i>Of which:</i>								
Intramural	..	..	..	325 <sup>f</sup>	328 <sup>f</sup>	328 <sup>f</sup>	400 <sup>f</sup>	229 <sup>f</sup>
Extramural	..	..	..	251 <sup>f</sup>	249 <sup>f</sup>	238 <sup>f</sup>	212 <sup>f</sup>	388 <sup>f</sup>
Receipts <sup>8</sup>	<b>..</b>	<b>..</b>	<b>..</b>	<b>13<sup>f</sup></b>	<b>18<sup>f</sup></b>	<b>14<sup>f</sup></b>	<b>45<sup>f</sup></b>	<b>60<sup>f</sup></b>
<i>Of which used:</i>								
Intramurally	..	..	..	12 <sup>f</sup>	18 <sup>f</sup>	14 <sup>f</sup>	45 <sup>f</sup>	44 <sup>f</sup>
Extramurally	..	..	..	2 <sup>f</sup>	0 <sup>f</sup>	0 <sup>f</sup>	0 <sup>f</sup>	16 <sup>f</sup>
<b>MOD expenditure on Research</b>	<b>400</b>	<b>412</b>	<b>676</b>	<b>564<sup>f</sup></b>	<b>560<sup>f</sup></b>	<b>552<sup>f</sup></b>	<b>566<sup>f</sup></b>	<b>557<sup>f</sup></b>

		Inclusive of non-recoverable VAT at current prices (£ million)						
Development	1985/86	1990/91	1995/96	1997/98	1998/99	1999/00	2000/01	2001/02
<b>Total Gross Expenditure on Development</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>1794<sup>f</sup></b>	<b>1662<sup>f</sup></b>	<b>1784<sup>f</sup></b>	<b>1709<sup>f</sup></b>	<b>1500<sup>f</sup></b>
<i>Of which:</i>								
Intramural	..	..	..	424 <sup>f</sup>	473 <sup>f</sup>	471 <sup>f</sup>	532 <sup>f</sup>	190 <sup>f</sup>
Extramural	..	..	..	1370 <sup>f</sup>	1189 <sup>f</sup>	1314 <sup>f</sup>	1177 <sup>f</sup>	1311 <sup>f</sup>
Receipts <sup>8</sup>	<b>..</b>	<b>..</b>	<b>..</b>	<b>44<sup>f</sup></b>	<b>81<sup>f</sup></b>	<b>63<sup>f</sup></b>	<b>36<sup>f</sup></b>	<b>0<sup>f</sup></b>
<i>Of which used:</i>								
Intramurally	..	..	..	28 <sup>f</sup>	30 <sup>f</sup>	29 <sup>f</sup>	0 <sup>f</sup>	0 <sup>f</sup>
Extramurally	..	..	..	16 <sup>f</sup>	51 <sup>f</sup>	34 <sup>f</sup>	36 <sup>f</sup>	0 <sup>f</sup>
<b>MOD expenditure on Development</b>	<b>1867</b>	<b>1926</b>	<b>1394</b>	<b>1750<sup>f</sup></b>	<b>1581<sup>f</sup></b>	<b>1721<sup>f</sup></b>	<b>1673<sup>f</sup></b>	<b>1500<sup>f</sup></b>

Source: DASA(Procurement)

<sup>1</sup> From 1992/93 until 1995/96 the figures are calculated as described in Defence Statistics Bulletins 1 and 2.

<sup>2</sup> From 1993/94 the Defence Research Agency (DRA) became a Trading Fund. Work carried out within DRA was classified as intramural

<sup>3</sup> From 1993/94 R&D expenditure at the Atomic Weapons Establishment, which became contractor-operated, is classified as extramural.

<sup>4</sup> From 1995/96 DRA was expanded to form the Defence Evaluation and Research Agency (DERA).

<sup>5</sup> The changes made from 1996/97 will be described in a future Defence Statistics Bulletin.

<sup>6</sup> From 2000/01 the Departmental Resource Accounts (DRAc) follow Statement of Standard Accounting Practice 13, "Accounting for Research and Development." From 2000/01 the figures are calculated on a resource basis, and are consistent with the aggregate of Research and Expensed Development plus Additions to Intangible Assets. This table therefore comprises elements from both the Operating Cost Statement and the Balance Sheet in the DRAc.

<sup>7</sup> On 1st July 2001 DERA was split into two organisations: the Defence Science & Technology Laboratory (Dstl) (about a quarter of DERA) staying as a Trading Fund within MOD, and QinetiQ, the remainder, becoming a private (extramural) company.

<sup>8</sup> Receipts are monies received by MOD & its Trading Funds for expenditure on R&D, for example from other government departments & private industry. This money is not necessarily spent on defence-related R&D.

## Annex C: Glossary

Acronym	Full Name	Description
CADMID	Concept, Assessment, Demonstration, Manufacture, In-Service, Disposal	The 6 phases of the Acquisition Cycle.
CFC	Corporate Financial Controller	Central finance within the MOD.
DASA	Defence Analytical Services Agency	
DERA	Defence Evaluation & Research Agency	Trading fund of the MOD conducting R&D, established 1 April 1995 with the merger of DRA and a number of other MOD divisions. It ceased to exist in July 2001. 3/4 became QinetiQ, and the remainder became Dstl.
DRA	Defence Research Agency	In April 1991 MOD merged main (but not all) R&D providers (the Research Establishments) into a single Agency: the DRA. DRA was established under a Trading Fund in April 1993.
DLO	Defence Logistics Organisation	Takes equipment through the Manufacture, In-Service & Disposal phases of the Acquisition Cycle.
DPA	Defence Procurement Agency	Equips the armed forces. (Takes equipment through the Concept, Assessment, & Demonstration phases of the Acquisition cycle).
DRAc	Departmental Resource Accounts	
DSTL	Defence Science & Technology Laboratory	Trading fund of the MOD formed in July 2001 to conduct R&D.
	Frascati definitions	In June 1963 the OECD met with national experts on R&D statistics in Frascati, Italy. The result was the first official version of the <i>Frascati Manual: Proposed Standard Practice for Surveys of Research and Development</i> . This book provides definitions of Basic Research, Applied Research, and Experimental Development.
	Frascati guidelines	The <i>Frascati Manual</i> also produces guidelines for the collection and measurement of R&D expenditure and employment statistics.
MOD	Ministry of Defence	
NS	National Statistics	
NSQR	National Statistics Quality Review	
OECD	Organisation for Economic Co-operation and Development	
OGD	Other Government Department	
ONS	Office for National Statistics	

	QinetiQ	A private Co., wholly owned by the MOD (one third is currently being sold to the Carlyle group). Conducts R&D.
R&D	Research and Development	
RAB	Resource Accounting & Budgeting	Resource Accounting: Accruals accounting for government departments, with analysis of costs by objectives. Resource Budgeting: The use of information on resource costs and output for planning, voting & in year control of government expenditure.
RBB	Research Building Block	Central MOD Research budget.
	Smart Acquisition	A whole-life approach to equipment procurement based on an Acquisition Cycle of 6 phases: CADMID, with an initial gate after Concept, and a Main Gate after Assessment.
	Trading Fund	Trading Funds were introduced by the Government under the Trading Funds Act 1973 as a 'means of financing trading operations of a government department with, hitherto, have been carried out on Vote'. They are self-accounting units that have greater freedom than other government departments in managing their own financial and management activities.
UKDS	UK Defence Statistics	Annual Compendium of National Statistics on UK Defence compiled by DASA.
VAT	Value Added Tax	

## Annex D: How the figures are calculated

### Fictitious MOD Agency R&D survey - Outturn (All amounts in £million to 3 decimal places)

#### Expenditure/Receipts - Inclusive of non recoverable VAT

	Total Sales	INCOME from areas other than the MOD										Income from the MOD	
		Other Government Departments	Institutes of Higher Education	Private Industry	Public Corporations	Local Authorities	Overseas - EC Programmes	Overseas - Other	Research Councils	Industrial Research Associations	Non Industrial Research Associations		Other
1 Pure-basic research	0												0
2 Orientated-basic research	0												0
3 Strategic-applied research	50												50
4 Specific-applied research	150												150
5 Experimental Development	150	15		25	5			5					100
<b>TOTAL income from R&amp;D</b>	<b>350</b>												<b>300</b>

**Total R&D, of which by value:**  
 6 Natural Sciences & Engineering: 350  
 7 Social Sciences & Humanities: 0

Gross R&D Expenditure: 350  
 "Receipts" = 50  
 Net R&D Expenditure: 300

#### Expenditure with subcontractors:

	Expenditure with subcontractors:	EXPENDITURE on R&D subcontracted to:											
		Other Government Departments	Institutes of Higher Education	Private Industry	Public Corporations	Local Authorities	Overseas - EC Programmes	Overseas - Other	Research Councils	Industrial Research Associations	Non Industrial Research Associations	Other	
8 Pure-basic Research	0												
9 Orientated-basic research	0												
10 Strategic-applied Research	10		3	2	5								
11 Specific-applied research	30		2	8	20								
12 Experimental Development	30		5	20	5								
<b>TOTAL spend with sub</b>	<b>70</b>												

Extramural R&D expenditure: 70

Research & Development		Fictitious MOD Agency
<b>Total gross expenditure on R&amp;D</b>		<b>350</b>
<i>Of which:</i>		
Intramural		280
Extramural		70
Receipts <sup>8</sup>		50
<i>Of which used:</i>		
Intramurally		40
Extramurally		10
<b>MOD expenditure on R&amp;D</b>		<b>300</b>

Total sales (350) minus subcontracts (70)

Value of subcontracts

Total for "Receipts"

Total for "receipts" split according to the ratio of all work subcontracted by Dstl, i.e.  $70/350 = 20\%$  extramural and  $80\%$  intramural

Research		Fictitious MOD Agency
<b>Total Gross Expenditure on Research</b>		<b>200</b>
<i>Of which:</i>		
Intramural		40
Extramural		160
Receipts <sup>8</sup>		0
<i>Of which used:</i>		
Intramurally		0
Extramurally		0
<b>MOD expenditure on Research</b>		<b>200</b>

Gross expenditure on Research split according to the ratio of Research work subcontracted by Dstl, i.e.  $40/200 = 20\%$  extramural and  $80\%$  intramural

Development		Fictitious MOD Agency
<b>Total Gross Expenditure on Development</b>		<b>100</b>
<i>Of which:</i>		
Intramural		30
Extramural		70
Receipts <sup>8</sup>		50
<i>Of which used:</i>		
Intramurally		40
Extramurally		10
<b>MOD expenditure on Development</b>		<b>150</b>

Gross expenditure on Development split according to the ratio of Development work subcontracted by Dstl, i.e.  $30/150 = 20\%$  extramural and  $80\%$  intramural

## Annex E: Example of DASA's R&D Survey

### DLO R&D survey - Financial year XXXX

(All amounts in £million to 3 decimal places)

#### Expenditure/Receipts - inclusive of *non-recoverable* VAT

DLO data, as due to be published in the Departmental Resource Accounts

(a) Total Research and Development

Of Which:

(b) Research and Expensed Development

(c) Additions to Intangible Assets

#### Expenditure on R&D by DLO

of which:

1 Pure-basic research

2 Orientated-basic research

3 Strategic-applied research

4 Specific-applied research

5 Experimental Development

**DLO TOTAL R&D expenditure**

of which:

6 Package Deals

and of which:

7 Natural Sciences & Engineering

8 Social Sciences & Humanities

9 Value of R&D contracts awarded competitively:

#### Expenditure with:

Dstl	Met Office	Within DLO	Elsewhere within the Department	Other Government Departments	Institutes of Higher Education	Private Industry	Public Corporations	Local Authorities	Overseas - EC Programmes	Overseas - Other	Research Councils	Industrial Research Associations	Non Industrial Research Associations	Other

**10** Excluding VAT, do you benefit from any receipts, e.g. appropriations in aid or other revenue?

If 'Yes' go to line 11

**Receipts from:**

Receipts for R&D	OGDs	Institutes of Higher Education	Private Industry	Public Corporations	Local Authorities	Overseas - EC Programmes	Overseas - Other	Research Councils	Industrial Research Associations	Non Industrial Research Associations	Other
<b>11</b> Pure-basic Research	0										
<b>12</b> Orientated-basic research	0										
<b>13</b> Strategic-applied Research	0										
<b>14</b> Specific-applied research	0										
<b>15</b> Experimental Development	0										
<b>Total Receipts</b>	<b>0</b>										

**Net R&D expenditure**

<b>16</b> Pure-basic Research	0
<b>17</b> Orientated-basic research	0
<b>18</b> Strategic-applied Research	0
<b>19</b> Specific-applied research	0
<b>20</b> Experimental Development	0
<b>TOTAL Net Expenditure</b>	<b>0</b>