

## **Allocation of the science budget, 1994-95 / Office of Science and Technology.**

### **Contributors**

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## Creating Additional Headroom

1 Of the additional £9 million for science announced in the Budget, £1.5 million has been reserved at present leaving £7.5 million for allocation to the Research Councils, the Royal Society and the Royal Academy of Engineering.

2 The Director General of Research Councils (DGRC) after consultation with the Research Councils has been able to more than double this amount to £16.4 million by identifying efficiency savings throughout the system. These funds will be used to start the new and expanded programmes described below, all of which are designed to re-orientate the science and engineering base towards the policies for enhancing wealth creation and the quality of life, set out in the Government's White Paper 'Realising Our Potential' published last May.

## ALLOCATION OF THE SCIENCE BUDGET

### The New and Expanded Programmes 1994-95

3 The £16.4 million headroom has been allocated in three main areas:

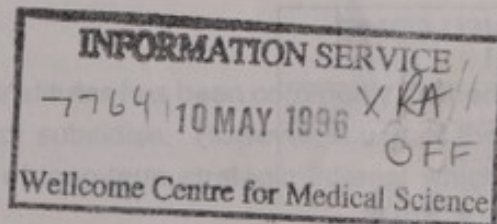
- improved interaction with industry (sections 4 - 6);
- enhancements to strategic science (sections 7 - 9);
- enhancements to the 'people' related programmes administered by the Royal Society and the Royal Academy of Engineering (sections 10 and 11).

### Improved interaction with Industry

#### 4 ROPAs - The Industrial Complementarity Scheme

4.1 The ROPA scheme (Realising Our Potential Awards) will receive £2.5 million in 1994-95, implying a full year spend of £7 million. Its aim is to enhance mutual collaboration between the science and engineering base and industry, and develop researchers' interests through extending their awareness of the needs and perceptions of industry. The proposed scheme targets funds on researchers who are already working with industry on strategic research. It also gives industry a major role in identifying the researchers who will be eligible to apply for support.

4.2 Industry-supported research in universities and as contract research which the Government should not subsidise. The scheme is designed to ensure that industry supports research that is fundamental to the work that researchers are keen to engage in.



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2 The Director General of Research Councils (DGRC) after consultation with the Research Councils has been able to more than double this amount to £15.4 million by identifying efficiency savings throughout the system. These funds will be used to start the new and expanded programmes described below, all of which are designed to re-orientate the science and engineering base towards the policies for enhancing wealth creation and the quality of life, set out in the Government's White Paper "*Realising Our Potential*" published last May.

## The New and Expanded Programmes

3 The £15.4 million headroom has been allocated in three main areas:

- improved interaction with industry (sections 4 - 6)
- enhancements to strategic science (sections 7 - 9)
- enhancements to the "people" related programmes administered by the Royal Society and the Royal Academy of Engineering (sections 10 and 11)

## Improved Interaction with Industry

### 4 ROPAs - The Industrial Complementarity Scheme

4.1 The ROPA scheme (*Realising Our Potential Awards*) will receive **£3.5 million** in 1994-95, implying a full year spend of £7 million. Its aim is to enhance fruitful collaboration between the science and engineering base and industry, and develop researchers' interests through enhancing their awareness of the needs and perceptions of industry. The proposed scheme targets funds on researchers who are already working with industry on strategic research. It thus gives industry a major role in identifying the researchers who will be eligible to apply for support.

4.2 Industry-supported research in universities and institutes has been commonly defined as contract research which the Government should not subsidise. However, much of the research that industry supports is fundamental work of long-term strategic interest which researchers are keen to engage in.



## Creating Additional Headroom

1 Of the additional £3 million for science announced in the Budget, £1.8 million has been reserved at present leaving £1.2 million for allocation to the Research Councils, the Royal Society and the Royal Academy of Engineering.

2 The Director General of Research Councils (DGR) after consultation with the Research Councils has been able to more than double the amount to £2.4 million by identifying efficiency savings throughout the system. These funds will be used to start the new and expanded programmes described below, all of which are designed to re-orientate the science and engineering base towards the policies for enhancing wealth creation and the quality of life, set out in the Government's White Paper 'Realising Our Potential' published last May.

## The New and Expanded Programmes

- 3 The £2.4 million headroom has been allocated in three main areas:
- improved interaction with industry (sections 4 - 6)
  - enhancements to strategic science (sections 7 - 9)
  - enhancements to the 'people' related programmes administered by the Royal Society and the Royal Academy of Engineering (sections 10 and 11)

## Improved Interaction with Industry

### 4 RORA - The Industrial Complementarity Scheme

4.1 The RORA scheme (Realising Our Potential Award) will receive £2.8 million in 1994-95, implying a full year spend of £3 million. Its aim is to enhance links and interaction between the science and engineering base and industry, and develop research where a synergy through enhancing their awareness of the needs and perceptions of industry. The proposed scheme targets funds on researchers who are already working with industry on strategic research. It thus gives industry a major role in identifying the researchers who will be eligible to apply for support.

4.2 Industry-sponsored research in universities and institutes has been a priority for the Government since the White Paper 'Realising Our Potential' was published. However, much of the research and industry activity is funded through work of long-term strategic research which researchers are keen to engage in.

4.3 To encourage researchers to collaborate with industry, the scheme will make available grants complementary to the funding provided by industry for strategic research in order to allow the researcher to work on a topic of their own choosing. Unlike existing joint funding schemes (such as LINK), the topic should not be part of the programme supported by the industrial funding, but should be related research, in which the aim should be to endeavour to carry it forward to the stage at which it becomes a platform for future exploitation.

4.4 The unique feature of the approach is that the conventional peer review system is not used; instead we are taking industry's recognition of the researchers as providing an indicator of quality and relevance - although the researchers' proposals will be refereed, progress monitored and programme outputs evaluated. Criteria will be defined and judgements made to ensure that the scheme is not used by industry as a means of subsidising its research plans.

4.5 The pilot scheme will be centrally coordinated and run by three Research Councils: EPSRC, BBSRC and MRC. For each Council, a maximum of four strategically important areas will be selected, where there is judged to be coincidence of purpose between the needs of industry and Council objectives. The DGRC is working with the Councils on the detailed implementation of this scheme and an announcement will be made before Easter.

## 5 The Industrial Quota CASE Awards

An additional **£0.6 million** (£1.2 million in a full year) will provide a further 120 industrially-orientated studentships in 1994-95. The aim of the scheme is to build on the existing CASE (*collaborative awards in science and engineering*) studentships by distributing quota awards to firms that have proved their ability to provide the right environment for postgraduate research students in the past. This gives industry the opportunity to select an academic partner and topic. The assessment of the programmes and students will continue as at present. Most of the new awards will be through EPSRC, but other Councils will be able to use about 15 studentships each.

## 6 Innovative Manufacturing

6.1 This initiative is intended to harness the innovative processes and products of research in engineering, science and social science for long-term wealth creation. It will be taken forward through a joint programme involving university research groups, industry, Research Councils and Government departments. The proposals, which have already been welcomed by the Royal Academy of Engineering, DTI and DOE, are for work to progress in two ways; first the spread of best practice in business process management, second a series of sector-driven research programmes.

6.2 In order to provide a strong initial focus for this programme and to enable it to be taken forward as fast as possible it will be piloted initially only by the EPSRC with **£2 million**

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## 5 The Industrial Grants Case Awards

An additional £0.6 million (£1.5 million in a full year) will provide a further 150 industrially-chaired studentships in 1994-95. The aim of the scheme is to build on the existing CASE (cooperative awards in science and engineering) studentships by distributing grants awards to firms that have proved their ability to provide the right environment for postgraduate research students in the past. This gives industry the opportunity to select an academic partner and topic. The assessment of the programmes and students will continue as at present. Most of the new awards will be through EPSRC, but other Councils will be able to use about 15 studentships each.

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additional funding in 1994-95. The case for extending this funding in 1995-96 - both to BBSRC and other Research Councils - will be examined over the next six months when the need for underpinning generic research is more clearly defined. The ESRC's work on innovation is highly relevant, and this will be developed through funding from EPSRC.

## Enhancing Strategic Science Academy of Engineering Programmes

### 7 Chemistry Society

Funding (£4.5 million) is being provided for a range of responsive mode grants in chemistry within EPSRC, BBSRC and NERC. The EPSRC and BBSRC programmes will lie in sectors of strategic relevance to industry, while the NERC programme will be for atmospheric chemistry to complement the programmes it has inherited from the SERC.

#### EPSRC (£3.0 million)

- physical-organic chemistry
- analytical and structural chemistry
- colloids
- polymers
- separation chemistry
- catalysis
- synthetic organic chemistry
- reactivity of novel chemical compounds
- heterocyclic chemistry
- chirality

#### BBSRC (£1.0 million)

- chemistry of biomolecules including proteins and carbohydrates
- design of biologically-active molecules
- chemical mechanisms of biotransformations

#### NERC (£0.5 million)

- atmospheric chemistry

### 8 Mathematics

Support (£0.2 million) for a programme to investigate stochastic modelling techniques with significant industrial interest.



additional funding in 1994-95. The case for extending this funding in 1995-96 - both to EPSRC and other Research Councils - will be examined over the next six months when the need for underpinning genetic research is more clearly defined. The EPSRC's work on innovation is highly relevant, and this will be developed through funding from EPSRC.

## Enhancing Strategic Science

### Chemistry

Funding (£4.5 million) is being provided for a range of responsive mode grants in chemistry within EPSRC, BBSRC and NERC. The EPSRC and BBSRC programmes will be in sectors of strategic relevance to industry, while the NERC programme will be for atmospheric chemistry to complement the programmes it has inherited from the SERC.

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- physical-organic chemistry
- analytical and structural chemistry
- colloids
- polymers
- separation chemistry
- catalysis
- synthetic organic chemistry
- reactivity of novel chemical compounds
- heterocyclic chemistry
- chirality

#### BBSRC (£1.0 million)

- chemistry of biomolecules including proteins and catalysates
- design of biologically-active molecules
- chemical mechanisms of biotransformations

#### NERC (£0.5 million)

- atmospheric chemistry

### Mathematics

Support (£0.2 million) for a programme to investigate electronic modelling techniques with significant industrial interest.

## 9 Genome and Immunology

Additional funding (£3.4 million) to enable MRC and BBSRC to enhance their existing programmes in animal and human genome and immunology research.

## Royal Society and Royal Academy of Engineering Programmes

### 10 The Royal Society

An additional allocation (£0.8 million) to enhance its University Research Fellows (URF) by about 35, increasing the total number to about 240. The White Paper, at paragraph 7.31, stressed the importance of these Fellowships. In appointing the additional URFs the Society will be asked to take into account the areas of science related to wealth creation.

### 11 Royal Academy of Engineering

Increased funding (£0.4 million) to provide a contribution of £0.1 million to the additional cost of the Academy's accommodation now that it is moving to its permanent headquarters, together with an additional £0.3 million which will achieve significant gearing distributed over the following high-priority schemes:

- Senior Research Fellows
- Visiting professors from industry to bring up-to-date industrial design expertise into undergraduate engineering courses
- To establish a pilot project to develop modular professional development for practising engineers

In all these areas, the Academy seeks to achieve at least a matching contribution from industry. Hence, £0.3 million should achieve a total increase in its programmes of at least £0.6 million.

## Summary

12 A summary of the allocation of the £15.4 million headroom is given in Table 1 and illustrated in Figure 1. The total allocations to the Research Councils and other funded bodies are listed in Table 2 and illustrated in Figure 2.

## 9 Genome and Immunology

Additional funding (£5.4 million) to enable MRC and BBSRC to enhance their existing programmes in animal and human genome and immunology research.

## Royal Society and Royal Academy of Engineering Programmes

### 10 The Royal Society

An additional allocation (£0.5 million) to enhance its University Research Fellowships (URF) by about 85, increasing the total number to about 240. The White Paper, at paragraph 7.31, stressed the importance of these Fellowships. In appointing the additional URFs the Society will be asked to take into account the areas of science related to waste creation.

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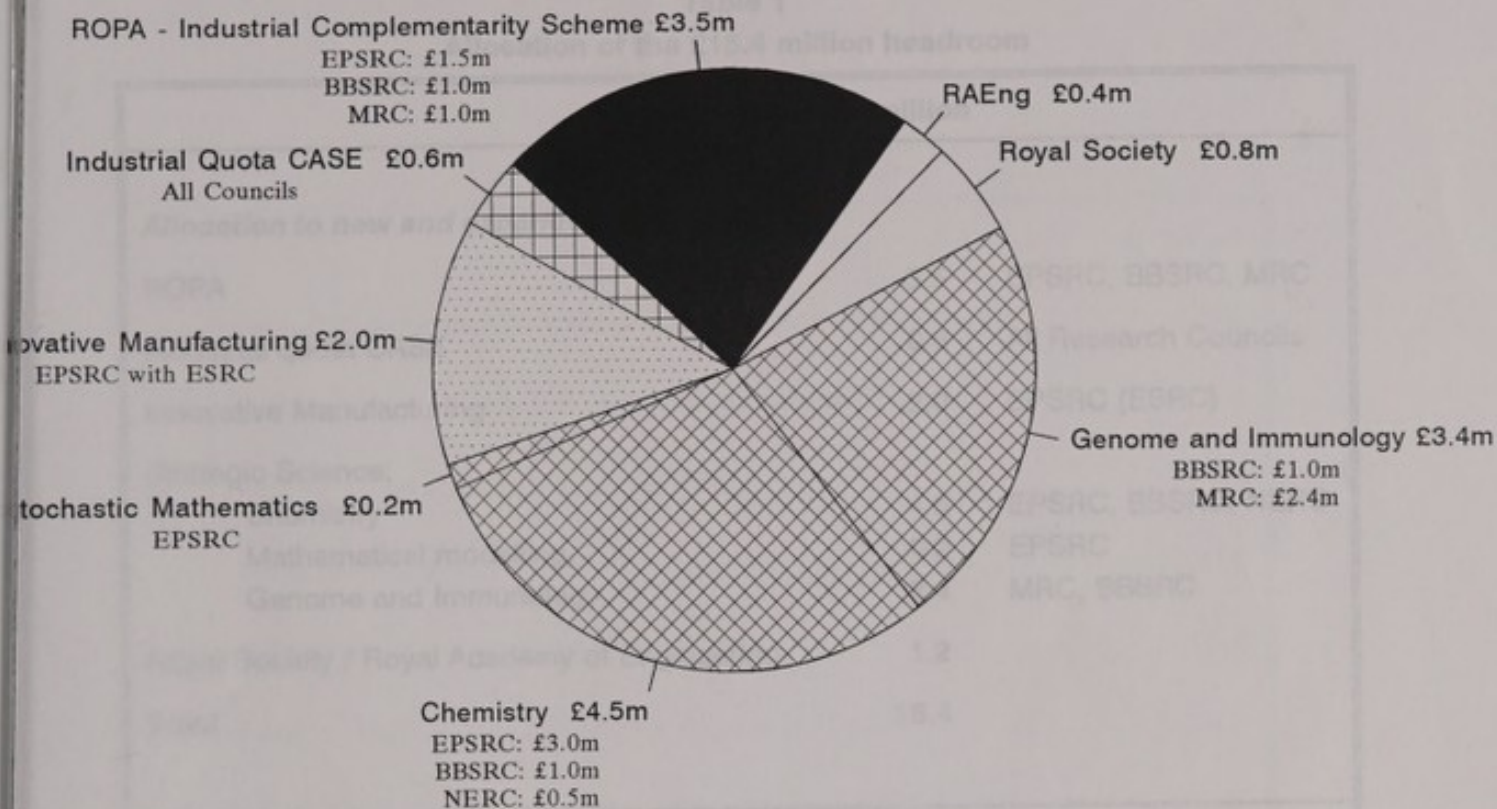
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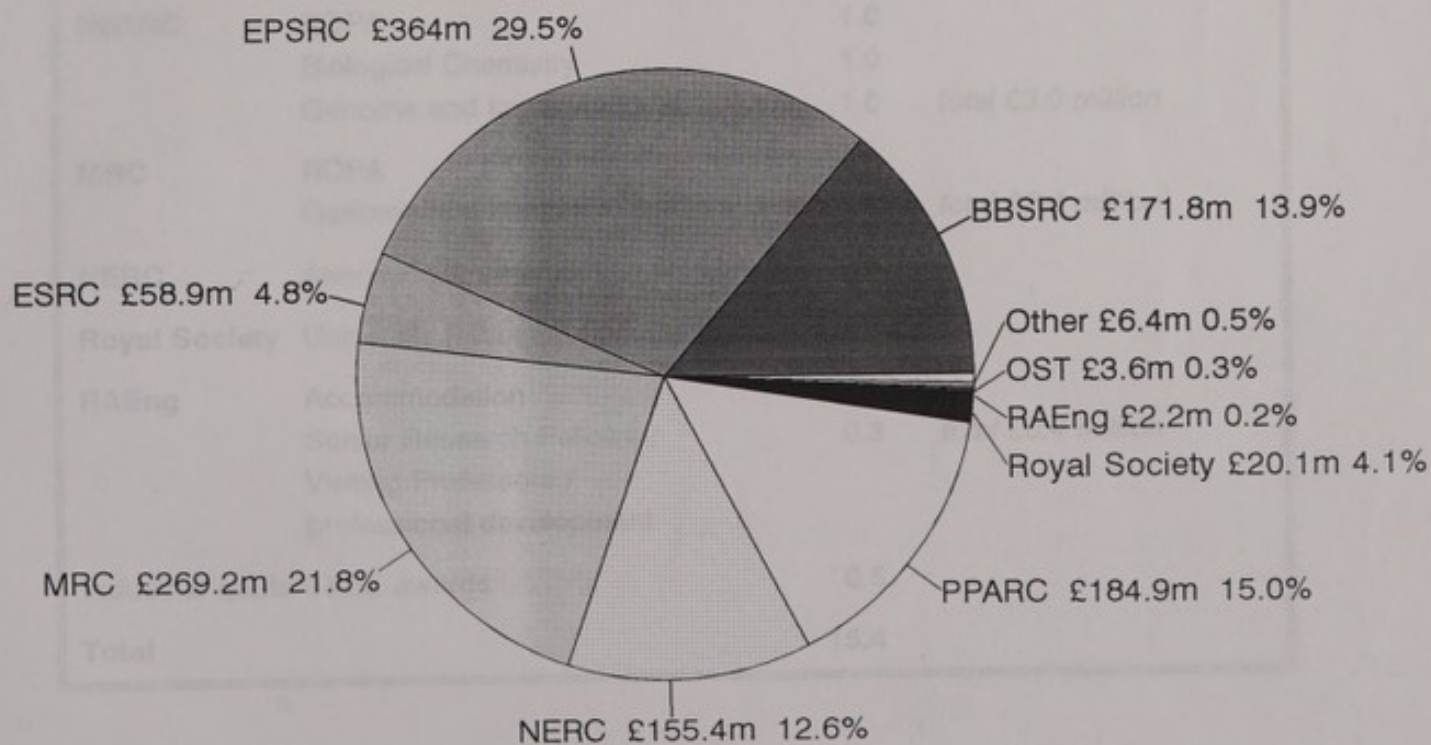
## Proposed Allocation of the Headroom 1994-95



Total = £15.4m

Figure 1

## Proposed Allocation of the Science Budget 1994-95



Total = £1236.5m

Figure 2

# Proposed Allocation of the Headroom 1994-95

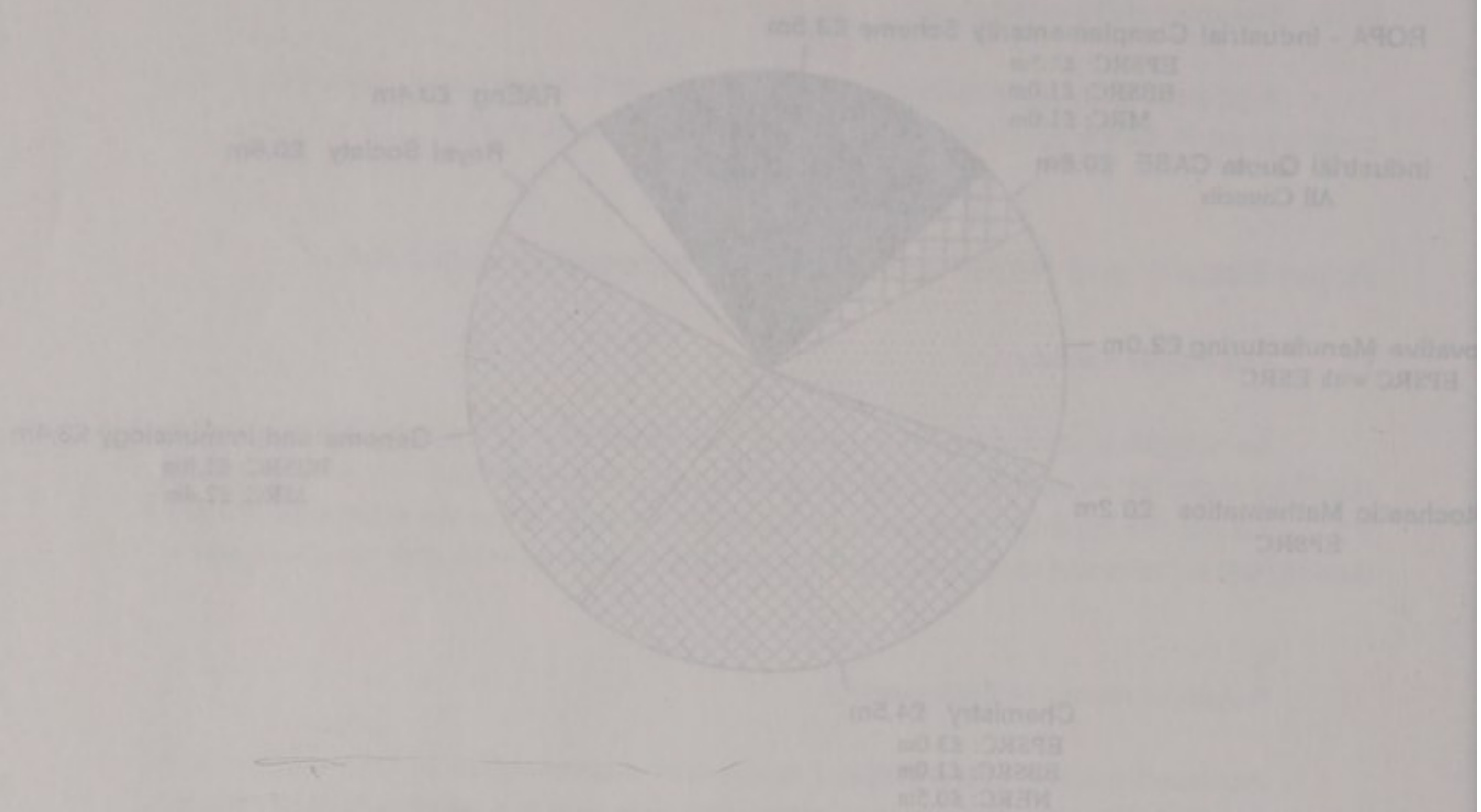


Figure 1

£12.4m = £12.4m

# Proposed Allocation of the Science Budget 1994-95

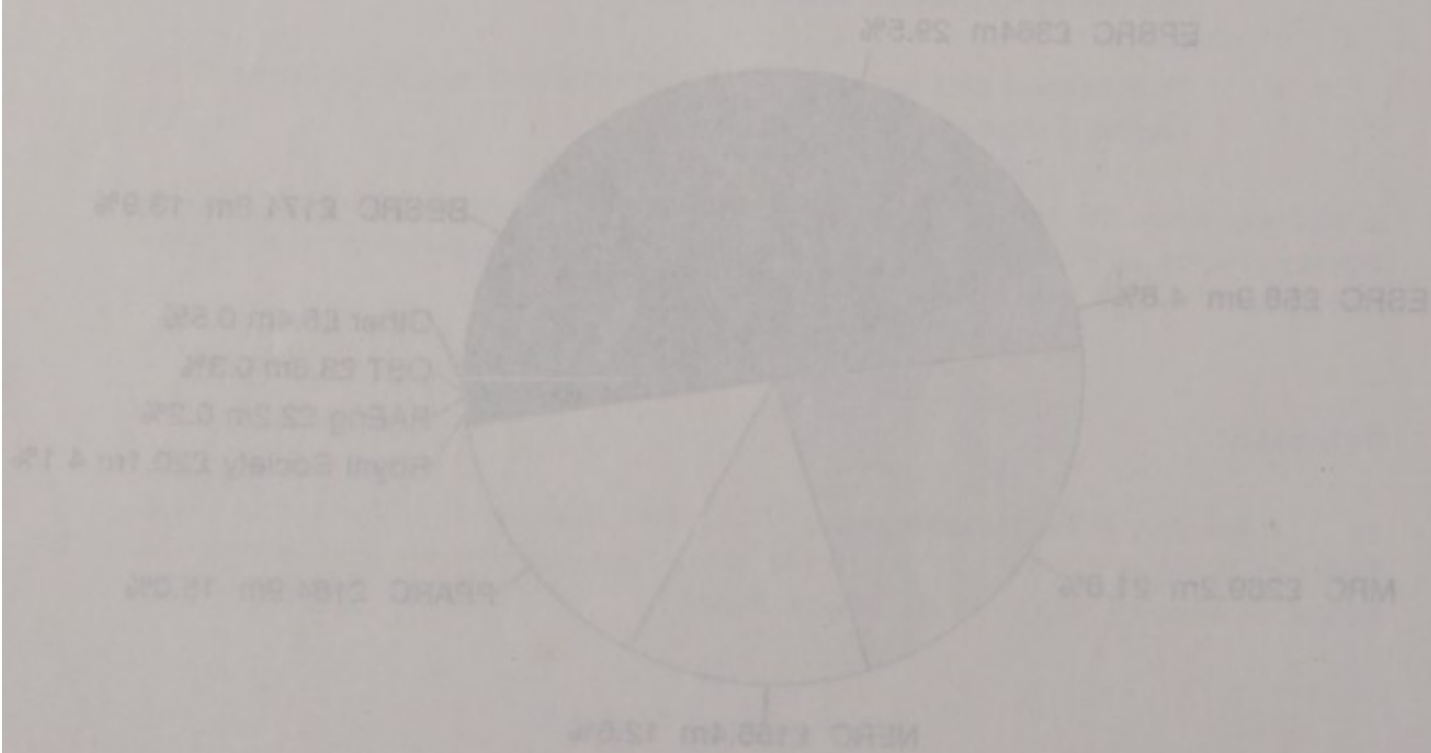


Figure 2

£123.6m = £123.6m

**Table 1**  
**Allocation of the £15.4 million headroom**

£ million		
<b>Allocation to new and expanded programmes:</b>		
ROPA	3.5	EPSRC, BBSRC, MRC
Industrial quota CASE	0.6	All Research Councils
Innovative Manufacturing	2.0	EPSRC (ESRC)
Strategic Science:		
Chemistry	4.5	EPSRC, BBSRC, NERC
Mathematical modelling	0.2	EPSRC
Genome and Immunology	3.4	MRC, BBSRC
Royal Society / Royal Academy of Engineering	1.2	
<b>Total</b>	<b>15.4</b>	
<b>Distribution to funded bodies:</b>		
<b>EPSRC</b>	ROPA	1.5
	Innovative Manufacturing	2.0
	Chemistry	3.0
	Mathematical Modelling	0.2
		<i>total £6.7 million</i>
<b>BBSRC</b>	ROPA	1.0
	Biological Chemistry	1.0
	Genome and Immunology	1.0
		<i>total £3.0 million</i>
<b>MRC</b>	ROPA	1.0
	Genome and Immunology	2.4
		<i>total £3.4 million</i>
<b>NERC</b>	Atmospheric Chemistry	0.5
<b>Royal Society</b>	University Research Fellowships	0.8
<b>RAEng</b>	Accommodation	0.1
	Senior Research Fellows /	0.3
	Visiting Professors /	
	professional development	
		<i>total £0.4 million</i>
	Industrial quota CASE awards	0.6
<b>Total</b>		<b>15.4</b>



Table 1  
Allocation of the £15.4 million headroom

Allocation to new and expanded programmes		£ million
Royal Society / Royal Academy of Engineering	1.5	
Genome and Immunology	0.4	MRC, BBSRC
Mathematical modelling	0.2	EPSRC
Chemistry	4.4	EPSRC, BBSRC, MRC
Strategic Science		
Innovative Manufacturing	2.0	EPSRC (EPSRC)
Industrial quota CASE	0.6	All Research Councils
RORA	2.5	EPSRC, BBSRC, MRC
Total		15.4
Distribution to funded bodies:		
Industrial quota CASE awards	0.6	
Senior Research Fellows / Visiting Professors / Professional development	0.3	
Accommodation	0.1	
Royal Society University Research Fellowships	0.8	
Atmospheric Chemistry	0.8	NERC
Genome and Immunology	2.4	MRC
RORA	1.0	
Genome and Immunology	1.0	
Biological Chemistry	1.0	
RORA	1.0	
Mathematical Modelling	0.2	
Chemistry	3.0	
Innovative Manufacturing	2.0	
RORA	1.5	
Total		15.4

**TABLE 2**  
**Allocations for 1994-95**

	£ million
Biotechnology and Biological Sciences Research Council	171.8
Engineering and Physical Sciences Research Council	364.0
Economic and Social Research Council	58.9
Medical Research Council	269.2
Natural Environment Research Council	155.4
Particle Physics and Astronomy Research Council	184.9
Royal Society	20.1
Royal Academy of Engineering	2.2
OST initiatives/policy studies, CEST subscription	3.6
Other, including new CASE awards and payments to pensioners of the Science and Engineering Research Council	6.4
<b>Total</b>	<b>1,236.5</b>

- 0.6

TABLE 2  
Allocations for 1994-95

£ million	
1,236.2	Total
8.4	Gifts, including new CASE awards and payments to pensioners of the Science and Engineering Research Council
0.6	OST initiative/policy studies, OEST subvention
2.2	Royal Academy of Engineering
20.1	Royal Society
151.2	Particle Physics and Astronomy Research Council
188.4	Natural Environment Research Council
298.2	Medical Research Council
58.0	Economic and Social Research Council
354.0	Engineering and Physical Sciences Research Council
171.9	Biotechnology and Biological Sciences Research Council