

**STATE INVESTMENT  
IN RESEARCH AND  
DEVELOPMENT  
2011 - 2012**

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## Science Budget Categories

### GBAORD (R&D)

- the total expenditure by Government on research and development

### GOVERD (R&D)

- the research and development carried-out in Government Departments or Agencies (a sub-set of GBAORD)

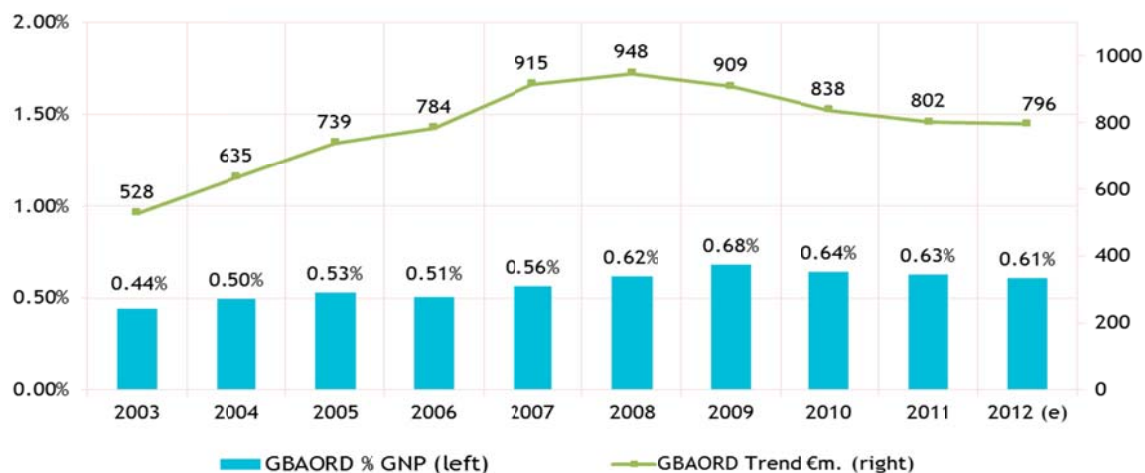
### GOVERD (R&D) - Researchers

- the number of researchers working within the Government sector. Data provided for both the total number of researchers and for the number of 'full-time equivalent' staff.

## Executive Summary

The State's investment in research and development, also known as Government Budget Appropriations and Outlays on R&D (GBAORD), was maintained in 2012 from 2011. Overall funding levels have fallen from a peak of €948m in 2008 to €796m in 2012 (-16%). The intensity level of investment has continued at over 0.6 per cent of GNP since 2008.

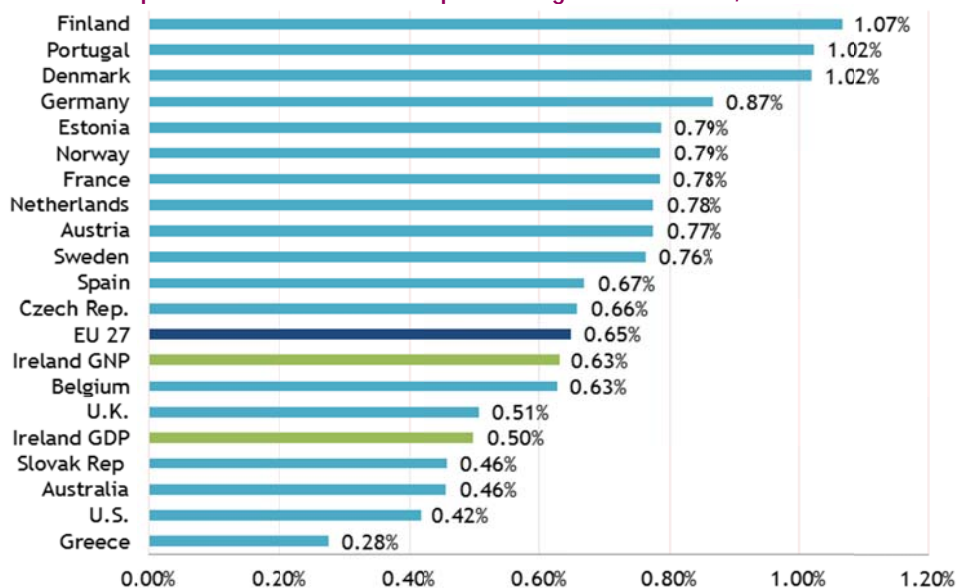
### GBAORD trend (€m.) and GBAORD as a percentage of GNP, 2003-2012



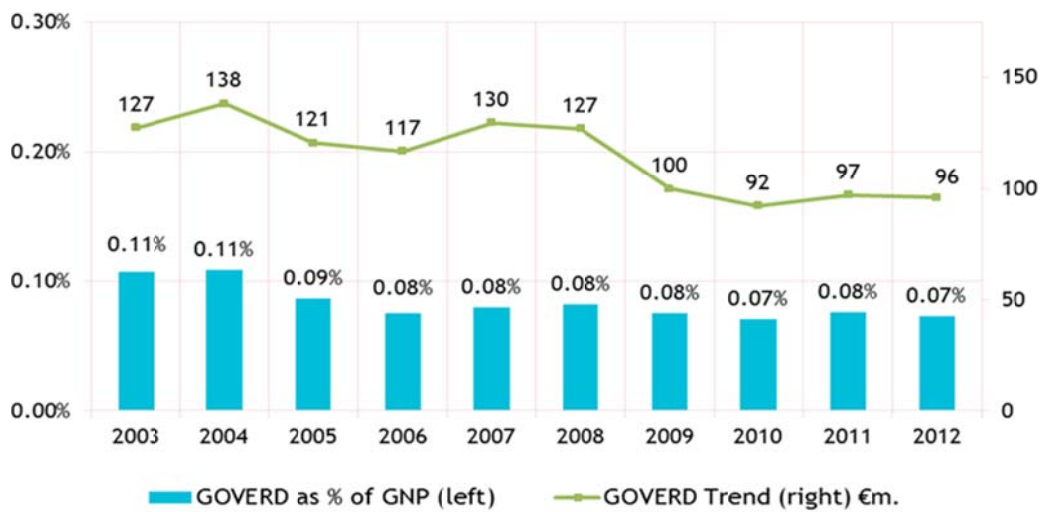
- From 2008, the GBAORD intensity rate has remained consistent at 0.6 per cent as a result of strong R&D spending outpacing nominal economic growth.
- In 2012, GBAORD intensity remained consistent at 0.61 per cent of GNP despite a reduction in the amount of funding. This is due to a marked reduction in GNP in recent years.

Ireland's GBAORD intensity rate in 2011 of 0.63 per cent of GNP is broadly in line with our European partners at 0.65 per cent of GDP.

### International comparison of GBAORD as a percentage of GDP/GNP, 2011



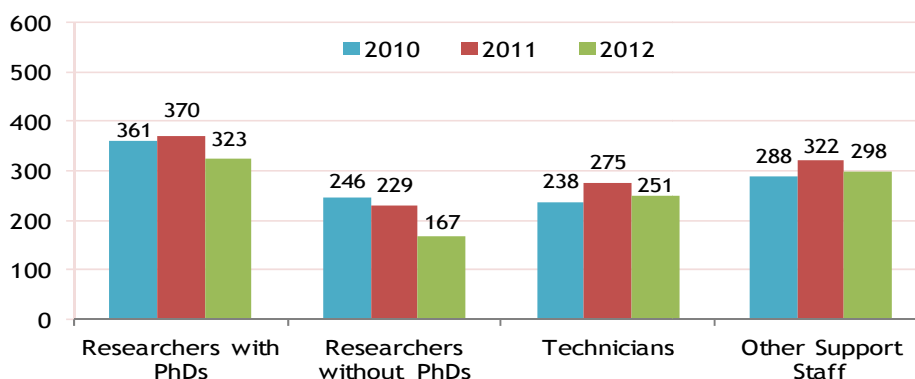
GOVERD trend and GOVERD as a percentage of GNP, 2003-2012



The 10-year trend as illustrated above shows that levels of Government Expenditure on R&D (GOVERD) i.e. R&D performed in the State sector has been maintained for the last four years:

- Expenditure on R&D in the State sector has fallen from a high in 2004 of €138m to an allocation of €96m in 2012.
- GOVERD as a percentage of GNP over the ten-year period from 2003 to 2012 is also illustrated in this graph. This shows that, as a percentage of GNP, the level of GOVERD has dropped from 0.11 per cent in 2003-04 to 0.07 per cent in 2012 and it has been relatively stable since 2005.

Total R&D personnel by occupation in Government Sector (headcount terms, 2010-2012)



It is estimated that overall the number of personnel engaged in R&D in institutions within the Government sector decreased in 2012 over the numbers recorded for 2011 as shown above:

- Between 2011 and 2012 the number of PhD researchers has decreased by 13 per cent, while non-PhD researchers have decreased by 27 per cent over the same period.
- The number of technicians are estimated to have decreased by 9 per cent in 2012 over 2011. There has also been a decrease in the number of research support staff of 7 per cent in 2012.

## Introduction

This report tracks public funding and performance of State-funded Research & Development (R&D) and aims to capture key performance metrics within the State sector. A total of 35 Government departments and agencies who are engaged in some form of R&D activity in 2011-2012 were surveyed. This report presents findings from the 'Research and Development Funding and Performance in the State Section - 2011-12' survey undertaken by Forfás with the final outturn data for 2011 together with estimates for 2012.

This survey data is required for, and/or included in, the following reports:

- Commission Regulation (EC) No 995/2012 of 26 October 2012<sup>1</sup>. This Regulation covers the production and development of Community statistics on science and technology. Data is required by Eurostat on Government expenditure and on the numbers employed in research and development in the public sector.
- OECD 'International data collection on resources devoted to research and development'.<sup>2</sup>
- Strategy for Science, Technology & Innovation. Indicators collected are included in the SSTI Indicators report to identify issues arising and resulting policy requirements.

The metrics analysed in the report include:

### Chapter 1: State funding of research and development

- Government Budget Appropriations and Outlays on Research and Development (GBAORD).
- Data on Government Departments / Agencies funding by area of research and as a percentage of GNP & international comparisons.

### Chapter 2: Expenditure on R&D performed in the Public Sector

- Government Expenditure on Research and Development (GOVERD). R&D performed in Government Departments and their Agencies.

### Chapter 3: Human resources dedicated to publically performed R&D

- Data on the overall totals, gender, qualifications and occupations of R&D staff.

The survey is carried out using the definitions, rules and guidelines set out in the OECD Frascati Manual<sup>3</sup>. This allows for a common dataset to be collected across all OECD and EU countries which facilitates better international comparisons and benchmarking.

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<sup>1</sup> Commission Regulation (EC) No 995/2012 of 26 October 2012  
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:299:0018:0030:EN:PDF>

<sup>2</sup> Main Science and Technology Indicators (MSTI) , OECD  
<http://www.oecd.org/science/innovationinsciencetechnologyandindustry/msti.htm>

<sup>3</sup> OECD (2002), Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development, OECD, Paris, [www.oecd.org/sti/frascaticmanual](http://www.oecd.org/sti/frascaticmanual)

Data on GBAORD, GOVERD and human resources is also prepared under European statistical legislation. All international comparison figures relate to the most recent data available for each country.

The findings from this survey complement the findings from the other R&D performance surveys conducted by Forfás and the Central Statistics Office. These include the Business Expenditure R&D survey (BERD) and the Higher Education R&D performed survey (HERD). The total performance of R&D in the State is then added to create the Gross Expenditure on R&D (GERD) metric.

*Forfás would like to thank the many respondents to this survey who have taken the time to gather information and complete the data requests for this key area of Government policy.*

For further information on this survey please contact:

Deborah Quinn  
Forfás  
Wilton Park House  
Wilton Place  
Dublin 2  
Telephone: 353 (01) 6073135  
Email: [debbie.quinn@forfas.ie](mailto:debbie.quinn@forfas.ie)



# Chapter 1: State funding of research and development

In this report Government spending on research and development (R&D) is charted for the last decade and benchmarked against international competitors.

## 1.1 Types of research and development indicators

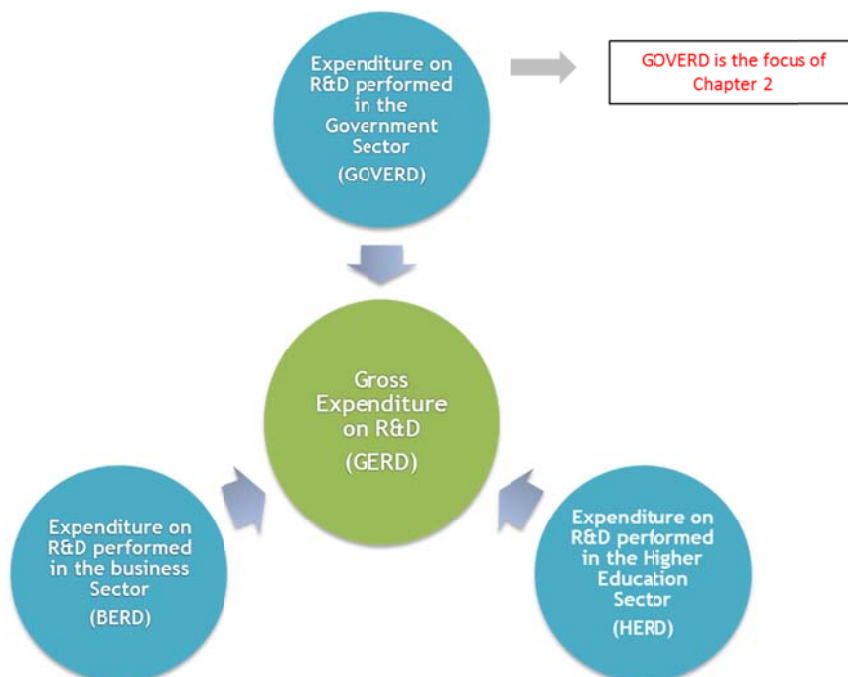
R&D, as defined by the OECD, “comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications”.<sup>4</sup> This report focuses on the following R&D international data measures:

- GBAORD - Government Budget Appropriations or Outlays on R&D - Spending (this chapter)  
This is all the money allocated by Government to R&D to be performed in all sectors of the economy e.g. within the education sector, by businesses or by Government Agencies.

- GOVERD - Measure of R&D performed in the Government sector (Chapter 2)  
This is the actual expenditure on R&D performed in Government departments and agencies.

Total annual expenditure on R&D is estimated by adding Government performed R&D expenditure to business and higher education R&D expenditure amounts. Figure 1 illustrates the elements which comprise the Gross Expenditure on R&D (GERD) in Ireland.

Figure 1: Gross expenditure on R&D (GERD) - elements



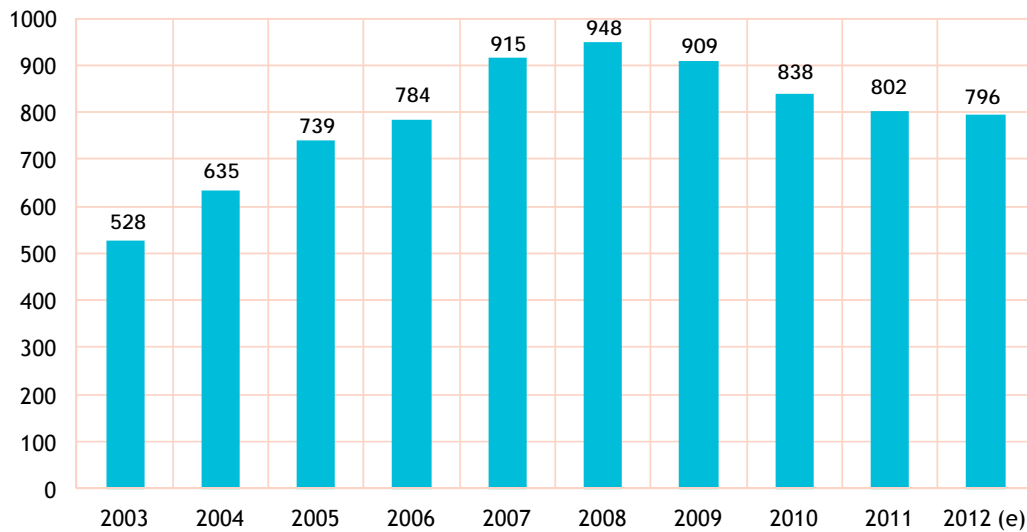
<sup>4</sup> OECD (2002), Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development, OECD, Paris, [www.oecd.org/sti/frascaticmanual](http://www.oecd.org/sti/frascaticmanual)

## 1.2 Government budget spending on research and development

The internationally recognised indicator for benchmarking State-funding performance of R&D is the Government Budget Appropriations and Outlays on R&D metric (GBAORD), which includes:

- funding for R&D programmes in the higher education sector administered by the Department of Education and Skills, the Higher Education Authority (HEA), Science Foundation Ireland (SFI) and others;
- funding for business sector R&D, administered via State agencies including IDA Ireland, Enterprise Ireland and others; and
- funding for Government sector-performed R&D e.g. Teagasc, The Marine Institute, and others.

Figure 2: GBAORD trend in current prices, €m. (2003-2012)



As can be seen, rapid gains were made in State R&D spending over the last decade. While there is a decline in allocated expenditure in the last four years, the level of R&D funding from the State remains significant, with an allocation of €796m in 2012.

Although there has been a drop in State funding sources from the EU over the last five years, this has been overshadowed by a more rapid slowdown in direct exchequer sourced funding for R&D activities.

### 1.3 Detailed Government department spending on research and development

Table 1 provides a breakdown of estimated public R&D spending by the main administrating Government departments and agencies.

The largest agency funding R&D projects in 2012 was the Higher Education Authority, which has allocated an estimated €225.2m to R&D activities (or 28.3 per cent of the total State spending on R&D). This spending includes expenditure on R&D programmes and indirect funding via the HEA block grant to supported institutions. The HEA also allocates direct funding via the Programme for Research in Third-Level Institutions (PRTLII) on behalf of the Minister for Jobs, Enterprise and Innovation.

The next largest funder of R&D activities was Science Foundation Ireland, allocating an estimated €161m (20.2 per cent) to R&D in 2012 via research grants and other research supporting programmes.

**Table 1: Main Government Departments and Agencies with spending on R&D activities (2012 estimates)**

Funding Department/Agency	2012 €m	% of Total
Higher Education Authority	225.2	28.3%
Science Foundation Ireland	161.0	20.2%
Enterprise Ireland	112.0	14.1%
IDA Ireland	63.4	8.0%
Teagasc	58.3	7.3%
Health Research Board	37.3	4.7%
Dept. of Agriculture, Food and the Marine	28.4	3.6%
Irish Research Council for Science Engineering and Technology	20.1	2.5%
Dept. of Jobs, Enterprise and Innovation	19.2	2.4%
Irish Research Council for Humanities and Social Science	10.7	1.3%
Environmental Protection Agency	9.6	1.2%
Others	50.8	6.4%
Total	€796m	100%

The State currently invests in a wide range of R&D programmes which are outlined in more detail in Appendix 5. A summary of these programmes includes:

€225.2 million - The Higher Education Authority's (HEA) research programme is designed to enhance the research capabilities, capacity and infrastructure of Ireland's higher education institutions. These investments have been divided into a portfolio of programmes across disciplines spanning humanities and social sciences, the biosciences and technology and innovation sectors. Research is funded from the core grant which is allocated to institutions and the internal allocation of funds between teaching and research is a matter for each institution.

€161 million - Science Foundation Ireland (SFI) was established in 2000 to support globally competitive scientific research. SFI funds a variety of academic researchers and research teams which aim to promote research excellence in biotechnology, information communication technology (ICT), sustainable energy and energy efficient technologies. The allocation of finance is decided by SFI on the basis of scientific merit. In line with the recommendations of the Report of the Research Prioritisation Steering Group, SFI is committed to supporting scientific research in areas with the greatest potential for economic return.

€112 million - Enterprise Ireland (EI) is the national organisation responsible for bringing together innovation, business development and internationalisation for Irish industry. They aim to facilitate collaborative links between enterprise and the research community that will lead to the practical application of research in business. As such, EI offers a variety of supports and funding to companies that wish to engage in R&D.

€63.4 million - IDA Ireland has national responsibility for securing new investment from overseas in manufacturing and international services, and for encouraging the existing foreign enterprises to expand their business. The Research, Development & Innovation (RD&I) Support programme is designed to support companies at all stages of RD&I and enable them to move from start-up R&D, through developing capacity and adding competence, to a fully integrated RD&I function. Support levels are tied to an assessment of strategic objectives, in conjunction with commercial and technical assessments

€58.3 million - Teagasc, the Agriculture and Food Development Authority, is the Irish institute responsible for research in agricultural production, the environment and the rural economy. The annual research portfolio comprises 300 research projects, carried out by 500 scientific and technical staff in research centres throughout Ireland. The four main research areas are: Animal and Grassland; Crops, Environment and Land Use; Rural Economy and Development and Food

€37.3 million - The Health Research Board's (HRB) research funding role provides support for projects, programmes and fellowships in health research through an open competition process, along with an element of peer review. Funding covers all areas of health research from biomedical, translational, clinical and practised-based research through to population health and research concerning the health services.

€28.4 million - The Department of Agriculture, Food and the Marine provides a wide range of services directly and also through specialist state agencies operating under its aegis. The Department operates a number of testing centres and laboratories in the areas of veterinary diagnostics and research, meat control, seed testing, plant variety testing, cattle performance testing, pesticide control, and dairy products control. Research and

development expenditure in 2011 was concentrated in the areas of crop improvement, veterinary and meat laboratory R&D activities, food and agricultural production and improvement of livestock genetic resources in plants and animals.

€20.1 million - The Irish Research Council for Science, Engineering and Technology (IRCSET)<sup>5</sup> funds R&D in science, engineering and technology in third-level institutes. It seeks to position Ireland as an international centre of excellence and achievement in research. It does this through a series of programmes of assistance, postgraduate research awards and the PhD fellowship scheme.

€19.2 million - The Department of Jobs, Enterprise & Innovation has a wide economic development and job creation remit. Within the Department, the Office of Science, Technology and Innovation (OSTI) is focussed on delivering this goal through the development, promotion and co-ordination of national science, technology and innovation policy, and by progressing the Strategy for Science, Technology and Innovation. In support of these aims, the Department manages Ireland's membership of the European Space Agency (ESA) (a principal objective of this membership is to promote opportunity for high-technology industry in Ireland) and the European Molecular Biology Laboratory (EMBL) (an Inter-Governmental Research Organisation whose mission is the development of molecular biology throughout Europe). Membership of EMBL complements Ireland's significant investment in the biotechnology area by presenting opportunities for research training, networking and enhanced international collaboration.

€10.7 million - The Irish Research Council for Humanities and Social Science (IRCHSS)<sup>6</sup> funds cutting-edge research in the humanities, social sciences, business and law with the objective of creating new knowledge and expertise beneficial to Ireland's economic, social and cultural development. IRCHSS Government of Ireland Post-Graduate Scholarships and Government of Ireland Post-Doctoral Fellowships fund research at pre- and post-doctoral levels. Three schemes offer research opportunities for members of the academic staff of recognised third-level institutions to undertake stated projects (Government of Ireland Senior Research Scholarships, Government of Ireland Research Fellowships and Government of Ireland Senior Research Fellowships). Finally, Government of Ireland Research Project Grants fund world-class innovative research undertaken on an extended or group project basis.

€9.6 million - The Environmental Protection Agency supports R&D activities in a range of environmental areas. This work is carried out by researchers in third-level institutions, state agencies, Government departments, local and regional authorities, the private sector and individuals. The EPA research programme for the period 2007-2013 is entitled Science, Technology, Research and Innovation for the Environment (STRIVE). The purpose of the programme is to protect and improve the natural environment by addressing key environmental management issues through the provision of world-class scientific knowledge generated through a vibrant, competitive programme of research developed supported and co-ordinated by EPA.

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<sup>5</sup> On 29th March 2012, The Irish Research Council for Science, Engineering and Technology (IRCSET) and The Irish Research Council for Humanities and Social Science (IRCHSS) were merged into the new Irish Research Council

<sup>6</sup> Ibid.

#### 1.4 Programmes classified by area of research

The total expected GBAORD for 2012 can be classified into a number of economic areas:

Table 2: GBAORD classifications<sup>7</sup> for Ireland 2012

	2012 - €m
R&D financed from sources other than General University Funds (GUF)	252.4
Industrial production and technology	183.0
R&D financed from General University Funds (GUF)	164.2
Agriculture	99.3
Health	39.8
Exploration and exploitation of space	14.8
Environment	10.0
Political and social systems, structures and processes	8.6
Energy	7.8
Education	7.7
Transport, telecommunication and other infrastructures	6.1
Exploration and exploitation of the earth	2.3
Total	€796m

Over half of total GBAORD funding for 2012 was allocated for R&D performed in higher education. This €416m includes funding for various agencies, such as Science Foundation Ireland, the Higher Education Authority's PRTL (Programme for Research on Third-Level Institutes) and other research funding bodies operating in the higher education sector.

Industrial production and technology, which accounts for 23 per cent of total GBOARD and is expected to reach €183m in 2012 is an important category of R&D funding.

Agriculture at €99.3m accounted for 12.5 per cent of total Government spending on R&D programmes while health accounts for 5 per cent of total spend.

The remaining GBAORD is divided between exploration and exploitation of space and the earth, the environment, energy, political and social systems, transport, telecommunications and other infrastructures and the exploration and exploitation of the earth.

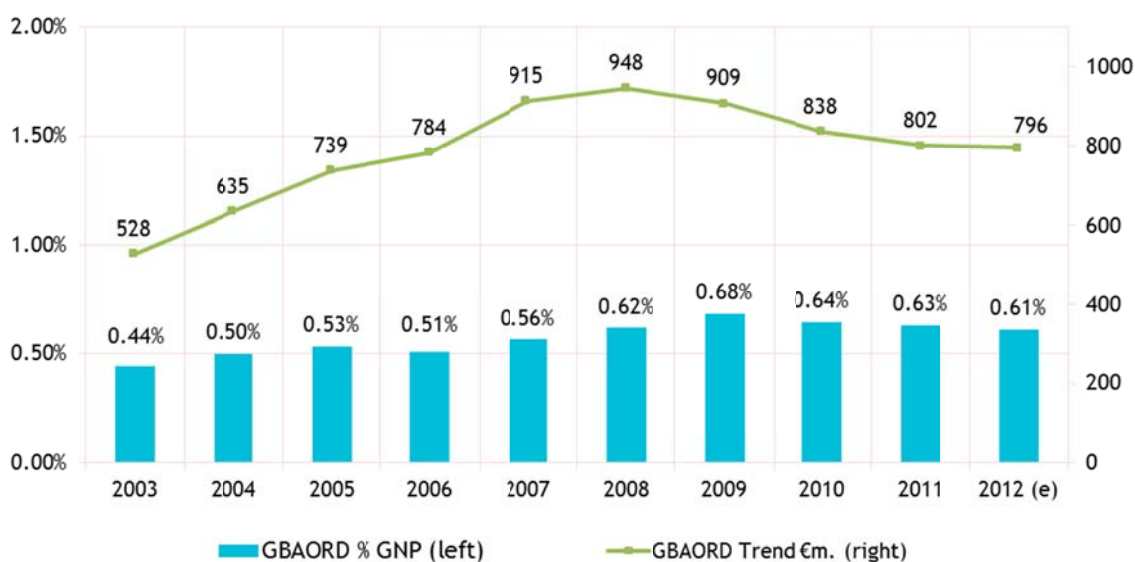
<sup>7</sup> NABS - Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets 2007, Eurostat, October 2008, <http://www.oecd.org/dataoecd/62/38/43299905.pdf>

## 1.5 GBAORD as a percentage of GNP and international comparisons

In order to compare state funding of R&D across international competitors, the OECD recommends using the GBAORD indicator with data derived using the guidelines set out in the Frascati Manual<sup>8</sup>. GBAORD includes funding for R&D from direct exchequer sources and also from the EU. It also includes funding for R&D in the humanities and social sciences.

In Figure 3 the GBAORD trend line shows that between 2003 and 2008 there was a rapid increase in state R&D spending from €528m to €948m by 2008 in current prices. There has been a downward trend in the last four years with the allocated 2012 GBAORD figure of €796m down by €152m (16 per cent) compared to the 2008 figure of €948m.

Figure 3: GBAORD trend (€m) and GBAORD as a percentage of GNP (2003-2012)



The GBAORD intensity ratio [State R&D funding for R&D activities as a per cent of economic activity divided by Gross National Product (GNP)] has risen over the last decade.

The period 2004 to 2007 saw the GBAORD intensity ratio hover over 0.50 per cent - this was during a period of strong funding arising out of strong economic growth.

From 2008 the GBAORD intensity rate rose as a result of strong R&D spending outpacing nominal economic growth.

Since 2010, GBAORD intensity has remained consistent at around 0.6 per cent of GNP<sup>9</sup> despite a reduction in the amount of funding.

<sup>8</sup> OECD (2002), Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development, OECD, Paris, [www.oecd.org/sti/frascatimanual](http://www.oecd.org/sti/frascatimanual)

<sup>9</sup> GNP 2012 - forecast €130.8, Department of Finance, Medium-Term Fiscal Statement, Nov 2012 <http://www.finance.gov.ie/documents/publications/other/2012/midtermfiscnov2012.pdf>

Table 3: GBAORD as a percentage of economic activity (GDP/GNP)<sup>10</sup>

Alongside this overall funding, we can also examine the civil GBAORD figures. Civil GBAORD is a good metric for international comparisons as it does not include the defence portion of the R&D budget, for which Ireland does not allocate any sum of money.

Country	2002	2011
Finland	0.95%	1.07%
Portugal	0.63%	1.02%
Denmark	0.73%	1.02%
Germany	0.74%	0.87%
Estonia	0.39%	0.79%
Norway	0.70%	0.79%
France	0.77%	0.78%
Netherlands	0.81%	0.78%
Austria	0.67%	0.77%
Sweden	0.68%	0.76%
Spain	0.54%	0.67%
Czech Republic	0.46%	0.66%
EU 27	0.64%	0.65%
Ireland GNP	0.47%	0.63%
Belgium	0.60%	0.63%
United Kingdom	0.50%	0.51%
Ireland GDP	0.39%	0.50%
Slovak Republic	0.29%	0.46%
Australia	0.51%	0.46%
United States	0.47%	0.42%
Greece	0.26%	0.28%

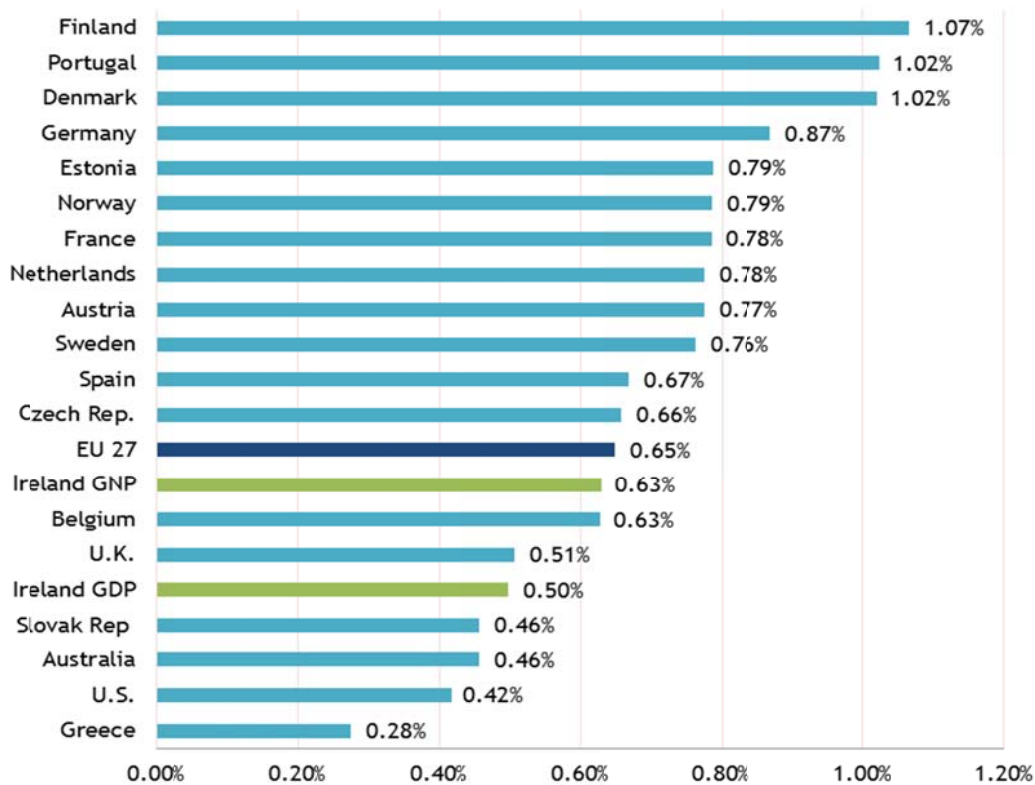
<sup>10</sup> OECD - Main Science & Technology Indicators, Jan 2013, Vol. 2012/2. All GBAORD data used in these graphs are 'civil' GBAORD i.e. excludes defence expenditure.



Over the last ten years most OECD countries have seen an improvement in GBAORD performance relative to economic activity.

In Ireland the GBAORD intensity ratio also increased in this period from 0.47 per cent in 2002 to 0.63 per cent of GNP in 2011. The intensity ratio for R&D investment against GDP for the same period was 0.39 per cent in 2002 compared to 0.50 per cent in 2011.

Figure 4: International comparison of GBAORD as a percentage of GDP/GNP (2011\*)<sup>11</sup>



Finland, with GBAORD spending of 1.07 per cent of GDP, is one of the strongest performing OECD countries. In 2011, Ireland invested 0.63 per cent of GNP on research and development or 0.50 per cent of total GDP. This level of intensity is in line with the investment levels of our European partners at 0.65 per cent.

<sup>11</sup> OECD - Main Science & Technology Indicators, Jan 2013, Vol. 2012/2. All GBAORD data used in these graphs are 'civil' GBAORD i.e. excludes defence expenditure.

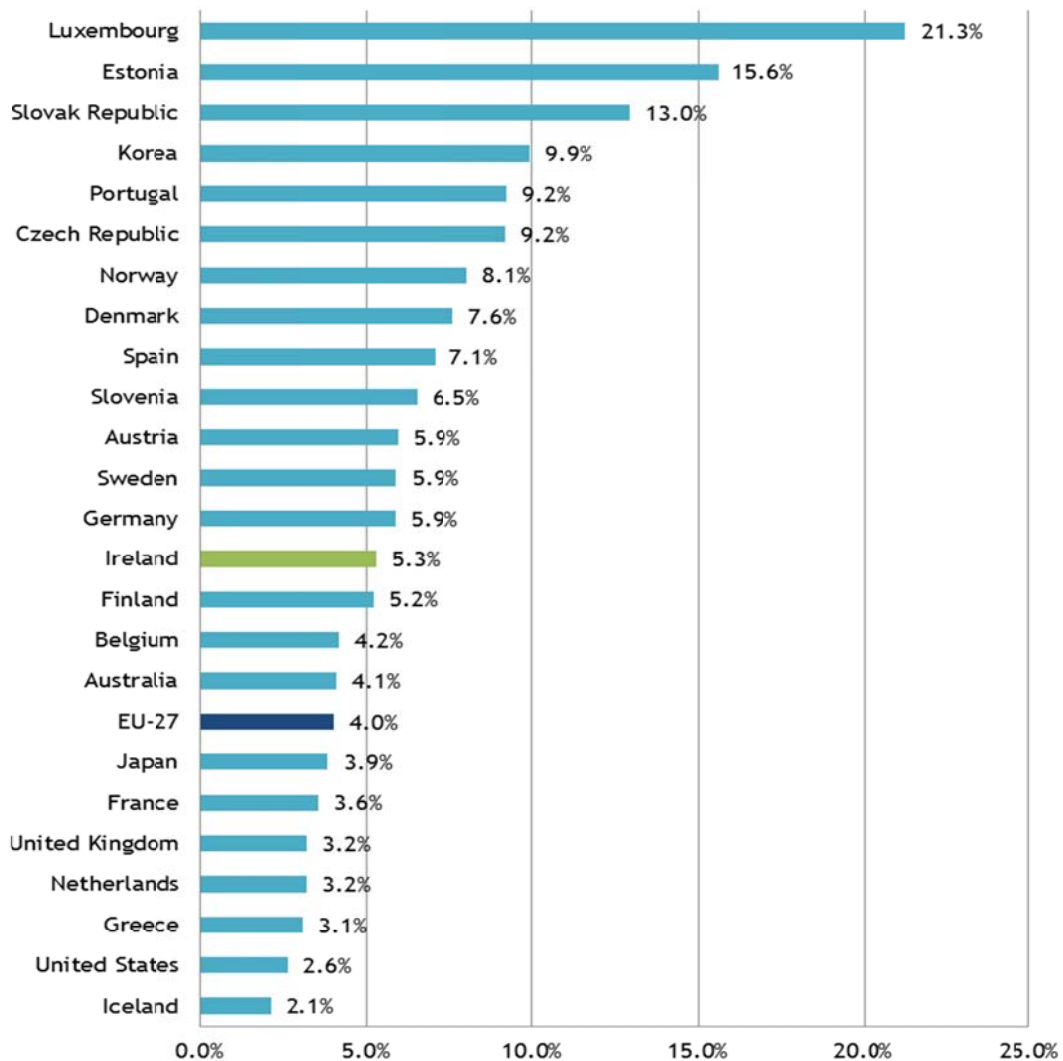
Figure 5: Average annual growth rate of GBAORD for selected countries, (2002-2011)<sup>12</sup>

Figure 5 shows the annual average growth rate of GBAORD since 2002 for all countries where the data is available. Luxembourg stands out with an annual average increase of 21.2 per cent though, as shown in Table 3, this was from a low base.

The average annual growth rate of Ireland's GBAORD for the last 10 years is 5.3 per cent compared with an EU-27 countries average of 4 per cent.

<sup>12</sup> OECD - Main Science & Technology Indicators, Jan 2013, Vol. 2012/2. All GBAORD data used in these graphs are 'civil' GBAORD i.e. excludes defence expenditure.

## Chapter 2: Expenditure on research and development performed in the public sector

Research and development performed by relevant Government departments and their agencies is measured using the GOVERD metric.

The funding for Government Expenditure on R&D (GOVERD) comes from public, private and other sources but does not include R&D performed in the higher education sector which is gathered in a separate survey conducted by Forfás titled, the Higher Education Research and Development (HERD) survey. When GOVERD is combined with the HERD and BERD (Business Expenditure on R&D) data, the cumulative Gross Expenditure on R&D for the country (GERD) can be calculated. As can be seen later in this chapter, the main performer of GOVERD continues to be Teagasc.

### 2.1 Total expenditure on research and development performed in the Government sector

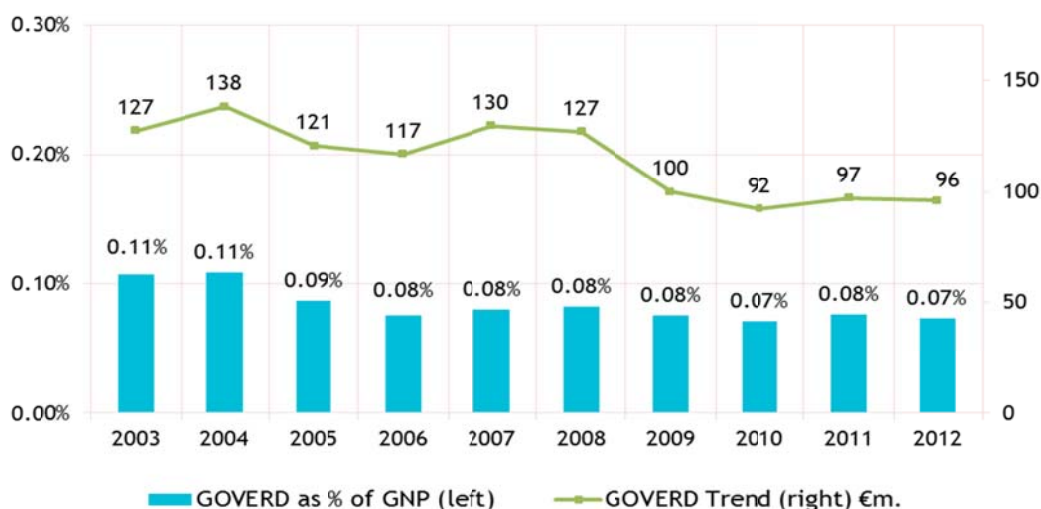
The expectation for expenditure on research and development performed in the Government sector in 2012 is that it remains at approximately the same level as 2011. Expenditure is reported at €96m in 2012 down slightly from €97m in 2011 which represents a marginal decrease of approximately 1 per cent.

Figure 6 below shows that GOVERD expenditure levels dropped in 2009 and again in 2010 to below €100 but have been maintained in the last three years and now stand at €96m.

GOVERD as a percentage of GNP over the ten-year period from 2003 to 2012 is also illustrated in Figure 6.

This graph shows that, as a percentage of GNP<sup>13</sup>, the level of GOVERD has dropped from 0.11 per cent in 2003 to 0.07 per cent in 2012.

Figure 6: GOVERD as a percentage of GNP and GOVERD €m trend, (2003-2012)



<sup>13</sup> GNP 2012 - forecast €130.8, Department of Finance, Medium-Term Fiscal Statement, Nov 2012  
<http://www.finance.gov.ie/documents/publications/other/2012/midtermfiscnov2012.pdf>

Figure 7: Major State research and development performers, per cent of total (2012)

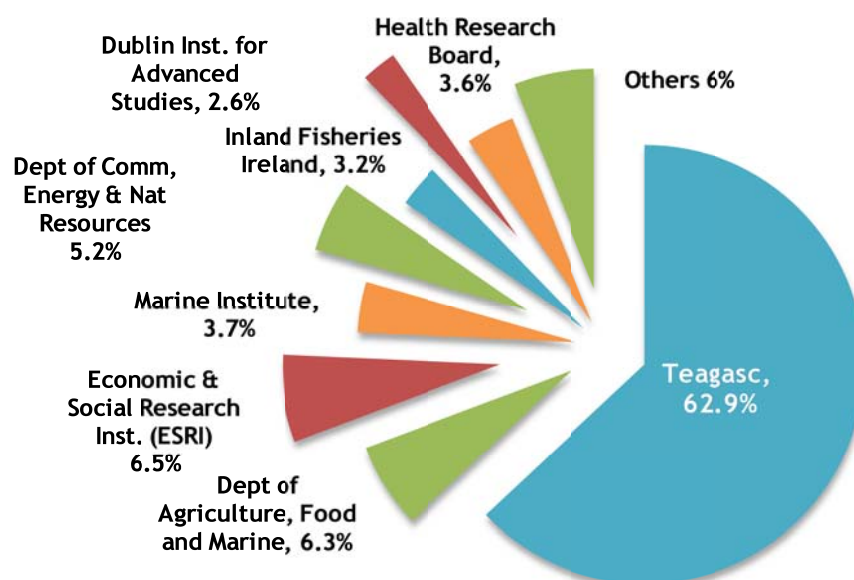


Figure 7 illustrates the major contributors to in-house R&D in the State sector in 2012. As can be seen, Teagasc, the Irish agriculture and food development authority, continued to be the largest performer of Government R&D in 2012, with expenditure of €60m (62.9 per cent of total GOVERD). Teagasc supports science-based innovation in the agri-food and broader bio-economy sectors.

Other major contributors include the Department of Agriculture, Food and the Marine at €6m (6.3 per cent) and the Economic and Social Research Institute at €6.2m (6.5 per cent). The contribution to GOVERD from the Marine Institute is €3.6m (3.7 per cent).

More detailed information on research spending in the Government sector by institution and by individual programme is available in Appendix 5.

Table 4: GOVERD as a percentage of GDP, selected countries (2002, 2007, 2011)<sup>14</sup>

Country	2002	2007	2011
Germany	0.34	0.35	0.42
Slovenia	0.34	0.35	0.35
United States	0.32	0.32	0.34
Finland	0.35	0.29	0.33
Czech Republic	0.26	0.31	0.32

<sup>14</sup> OECD - Main Science & Technology Indicators, January 2013, Vol. 2012/2

France	0.37	0.34	0.32
OECD	0.27	0.26	0.28
Luxembourg	0.16	0.21	0.27
Norway	0.26	0.25	0.27
Poland	0.25	0.20	0.26
Spain	0.15	0.22	0.26
EU - 27 countries	0.24	0.23	0.25
Netherlands	0.24	0.22	0.22
Estonia	0.12	0.09	0.19
Hungary	0.33	0.24	0.19
Slovak Republic	0.15	0.16	0.19
Belgium	0.14	0.15	0.18
Canada	0.21	0.19	0.18
Italy	0.20	0.17	0.17
United Kingdom	0.17	0.16	0.16
Israel	0.24	0.18	0.16
Austria	0.12	0.13	0.15
Portugal	0.14	0.11	0.11
Ireland/GNP	0.10	0.09	0.08
Denmark	0.18	0.08	0.07

In Table 4 above, GOVERD as a percentage of GNP<sup>15</sup> in Ireland is compared with GOVERD as a percentage of GDP in countries where data is available. The most recent data for 2011 is compared with data from 2002 and 2007.

Ireland had the second lowest intensity rate from the selected countries with 0.08 per cent in 2011 compared with an EU-27 average of 0.25 per cent. There is a concentration in Ireland on increasing the R&D performance in the higher education part of the overall research system. Note that the figures for Higher Education Research & Development (HERD) are not included in this survey. Another reason for Ireland's low ratio is the relatively small size of the Irish public sector compared to other countries.

<sup>15</sup> GNP is used as a more accurate denominator for Ireland to reflect the large multinational base in Ireland which repatriates profits to their respective home countries. It could therefore be argued that the GDP figure would not reflect real (i.e. retained) national income in Ireland

## 2.2 Types of Research

The type of research being performed in the various Government departments and agencies is also measured in this survey. The OECD Frascati Manual defines the three categories of research as follows:

- **Basic Research** - experimental or theoretical work undertaken primarily to acquire new knowledge, without any particular application or use in view;
- **Applied Research** - original investigation undertaken in order to acquire new knowledge, primarily directed towards a specific practical aim or objective; and
- **Experimental Development** - systematic work, drawing on existing knowledge gained from research and practical experience that is directed at producing new materials, products and devices, to installing new processes, systems and services, or to improving substantially those already produced or installed.

Table 5: GOVERD by type of research (2011-2012)

Type of Research	2011		2012	
	€m.	% of total	€m.	% of total
Applied Research	66.3	68.4%	65.3	67.9%
Basic Research	19.7	20.3%	19.1	19.9%
Experimental Development	10.9	11.3%	11.7	12.2%
Total	€96.9	100%	€96.1	100%

Of all allocated funds for research to be undertaken by Irish Government departments and agencies in 2012, 67.9 per cent is in applied research, with expenditure amounting to €65.3m. Basic research accounts for 19.9 per cent of total funding and stands at €19.1m. Experimental development accounts for 12.2 per cent of all expenditure at €11.7m.

When compared to the outturn figures for 2011, there is a slight increase in funding for Experimental Development.

## 2.3 Fields of science<sup>16</sup>

The fields of science classifications are defined by the OECD Frascati Manual in agreement with European nations.

**Table 6: Field of science classified by type of research, (2011-12) €m.**

Field of Science	2011				2012			
	Basic	Applied	Exper- imental	Total	Basic	Applied	Exper- imental	Total
Agriculture, forestry, fisheries	17.2	50.1	0.6	67.9	16.6	48.7	0.7	66.0
Economics and business	0.0	8.4	0.0	8.4	0.0	9.3	0.0	9.3
Veterinary science	0.0	0.9	3.3	4.2	0.0	0.9	3.9	4.8
Electrical Engin., electronics	0.0	0.1	4.7	4.8	0.0	0.1	4.8	4.9
Earth & related environmental science	0.0	2.2	2.3	4.5	0.0	2.2	2.3	4.5
Health sciences	0.0	3.5	0.0	3.5	0.0	3.4	0.0	3.4
Physical sciences	2.5	0.1	0.0	2.6	2.5	0.3	0.0	2.8
Educational sciences	0.0	0.8	0.0	0.8	0.0	0.3	0.0	0.3
Other Social Sciences	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.1
Totals	19.7	66.3	10.9	96.9	19.1	65.3	11.7	96.1

The majority of funds spent on research performed in the public sector is spent on applied research, this amounted to an allocation of €65.3m out of a total spend of €96.1m in 2012 and €66.3m out of a total spend of €96.9m in 2011.

Applied research in agricultural sciences continues to be the field of science in which most expenditure takes place. In 2012, €48.7m was spent on applied science in this area with €16.6m on basic research and another €0.7m spent on experimental development.

The major performer of R&D in the Government sector is Teagasc which, along with the Department of Agriculture, Food and the Marine, are engaged in the field of agricultural sciences.

Other agencies working in this field are Bord Iascaigh Mhara, the Inland Fisheries Board and the Marine Institute.

<sup>16</sup> 'Revised Field of Science and Technology (FOS) Classifications in the Frascati Manual', Feb 2007, OECD <http://www.uis.unesco.org/ScienceTechnology/Documents/38235147.pdf>

## Chapter 3: Human resources dedicated to publicly performed research and development

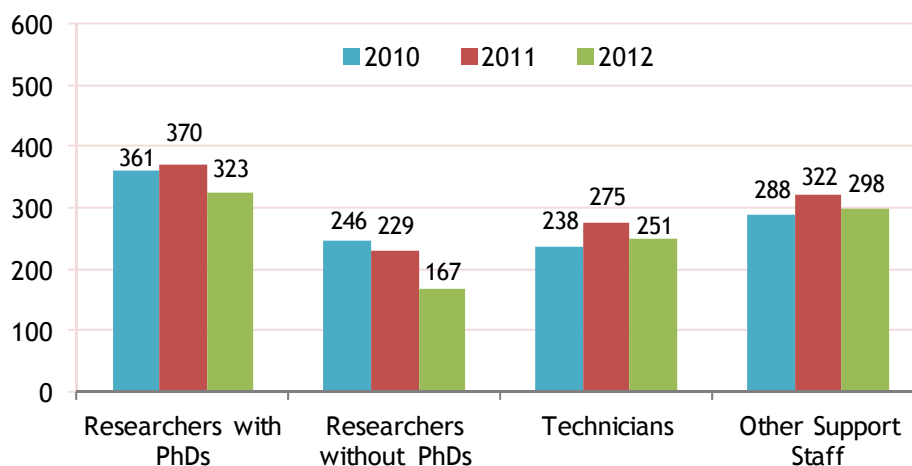
Personnel engaged in R&D activities performed in institutions within the Government sector are examined in this chapter. The data was collected from survey returns from 35 Government departments and agencies and relates only to personnel working in research and development in the Government sector. It does not include R&D personnel in the higher education or business sectors.

The survey seeks to ascertain the amount of time spent by staff on R&D activities or in Full-Time Equivalent (FTE) terms, in addition to gathering information on the overall totals, gender, qualifications and occupations of R&D staff. The research personnel are divided into PhD and non-PhD researchers, technicians and other support staff. A researcher spending 70 per cent of their time on research activities equals one researcher in headcount terms, and 0.7 researchers in FTE terms. Gathering information on the time spent by Government sector researchers and research support staff, specifically on R&D work, allows for more robust benchmarking with comparable data from other countries.

### 3.1 Research and development personnel

Based on estimates, it is anticipated that there will be a decrease of 13 per cent in 2012 in the overall number of research personnel employed in the Government sector. The total number of research personnel was 1,196 in 2011 and are expected to total 1,039 in 2012 (Figure 8). The overall trend is also down 9 per cent on the total research personnel 2010 number of 1,133.

Figure 8: Total R&D personnel by occupation - headcount terms (2010-2011-2012)



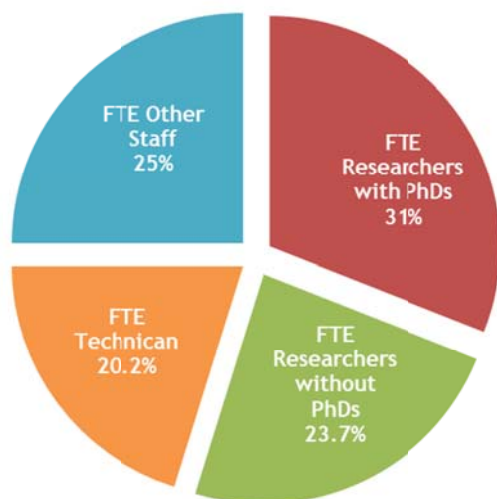
It is estimated that the number of PhD researchers decreased by 13 per cent between 2011 and 2012, while researchers without a PhD have decreased by 27 per cent.

The numbers of technicians are estimated to decrease by 9 per cent in 2012 over 2011 and there is also a decrease in the number of research support staff of 7 per cent in 2012.



Figure 9: Total R&D personnel by occupation - full-time equivalents (FTEs), (2012)

In ‘full-time equivalent’ terms, there were 536.4 FTE researchers in the Government Sector in 2012, supported by 442.5 FTE technicians and other support staff.



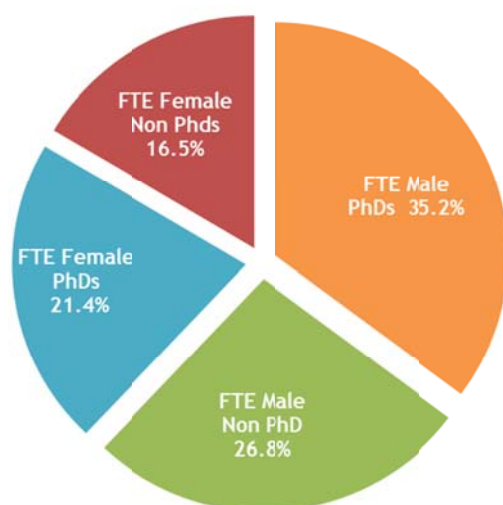
As illustrated here, 31 per cent of FTE R&D personnel hold a PhD qualification, while 23.7 per cent of FTE R&D personnel hold degrees below PhD level.

20.2 per cent of Government research personnel were employed at technician level, with the remaining 25 per cent of the FTE total, working in other support roles for Government researchers.

### 3.2 Gender and qualifications of State sector research staff

Figure 10 shows a breakdown of Government researcher grades (excludes technicians and support staff), as a percentage of the total, by gender and type of qualification, for 2012, in full-time equivalent terms.

Figure 10: Researchers by gender and qualification - full time equivalents (FTEs), (2012)



Male PhD researchers (188.9) continue to dominate the numbers employed in the Government sector representing 35.2 per cent of the total. Male researchers below PhD level (144) account for 26.8 per cent of total researchers.

Female PhDs (115) represent 21.4 per cent of Government researchers with female researchers below PhD level accounting for another 16.5 per cent.

### 3.3 Research and development staff by fields of science (FTE)

Of the total 537 PhD and non-PhD (FTE) researchers employed in the Government Sector in 2012, 333 were male and 204 were female, and the following table sets out their fields of science.

Table 7: Total male/female and as percentage of total by field of science, FTEs (2012)

Fields of Science	Male Researchers	Male researchers as % of all male researchers	Female Researchers	Female researchers as % of all female researchers
Agriculture, forestry and fisheries	156.6	47.0%	90.8	44.6%
Electrical Engineering, electronics	79.0	23.7%	20.0	9.8%
Physical sciences	41.0	12.3%	14.0	6.9%
Economics and Business	35.7	10.7%	39.5	19.4%
Veterinary science	6.5	2.0%	0.0	0.0%
Earth & related environmental sciences	5.5	1.7%	5.1	2.5%
Educational sciences	3.0	0.9%	2.6	1.3%
Health sciences	3.0	0.9%	30.0	14.7%
Other social sciences	2.4	0.7%	0.9	0.4%
Environmental Engineering	0.3	0.1%	0.7	0.3%
Total	332.9	100%	203.6	100%

When analysed by the OECD standard fields of science<sup>17</sup>, the following statistics emerge for 2012. The majority of the Government researchers work in the ‘agricultural, forestry and fisheries’ field. Some 47 per cent of all male researchers and 44.6 per cent of female researchers are engaged in research and development work in this area.

The next largest category for men is ‘electrical engineering & electronics’ with 23.7 per cent of male R&D staff working in this area. For women the next two areas are ‘economic & business’ with 19.4 per cent and the ‘health sciences’ with 14.7 per cent.

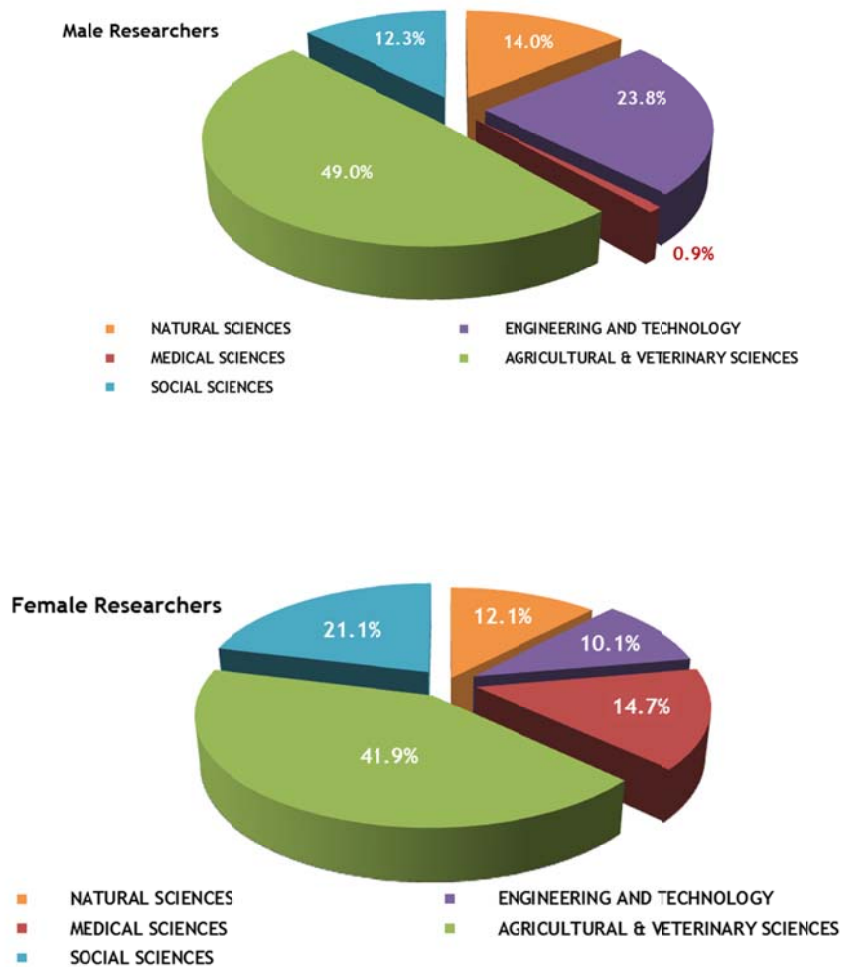
In terms of the numbers of researchers, there are more or as many male researchers in every Field of Science with the exception of ‘health sciences’, ‘economics and business’ and ‘environmental engineering’.

(Note that these percentages are based on a small population sample)

<sup>17</sup> ‘Revised Field of Science and Technology (FOS) Classifications in the Frascati Manual’, Feb 2007, OECD <http://www.uis.unesco.org/ScienceTechnology/Documents/38235147.pdf>

Figure 11: Researchers classified by gender and major field of science (FTE), (2012)

Figure 11 below illustrates the gender breakdown within the different major fields of science for male and female researchers in full-time equivalents number (FTE). The total number of FTEs in 2012 was 536.5.



# Appendix 1

## Methodology

The information given in this report relates to information supplied by 35 institutions in receipt of monies from the exchequer for the performance or support of research and development. In general, institutions and information relating to them are listed separately. In a few cases an institution is listed with its parent department or organisation but identified separately.

Expenditure data for specific programmes refer to the 2011 outturn costs of programmes and to the expected costs in 2012. The outturn costs are mainly funded by matching grant-in-aid or voted monies. Where programmes are funded in other ways these monies are noted separately. In these instances, the expenditure (cost) data shown includes both exchequer and other income contributions.

Expenditures are based on unaudited figures, except in a few cases where they are identical with a vote by the Oireachtas. For convenience, general overheads, where shown, are distributed in proportion to programme expenditures.

Programmes are attributed to the institution most directly involved - that is to those actually operating them, but not necessarily funding them. An example of the latter is the Department of Jobs, Innovation and Employment which funds, but does not operate or manage programmes. Only their own administrative costs are attributed to the funding institutions in such cases.

Apportionment problems arise in the third level sector, mainly from the monies distributed by the Higher Education Authority (HEA) and the Department of Education and Skills through its recurrent core funding - general university funds (GUF). This core grant is allocated as a block grant to cover core teaching and research activities within institutions - the internal allocation of funds as between teaching and research are at present a matter for each institution. The allocation of the core grant is determined on a formula basis. The allocation is based on a standard per capita amount in respect of weighted EU student numbers in four subject price groups. Student numbers in the four groups are weighted to reflect the relative cost of the subject groups. A further weighting is given for research students. 5% is also top-sliced from the aggregate grant for all higher education institutions. Details of these calculations are set out in Appendix 5 on Page 52.

## Appendix 2

### Definition of Research & Development

For the purpose of this survey research and development is defined as:

#### Research:

Original, experimental or theoretical investigations undertaken to acquire new knowledge, with or without a particular application or use in view.

#### Development:

Systematic work drawing on existing knowledge gained from research and/or practical experience that are directed to producing new products, processes, systems, services, varieties and breeds and to improving substantially already existing ones. Data collection conducted solely or primarily as part of the research and development (R&D) process included under “research” or “development” as appropriate.

## Appendix 3

### Government Departments and Agencies included in the 2011-2012 Science Budget

Government Departments	Associated Agencies
Department of Agriculture, Food and the Marine	Bord Iascaigh Mhara Marine Institute Teagasc
Department of Arts, Heritage and the Gaeltacht	Údarás na Gaeltachta
Department of Communications, Energy and Natural Resources	Inland Fisheries Ireland Sustainable Energy Authority of Ireland
Department of Education and Skills	Dublin Institute for Advanced Studies FÁS Higher Education Authority Irish Research Council for Humanities and Social Sciences Irish Research Council for Science, Engineering and Technology
Department of Jobs, Enterprise & Innovation	Enterprise Ireland Forfás IDA Ireland Inter <i>Tradel</i> reland Science Foundation Ireland Shannon Development
Department of the Environment, Community and Local Government	Environmental Protection Agency Met Éireann Radiological Protection Institute of Ireland
Department of Finance	Economic and Social Research Institute
Department of Health	Health Research Board
Department of the Taoiseach	National Economic and Social Council
Department of Transport	National Roads Authority
Offices	Central Bank and Financial Services Authority of Ireland Office of Public Works

## Appendix 4

### Acronyms

BERD	Business Expenditure on R&D
CSO	Central Statistics Office
DIAS	Dublin Institute for Advanced Studies
EPA	Environmental Protection Agency
ESRI	Economic and Social Research Institute
FÁS	Foras Áiseanna Saothair - National Training and Employment Authority
FTE	Full Time Equivalent
GBAORD	Government Budget Appropriations and Outlays on R&D
GERD	Gross Expenditure on R&D
GOVERD	Government Expenditure on R&D
HEA	Higher Education Authority
HERD	Higher Education Expenditure on R&D
HC	Head Count
HRB	Health Research Board
IRCHSS	Irish Research Council for the Humanities and Social Sciences
IRCSET	Irish Research Council for Science, Engineering and Technology
NESC	National Economic and Social Council
NRA	National Roads Authority
OPW	Office of Public Works
OST	Office of Science and Technology - Department of Jobs, Enterprise and Innovation
RPII	Radiological Protection Institute of Ireland
SEAI	Sustainable Energy Authority of Ireland
SFI	Science Foundation Ireland

## Appendix 5:

### Government Departments and Agencies' Programmes

#### Department of Agriculture, Food and the Marine

The Department of Agriculture, Food and the Marine (DAFM) is a multi-functional organisation which provides a wide range of services directly and through specialist state agencies operating under its aegis. Its mission is to lead the sustainable development of a competitive, innovative, consumer focused agriculture, food, fishery and forestry sector and contribute to a vibrant rural and coastal economy and society.

The Department operates a number of testing centres and laboratories, in the areas of, veterinary diagnostics and research; meat control; seed testing; plant variety testing; cattle performance testing; pesticide control and dairy products control.

It should be noted that the figures below refer only to research expenditure by DAFM itself, as the agencies under DAFM's responsibility (Teagasc and the Marine Institute) complete their own separate returns. DAFM engages in a broad range of R&D activities and these are outlined below with corresponding figures for the 2011 expenditure outturn and the 2012 expenditure allocation.

	2011 €'000	2012 €'000
<b>Research and development programmes - Funded In-House</b>		
<b>R&amp;D-Related Veterinary Laboratory Activities</b>		
Operation of a central veterinary research laboratory at Backweston, Celbridge, Co. Kildare, regional veterinary research laboratories at Cork, Limerick, Sligo, Athlone and a testing laboratory in Waterford.	4,134	4,903
<b>Improvement of Crops</b>		
Improving the quality of crops and crop products through the use of the highest quality varieties and seeds. The main activities leading to achievement of this objective include the operation of two stations/farms at Fermoy in Co. Cork and Backweston in Co. Dublin, where plant varieties are evaluated, the operation of a potato laboratory at Raphoe in Co. Donegal and the carrying out of trials in farmers' fields throughout the country.	940	1,150
<b>Research and development programmes - Funded Elsewhere</b>		
<b>Institutional Food Research - Competitive Funding Programme</b>		
In its implementation of the Food Institutional Research Measure of the RTDI component of the Productive Sector OP under the National Development Plan 2000 - 2006 and 2007 - 2013, the Department is involved in the management of competitive tendering by food research institutions for grant aid to support food research in priority areas. It monitors the progress of successful projects, payment of grant aid and evaluation of the programme.	14,946	9,520



<p><b>Agricultural Production Research- Competitive Funding Programme</b></p> <p>This is the Research Stimulus Fund measure of the Productive Sector OP of the NDP 2000-2006 and NDP 2007-2013 which encourages co-operative research in agricultural production. This involves management of competitive tendering by research institutions for grant aid to support agricultural research projects in priority areas, monitoring of progress of successful projects, payments of grant aid and evaluation of the programme.</p>	5,795	8,404
<p><b>COFORD- Competitive Funding Programme.</b></p> <p>COFORD was subsumed into DAFM on 1<sup>st</sup> August 2009. The figures mentioned here relate to grant payments to research institutions under the COFORD research programme of the Productive Sector OP of the NDP 2000-2006 and NDP 2007-2013 which supports the economic, environmental and social goals of forest policy through funded research aimed at developing national forest research capacity and competence.</p>	3,199	3,000
<p><b>Improvement of Livestock</b></p> <p>Improving the quality of livestock and livestock products through adoption of better breeding and selection practices carried out in Irish Cattle Breeding Federation (ICBF). The main activities leading to achievement of these objectives are operation of on-farm and central testing stations; recording schemes; collaboration with and support for research in animal breeding at research institutions and at the Irish Equine Centre, Co. Kildare which undertakes R&amp;D activities relating to equines.</p>	964	914
<p><b>Genetic Resources in Plants and Animals</b></p> <p>The Department of Agriculture, Food and the Marine's grant aid scheme for the conservation of genetic resources for food and agriculture has been in place since 1996. The Scheme has an annual call for projects aimed at supporting the conservation and sustainable use of genetic resources for food and agriculture. Projects are evaluated by an advisory committee, representing broad national stakeholder interests.</p>	275	252
<p><b>International Equine Institute</b></p> <p>Based in University of Limerick the Institute receives a grant payment from DAFM to work on issues of relevance to the equine industry.</p>	270	270

## Department of Agriculture, Food and the Marine

### Bord Iascaigh Mhara

BIM is the Irish State agency with responsibility for developing the Irish Sea Fishing and Aquaculture industries. BIM was established under the Sea Fisheries Act 1952. BIM's mission is "to promote the sustainable development of the Irish seafood industry at sea and ashore and support its diversification in the coastal regions so as to enhance its contribution to employment, income and welfare both regionally and nationally".

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<b>Marine Technical</b>  The objectives of the Marine Technical Section are to progress development of responsible fishing practices addressing environmental and sustainability issues through technical innovation and technology transfer. The section carries out sustainability-orientated projects, aimed at promoting the use of more selective gear types and protection of key fisheries together with identifying ways to reduce operating costs through diversification into alternative, fuel-efficient fishing methods.	74	76
<b>Resource Development</b>  The primary focus of the Resource Development Section work programme will see the further development of mechanisms by which the industry can compete in the marketplace through increased quality. At the core of this strategy is the development of quality schemes for the catching sector that are suitable for integration into the QSP programme. This will enable Irish fishermen to compete at the highest levels of quality and traceability now demanded by the consumer.	12	12
<b>Inshore Fisheries</b>  The primary function of the inshore fisheries section is the implementation of the framework for the management of the major inshore stocks announced by the Minister in 2004. The work involves establishing species advisory groups and drawing up management plans for important inshore fisheries. Monitoring of stocks in support of management and the further development of applied research programmes are funded through the NDP in support of the framework.	33	33
<b>MEPS - Marine Environment Protection</b>  The Marine Environment Protection Measure has been developed in accordance with Article No. 37 and 38 of Council Regulation (EC) No 1198/2006 of 27 July. The Measure facilitates projects to address issues of environmental concern, particularly those intended to protect and develop the marine environment.	522	500
<b>Seafood Development</b> <ul style="list-style-type: none"> <li>▪ Value Adding Scheme</li> <li>▪ Business Development and Innovation Programme</li> <li>▪ Seafood Development Centre</li> </ul>	732	530

# Department of Agriculture, Food and the Marine

## Marine Institute

The Marine Institute has the general functions “to undertake, to co-ordinate, to promote and to assist in marine research and development and to provide such services related to marine research and development that in the opinion of the Institute will promote economic development, create employment and protect the marine environment” (Marine Institute Act, 1991). The key services delivered by the Marine Institute include:

### Research

The Marine Institute's activities, in relation to marine research, fall into three main areas:

1. **Research Performer:** The Marine Institute undertakes research (both applied and experimental development) through its operational programmes and also through leading and participating in many national and international research projects.
2. **Research Funder:** The Marine Institute administers the *Marine Research Sub-Programme of the National Development Plan 2007-2013*.
3. **Research Promoter, Coordinator and Catalyst:** As the lead implementing agency for *Sea Change - A Marine Knowledge, Research & Innovation Strategy for Ireland 2007-2013*, the Institute co-ordinates and promotes marine research, bringing together industry, higher education institutions and Government bodies to support the development of Ireland's knowledge economy and the marine sector.

### Monitoring, Data Collection and other Technical Services

The Institute carries out statutory and non-statutory monitoring and data collection to underpin the development of the marine sector and the sustainability of the marine environment and resource aimed at:

- Food safety monitoring (e.g. biotoxins, residues, microbiology);
- Managing fisheries resources (including migratory stocks);
- Understanding and monitoring the marine environment and climate change (e.g. hazardous substances, nutrients, phytoplankton);
- Implementing environmental directives (e.g. EU Birds & Habitats Directives); and
- Monitoring & auditing impact of marine economic activity.

### Provision and Formulation of Scientific, Technical and Strategic Policy Advice

The Marine Institute provides advice to a range of national and international agencies and departments which supports both national and EU policy decisions across all marine sectors. This includes the formulation of EU Marine Science Policy & Programme Development.

### Sectoral Development

The Marine Institute provides a number of services related to the development of Ireland's vast marine resource. Specifically, the Irish Maritime Development Office (IMDO) is dedicated to the development and promotion of the shipping and maritime transport sector. In addition, the Institute liaises closely with national development agencies in order to maximise the economic potential of existing marine sectors (e.g. marine food) and emerging marine sectors (e.g. marine biotechnology, green technologies and renewable ocean energy).

The Marine Institute has developed world-class marine research infrastructure including: HQ & Laboratory Complex (54 labs) in Oranmore, Co. Galway; an Aquaculture & Catchment Management Research Facility in Newport, Co Mayo; two multi-purpose National Research Vessels, a remotely operated vehicle (ROV); an Ocean Energy Test & demonstration site in Galway Bay; and a range of specialist scientific equipment and data management facilities.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<p><b>Marine Institute R&amp;D Programmes</b></p> <p>The Marine Institute is a significant research performer - competing for and securing funds from both national and international (EU FP and INTERREG) funding sources. This research supports the provision of Government services, including the provision of policy advice; underpins the competitiveness and market accessibility to Irish seafood production (fisheries and aquaculture) through a range of scientific research assessment and monitoring programmes spanning fisheries resources, marine environment monitoring and marine food safety. In addition to the Institute's direct participation in externally funded research projects, the Institute also participates in marine research via in-kind contribution e.g. through the provision of research facilities/infrastructure for projects that are complementary to the Institute's core activities.</p>	3,534	3,601
<p><b>NDP 2007-2013: Marine Research Sub-Programme</b></p> <p>The Marine Institute administers on a competitive basis the national marine research funding programme: Marine Research Sub-Programme of the 2007-2013 National Development Plan. Research funding is awarded on a competitive basis for 'applied' marine-related R&amp;D in line with the objectives set out in Sea Change. The Institute administers and manages the following categories of funding:</p> <ul style="list-style-type: none"> <li>▪ Project-Based Awards: Strategic Research Projects, Applied Research Projects, Demonstration Projects and Desk/Feasibility Studies;</li> <li>▪ Researcher Awards: Strategic Research Appointments, Research Capacity/Competency Building, Post-Doctoral Fellowships and PhD Scholarships;</li> <li>▪ Industry-Led Research Awards: Company Awards and Collaborative Awards; and</li> <li>▪ Infrastructure Awards: Infrastructure Acquisition and Access to Infrastructure, e.g. Shiptime.</li> </ul>	5,701	4,494

# Department of Agriculture, Food and the Marine

## Teagasc

Teagasc, the Agriculture and Food Development Authority, is the leading organisation in the fields of agriculture and food research in Ireland undertaking research in four main areas:

- Animal and Grassland
- Crops, Environment and Land Use
- Rural Economy and Development
- Food

Teagasc partners with many other research providers, particularly Irish Universities in conducting research and works closely with many industry organizations, such as the Irish Cattle Breeding Federation, Bord Bia, Animal Health Ireland and Enterprise Ireland in delivering on shared priorities.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<b>Animal &amp; Grassland Research and Innovation Programme</b>	62,820	60,468
<p>The aim of the Teagasc Animal and Grassland research and Innovation Programme is to increase the profitability, competitiveness and sustainability of Irish livestock production through research and innovation. The programme incorporates all animal (dairy cows, cattle, sheep and pigs) and grassland science, livestock systems research into a single programme thus positioning Teagasc as one of the leading international authorities on pasture-based systems of animal production.</p> <p>The objective of the animal component of the programme is to generate and procure new knowledge to support innovation in the key areas of Irish livestock production including breeding, nutrition, growth, reproduction, health, product quality, labour efficiency and facilities that will underpin the future profitability, competitiveness and sustainability.</p> <p>The objective of the grassland component of the programme is to generate and procure evidence-based knowledge to support innovation in the key areas of Irish grass production including grass breeding, growth, fertilisation, utilisation, nutritional value, and develop grazing systems that will underpin the profitability, competitiveness and sustainability of the sector and enhance food security.</p>		
<b>Crops, Environment and Land Use Programme</b>		
<p>The aim of the Teagasc Crops, Environment and Land Use programme is to develop and transfer cost-effective crop production systems, along with evidence-based knowledge to support and underpin the development of an environmentally sustainable, competitive and profitable agri-food sector. This will be achieved by focusing on:</p> <ul style="list-style-type: none"> <li>▪ Crop science: to develop cost effective crop production systems, including crops for energy and bio-processing, which improve competitiveness, profitability and product quality, and minimise impact on the environment.</li> <li>▪ Forestry development: develop forests and forest management systems that maximize the potential of farm forestry from economic, social and environmental perspectives.</li> </ul>		

- Horticulture research: to provide evidence based knowledge to support the competitiveness of the commercial horticulture sector.
- Environmental research: to provide evidence based knowledge to support and underpin the development of an environmentally sustainable, competitive and profitable agri-food sector through research projects and initiatives in nutrient efficiency, greenhouse gas and climate change, water quality, agricultural catchments, soils, biodiversity and environmental products and services.

#### Rural Economy and Development Programme

The aim of the Teagasc Rural Economy and Development Programme is to help decision making by stakeholders of Teagasc through research and knowledge transfer activities.

Advanced social science investigation tools are utilised to understand the linkages between the various forces affecting the agri-food and rural economy to improve the quality of life in rural Ireland. The specific objectives of this programme are to:

- Collect timely, quality information in an efficient manner to support decision making by our stakeholders.
- Undertake research to interpret trends and changes in markets and policy to enable each of our stakeholders to make better decisions.
- Provide advice, training and tools to support our stakeholders in making decisions that enable their business to be more effective.
- Understand who adopts technology, why potentially beneficial technologies are not adopted and how adoption can be increased.

This is achieved through the implementation of research projects and initiatives in the areas of agriculture, trade & environmental policy analysis, farm and food economics, spatial analysis, surveys, innovation & rural development and environmental economics.

#### Food Programme

The Teagasc Food Programme undertakes scientific research leading to the establishment of technological platforms that can be exploited by the Irish Food Processing Industry by adding value and ensures the safety and quality of food products.

The Teagasc Food Programme is a highly applied research programme which has earned an international reputation based on its quality and scientific output.

The programme achieves its objective through the delivery of research and innovation projects in the areas of food safety, cheese, fermented & other dairy products, food ingredients, meat products, prepared consumer foods, food & health, market studies and technical services & training.

Long term the Teagasc Food Programme aims to:

- Improve and develop the safety and clean green image of Irish food products
- Expand and increase dairy product research to serve the expected increase in national milk yield
- Provide technology and knowledge to the meat processing industry to serve the economic increase in the meat sector.
- Support innovation, growth and export capability in the SME sector.

## Department of Arts, Heritage & the Gaeltacht

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<p><b>Research Excavation Grants Scheme - The Royal Irish Academy</b></p> <p>The Royal Irish Academy has a long association with the funding of archaeological excavation and field research in Ireland. During the 1930s the Academy administered the Unemployment Relief Scheme which was used to fund excavations. Since 1970 the Academy Committee for Archaeology (previously the National Committee for Archaeology) has managed an annual fund.</p> <p>The fund has financed over ninety excavations in Ireland since 1970, thus enabling scholars to make a substantial contribution to our knowledge of the past.</p> <p>Applications received under the Excavation Grants Scheme are rigorously assessed and the outcomes are carefully and expertly reviewed. All excavations are carried out subject to excavation licence.</p>	100	100
<p><b>INSTAR Programme - The Heritage Council</b></p> <p>Established in 2008, the Irish National Strategic Archaeological Research (INSTAR) programme is funded by the Department of Arts, Heritage and the Gaeltacht and administered by the Heritage Council as an element of its grants programme.</p> <p>The INSTAR Programme has funded 16 research projects in Ireland since 2008, thus enabling scholars to make a substantial contribution to our knowledge of the past in areas such as the arrival of farming in Ireland, the Christianisation of Ireland, the early medieval settlement landscape, and evidence for climate change in the archaeological record.</p> <p>Under the INSTAR Programme research consortia are formed from across the following groups</p> <ul style="list-style-type: none"> <li>▪ the archaeological consultancy sector,</li> <li>▪ academic institutions on the island of Ireland,</li> <li>▪ international academic and research bodies, and</li> <li>▪ State bodies.</li> </ul> <p>The Programme has been designed to facilitate the collaboration of archaeologists to carry out joint research activities in areas of strategic importance, while also giving the time and resources to attract and develop strong industry partnerships that can inform and enhance research programmes.</p> <p>Core criteria include research work being collaborative, strongly linked with pre-development archaeology, as well as the option of the research being carried out by the archaeologists directly involved and accredited towards an advanced degree.</p> <p>Applications received under the INSTAR Programme are rigorously assessed and the outcomes are carefully and expertly reviewed.</p> <p>All research carried out under the INSTAR Programme can now be easily accessed under the INSTAR Web Archive on the heritage council website <a href="http://www.heritagecouncil.ie">www.heritagecouncil.ie</a></p>	55	75

## Department of Arts, Heritage & the Gaeltacht

### Údarás na Gaeltachta

Údarás na Gaeltachta was established under the Údarás na Gaeltachta Act, 1979 and came into operation on 1st January 1980 to replace Gaeltarra Éireann which was dissolved by the same act. The objectives of an t-Údarás are as follows:

- to encourage the preservation and extension of the Irish language in the Gaeltacht;
- to attract suitable native and foreign manufacturing projects to the Gaeltacht;
- to establish, develop and manage productive employment enterprises in the Gaeltacht;
- to participate in industries as an equity partner and to provide services to assist new industries becoming established.

Údarás encourages investment in the Gaeltacht through a range of incentives for new enterprises and through support and assistance for existing businesses.

The organisation supports businesses in developing new markets, technologies, products and strategic alliances through research and development. Gaeltacht companies span a range of commercial sectors, including tourism, fish processing and aquaculture, renewable energy, food, life sciences, ICT, niche manufacturing, audio visual and digital media, arts and crafts.

	€'000 2011	€'000 2012
<b>Research and Development</b>		
Research is funded by enterprises along with grants of up to 60 per cent subject to a maximum of €126,973 for any one project.		
Eligible costs include R&D salaries, directly related additional overheads, the cost of capital assets to the extent and for the period of their use in the research project, costs of contractual research, technical knowledge and patents bought or licensed from outside sources, other operating expenses including costs of materials, supplies, travel and subsistence and other similar costs directly related to the research activity.	1,308	1,000



## Department of Communications, Energy & Natural Resources

The Mission Statement of the department is “to promote the sustainable development, management and regulation of the communications, energy, marine and natural resources sectors in support of national economic and social policy objectives”.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<b>Geological Survey Ireland</b>		
The Geological Survey of Ireland (GSI) was established in 1845 and is currently a division of the Department of Communications, Energy and Natural Resources. As the national geological agency, GSI plays a key role in the development of the geosciences sector which contributes significantly to the economic development and quality of life of our nation. GSI provides a range of high-quality services which support the other players of the geosciences sector as well as a wide spectrum of other activities, including infrastructure, environment, mineral resources, water supplies, heritage and education.	50	50
<b>INFOMAR (Integrated Mapping for the Sustainable Development of Ireland’s Marine resource).</b>	582	377
The Irish National Seabed Survey (INSS), which was funded to a total of €33m over a seven-year period under this subhead, ended in 2005 and mapped all Irish waters over 200m. The objectives of the follow-up INFOMAR Programme is on continuing the seabed surveying to completion by mapping of Ireland’s valuable but complex shallow inshore waters, the development of a state of the art data-store and the development of outputs based on the data acquired. The programme runs research calls every year and funds up to €400,000 p.a. of applied and added value research utilising INFOMAR generated data. In addition two staff are actively engaged in completion of PhD programmes, one of whom manages INFOMAR’s research programme.		
<b>Griffith Geoscience Research Awards</b>		
The objective of the awards, which are managed by the Geological Survey of Ireland (GSI), is to develop overall research capacity particularly in priority areas of geosciences research as outlined in the National Geoscience Programme, 2007-2013 <a href="http://www.gsi.ie">www.gsi.ie</a> The awards among other things support the establishment of an all-island geosciences graduate school and seek to stimulate interest by primary and secondary school students in Geology/Geoscience through the production and distribution of geosciences outreach products. These awards fund 9 projects at 7 colleges throughout the Island of Ireland with a total value of €9.1m and run from 2007 to 2014.	17	656

<p><b>Geoscience Initiatives</b></p> <p>The Geoscience Initiatives are a series of co-ordinated actions managed by GSI and principally aimed at local authorities to support infrastructural development planning and environmental protection under the NDP. The actions include Groundwater protection (National Groundwater Vulnerability Mapping), Resource Planning (National Aggregate Potential Mapping), Hazard Mitigation (Regional Landslide Susceptibility Maps) and Urban Planning (GeoUrban, a geotechnical and geochemical 3D characterisation of major urban centres beginning with Dublin). There are also initiatives in the area of Geoheritage and Geoparks, International Geoscience Communication (through the One Geology initiative) and developing an Irish network for the Integrated Ocean Drilling Programme (IODP).</p>	662	60
<p><b>PAD - ESOG</b></p> <p>Expenditure on research based projects.</p>	304	150
<p><b>National Digital Research Centre (NDRC)</b></p> <p>On foot of the closure of Media Lab Europe (MLE), the Government, in April 2005, approved a competitive tendering competition for the operation of the NDRC. The Liberty Consortium which won the contract comprises of five of the leading third level institutes (TLI's) in Ireland, namely University College Dublin (UCD), Trinity College Dublin (TCD), Dublin City University (DCU), Dun Laoghaire Institute of Art, Design and Technology (IADT) and the National College of Art and Design (NCAD). Its objectives are translational digital research and research training (PhD level). The National Digital Research Centre was established to become a leading centre for translational research - translating research ideas from late research to commercial potential. The NDRC aims to collaborate with research bodies and commercial companies on joint-venture translational research projects in the development of innovative new digital products aiming to address social and commercial needs.</p>	4,724	4,800
<p><b>Exemplar Test-bed Lab</b></p> <p>This is the world's first example of a next generation network based on a truly dynamic optical infrastructure. It is based on a new technology called Optical Packet Switch and Transport (OPST), developed by an Irish company Intune Networks, which enables the infrastructure to respond dynamically to unpredictable traffic patterns. OPST can guarantee the performance level of a multi-service network with respect to bandwidths, delay and jitter of packet flows across the network.</p> <p>The Exemplar Network Test bed lab was opened in July 2010.</p>	200	450

# Department of Communications, Energy & Natural Resources

## Inland Fisheries Ireland

Inland Fisheries Ireland (IFI) was formed on 1<sup>st</sup> July, 2010 following the amalgamation of the Central Fisheries Board and the seven former Regional Fisheries Boards into a single agency.

Inland Fisheries Ireland is responsible for the conservation, protection, management, development and promotion of the inland fisheries resource (including sea angling) across the country. Ireland has over 70,000 kilometres of rivers and streams and 144,000 hectares of lakes all of which fall under the jurisdiction of IFI.

IFI also has a role in the provision of advice to the Minister and stakeholders in relation to the Inland Fisheries Resource. It is the role of IFI's R&D function to provide data and analysis on the status of rivers, fish species and habitats to support IFI management in development of policies and in offering advice relating to the inland fisheries natural resource.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<b>Programme Monitoring</b>		
<p>Ongoing activity includes assessing the biological potential of freshwater lakes and rivers for fishery development; many of these databases are used to design riverine rehabilitation programmes. Surveys of estuaries and inshore marine areas to locate habitats of popular marine sport fish and surveys of stocks of such fish; evaluating the progress of current development programmes in terms of fish numbers, etc. checking on conditions of fishing waters i.e. measuring trophic/nutrient status and pollution hazards which might threaten the State's investments in fisheries; water sampling and analysis for pollution control and prosecutions.</p> <p>Current work being carried out by the Research and Development Division includes the fish monitoring component as part of the EU's Water Framework and the Habitats Directives. The National Fish Stock Assessment Programme continues with work species of fish stocks that are of socio economic importance to the country such as salmon, eels, coarse fish and marine sports fish species. The National Fisheries Environment and Biodiversity Programme incorporates research in a holistic way to support conservation of our natural aquatic ecology. Currently studies are undertaken on invasive species, providing a chemical and nutrient analysis programme, designing enhancement programmes for drained river systems and monitoring their effectiveness along with management of the board's fish farms.</p>	2,770	3,031

## Department of Communications, Energy & Natural Resources

### Sustainable Energy Authority of Ireland (SEAI)

Sustainable Energy Authority of Ireland established under the Sustainable Energy Act 2002, has a mission to play a leading role in transforming Ireland into a society based on sustainable energy structures, technologies and practices.

This encompasses environmentally and economically sustainable production, supply and use of energy, in support of Government policy across all sectors of the economy. Its remit relates mainly to improving energy efficiency, advancing the development and competitive deployment of low carbon sources of energy and combined heat and power, and reducing the environmental impact of energy production and use, particularly in respect of greenhouse gas emissions. SEAI is financed by Ireland's EU Structural Funds Programme and co-funded by the Irish Government and the European Union and manages programmes aimed at:

- supporting Government decision-making through advocacy, analysis and evidence
- driving demand reduction and providing advice to all users of energy
- driving the decarbonisation of energy supply
- raising standards in sustainable energy products and services
- building markets based on quality, confidence and proven performance
- fostering innovation and entrepreneurship
- improving the coherence of Irish energy research and development

	€'000 2011	€'000 2012
<b>Research and Development</b>		
Sustainable Energy Ireland's research, development and demonstration (RD&D) programme is designed to assist the development of a least-cost path to CO2 reduction and sustainable energy in Ireland. It has programmes active in the areas of built environment, industry, renewables, and transport.		
SEAI's Sustainable Transport Programme demonstrates the technical and economic feasibility of sustainable technologies in Ireland by supporting a number of RD&D studies into the integration of renewable energy technologies into transport systems.	8,131	6,645
The Ocean Energy Programme was established to advance the deployment of ocean energy technologies in Ireland by increasing the capacity for research and development both with academic institutions and commercial entities developing devices in Ireland.		
SEAI's Renewable Energy RD&D Programme was established to support the acceleration of uptake of renewable energy solutions and new renewable technologies.		
SEAI's Microgeneration programme assesses the technical, financial and regulatory issues surrounding the deployment of small and micro generation technologies in Ireland.		
SEAI under the Smart Metering Programme is leading the behavioural dimension of the national smart metering trial.		

## Department of Education and Skills

The Department's Gross allocation for 2012 as included in the 2012 Revised Estimate for Public Services is €8.67 billion.

Included in this allocation is €1.23 billion which will be made available to Universities and Institutes of Technology (ref: Subheads E04, E06, E13 and F03). This includes current and capital funding for research and development.

Current funding is available to all Universities and Institutes of Technology to support the development of their research capabilities, to support outstandingly talented individual researchers, and to encourage co-operation within institutions and between institutions. The funding is provided under a number of programmes, all of which are primarily aimed at developing research capacity in the higher education system through the development of high quality 4th level education.

Funding is provided for PhD students and early-stage postdoctoral researchers under the auspices of the Irish Research Council Science for Science, Engineering and Technology (IRCSET) and the Irish Research Council Science for Humanities and Social Sciences (IRCHSS).

Funding for these programmes is made through the Higher Education Authority (HEA).

Dedicated funding is also provided through HEAnet and E.Journals to ensure that high quality internet services and research journals are available to students and researchers in higher education institutions. These are essential supporting services for the research system as a whole and benefit all research funding agencies.

Under the NDP/Community Support Framework for 2007-2013, EU funding will be delivered through one Human Capital Investment Operational Programme and two Regional Operational Programmes, one each for the Border/Midlands Western and Southern & Eastern part-funded by the European Regional Development Fund. The Regional Operational Programmes are managed by the Regional Assemblies.

The education related elements of the regional operational programmes support R&D activities in the higher education sector and support the objectives of the Strategy for Science, Innovation and Technology as follows:-

- Provide high quality and strategically relevant research and capacity in higher education institutions in the region.
- Enhance the collaboration and networking across the higher education institutions so as to optimise return on investment.
- Strengthen the training of researchers.
- Strengthen the culture of intellectual property capture and management among research performers at a laboratory level within regional higher education institutions.

Expenditure and programmes run by the Higher Education Authority and the Dublin Institute for Advanced Studies are listed separately.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<b>Direct Research &amp; Development committee support</b>		
The Department's Research & Development Committee is currently supporting one research project, which involves the development of a multi-belief religious education programme for delivery in the pilot Community National Schools (CNSs). This action research project is being undertaken by a researcher seconded to Co. Dublin VEC (patron-designate of three pilot CNSs) from Coláiste Mhuire Marino Institute of Education.	151	175
<b>EU projects supporting R&amp;D</b>		
Support is being provided for certain projects jointly with the EU. In 2012 activities will include the Lifelong Learning Programme (LLP) comprising the following actions : <ul style="list-style-type: none"> <li>▪ Leonardo da Vinci - the vocational education and training action of the LLP of young people in the context of the EU action programme in education</li> <li>▪ Comenius - the school education action of the LLP</li> <li>▪ Grundtvig - the adult education action of the LLP</li> <li>▪ Erasmus - the higher education action of the LLP</li> </ul> <p>The Department funds the staffing and non-pay costs incurred by Léargas (the Exchange Bureau) in administering the Comenius, Leonardo daVinci and Grundvig elements of the LLP at national level in accordance with Commission requirements</p>	1,271	1,411
<b>European University</b>		
Contributions to the budget of the Institute (Italy) and support of Irish students to pursue research projects. The Institute's Centre for Advanced Studies is the research arm of the Institute and offers Jean Monnet Fellowships for post-doctoral research. A Transatlantic Programme of the European University Institute was established in September 2000, enabling the EUI to organise policy-orientated and basic research on transatlantic relations and transatlantic governance.	593	595
<b>St. Patrick's College</b>		
Support for research activities in the field of education in St. Patrick's College, Drumcondra.	1,106	1,046

# Department of Education and Skills

## Dublin Institute for Advanced Studies

The Dublin Institute for Advanced Studies is a statutory corporation established in 1940 under the Institute for Advanced Studies Act, 1940. The Institute has three constituent schools - the School of Celtic Studies, the School of Theoretical Physics and the School of Cosmic Physics. Each school has an independent governing board. The Institute, through the constituent schools, pursues fundamental research and trains students in advanced methods of original research.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<p><b>The School of Theoretical Physics</b></p> <p>The School pursues research in the general areas of theoretical physics and mathematics. Particular areas of expertise are: theoretical particle physics, quantum field theory, quantum gravity, quantum mechanics, quantum information theory, quantum and classical statistical mechanics, disordered systems, geometry and topology, non-commutative geometry and infinite-dimensional algebras, lie groups and algebras, C*-algebras, functional analysis, and probability.</p>	805	762
<p><b>The School of Cosmic Physics</b></p> <p>The School of Cosmic Physics has two research sections, one in Geophysics and one in Astronomy/Astrophysics.</p> <p>The Geophysics section studies the physical and geological structure of the Earth as well as its evolution in time. Major areas of research include seismology, electromagnetism and the Earth's gravity field. Section members are key collaborators to TOPO-EUROPE (<a href="http://www.topo-europe.eu/">http://www.topo-europe.eu/</a>), a European-wide geoscience initiative.</p> <p>The IRE THERM (Ireland's geothermal potential) project to develop a strategic and holistic understanding of Ireland's geothermal energy potential. (<a href="http://www.iretherm.ie/">http://www.iretherm.ie/</a>).</p> <p>The INDEPTH (InterNational DEep Profiling of Tibet and the Himalaya) study of the Tibetan plateau (<a href="http://www.geo.cornell.edu/geology/indepth/indepth.html">http://www.geo.cornell.edu/geology/indepth/indepth.html</a>).</p> <p>The PICASSO (Program to Investigate Convective Alboran Sea System Overturn) study of the collision of NW Africa with Iberia. (<a href="http://earth.usc.edu/research/picasso/">http://earth.usc.edu/research/picasso/</a>).</p> <p>In the Astronomy/Astrophysics section the main areas of research are high-energy astrophysics, astroparticle physics, star formation and computational astrophysics. The e-INIS project, funded under PRTL-4 aims to develop an integrated national e-infrastructure, building on the three existing service providers, HEAnet as the National Research and Education Network Service, ICHEC, the Irish Centre for High-End Computing as the national HPC service and Grid-Ireland as the National Grid Infrastructure provider.</p>	1,669	1,742

## Department of Education and Skills

### FÁS

As part of the Government's response to the fiscal crisis and on-going high levels of unemployment, wide ranging public sector reform has commenced, more particularly reform of the labour market and of further education and training (FET). Such reforms include the pending dissolution of FÁS 2012/2013; establishment of a new Further Education and Training Authority, SOLAS; establishment of Education and Training Boards to replace VECs; amalgamation of a number of existing Awarding/QA bodies into a new single agency; establishment of the National Employment and Entitlement Service (NEES) under the auspices of the Department of Social Protection and the transfer of 700+ FÁS posts to DSP in that regard, effective from January 1<sup>st</sup> 2012.

These latter posts included the transfer of staff who formerly worked in the FÁS Employment Services Division (and the associated employment programmes and services) as well as staff who transferred from other departments within FÁS including a number of staff (6) who worked in the Planning and Research Department in FÁS.

From January 1<sup>st</sup> 2012, the Department of Social Protection (DSP) took over the responsibility from FÁS for the provision of employment schemes; providing community groups with training and developmental supports in their enterprise and employment creation activities; providing guidance, employment and placement services, both to employers and the unemployed; assisting Irish people to obtain employment in other EU states (primarily through its SEDOC service) and providing advice and counselling for those of our citizens who wish to emigrate. The DSP also provides advice and guidance on and training opportunities for immigrants, whether asylum seekers or economic migrants.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
The Planning and Research Department assists in the development of FÁS through providing planning and research inputs at corporate level. Its main areas of work include strategic planning; labour market and skills research evaluation/customer surveys. It also provides a central Library and Technical Information Service for FÁS.	761	361
The Skills and Labour Market Research Unit within the department maintains a National Skills Database and provides regular reports for the Expert Group on Future Skills Needs.		



# Department of Education and Skills

## Higher Education Authority

The Higher Education Authority (HEA) which is under the aegis of the Minister for Education and Skills is a corporate body with perpetual succession, established in May 1972 under the provisions of the Higher Education Authority Act, 1971. The HEA has the following general functions:

- furthering the development of higher education;
- assisting in the co-ordination of State investment in higher education and preparing proposals for such investment;
- promoting the attainment of equality of opportunity in higher education;
- promoting the democratisation of the structure of higher education.

The HEA is financed by a grant-in-aid from the Department of Education and Skills out of a total vote for third level and further education. The Programme for Research in Third Level Institutions was transferred to the Department of Jobs, Enterprise and Innovation in 2010. Besides the exchequer grant (via the HEA), Universities, Institutes of Technology (IOTs) and other institutions receive non-exchequer monies, i.e. non-exchequer fees, research grants and other income.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
The Programme for Research in Third Level Institutions (delivered on behalf of the Minister for Jobs, Enterprise and Innovation)	57,900	53,200
The Programme for Research in Third Level Institutions (PRTLTI) supports building strategic institutional research capacity, enabling the establishment of research centres and facilities, and joint research programmes and national initiatives. The programme is also taking the lead in the establishment of Structured PhD Programmes as the standard mechanism for education of PhDs, producing PhDs with the skill sets to work both in the public and private sectors. The HEA manages this component of PRTLTI in partnership with the Irish Research Councils. PRTLTI is concerned with building a sustainable, long-term and broadly-based research capability in third level institutions and encourages the institutions to develop institutional research strategies to achieve this. The aim is to help to accelerate the development of critical mass in their existing strengths and to develop new areas consistent with their institutional strategies and plans for research. PRTLTI also seeks to develop stronger inter-institutional collaboration and to promote close linkage between research and the quality of teaching and learning at all levels in the institution.	(re-current 25.9m)  (capital 32m)	(re-current 26.4m)  (capital 26.8m)
<b>HEA General Capital Programme</b>		
The HEA's General Capital funding is provided via the Department of Education and Science. While the PRTLTI Capital Programme provides funding for research related building, equipment and infrastructure projects, the HEA's General Capital programme provides funding for undergraduate (teaching and learning) related building,	37,600	34,300

<p>equipment and associated infrastructure projects. Currently the HEA allocates General Capital funding to the universities and other designated institutions. The Institutes of Technology receive General Capital funding directly from Department of Education and Science. The HEA's General Capital funding enables the construction of new teaching and student services buildings, refurbishment projects, infrastructure development and property acquisition.</p> <p>For the purposes of the Forfás annual information request the expenditure recorded as General Capital relates to those projects which may be regarded as having a science related aspect to their function.</p>		
<p><b>The Technological Sector Research Fund (TSR)</b></p> <p>TSR supports underpinning capacity development in the institutes of technology, the latter institutions having only more recently begun to conduct research in line with regional objectives. The TSR is comprised of three strands: Strand 1, Postgraduate R&amp;D Skills Programme; Strand 2, Enterprise Platform Programme and Strand 3, Core Research Strengths Enhancement Programme. In 2010, Strand 2 was transferred to Enterprise Ireland.</p>	2,100	400
<p><b>HEAnet</b></p> <p>HEAnet is Ireland's National Education and Research Network, providing high quality Internet Services to over 150,000 students and staff in Irish Universities, IoT's and other educational and research organisations. Established in 1983 by the seven universities with the support of the HEA to promote the interchange of information electronically within third level education, it now plays a critical role in establishing Ireland as a global centre of excellence in internet activity. HEAnet provides a high-speed national network with direct connectivity for its community to other networks in Ireland, Europe, the USA and the rest of the world.</p>	5,800 (re-current 5.7m)  (capital 13k)	5,600 (re-current 5.5m)  (capital 18k)
<p><b>Research Facilities Enhancement Scheme</b></p> <p>The Research Facilities Enhancement Scheme (RFES) was established to address the deficits in research infrastructure in the higher-education sector that were identified in the Strategy for Science, Technology and Innovation (2006) and the HEA/Forfás report, Research Infrastructure in Ireland—Building for Tomorrow (2007). Forty higher-education institutions in Ireland were invited to submit proposals for funding with the objective of renovating and improving their existing research facilities. Specifically, the Scheme aimed to enable higher-education institutions to refurbish, convert, or upgrade their facilities to the standard requisite for undertaking high-quality research, and, to the same end, to enable institutions to purchase equipment. Under the terms and conditions of the Scheme, each institution was invited to submit up to three proposals, prioritised in accordance with their research strategies. 20 institutions were awarded a total of €57,996,850.</p> <p>There are no plans for a second RFES</p>	0	0

<p><b>Institutes of Technology</b></p> <p>This refers to the annual funding provided by the State via the HEA for the purposes of funding the recurrent activities of Institutes of Technology (IoTs).</p> <p>This core grant is allocated as a block grant to cover core teaching and research activities within institutions - the internal allocation of funds as between teaching and research are at present a matter for each institution. A new funding model similar to the funding model used for the University sector has been developed for the IoTs.</p> <p>The new model follows the principles of the RGAM (more information on this is given below), whereby funding follows students, with provision made for broad differences in the costs of the type of education being pursued by the student. The HEA has committed that the RGAM will be fully implemented over 2011 to 2013, commencing with 25% of the indicated transfers in 2011.</p> <p>It is noted below that a top-slice is made in respect of research for the universities. This top-slice is not made in respect of IoTs.</p>	<p>331</p> <p>(core grant to IoTs only)</p>	<p>320</p> <p>(core grant to IoTs only)</p>
<p><b>Strategic Innovation Fund</b></p> <p>The Strategic Innovation Fund (SIF) was announced in April 2005 as part of the Irish Government's response to the OECD's Review of Higher Education in Ireland (2004), which called for a 'quantum leap' in investment in higher education and recommended that there should be 'a Strategic Investment Fund for National Priorities along the lines of the PRTL I [Programme for Research in Third-Level Institutions]'.<sup>18</sup> Specifically the programme had the following main objectives:<sup>19</sup></p> <ul style="list-style-type: none"> <li>▪ to enhance the delivery of education and research;</li> <li>▪ to prepare for the expansion and development of postgraduate education;</li> <li>▪ to support innovation and quality improvement in teaching and learning; and</li> <li>▪ to support access, retention and progression.</li> </ul> <p>One of the most distinctive features of the SIF is the emphasis on inter-institutional collaboration and on the alignment of institutional strategies with national priorities. Building on a trend first supported by the PRTL I, the SIF has contributed to a broadening and deepening of collaboration within the higher education sector, transforming it from a loose assemblage of disparate entities competing for shrinking resources into a more consolidated organic entity comprising teams of institutions facing common challenges together.<sup>20</sup></p>	<p>13,940</p>	<p>4,000</p>

<sup>18</sup> Organisation for Economic Cooperation and Development, *Review of Higher Education in Ireland* (Paris: OECD, 2004), 66.

<sup>19</sup> See Government of Ireland, *National Development Plan 2007-2013: Transforming Ireland: A Better Quality of Life for All* (Dublin: Government of Ireland, 2006), 205-6.

<sup>20</sup> The National Academy for Integration of Research, Teaching and Learning ([www.nairtl.ie](http://www.nairtl.ie)), the Learning Innovation Network ([www.lin-ireland.com](http://www.lin-ireland.com)), and the IUA's national online repository for Irish research ([www.rian.ie](http://www.rian.ie)) provide a rich sense of the collaborations achieved under Cycle 1 of the SIF. SIF cooperation is further exemplified by the BlueBrick online portal - an initiative of the Institutes of Technology, Ireland (IOTI) (see [www.bluebrick.ie](http://www.bluebrick.ie)).

### Recurrent (Core) Funding

This refers to the annual funding provided by the State via the HEA for the purposes of funding the recurrent activities of higher education institutions (HEIs). This core grant is allocated as a block grant to cover core teaching and research activities within institutions - the internal allocation of funds as between teaching and research are at present a matter for each institution. The allocation of the core grant is determined on a formula basis. The allocation will be based on a standard per capita amount in respect of weighted EU student numbers in four broad subject price groups. Student numbers in the four groups are weighted to reflect the relative cost of the subject groups. A further weighting is given for research students. The price groups and weightings are as follows:

Price Group Subject	Price Group Weighting
Clinical stages of undergraduate medicine	2.3
Undergraduate dentistry, veterinary	4
Laboratory-based subjects (Science, Engineering, Pre-clinical Medicine & Dentistry)	1.7
Postgraduate Research	1.6 x 3 (i.e. 4.8)
Subjects with a studio, laboratory or fieldwork element	1.3
Postgraduate Research	1.3 x 3 (i.e. 3.9)
All other subjects	1
Postgraduate Research	1 x 3 (i.e. 3)

5% is also top-sliced from the aggregate grant for all higher education institutions, exclusive of the grant in lieu in tuition fees. This top-sliced amount is allocated as follows -

- 75% in proportion to proportion of Ph.D. and Masters research degrees awarded
- 25% in proportion to proportion of research income per academic staff member, earned by each institution. This top-slice does not oblige HEIs to spend this amount on research - the internal allocation of the core grant is still a matter for each institution. The top-slice instead represents recognition of the research activities that take place in HEIs.

333,332

(core grant to Uni's only)

275,016

(core grant to Uni's only)

## Department of Education and Skills

### Irish Research Council for the Humanities and Social Sciences - IRC

The Minister for Research and Innovation, Seán Sherlock, TD, formally launched the new Irish Research Council on 29th March 2012 - a merger of the Irish Research Council for the Humanities and Social Sciences (IRCHSS) and the Irish Research Council for Science, Engineering and Technology (IRCSET).

The Research Council for the Humanities and Social Sciences (IRCHSS) was established in 2000 by the Minister for Education and Science in response to the need to develop Ireland's research capacity and skills base in a rapidly-changing global environment where knowledge is key to economic and social growth.

With the support of the National Development Plan the IRCHSS promotes cutting-edge research in the humanities, social sciences, business and law with the objective of creating new knowledge and expertise beneficial to Ireland's economic, social and cultural development. The research council operates a suite of inter-linked research schemes from postgraduate scholarships through to project funding for principal investigators.

The research council supports the participation of Irish researchers in the European Research Area (ERA) through a range of international programmes. The council manages and participates in a number of international programmes. The council also promotes international research funding opportunities, in particular through the role of the National Contact Point for the Humanities and Social Sciences within [Framework Programme 7](#) (FP7).

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
Research Grants in the Humanities & Social Sciences	10,700	10,700

## Department of Education and Skills

### Irish Research Council for Science, Engineering & Technology - IRC

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Schemes previously run by IRCSET will continue to run under the new Council. The Irish Research Council forms a Board of senior academic and industrial figures and operates multi-million euro research funding initiatives which support talented researchers in their early stage career formation across Masters, Doctoral and Postdoctoral levels.

The emphasis of the funding programmes is on exploratory research aimed at yielding new concepts, findings and innovations within Ireland. Funding is made available through a series of strictly competitive calls for applicants. Selection for funding is based on merit and the decision processes are overseen by independent assessment panels.

The Irish Research Council's initiatives are funded by the National Development Plan of Ireland under the auspices of the Department of Education & Skills.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
Research programmes include:		
<ul style="list-style-type: none"> <li>▪ Embark Initiative positions Ireland as an international centre of excellence and achievement in research by encouraging students and researchers to pursue a full-time career in their chosen research area. Providing funding to full-time researchers at the early stages of their careers will ensure that research is a viable and beneficial career option and that ideas, potential and creativity, crucial to Ireland's future success, are not lost. Not only will it increase research capacity, but it will also enhance teaching with relevant and current research experience.</li> <li>▪ IRCSET is involved in a number of EUROCORES projects through the European Science Foundation. IRCSET is also participating in a number of further initiatives under this funding mechanism. IRCSET's involvement in the ERAnet Chemistry programme implements joint bottom-up European Programmes in chemistry. The network comprises of the national research funding organisations from 14 EU member countries and Switzerland, with 7 other EU countries as associate members. The programme aims to establish an EU Research Area in curiosity-driven chemical research without noticeable national, formal and research subject boundaries.</li> <li>▪ The postgraduate research scholarship scheme and postdoctoral fellowship scheme</li> <li>▪ INSPIRE: IRCSET-Marie Curie International Mobility Fellowships in Science Engineering and Technology .</li> <li>▪ EMPOWER: Government of Ireland Postdoctoral Fellowships in Science, Engineering and Technology.</li> <li>▪ The Enterprise Partnership Scheme.</li> </ul>	21,475	20,100

# Department of Jobs, Enterprise and Innovation

## Office of Science, Technology and Innovation (OSTI)

The Department of Jobs, Enterprise and Innovation has a wide economic development and job creation remit.

The Office of Science, Technology and Innovation (OSTI) is responsible for the development, promotion and co-ordination of Ireland's Science, Technology and Innovation policy; and Ireland's policy in European Union and international research activities. The section is advised by Forfás in accordance with its statutory remit.

The OSTI is also responsible for basic research funding allocated to Science Foundation Ireland (SFI) and consequential policy issues arising from Ireland's investments through SFI. Funding is also provided to Enterprise Ireland for R&D investment:

The OSTI develops and co-ordinates Ireland's input in regard to EU research policies and programmes, including measures to further the development of the European Research Area. It also has responsibility for the development of Ireland's policy in international research activities.

The OSTI also supports and monitors the integrated awareness programme, Discover Science & Engineering, with the aim of increasing the numbers of students taking science as a career and promoting science literacy generally.

The work of the OSTI covers all aspects of the national system of innovation and international Research & Development (R&D) programmes including:

- Transforming R&D Activity in Enterprise
- Industry Collaboration with the 3<sup>rd</sup> Level Sector
- Commercialisation of Publicly Funded Research
- Science Foundation Ireland
- Programme for Research in Third Level Institutions (PRTL)
- Funding for Public Awareness of Science and Technology
- R&D Tax Credit uptake
- European and International Programmes
- Scheme for Accreditation of Research Organisations (Hosting Agreement)

The Enterprise Development Agencies, Enterprise Ireland, IDA Ireland, Science Foundation Ireland and Forfás implement these measures on behalf of OSTI, through a range of schemes and programmes.

The OSTI is responsible for:

- Advising the Minister on general STI activities and directing and coordinating programmes for the R&D programmes of the agencies.
- Providing basic research funding allocated to Science Foundation Ireland
- Providing applied research and commercialisation funding for Enterprise Ireland.
- Providing funding for the 2012 City of Science
- Providing an annual support for core enterprise focussed activities within the Tyndall National Institute, Cork.
- Supporting and monitoring the integrated awareness programme, Discover Science and Engineering (DSE), with the aim of increasing the numbers of students taking science as a career and promoting in interest in science generally.

- Developing and co-ordinating Ireland’s input in regard to EU research policies and programmes. The OSTI is responsible for the funding of, and is represented on, the policy formulation committees of the following five Inter-Governmental S&T Organisations:
  - European Space Agency (ESA)
  - European Molecular Biology Conference (EMBC)
  - Co-operation in Science and Technology Programmes (COST)
  - EUREKA
  - European Molecular Biology Laboratory (EMBL)
- The OSTI is also responsible for the Programme for Research in Third Level Institutions (PRTLTI), which transferred from the Department of Education and Skills to the Department of Jobs, Enterprise and Innovation in 2010.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<p><b>European Space Agency (ESA)</b></p> <p>A principal objective of Ireland membership of the ESA is to promote opportunity for high technology industry in Ireland. The greater part of Ireland’s contribution is returned as industrial contracts involving collaboration between enterprises in the Member States.</p>	14,029	14,779
<p><b>European Molecular Biology Conference (EMBC)</b></p> <p>Since 2000, Irish researchers have been successful in obtaining 10 long-term fellowship awards, as well as 11 short-term fellowships and one young investigator’s award; further promoting Ireland’s standing within the European scientific community.</p>	196	200
<p><b>EUREKA</b></p> <p>Eureka is a European research initiative designed to ensure that the technological gap with other countries is narrowed. It promotes joint research between firms in different countries.</p>	33	33
<p><b>European Molecular Biology Laboratory (EMBL)</b></p> <p>EMBL is an Inter-Governmental Research Organisation whose mission is the development of molecular biology throughout Europe. Membership of EMBL complements Ireland’s significant investment in the biotechnology area by presenting opportunities for research training, networking and enhanced international collaboration.</p>	1,217	1,244
<p><b>Tyndall National Institute</b></p> <p>Tyndall National Institute, UCC is one of Europe’s leading centres for Information, Communications and Technology research and development. It is the largest facility of its kind in Ireland. Tyndall, formally known as the National Microelectronics Research Centre, was established in 2004 to provide a critical mass of researchers that would support the growth and development of a smart knowledge based economy in Ireland.</p>	3,000	3,000



# Department of Jobs, Enterprise and Innovation

## Enterprise Ireland

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<b>R&amp;D Fund</b>		
<p>El provides assistance for significant investment in R&amp;D initiatives which arise as part of a company's strategic development. The R&amp;D Fund is designed to provide support for research, development and technological innovation relevant at all stages of company development, and will enable companies to progress from undertaking an initial research project to high level innovation and R&amp;D activity.</p>	50,227	54,239
<b>Technology Centres (formerly Competence Centres)</b>		
<p>El supports the establishment and maintenance of centres where the research agenda is directed by groups of companies who work together with higher level researchers to perform medium term commercially relevant research.</p>	15,337	20,761
<b>Industry Led Networks</b>		
<p>These are aimed at providing support for research in areas defined by networks of companies in specific industry sectors. The work is overseen by an industry board and El works to create real collaboration between companies and the researchers to ensure the transfer of technology.</p>	956	3,000
<b>Innovation Partnerships</b>		
<p>These are aimed at harnessing the strengths of the third level sector to work in partnership with companies on specific R&amp;D projects.</p>	9,943	10,000
<b>Commercialisation Fund</b>		
<p>This programme supports academic researchers to take the outputs of research with commercial potential and bring it to a point where it can be transferred into industry.</p>	24,625	24,000

## Department of Jobs, Enterprise and Innovation

### Forfás

Forfás is the national policy advisory board for enterprise, trade, science, technology and innovation and works closely with DJEI and Forfás' sister agencies, Enterprise Ireland, IDA Ireland and Science Foundation Ireland to ensure the coherence of policies across the enterprise development agencies in support of enterprise growth and jobs creation.

Forfás provides the Minister, DJEI and Government with independent policy advice in a range of policy areas from an enterprise perspective. Forfás has the skills and expertise to look across the wide range of issues relevant to business. Forfás brings its analytical skills to bear and brings forward insight and analysis which informs the development of enterprise and science policies for Ireland. It links private sector enterprises and the public system. Many of the policy areas which impact on enterprise are within the Minister's brief and responsibility for others reside with other ministers and departments, but have a direct or indirect impact on enterprise development. This requires Forfás to work across Government departments and agencies.

As well as on-going policy work, Forfás provides the Minister and DJEI with responsive, real-time policy advice on a broad range of emerging issues. Forfás also supports DJEI in the promotion and implementation of the outcomes of its advice.

Forfás managed the work of and provides research and analytical support to the Advisory Council for Science, Technology and Innovation, the Expert Group on Future Skills Needs and the National Competitiveness Council.

	€'000 2011	€'000 2012
<p>Research Prioritisation - Prioritisation Action Group (PAG) Forfás managed the National Research Prioritisation Exercise Steering Group which recommended 14 areas of opportunity which should receive the majority of competitive public research funding over the coming 5 years. The Prioritisation Action Group (PAG) which is also managed by Forfás was set up by Government to maximise the impact of R&amp;D spend by focussing the majority of funding on these 14 priority areas through the development of an action plan for each of these areas.</p> <p>Dublin City of Science 2012 was a year-long programme of public engagement events held in Dublin to mark the hosting of the Euroscience Open Forum (ESOF) in Dublin in July 2012. ESOF is Europe's largest general science meeting. ESOF2012 featured an eclectic programme, spanning cosmology and innovation policy and consisted of 162 sessions with 660 speakers, including 5 Nobel Laureates. It attracted over 4,400 delegates from 75 countries.</p>	172	142
<p>Chief Scientific Adviser - (Office moved to Science Foundation Ireland - SFI in 2012)</p> <ul style="list-style-type: none"> <li>▪ To provide high level advice on scientific issues of concern to Government across the spectrum of disciplines.</li> <li>▪ To play a key role in monitoring, evaluation, and delivery of the Government's Strategy for Science, Technology and Innovation (SSTI 2006-2013).</li> <li>▪ The CSA reports, via the Interdepartmental Committee (IDC) on Science, Technology and Innovation, to the Cabinet Committee on STI.</li> </ul>	278	227

# Department of Jobs, Enterprise and Innovation

## IDA Ireland

IDA Ireland has national responsibility for securing new investment from overseas in manufacturing and international services and for encouraging existing foreign enterprises to expand their businesses. With a staff of 250 people and headquarters in Dublin, IDA Ireland has 18 overseas offices.

Activities include the international and national promotion of Ireland as a location for overseas investment and the provision of financial incentives for the attraction of new overseas investment into Ireland, as well as the expansion of its existing client base of almost 1,000 companies. As part of its brief to develop overseas companies already in Ireland, IDA Ireland focuses on encouraging these companies to locate additional or higher order functions in Ireland, e.g. a research and development unit.

IDA Ireland is committed to supporting its clients to establish and grow R&D activities in Ireland. The objective is to ensure that its client companies are focused on activities for which Ireland is a cost-effective location and thus help to secure their competitiveness and strategic importance within the overall company.

There are no administrative costs associated with science and technology activities as no separate staff are assigned to administer research and development grants.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
The IDA Research, Development & Innovation (RD&I) Support programme is designed to support companies at all stages of RD&I and enable them to move from start-up R&D, through developing capacity and adding competence, to a fully integrated RD&I function. Support levels are tied to an assessment of strategic objectives, in conjunction with commercial and technical assessments.	62,720	63,000
Support for other activities that would enable a company to undertake the RD&I project is also available which could include support for feasibility studies.		
In total, over 41 companies undertook to invest in RD&I activities in their Irish operations during 2011 and IDA Ireland committed over €97 million in grant assistance to these projects.		

## Department of Jobs, Enterprise and Innovation

### Inter *Tradel*reland

Inter *Tradel*reland is the only organisation which supports SMEs across the island to develop North/South trade and business development opportunities for the mutual benefit of both economies.

“We encourage better use of our collective resources to accelerate trade and business growth across the island and create an environment where it is easier to do business. We achieve this through co-operative business, policy and research programmes, partnerships and networks.”

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<b>INNOVA</b>		
INNOVA supports cross-border R&D collaboration between companies, with the support of public research organisations where required. INNOVA assists companies to create new products, processes or services or significantly improve existing ones.	1,077	780

## Department of Jobs, Enterprise and Innovation

### Science Foundation Ireland

Science Foundation Ireland, the national foundation for excellence in scientific research, was established under the Industrial Development (Science Foundation Ireland) Act 2003 to establish Ireland as a centre of research excellence in strategic areas relevant to economic development, particularly the areas of biotechnology (BioT) and information and communications technologies (ICT). In 2008 SFI's remit was extended to include Sustainable Energy and Energy-efficient Technologies. To accomplish its mission, SFI makes grants based upon the merit review of proposals from distinguished researchers.

In addition, SFI supports, through the Research Frontiers Programme (RFP), the very best research by academic researchers and research teams who are most likely to generate new knowledge, leading edge technologies and competitive enterprises in a broad range of disciplines in science, mathematics and engineering. Competition for this funding is driven by the scientific merit of the proposals. Grants are awarded to eligible Research bodies which include all the major Universities and Institutes of Technology in Ireland.

SFI also advances co-operative efforts among education, Government and industry that support its fields of emphasis and promotes Ireland's ensuing achievements around the world.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<b>SFI Principal Investigator (PI) Programme</b> The SFI Principal Investigator (PI) Programme supports those fields of science and engineering that underpin biotechnology, information and communications technology, and sustainable energy and energy-efficient technologies. PI grants may range from €100,000 to €1,000,000 direct costs per year and may be 3-5 years in duration.	154,029	156,000
<b>SFI Principal Investigator Career Advancement Award (PICA)</b> The SFI Principal Investigator Career Advancement (PICA) Programme supports outstanding researchers returning to active research after a prolonged absence. PICA has been integrated into the Principal Investigator programme. PICA applicants must be eligible under all of the standard PI criteria. In addition, applicants need to be eligible under the PICA-specific criteria. PI awards, and hence PICA awards, may range from €100,000 to €1,000,000 direct costs per year and may be up to 5 years in duration.		
<b>SFI Centres for Science, Engineering, and Technology: Campus-Industry Partnerships (CSET)</b> CSETs help link scientists and engineers in partnerships across academia and industry to address crucial research questions, foster the development of new and existing Irish-based technology companies, attract industry that could make an important contribution to Ireland and its economy, and expand educational and career opportunities in Ireland in science and engineering. Grants normally range from €1 to €5 million per year for five years		

**SFI Strategic Research Cluster Programme**

SFI Strategic Research Clusters (SRCs) will help link scientists and engineers in partnerships across academia and industry to address crucial research questions. Grants of approximately €1m to €1.5m per year for five years are normally awarded.

**SFI Research Frontiers Programme**

The SFI Research Frontiers Programme aims to support the very best research in a broad range of disciplines in Science, Mathematics and Engineering. Awards typically run for up to 3 years.

**SFI North-South Research Partnership Supplement**

The SFI North-South Research Partnership Supplement award facilitates collaborations between SFI funded researchers and researchers in Higher Education Institutions (HEIs) in Northern Ireland. Supplements should be directly related to, and enhance, the existing SFI peer-reviewed programmes.

**US-Ireland R&D Partnership Programme**

The US-Ireland R&D Partnership will help link scientists and engineers in partnerships across academia and industry to address crucial research questions; will foster new and existing industrial research activity that could make an important contribution to the respective economies; and will expand educational and research career opportunities in science & engineering.

**SFI Research Professor Recruitment Awards**

The SFI Research Professor Recruitment Awards aims to attract to Ireland outstanding researchers, with particularly distinguished international reputations, awards normally ranging up to €500,000 per annum for up to two years.

**SFI Workshops and Conferences Grants**

The SFI Conference & Workshops programme aims to support international meetings held in Ireland for intensive inquiry and collaboration on topics of timely scientific importance relating to the areas of research that underpin Biotechnology, Information and Communications Technology and Sustainable Energy and Energy-Efficient Technologies. Awards range from €500 to €50,000.

**SFI Technology Innovation Development Awards (TIDA)**

The TIDA awards are designed to enable researchers to focus on the first steps of an applied research project which may have a commercial benefit if further developed. The objective of the TIDA awards is to realise a greater economic impact from the state investment in oriented basic research.

**SFI Healthcare Innovation Award Programme (HIPA)**

The Healthcare Innovation Programme is intended to encourage biomedical exploration in the areas of Immune-modulated inflammatory diseases.

#### SFI Short Term Travel Fellowship Supplement

The Short Term Travel Fellowship (STTF) is designed to enable Irish-based researchers to collaborate on research projects in academic and industrial laboratories outside the Republic of Ireland for a period of 1 month minimum to a maximum of 6 calendar months. The budget available, on a competitive basis, is up to €30,000 direct costs for a period of 1 month minimum to a maximum of 6 calendar months.

#### SFI-HRB Translational Research Award

The Translational Research Award (TRA) joint initiative aims to support the research funding strategy of both the HRB and SFI (HRB-SFI). The initiative focuses resources in areas which offer the greatest potential for translation into impacts and benefits for health and long term economic development, as well as for more efficient and effective collaboration between researchers based in an academic setting and those working in a service delivery/clinical setting who are engaged in translational research.

#### Tyndall National Access Programme

The Tyndall National Institute in association with the Department for Jobs, Enterprise and Innovation provides access for researchers to state-of-the-art research facilities and equipment, funded by SFI, with consequent benefits for research quality, innovation and economic competitiveness.

#### SFI UREKA Supplements

SFI UREKA Supplement Awards support active undergraduate research participation in the summer months in the laboratories of SFI funded researchers for a period of 10-12 weeks.

#### SFI UREKA Site International Exchange Programme

The SFI UREKA Site International Exchange Programme formalises exchange programmes between a currently funded UREKA Site and a similar international programme (e.g. REU Sites in the US), having a complementary research focus. Awards support reciprocal exchange of up to two Irish students to the partner site.

#### SFI E.T.S. Walton Visitor Awards

SFI E.T.S. Walton Visitor Awards support leading international scientists who wish to undertake research in Ireland for up to 12 months. Awards normally range up to €200,000.

#### SFI UREKA Sites

SFI UREKA Site Awards support active undergraduate research participation for a period of 10-12 weeks in the summer in the laboratories of clustered researchers from Irish 3<sup>rd</sup> level institutions. Each supported site has a focused research theme, and engages 10-16 undergraduate student researchers each year, over a period of three years award duration. Awards typically range between € 60,000 and €110,000 per year.

**SFI President of Ireland Young Researcher Award (PIYRA)**

SFI PIYRA Awards recognize outstanding engineers and scientists who, early in their careers (no more than five years since PhD), have already demonstrated or shown exceptional potential for leadership at the frontiers of knowledge. Awards are normally up to €1m over five years.

**SFI Engineering Professorship and Lectureship Programme**

Proposals to this Programme are invited from all fields of engineering. SFI funding will be €150,000 (Professorships) and €75,000 (Lectureships) in direct costs per annum. A minimum cost share contribution for each post of 20% (of SFI direct costs) by industry sponsors will be required (€30,000 and €15,000 p.a., respectively), bringing the total award value per annum to €180,000 and €90,000, respectively. SFI Engineering Professorship and Lectureship posts may be held for up to five years.

**SFI Stokes Professorship and Lectureship Awards**

The SFI Stokes Professorship and Lectureship Programme aims to support the research strategy of Schools and Departments by funding Lectureship and Professorship positions in situations where a permanent post is not currently vacant. Professorships are funded at the rate of €180,000 per annum and Lectureships at €90,000 per annum in Direct Costs. Awards may be held for 5 years.

**SFI Mathematics Initiative**

This initiative is intended to encourage mathematical research that has a potential impact on enterprise, industry, science, engineering and mathematical education. Proposals to this initiative are now invited in all fields of mathematics. The maximum award would be approximately €1m (direct costs) over 4 years.

**SFI Starting Investigator Research Grant (SIRG)**

SIRG provides an opportunity for excellent early-career-stage investigators to carry out independent research in the fields of science and engineering that underpin biotechnology, information and communications technology, and sustainable energy and energy-efficient technologies. The award also provides funding for a postgraduate student, who will be primarily supervised by the Starting Investigator (SI). SIRG awards are up to €500,000 direct costs for a period of four years.

**European Research Council (ERC)**

SFI acts as Ireland's National Delegate and National Contact Point for Sciences & Engineering to the European Research Council (ERC). The ERC's 'IDEAS' programme will spend approx. €7bn on funding principal investigator-driven, frontiers research projects between 2007-2013.



# Department of Jobs, Enterprise and Innovation

## Shannon Development

Shannon Free Airport Development Company was incorporated under the Companies Acts in 1959. The Shannon Free Airport Development Company Act 1959 and several amendment Acts govern the activities of Shannon Development and provide for State equity (from the Minister for Finance), and grants, for specific functions from the Ministers for Jobs, Enterprise and Innovation, , and for Transport, Tourism and Sport in relation to Limerick, Clare, North Tipperary, South-West Offaly and North Kerry. Shannon Development acts under the aegis of the Ministers for Jobs, Enterprise and Innovation, and Transport, Tourism and Sport.

Shannon Development's mission is to deliver a better future for people, investors and visitors to the Shannon Region and in so doing, to stimulate Ireland's economic recovery by driving and sustaining a world class region. Shannon Development's objective is to leverage its asset base to enable the Region to make the maximum contribution to national economic recovery. The Company is committed to leading and driving the economic development of the Shannon Region across all areas of economic activity working in partnership with the Government, other public bodies and the private sector.

This Company is focused on three key goals to help achieve its vision for the Region, these are:

- To enable the more developed areas of the Shannon Region to realise their full economic potential.
- To ensure that the potential of the less developed areas of the Shannon Region is realised.
- To create demand for the Shannon Airport Gateway and Shannon Complex.

The key responsibilities of the Company include the development and promotion of Shannon Free Zone which, together with Shannon Airport, forms the Shannon Complex; the development and promotion of Limerick City and its catchment area; promoting the Shannon estuary as a location for energy, especially renewables; the development of the Company's network of knowledge age business incubation facilities throughout the Region; the promotion and development of the Shannon Region tourism industry; the development of industrial and tourism infrastructure; and the development of strategic projects with significant economic impact in the Region.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
Product and Process R&D		
Grants of up to 35 per cent of eligible expenditure are available to firms in the Mid-West region carrying out product and process development projects. All R&D grants paid by Shannon Development are funded from the Exchequer Allocation.	4,201	5,040

## Dept. Environment, Community & Local Government

The Department is responsible for policy and programme formulation in relation to the environment, heritage, planning and housing; the development and financing of public infrastructure; the local government system; and for a number of regulatory functions.

Most of the Department's spending is channelled through local authorities and as such local authorities are the main providers of public infrastructure and the provision of services locally. The Department's mission is "to promote sustainable development and improve the quality of life through protection of the environment and heritage, infrastructure provision, balanced regional development and good local government".

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<b>Local Government Management Agency</b>		
The Research and Architecture team take on a number of annual Projects. These projects are usually selected and brought to the ICT committee of the LGMA. Projects are prioritised to maximise the benefit of the Local Government Sector. On an annual basis Research is carried out in both pure technology fields and in business areas of Local Government. The outcome of the research is usually a project with a Local Authority or a paper to the ICT Committee on the specific area.	225	110
Since an Exit from Microsoft Software and Microsoft Enterprise Agreements across the whole Local Government research has been carried out in the Open Source area. Some very generic research has proved that Open Source is a viable alternative to the more proprietary software that Local Government currently uses in most areas.		
<b>An Chomhairle Leabharlanna -EuropeanaLocal</b>		
An Chomhairle Leabharlanna has been participating in the EU EuropeanaLocal project since 2008. EuropeanaLocal is a Best Practice Network project, funded under the eContentplus programme of the European Commission. It is one of a number of projects funded by the EC to help further develop the European portal for Europe's cultural heritage online. The focus in EuropeanaLocal is in developing tools to ensure that the digital content provided by Europe's local and regional cultural institutions is represented in Europeana.	44	0
<b>An Chomhairle Leabharlanna -Linked Heritage</b>		
An Chomhairle Leabharlanna is participating in the EC funded Linked Heritage project, which began in 2011 and has a duration of 30 months. Linked Heritage has as its main objectives the contribution of large quantities of new content to Europeana.eu, the EU online culture portal; the enhancement of quality of content, in terms of metadata richness, re-use potential and uniqueness and improved search, retrieval and use of Europeana content.	38	0

# Dept. Environment, Community & Local Government

## Environmental Protection Agency

The Environmental Protection Agency (EPA) is an independent public body established in July 1993 under the Environmental Protection Agency Act, 1992. Its sponsor in Government is the Department of the Environment, Community and Local Government. The EPA is a statutory body responsible for protecting the environment in Ireland. To regulate and police activities that might otherwise cause pollution and to ensure there is solid information on environmental trends so that necessary actions are taken.

Priorities are protecting the Irish environment and ensuring that development is sustainable. Since 1994, the EPA research programme has supported R&D activities in a range of environmental areas. This work was carried out by researchers in third level institutions, state agencies, Government departments, local and regional authorities, the private sector and by individuals.

### STRIVE

The current Research programme - the Science, Technology, Research and Innovation for the Environment (STRIVE) Programme, focuses on protecting and improving the natural environment, through the provision and accumulation of scientific research and knowledge. It is currently funded through the Environment Fund as part of the National Development Plan 2007 - 2013.

The research programme is based around “three pillars” (climate change, water and sustainable environment).representing the key research priorities associated with delivering a protected Irish environment.

#### 1. Climate Change

The programme continued to provide essential information in support of national actions on climate change. This includes support for analysis of greenhouse gas (GHG) emissions and sinks reported to the EU and UN annually and analysis of climate change impacts and adaptation. The research team supported Irish expert engagement with the IPCC Special Report on renewable energy, which was published in 2011.

In 2011 approximately €3.4 million funding was provided for existing and new research in this area. This was focused on priority projects on emissions and sinks of greenhouse gases, including work to respond to advance analysis of land use issues which are a high priority for Ireland.

A number of research projects were completed in 2011 and project reports will be published in 2012 including work on biogas and restoration of peatlands (publication in 2011 was not possible due to time constraints).

Progress was made on the development of a climate change information system for Ireland and analysis of vulnerability to be published in 2012.

## 2. Water

Supporting Ireland's commitments to attain good water status under the Water Framework Directive (WFD), this research area contributes to ensuring excellent water in Ireland by focusing on investigating significant fundamental knowledge gaps, measures to support relevant water policy and the development of new solutions to protect our water environment.

In 2011 there were seven research reports in the Water area. One of these reports is on the state-of-the-art wastewater treatment facility at Tuam, Co. Galway which has been funded by the EPA in conjunction with NUI Galway and Galway County Council. The facility has significant potential for innovative research for the development and testing of novel environmental technologies.

Other relevant project reports in the Water area included (i) Demonstration of on-line water quality monitoring on the River Lee and (ii) Novel anaerobic Sewage treatment and Bioenergy production.

In 2011 approximately €1.6 million funding was provided for new research (15 projects) in this area.

## 3. Sustainable Environment

The specific focus areas of the Sustainable Environment pillar include

- Environment & Human Health
- Waste & Resource Management
- Impacts on Biodiversity
- Soils and Land-use
- Socio-economic Considerations

In this area, two major national studies were completed in 2011.

**Bogland:** Sustainable management of Peatlands in Ireland was the first comprehensive assessment of peatlands (bogs and fens) for Ireland.

**Biochange:** This interdisciplinary, multi-institutional study project provided necessary information for protecting the diversity of Ireland's flora and fauna and focused on emerging and important issues surrounding Irish biodiversity.

In 2011 approximately €1.12 million funding was provided for new research (10 projects) in this area.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
Research Programmes	13,337	9,600

# Dept. Environment, Community & Local Government

## Met Éireann

Met Éireann, the Irish Meteorological Service, established in 1936, is a division of the Department of the Environment, Community & Local Government. The service is engaged in the following activities:

- Collection, analysis and publication of meteorological, geophysical and geochemical data;
- Supply of weather forecasts, statistical information and scientific advice to agricultural, industrial and public utility undertakings, radio, television and the web, maritime interests and members of the public;
- Supply of similar information to Government departments, semi-State bodies, and the defence forces;
- Provision of meteorological facilities in Ireland in support of civil aviation and the supply of advice on meteorological aspects of civil aviation matters generally;
- Development work in applied meteorology;
- Climate Change research;
- Co-operation with the meteorological services of other countries and the representation of Ireland at meetings concerned with international co-operation in meteorology.

Met Éireann is funded directly by the Department of the Environment, Community & Local Government but a significant portion of the expenditure is recovered by the department in the form of route charges payable by the airlines for meteorological services to civil aviation and by means of fee for information and advice supplied to commercial and other interests on a repayment basis.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<p>Research is carried out in various fields of meteorology and climatology. The primary thrust of the research effort is towards the development of computer models for weather analysis and prediction and participation in an international research collaboration called HIRLAM (High Resolution Limited Area Modelling), together with Norway, Sweden, Finland, Denmark, Spain, the Netherlands and Iceland. The HIRLAM forecasting model is now in routine use and upgraded regularly.</p> <p>Work on homogenisation methods of climate series and development and implementation of improved gridding methodologies for climate data will continue.</p> <p>Development work is also ongoing in the area of NWP post-processing and also in the area of Forecaster Workstation and Automatic Weather Observations.</p>	381	367

## Dept. Environment, Community & Local Government

### Radiological Protection Institute of Ireland (RPII)

The Radiological Protection Institute of Ireland was established on 1st April 1992 in accordance with the provisions of the Radiological Protection Act, 1991. Its main functions are:

- to advise the Government and to provide information to the public on matters relating to radiological safety;
- to regulate the use, transportation and disposal of radioactive materials;
- to prepare safety codes and regulations for the safe use of ionising radiation;
- to measure levels of radioactivity in the environment and assess their significance;
- to assist in the development of a national plan from an emergency arising from a nuclear accident;
- to provide a dosimeter service and to promote knowledge, proficiency and research in nuclear science and technology.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<b>Monitoring of environmental radiation</b> This programme monitors contamination of the aquatic and terrestrial environment by radioactivity from man-made sources. It also carries out other related research.	215	175
<b>Radon studies and information service</b> The monitoring of indoor radon levels in homes, schools and workplaces and related research to determine the extent of elevated radon levels in buildings is the main element of the programme. Information and advice to Government and other agencies on all matters relating to ionising radiation are provided by the Information Service.	203	156
<b>Nuclear Safety</b>	107	87

## Department of Finance

### Economic and Social Research Institute (ESRI)

The ESRI produces research that contributes to understanding economic and social change in the new international context and that informs public policymaking and civil society in Ireland.

Since its establishment, ESRI researchers have leveraged their conceptual and empirical research in economics and sociology to provide analysis that helps inform economic and social policymaking in Ireland. Key features of the research are its strong empirical base, its policy focus and its coverage of many of the major areas of relevance to current policy issues in Ireland and the European Union.

The Institute enjoys full academic independence and is answerable ultimately to its subscribing members, currently over 300 companies and individuals. The Council is the effective board of directors of the Institute. Council meetings are attended by the Company Secretary and two representatives of the Management Committee in a non-voting capacity. Apart from the Director of the Institute, who is an ex-officio member, ESRI Council members are not remunerated.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
During 2011-12, the Institute undertook research projects in:  competition & regulation, demography & migration, education, energy, environment, equality & integration, health, internationalisation & competitiveness, labour market, macroeconomics, social inclusion & quality of life, taxation, welfare & pensions, transport & infrastructure.	5,918	6,239

## Department of Health

The Department of Health was established under the Ministers and Secretaries Act (Amendment), 1946. The mission of the Department of Health is "in partnership with the providers of health care, and in co-operation with other Government departments, statutory and non-statutory bodies, to protect, promote and restore the health and well-being of people by ensuring that health and personal social services are planned, managed and delivered to achieve measurable health and social gain and provide the optimum return on resources invested".

The role of the Department of Health is to support the Minister and the democratic process by:

- Formulating policy underpinned by an evidence-based approach and providing direction on national health priorities ensuring that quality and value for money are enhanced through the implementation of an evidence-based approach underpinned by monitoring and evaluation.
- Protecting the interests of patients and consumers and supporting practitioners and professionals to practice to the highest standards by providing a prudent and appropriate regulatory framework.
- Providing effective stewardship over health resources by demanding accountability for achieving outcomes including financial, managerial and clinical accountability, and by providing the frameworks, including enhanced service planning at national level, to improve the overall governance of the health system.
- Fulfilling our obligations in relation to EU, WHO, Council of Europe and other international bodies and the continued implementation of the co-operation agenda decided by the North-South ministerial council.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
National Cancer Registry Board	2,826	2,500
The National Cancer Registry Board was established in June 1991, under the Health (Corporate Bodies) Act, 1961. Its functions are inter alia, to research and analyse information relating to the incidence and prevalence of cancer and related tumours in Ireland and to promote and facilitate the use of data collected in approved research projects and in the planning and management of services.		



# Department of Health

## Health Research Board

The Health Research Board (HRB) is the lead agency in Ireland supporting and funding health research. It provides funding, maintains health information systems and conducts research linked to national health priorities. The HRB's mission is to improve people's health, patient care and health service delivery by:

- leading and supporting excellent research by outstanding people within a coherent health research system;
  - generating knowledge and promoting its application in policy and practice;
- and, in doing so, play a key role in health system innovation and economic development.

The HRB's Strategic Business Plan 2010-2014 outlines how it will achieve its mission, working in partnership with other organisations. The HRB's strategic goals are:

- Driving the development of excellent clinical research, including applied biomedical research, within a coherent health research system.
- Building capacity to conduct high-quality population health sciences research and health services research.
- Working with key partners to develop and manage high-quality national health information systems.
- Generating and synthesising evidence, and promoting the application of knowledge to support decision-making by policy makers and relevant practitioners.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
<b>Research Strategy and Funding Directorate</b>		
Clinical & Applied Biomedical & Research Unit has responsibility for developing the infrastructure, career support and programmes for biomedical and clinical research in Ireland. The Unit manages the award to ICORG (the cancer clinical trials network), and the development of other large-scale infrastructure initiatives such as clinical research centres and further networks. The Unit also manages a wide portfolio of project and programme grants, including specific initiatives in translational research. The Unit co-funds awards with SFI, Wellcome Trust, the HSC RDO (Belfast), and others.	21,549	22,421
Population Health and Health Services Research Unit has responsibility for building capacity to conduct world-class health services and population health research in Ireland. This involves providing support for healthcare professionals to engage in research across their career pathways and in growing the number of individuals and teams trained in the applied research methods required to conduct this type of research. The unit works closely with the Health Services Executive and other health and social care agencies to fund centres and networks aligned with policy and practice priorities in our healthcare system.	11,107	11,434
(See next box for detailed breakdown of this funding)		

<b>Research Strategy and Funding Directorate - Awards</b>		
<p>The HRB currently manages funding programmes and commitments worth approximately €100m. Funding covers all areas of health research from biomedical, translational, clinical and practice-based research, through to population health and health services research. Research Strategy and Funding Directorate awards in 2010 within the eight main Research Areas that it supports were:</p>		
1. Basic Biomedical Research	643	1,329
2. Applied Biomedical Research	6,330	7,725
3. Clinical Research	10,751	9,556
4. Applied Biomedical/Clinical Research	3,825	3,811
5. Population Health Sciences Research	2,610	1,742
6. Clinical/Population Health Sciences Research	1,181	4,562
7. Health Services Research	4,219	3,636
8. Clinical/Health Services Research	3,097	1,494
<b>Health Information and Evidence Directorate</b>		
<p>National Health Information Systems Unit manages five national health information systems:</p> <ul style="list-style-type: none"> <li>▪ The National Drug Treatment Reporting System</li> <li>▪ The National Drug-Related Death Index</li> <li>▪ The National Psychiatric In-Patient Reporting System</li> <li>▪ The National Intellectual Disability Database</li> <li>▪ The National Physical and Sensory Disability Database</li> </ul> <p>The databases provide a comprehensive and accurate information base for informing policy on and decision making in relation to the planning of specialised health and personal social services for:</p> <ul style="list-style-type: none"> <li>▪ drug use</li> <li>▪ intellectual, physical or sensory disabilities</li> <li>▪ mental health</li> </ul>		
<p>The Evidence Generation &amp; Knowledge Brokering Unit is a multi-disciplinary team of researchers and information specialists who provide objective, reliable and comparable evidence generation. They also facilitate a knowledge centre and on-line portal for the delivery of high-quality health information and research evidence. The Unit is the Irish national focal point for the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). The Unit also manages the National Documentation Centre on Drug Use.</p>		
	1,353	1,338
	1,130	1,091

## Department of the Taoiseach

### The National Economic and Social Council

The National Economic and Social Council (NESC) was established by Government in November 1973. Its members include representatives from employer associations, trade unions, agricultural groups, community and voluntary organisations, environmental organisations, plus a number of independent members nominated by Government.

The function of the Council is to analyse and report to the Taoiseach on strategic issues relating to the efficient development of the economy and the achievement of social justice and the development of a strategic framework for the conduct of relations and the negotiation of agreements between the Government and the social partners.

The NESC is financed by grant-in-aid from the Department of the Taoiseach and by income from the sales of publications. It employs a total of 16 staff. The NESC conducts studies on a wide range of relevant topics in the areas of economic and social policy.

Areas researched include: industrial policy, economic performance, social developments, the welfare state, migration, housing, the labour market, the environment, the European Union and the public policy system.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
During 2011, the NESC published two studies		
(i)    Supports & Services for Unemployed Jobseekers (Report No. 123)	1,184	1,132
(ii)   Quality & Standards in Human Services in Ireland (Report No. 124)		
Work accounted for in 2012 Work Programme budget includes;		
▪    Promoting Economic Recovery & Employment		
▪    Draft Framework for Sustainable Development in Ireland		
▪    Quality & Standards in Human Services in Ireland		
▪    Understanding PISA and What it tells us about Educational Standards in Ireland		
▪    Social Dimensions of the Crisis		

## Department of Transport

### National Roads Authority

The National Roads Authority was established with effect from 1 January, 1994, under the provisions of the Roads Act, 1993.

The Authority's primary function, under section 17 of the 1993 Act, is to secure the provision of a safe and efficient network of national roads. For this purpose it has overall responsibility for the planning and supervision of construction and maintenance works on these roads. In addition to its general mandate, the Authority has been assigned a number of specific functions under the Roads Act, including:

- preparing or arranging for the preparation of road designs, maintenance programmes and schemes for the provision of traffic signs and delineation/road markings on national roads;
- securing the carrying out of construction, improvement and maintenance works on national roads, allocating and paying grants to local authorities for these purposes;
- specifying standards in relation to construction or maintenance works;
- carrying out or assisting with training, research or testing activities in relation to any of its functions;
- promoting the case for Exchequer funding and EU assistance for national roads;
- entering into agreements with the private sector for the financing, operation and management of national road projects, and
- making toll schemes for national roads.

To ensure that all of the Authority's research activities are carried out in a coordinated way a formal Research Strategy has been initiated by the Board. The aim of this Research Strategy is to promote practical measures that will contribute to cost reducing and/or quality enhancing innovation in regard to the Authority's functions.

The research activities cover two broad functions:

- to undertake or arrange for research and development on road construction, maintenance, safety and transport matters of particular importance in Ireland, and
- to serve as a centre which can disseminate the findings of research in Ireland and other countries.

Research undertaken or commissioned by the National Roads Authority provides the Authority, the Department of Transport, local authorities and their consultants and contractors with information, technical assistance and guidance related to all aspects of road construction, traffic, and transportation which enable them to formulate policy and plan, design, construct, maintain and operate the road system in the most cost effective and environmentally sustainable manner and to best practice standards.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
Research programmes include materials, environmental/sustainable construction; safety, heritage, value for money, transportation and land use.	1,519	948

## Offices

### Central Bank and Financial Services Authority of Ireland

The Central Bank Reform Act, 2010, created a new single unitary body - the Central Bank of Ireland - responsible for both central banking and financial regulation. The new structure replaces the previous related entities, the Central Bank and the Financial Services Authority of Ireland and the Financial Regulator.

The high level goals of the Central Bank of Ireland are to:

- Contribute to Eurosystem effectiveness and price stability
- Contribute to financial stability
- Ensure proper and effective regulation of financial institutions and markets
- Ensure that the best interests of consumers of financial services are protected
- Provide independent economic advice and high quality financial statistics
- Ensure efficient financial services infrastructure to the economy: payment and currency
- Maximise operational efficiency and cost effectiveness

The Bank continued to monitor, analyse and project short-term developments in the Irish and Euro-area economies during 2011-12. It also conducted research into longer-term structural issues.

The Bank co-operated with other Eurosystem national central banks and the ECB in these areas through its participation in ESCB committees and working groups. This work assisted the governor of the bank and other members of the ECB governing council in formulating policy during 2011-12.

The Bank also assessed macroeconomic conditions and considered policy issues in a domestic context, with a view to supporting policies aimed at maintaining low inflation and sustaining long-term growth in the Irish economy

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
Main areas of economic research include: economic intelligence and forecasting, inflation and competitiveness, monetary issues, econometric modelling, public finances, structural issues, housing market, productivity and growth.	806	1,564

## Office of Public Works (OPW)

The main focal points of OPW activity are Flood Risk Management, National Procurement Service and Estate Portfolio Management comprising Property and Heritage Services. A number of services provided by the Office are shared/agency services to central Government Departments and Offices.

OPW employs specialist and professional staff in all aspects of architecture, engineering, valuation, quantity surveying and related disciplines. In-house resources are supplemented as required by contracting of services from private sector companies.

Over 90 per cent of construction, maintenance and conservation work is contracted from the private sector. Total staff employed at the end of 2011 was 1,757. The Office managed expenditure of €402m in 2011 on the OPW Vote in addition to a significant level of works carried out on an agency and repayment basis.

In the course of their work, OPW's professional staff carries out research and development of new building methodologies (including the area of sustainability practice), hydraulic and hydrological research and development and specialist conservation and restoration techniques.

	€'000 2011	€'000 2012
<b>Research and Development Programmes</b>		
Flood Studies Update	145	77
Capital expenditure on R&D buildings (R&D % allocation )	59	54







External Research & Development Expenditure ALLOCATION in 20

Agency Name:

Section 3: Research and Development - Funded by your organisation but **Performed Elsewhere (not in-house)** (€'000)

R&D programme name (see note below on Transnationally Co-ordinated Research)	Detailed current expenditure (€'000)	Detailed capital expenditure (€'000)	Total Expenditure (€'000)	Region		Name of organisation where the R&D is performed	Sources		
				Estimate by NUTS 2			Irish Government (€'000)		Euro Comm (€'000)
				S. & E.	B. M. W.		Current expend.	Capital expend.	
1			0	%	%				
2			0	%	%				
3			0	%	%				
4			0	%	%				
5			0	%	%				
6			0	%	%				
7			0	%	%				
8			0	%	%				
9			0	%	%				
10			0	%	%				
Total	0	0	0				0	0	0

## Transnationally Co-ordinated Research

Also include on this list all funding to 'transnationally coordinated research projects' examples of which are:

Inter-governmental or European Commission bodies that carry out R&D activity with own dedicated research facilities i.e. CERN, ILL, EMBL, JRC, ESO, ESRF.  
 Europe-wide transnational public R&D programmes e.g. European Space Agency, Eureka, EMBC etc.

Bilateral or multilateral public R&D programmes established between Member State governments e.g. HIRLAM

In-House Research & Development Personnel in 2012

Agency Name:

Section 4: **In-House Personnel Devoted to Research & Development Within your Organisation** (Headcount & % Research Time )

Please note that this section refers only to personnel involved in R&D performed within your organisation as recorded in Section 1. Any other personnel need not be recorded here.

R&D Programme Name (Please record the staff working by Programme as recorded in Section 1)	Researchers						Technicians			Other Staff			Total		
	With PhD			Without PhD			Headcount	Time Use (%)	Headcount	Time Use (%)	Headcount		Time Use (%)	Headcount	
	Headcount	Time Use (%)		Headcount	Time Use (%)						Male	Female			All
		Male	Female		All	Male	Female	All	Male	Female			All		
1														0	0
2														0	0
3														0	0
4														0	0
5														0	0
6														0	0
<b>Total</b>	0	0		0	0		0	0		0	0		0	0	0

Definition: Time Use (%)

The following activities are deemed as "research activities" for the purpose of this survey	The following activities are <u>not</u> deemed as "research activities" for the purpose of this survey
include Personal research or team research Writing research proposals or research reports Supervision of PhD students Other research based activities including administration and planning	omit Teaching General administration Supervision of non-PhD students Other non-research based activities or external activities

## Appendix 7: Forfás Board Members

Eoin O’Driscoll (Chairman)

Managing Director, Aderra

Martin Shanahan

Chief Executive, Forfás

Mark Ferguson

Director General, Science Foundation Ireland

John Murphy

Secretary General, Department of Jobs, Enterprise and Innovation

Barry O’Leary

Chief Executive, IDA Ireland

Frank Ryan

Chief Executive Officer, Enterprise Ireland

Michael O’Leary

Secretary to the Board, Forfás

## Appendix 8: Recent Forfás publications

Social Enterprise in Ireland - Sectoral Opportunities and Policy Issues Forfás	July 2013
Ireland's Construction Sector - Outlook and Strategic Plan to 2015 Forfás	July 2013
Forfás Annual Report Forfás	July 2013
Research Prioritisation: Framework for Monitoring Public Investment in Science, Technology and Innovation and 14 Action Plans DJEI	July 2013
National Skills Bulletin 2013 EGFSN	July 2013
Monitoring Ireland's Skills Supply: Trends in Education and Training Outputs 2013 EGFSN	July 2013
Annual Business Survey of Economic Impact 2011 Forfás	July 2013
Global Entrepreneurship Monitor 2012 Global Entrepreneurship Monitor	July 2013
Annual Employment Survey Forfás	July 2013
Ireland's Competitiveness Performance 2013 Forfás	May 2013
Making It In Ireland: Manufacturing 2020 Forfás	April 2013
Future Skills Needs of the Manufacturing Sector to 2020 EGFSN	April 2013
Sectoral Regulation Forfás	April 2013
EGFSN Statement of Activity	March 2013

EGFSN	
Costs of Doing Business in Ireland 2012 Forfás	March 2013
Vacancy Overview 2012 EGFSN	February 2013
Action Plan for Jobs 2013 Forfás, DJEI	February 2013
A Review of the Equity Investment Landscape In Ireland Forfás	January 2013
Regional Labour Markets Bulletin 2012 EGFSN	January 2013
A Review and Audit of Licenses Across Key Sectors of the Irish Economy Forfás	December 2012
Global Entrepreneurship Monitor (GEM) 2011 Global Entrepreneurship Monitor	September 2012
Annual Employment Survey 2011 Forfás	August 2012
National Skills Bulletin 2012 NCC	July 2012
Monitoring Ireland's Skills Supply - Trends in Education and Training Outputs 2012 EGFSN	July 2012
Ireland's Competitiveness Scorecard 2012 NCC	July 2012
Forfás Annual Report 2011 Forfás	July 2012
Key Skills for Enterprise to Trade Internationally EGFSN	June 2010
Sustainability of Research Centres Advisory Science Council	June 2012

The publications of Forfás and the advisory groups to which it provides research support are available at [www.forfas.ie](http://www.forfas.ie)

To sign up for our email alerts contact us at [info@forfas.ie](mailto:info@forfas.ie) or through the website.

August 2013

## **Forfás**

Wilton Park House  
Wilton Place  
Dublin 2

Tel: +353 1 607 3000  
Fax: +353 1 607 3030

[www.forfas.ie](http://www.forfas.ie)