

EXECUTIVE SUMMARY

Introduction

This report presents the findings of a study commissioned by the Department for Environment, Food and Rural Affairs (Defra) and undertaken by URS Infrastructure & Environment Limited (URS), to estimate expenditure by UK industry on environmental protection in 2010.

The primary objectives of the study are:

- To provide Defra with annual estimates of environmental protection expenditure by UK industry; and
- To enable Defra to provide these estimates to the European Commission as required under the European Union (EU) Structural Business Statistics Regulation 295/2008.

In addition to these broad objectives, data from the annual surveys may be used to assess how expenditure is changing, and to compare the levels of industry expenditure in the UK relative to other EU countries. The data also enables companies and trade associations to benchmark their own environmental spending against that of the industry as a whole, both in the UK and the EU. Furthermore, information on companies' environmental expenditure can be used to support evidence based policy-making.

This is the fourteenth survey of this type; previous surveys were carried out in 1994 (a pilot survey), 1997, and annually between 1999 and 2009. As in previous years, the 2010 survey process was overseen by a steering group with representatives from Defra and the Office for National Statistics (ONS).

Methodology

The 2010 survey was provided to companies within the following Standard Industrial Classification (SIC 2007) categories:

- | | |
|---|---|
| • Mining and Quarrying | • Non-Metallic Minerals |
| • Food, Beverages and Tobacco Products | • Basic and Fabricated Metals |
| • Textiles, Clothing and Leather Products | • Computer, Electronic and Optical Products and Other Manufacturing |
| • Wood and Wood Products | • Machinery and Electrical Equipment |
| • Paper and Pulp | • Transport Equipment |
| • Printing and Publishing | • Furniture Manufacture |
| • Coke and Refined Petroleum | • Repair and Installation |
| • Chemicals and Pharmaceuticals | • Energy Production and Distribution |
| • Rubber and Plastics | • Water Supply and Treatment |

The UK Government's Inter Departmental Business Register (IDBR) provided a stratified random sample of 7,827 companies from these industry sectors, who were invited to complete and return a postal or electronic questionnaire on a voluntary basis.

The total number of validated responses was 2,352, giving a valid response rate of 30 per cent (%), the highest response rate reported since the survey started. The responses were subjected to a range of detailed validation checks.

The survey analysed the following expenditure patterns in UK industry:

- Operating expenditure (Opex): In-house operating costs of a company's own environmental protection activities, as well as payments to others for environmental protection services (e.g. waste disposal); and
- Capital expenditure (Capex): 'End of pipe' investments (e.g. equipment to clean up at the end of the production process) and integrated investment expenditure (e.g. equipment to reduce or eliminate emissions and discharges as part of the production process).

The following were also identified:

- By-product income and savings resulting from environmental protection activities carried out in 2010;
- The environmental media (areas) affected by the spending, namely waste water, air, solid waste, soil/groundwater, noise/vibrations and nature protection; and
- The use and accreditation of an environmental management system (EMS).

Expenditure on health and safety equipment or services is excluded. Energy costs are also excluded from the definition of environmental protection expenditure, except where energy is specifically used to run environmental protection equipment or services. Annual savings related to energy are included.

Key findings from the 2010 survey

The following comprise a brief overview of key findings from the 2010 survey:

- Gross spending on environmental protection in 2010 by UK industry amounted to an estimated £2.9 billion (\pm £680 million at a 95% confidence level);
- The primary spending industry sectors were Food, Beverages and Tobacco Products (16% of total spend), Water Supply and Treatment (15% of total spend) and Machinery and Electrical Equipment (9% of total spend);
- Opex accounted for 77% of the total environmental protection expenditure, with Capex making up the remainder;
- Excluding spend on research and development, the area of largest expenditure across Opex and Capex was for solid waste measures, which totalled 34% of total spend. Expenditure on water protection measures accounted for 23%. Air and 'other' protection measures totalled 14% and 12% of the total spend respectively, with the remaining 17% split between soil/groundwater, noise and nature protection;
- This spending was offset by an estimated income of £73 million from the sale of by-products and an estimated cost saving of £166 million.

- Overall, 34% of responding companies had an environmental management system (EMS) in place in 2010. A total of 17% of responding companies had an EMS certified to ISO 14001, and 0.34% certified to Eco-Management and Auditing Scheme (EMAS).

Comparisons between survey years

A summary of total environmental protection expenditure by businesses for 2006 and 2010 is presented in **Figure E1**. Ranges indicating the 95% confidence intervals associated with each value are provided in parenthesis.

Whilst efforts are made each year to increase confidence levels and to keep the survey questionnaire and methodology consistent, direct comparisons between 2006 and 2010 survey years are not possible as:

- The 2003 Standard Industrial Classification (SIC) system was used during the 2006 survey process, whereas 2007 SIC was used for the 2008, 2009 and 2010 surveys;
- The 2006 and 2010 survey sample frames were significantly larger than those for the 2008 and 2009 surveys;
- The 2006 and 2010 surveys also covered a greater number of SIC sectors than the 2008 and 2009 surveys; and
- Since 2006, a number of improvements have been made to the questionnaire design and layout.

In light of this, the following figures include a proportionate breakdown of total spend by Opex and Capex reported in each year, as well as absolute figures.

Figure E1 – Summary of Environmental Protection Expenditure by UK Industry: 2006, 2008 to 2010

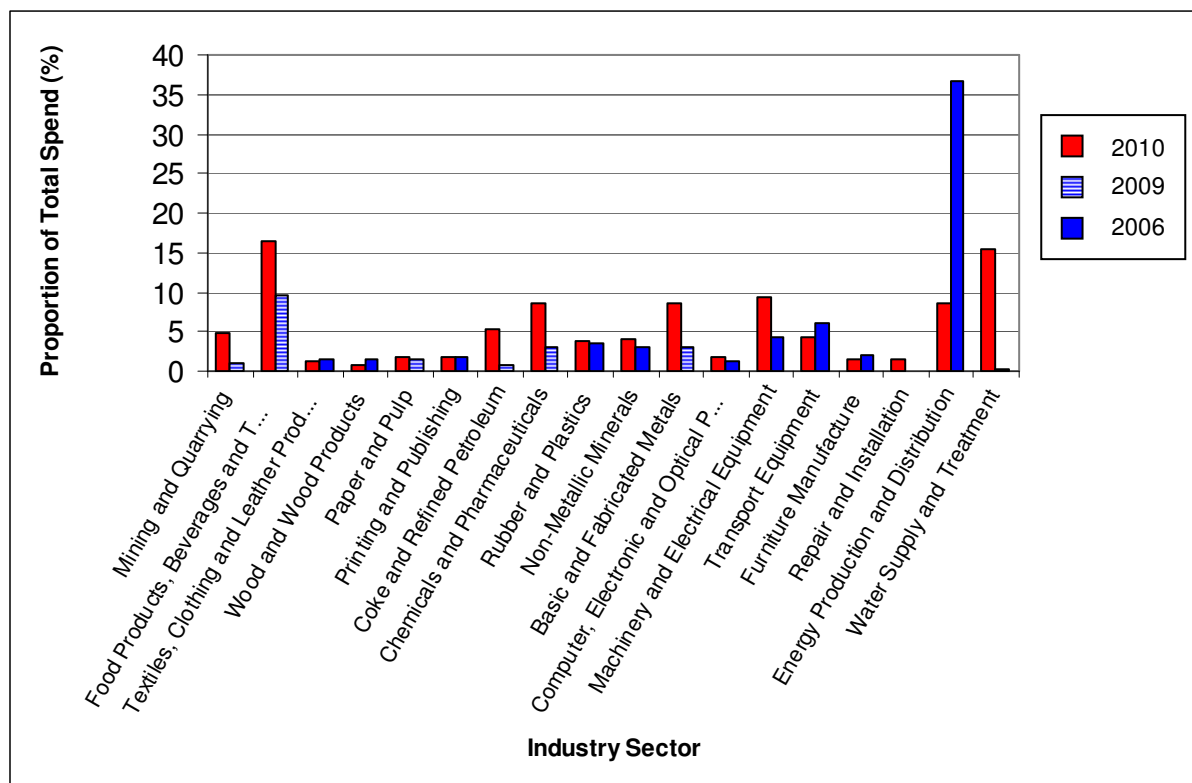
	2006		2008	2009	2010	
	Total expenditure (£M)	% of gross	% of gross	% of gross	Total expenditure (£M)	% of gross
Operational Expenditure						
In-house	912 (644 – 1,180)	22	19	37	894 (661 – 1,097)	31
External	2,025 (1,789 – 2,261)	48	33	19	1,123 (923 – 1,323)	39
Research & Development	80 (66 – 95)	2	4	2	182 (31 - 332)	6
Total Opex	3,017 (2,611 – 3,423)	71	55	58	2,198 (1,762 - 2,635)	77
Capital expenditure						
End of Pipe	352 (238 - 467)	8	20	29	190 (87 - 293)	7
Integrated processes	859 (771 - 946)	20	24	13	481 (68 - 895)	17
Total Capex	1,211 (1,059 - 1,363)	29	45	42	671 (244 - 1,097)	23
Gross expenditure						
Total gross spending	4,228 (3,751-4,706)	100	100	100	2,869 (2,194 – 3,545)	100
Income from by-products	173 (55 - 290)	4	0	1	72 (11 - 133)	2
Total net expenditure	4,055 (3,551-4,561)				2,798 (2,085 - 3,510)	
Cost savings	351 (195-507)				168 (91 - 245)	

Note: Comparisons between years should be treated with extreme caution. More detailed data from the 2006 survey (which used 2003 SIC codes) is presented above to provide a comparison with the most recent survey that had a similar sample frame to that of the 2010 survey.

A summary of total expenditure by the main industry groups for the 2010 survey year and the most recent comparable survey data is presented in **Figure E2**.

The 2010 survey has a larger sample frame covering a broader set of sectors than the 2007, 2008 and 2009 surveys, so whilst the 2009 survey is the most recent dataset overall, for specific sectors not included in 2009 sample frame, the most recent data set is from the 2006 survey. As a result, data from the 2010 survey has been compared with 2009 data where possible, or with 2006 data if the sector was not included in the smaller sample of 2009. However, due to changes in the SIC codes between 2006 and 2010, comparisons should be made with caution.

Figure E2 – Total Environmental Expenditure by Industry Sector: 2006/9 & 2010



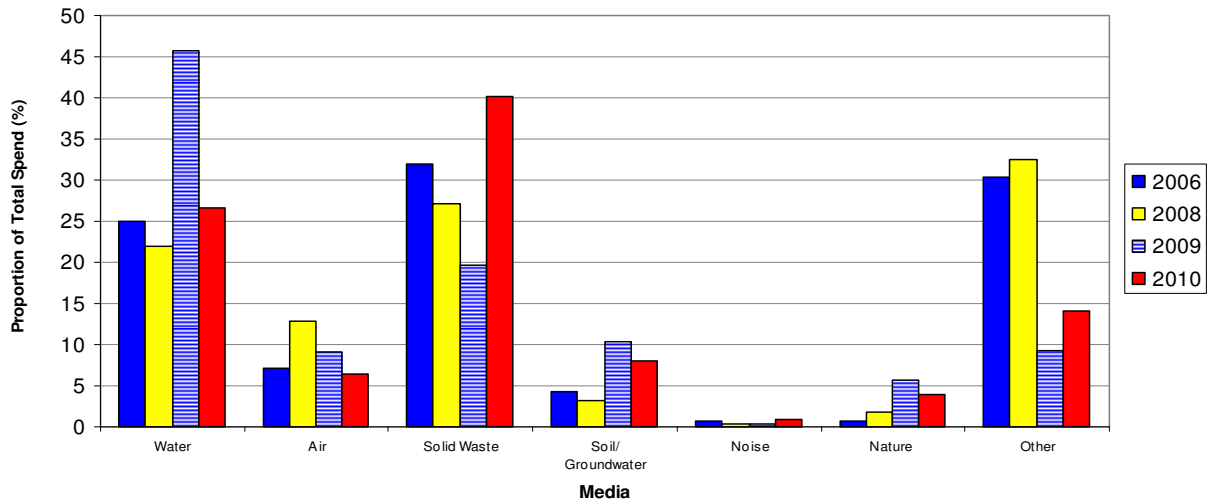
Note: Comparisons between years should be treated with caution. 2010 survey data is presented against 2009 survey data, or where this unavailable (due to its smaller sample frame) against 2006 survey data (which had a similarly large sample frame to that of the 2010 survey).

The Energy and Water industry sectors have traditionally dominated the spending in previous surveys. However, in the 2010 survey period the Water Supply and Treatment sector accounted for 24% of the total expenditure. It is possible that this relatively high expenditure is due to response bias as the 2010 sector sample for the Water Supply and Treatment is relatively small (44 companies, of which 10 provided responded) and the results can therefore be greatly influenced by the spend of individual companies.

The Food, Beverages and Tobacco Products sector has also been a consistently high spending sector (16% of total spend in 2010, 10% in 2009,) whilst the remainder of the sectors in combination typically account for a relatively minor proportion of annual spend (less than 10% in 2010).

Figures E3 and **E4** show the operational and capital expenditure across environmental media in 2006, and 2008 to 2010.

Figure E3 – Operational Environmental Expenditure by Environmental Media: 2006 & 2008 to 2010

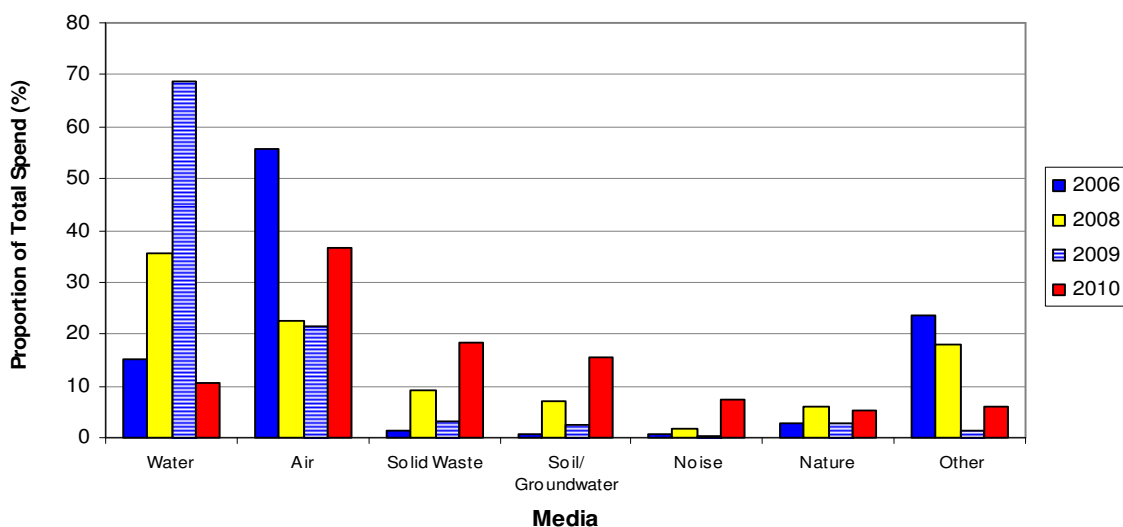


Note: 'Other' includes regulatory charges. 2006 survey data is presented above as to provide a comparison with the most recent survey using a similar sample size whilst the 2008 and 2009 data provide a more recent comparison using the same SIC codes.

In 2010, spend on solid waste comprised 40% (£812 million) of total Opex, the area of greatest expenditure. This is similar to the 2006 results, and reflects an increase in expenditure on solid waste measures as compared to 2008 and 2009, attributable to the increasing cost of waste disposal per unit volume. Water protection Opex has risen from the levels observed in 2006 and 2008, perhaps reflective of increasing regulation for water environment protection (e.g. Water Framework Directive).

The level of 'other' environmental expenditure decreased dramatically in 2009, and this reduced level was observed again in 2010. The 2009 decrease was apparently associated with definition interpretation, with expenditure previously assigned to this category, now accounted for among the other media.

Figure E4 – Capital Environmental Expenditure by Environmental Media: 2006 & 2008 to 2010



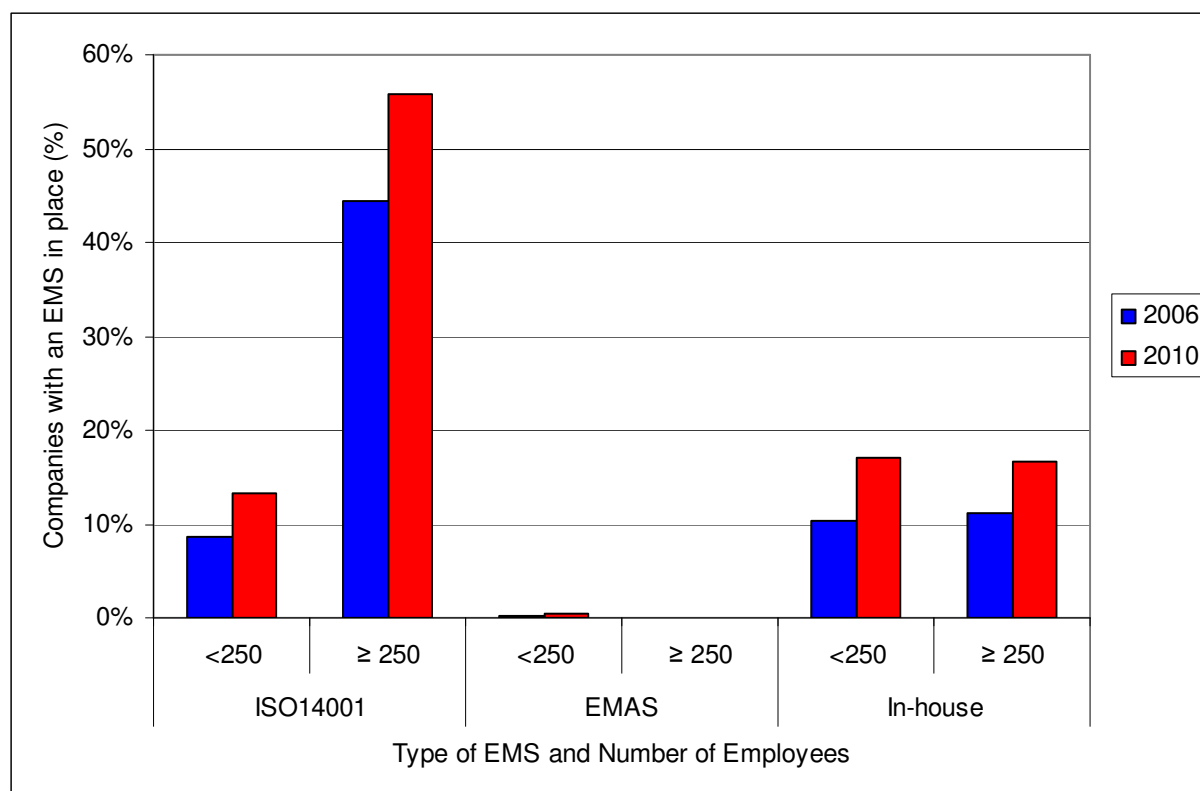
Note: 'Other' includes regulatory charges. Data from the 2006 survey is presented above to provide a comparison with the most recent survey using a similar sample size whilst the 2008 and 2009 data provide a more recent comparison using the same SIC codes.

Spend associated with air accounted for 37% of the total Capex (£247 million). Capex on solid waste accounted for 18% of the total spend (£124 million), mirroring the increase seen in Opex in this area. Soil and groundwater, and water protection measures contributed 16% and 11% respectively, whilst the remaining 3 categories (noise, nature protection and other) made up the residual 18%.

Environmental Management Systems

Figure E5 shows the proportion of companies in 2010 with an environmental management system (EMS) in place, by company size (i.e. number of employees).

Figure E5 – Breakdown of EMS Certification by Company Size: 2006 & 2010



Note. Some systems may be certified to both ISO 14001 and EMAS. The 2010 survey data is presented in comparison to the 2006 survey data as this is the most recent data set with a similar sample frame.

The proportion of companies with an EMS in place has increased since 2006, irrespective of company size (34% of respondents in the 2010 survey). Whether certified or not, larger companies are significantly more likely than SMEs to have an EMS system in place. A total of 17% of responding companies had an EMS certified to ISO 14001, and 0.34% certified to Eco-Management and Auditing Scheme (EMAS), the latter being more common within SME's than larger companies.