

## **SPECIFICATION FOR STATISTICAL ANALYSIS OF SCOTLAND BUSINESS WASTE SURVEY DATA FOR 2008**

### **1. Introduction**

Estimates of the amount and type of waste produced by businesses in Scotland are required to enable SEPA to meet statutory reporting requirements. Two business waste surveys have been carried out by SEPA to provide this data, collecting data for 2004 and 2006. Estimates produced by these surveys form a significant part of the data that is reported to the EU under the Waste Statistic Regulation every two years.

In September 2007 SEPA launched the Scotland Business Waste Survey and sent 30,000 paper questionnaires to businesses across Scotland asking for information on the types and quantities of waste produced in 2006. Around 3,000 responses were received from the survey in total. Statistical analysis of the survey results was carried out by Napier University Centre for Mathematics and Statistics to produce estimates of waste produced in 2006 and 2007. Full details of the survey and all documents can be found on the SEPA website.

The purpose of this project is to carry out statistical analysis of the results from the 2006 survey to produce estimates of waste produced by all businesses across Scotland for the year 2008.

### **2. Overall objectives**

The overall objectives of this project are to:

- carry out statistical analysis of data collected by the Scotland Business Waste Survey 2006 to provide estimates of business waste arisings in Scotland for the year 2008, at both a national and regional level
- to provide the data in a series of Excel spreadsheets suitable for inclusion in a SEPA report
- to rework specified data for the years 2006 and 2007
- to compare the results from SEPA surveys with those from the Survey of Industrial and Commercial Waste Arisings in Wales

### **3. Description of the data**

The data to be analysed will be available in an Excel spreadsheet which will include the following information for each of the 3,231 businesses that responded to the survey:

- SIC/NACE Rev 1 code
- SIC/NACE Rev 2 code
- number of employees
- location (waste strategy area)
- quantity of waste produced in tonnes
- description of each waste stream, including six figure EWC code
- for mixed waste streams, a breakdown of the five main components of the waste

Data on the number, type and size of all relevant businesses in Scotland, obtained from the Office of National Statistics, will also be provided. These data will relate to businesses registered on 31 March 2009 and will be used to represent the business population in 2008.

#### **4. Methodology and data requirements**

Analysis of the data will be carried out using an appropriate statistical technique, full details of which should be provided with the quotation. Previous data for the years 2006 and 2007 have been produced using a two-dimensional approach, based on both SIC/NACE group and FTE group and reported at 95% confidence. However, data for 2008 will be analysed using a one-dimensional approach based on SIC/NACE group and reported at 90% confidence. Details should be provided on the methodologies used to:

- assess the representativeness of the data actually collected
- gross up from this sample to the total population of waste producers, both overall and within the reporting categories outlined below
- assess uncertainties in representativeness of sample data and how these uncertainties are then carried forward, used and reported in final estimates
- assess errors in sample data collected and processed and how these errors are then carried forward into final estimates

The following data tables are required:

- tonnes of business waste produced in Scotland
- tonnes of business waste produced by waste strategy area
- tonnes of business waste produced by EWC chapter
- tonnes of business waste produced by business sector
- tonnes of business waste produced by employee size group
- tonnes of business waste produced by employee size group and business sector
- tonnes of business waste produced by waste strategy area and business sector
- tonnes of business waste produced by EWC chapter and business sector
- tonnes of business waste produced by EWC chapter and waste strategy area
- tonnes of business waste produced by business sector and EWC-STAT code
- tonnes of mixed waste produced by material type
- tonnes of mixed waste produced by material type and business sector
- mean weight of waste produced by business sector and employee size group
- number of companies in Scotland by business sector and employee size group
- tonnes of commercial and industrial waste by waste strategy area
- confidence limits for estimates of total waste by business sector
- confidence limits for estimates of total waste by waste strategy area

For the layout of these tables please refer to the 2006 Excel data tables published on the SEPA website.

Please note that data for 2008 will be required to be reported using the SIC Rev 2 classification of economic activities. Information on the specific grouping of these categories will be provided by SEPA, based on the table set out in Section 8 of Annex I of the Waste Statistics Regulation.

#### ***Reworking specified data for 2006 and 2007***

The contractor will rework part of the 2006 and 2007 data to provide a comparison between the two-dimensional and one-dimensional methodologies. Table 3 of the Napier University report 'Estimation of commercial and industrial waste produced in Scotland in 2006' will be the basis for the comparison. The data in Table 3 will be recalculated for the years 2006 and 2007 data using the mean weight of waste derived from the SIC/NACE group only (one-dimensional approach) and data reported at 90% confidence.

#### ***Comparison with Wales survey***

The contractor will be required to carry out a comparison of both the original 2007 SEPA survey results (two-dimensional approach) and the 2008 SEPA survey results (one-

dimensional approach) with those from the Wales 2007 survey. Comment on the relative accuracy of the waste estimates resulting from the two surveys, and an examination of reasons for any significant differences, will also be required. This should include comment on any benefits from carrying out face-to-face interviews rather than using paper and telephone questionnaires.

## **5. Key tasks**

An indicative timetable for the key tasks detailed below should be submitted as part of the quotation:

- statistical analysis of the data
- presentation of the data in a series of spreadsheets
- production of draft and final statistical methodology report
- production of draft and final paper comparing the Scotland and Wales survey data

## **6. Project management**

The project will be managed as follows:

- SEPA and the contractor will nominate a lead officer to work on the project who will be responsible for day-to-day communications,
- the contractor will be required to attend a maximum of two formal meetings: an inception meeting in mid-August and a meeting to review and discuss the draft report, if deemed necessary.
- project scheduling will be agreed at the inception meeting.
- the contractor will be required to update SEPA's nominated officer on progress with the project each week via e-mail.

## **7. Deliverables**

The successful contractor will be required to deliver:

- **Statistical methodology report**

A short report outlining the statistical methodology used to gross up the survey data will be required. The report will be supplied as a Microsoft Word 97-2003 document in electronic format with all text in Arial font, 11 point. A draft report will be required in the first instance, followed by a final report that is suitable for publication on the SEPA website.

- **Paper comparing the Scotland and Wales survey data**

A paper detailing the outcome of the comparison of the results from the SEPA surveys with those from the Survey of Industrial and Commercial Waste Arisings in Wales will be required. This paper should contain information on the confidence limits for the Scotland survey data 2008 and the recalculated Table 3 data for 2006 and 2007. The paper will be supplied as a Microsoft Word 97-2003 document in electronic format with all text in Arial font, 11 point. A draft paper will be required in the first instance, followed by the final version. This paper will be for internal use only and will not be published on the SEPA website.

- **Data tables**

Detailed data tables will be provided as Excel spreadsheets suitable for publication on the SEPA website.

## **8. Timescales**

Submission of the draft data tables and reports will be required by 30 September 2009 and the final documents by 23 October 2009.

## **9. Personnel**

Curricula vitae for all personnel proposed to work on the project should be included with the quotation. The persons undertaking all, or part, of this work will need to be able to demonstrate the following:

- a knowledge of statistics applicable to survey work
- experience in producing aggregated data from samples
- ability to gross up data to provide national totals

## **10. Costing details**

A breakdown of costs should be fully detailed in the quotation, including:

- staff costs including daily rates, total number of days per person and travel/subsistence costs
- non-staff costs including component costs for key tasks listed in Section 5, cost of deliverables outlined in Section 7 and VAT.

A fixed price quotation is required for the project.