

National Waste Data System
System summaries –
ABS waste and recycling data

Department of Sustainability, Environment,
Water, Population and Communities
December 2012

Report

Report preparation

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NB Ref: MMPJ10DWH150

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Introduction

Background

A new *National Waste Policy: Less Waste, More Resources* (the Policy) was agreed upon by Australia's environment ministers in November 2009. The Policy includes 16 strategies that will be implemented over ten years. Strategy 16 covers the design and development of an online, accessible and up-to-date National Waste Data System (NWDS) for Australia, to support a periodic (three-yearly) National Waste Report.

Purpose

There are a number of ways the Australian government capture environmental data, including waste data. It is important to review these systems to identify any alignment with the objectives of the NWDS and to capture learnings from the development and management of these systems. The three systems being reviewed are:

- The National Greenhouse and Energy Reporting Scheme (NGERS)/ the Online System for Comprehensive Activity Reporting (OSCAR)
- The National Pollutant Inventory (NPI)
- The Australian Bureau of Statistics' (ABS) approaches to, and systems for, waste and recycling data.

The review consisted of desktop research, a system walk-through and interviews with the system operators and administrators.

Four reports have been produced as outputs of this project:

- Three systems summaries, each profiling one of the systems listed above (this is one of), and
- An integration report outlining opportunities for integration and learnings for a NWDS.

Australian Bureau of Statistics waste and recycling data

The waste and recycling data collected by the Australian Bureau of Statistics (ABS) is different to the two other systems reviewed. Whereas NGERS/OSCAR and the NPI are actual stand-alone systems that collect data, the ABS is an independent statutory body whose purpose is to provide statistics on a wide range of economic, social, population and environmental matters, covering government, business and the community. It also has a coordination function with respect to the statistics of other official bodies, both in Australia and overseas.

The ABS Information Warehouse (Warehouse) is accessible by ABS staff only. The description of the Warehouse and its design and functions is based on discussions with ABS staff and supportive documentation.

Description

The ABS provides statistics to assist and encourage informed decision making, research and discussion within governments and the community¹

The ABS Environment statistics program contributes information about Australia's environment, focusing on key areas such as water, energy, land and waste management. The program focuses on the inter-relationships between the environment, society and the economy, particularly through the development and production of Environmental-Economic Accounts which link availability, use and management of natural resources and economic activity. The ABS utilises both its business survey program and its household survey program to produce statistics on waste and waste management.

The surveys that have been undertaken relating specifically or substantially to waste include the following:

Business

- *Waste Management Services* (ABS cat. no. 8698.0) (for 1996–97, 2002–03, and 2009–10), outputs include-
 - Summary information about private and public trading businesses and general government organisations in the waste management industry
 - Detailed data about the private and public trading sector and the general government sector
 - Quantities of waste and recyclables handled by businesses and organisations of both sectors.

¹<http://www.abs.gov.au/websitedbs/d3310114.nsf/51c9a3d36edfd0dfca256acb00118404/325a67193dc1ae1bca256b21001c4078!OpenDocument>

- *Environmental Protection Expenditure 1996–97* (ABS cat. no. 4603.0) for the years 1990–91 to 1996–97), outputs include-
 - Environmental protection expenditure (including financing of expenditure) by sector and industry, for waste management, air and climate, etc.
- *Environmental Expenditure, Local Government, Australia*, (ABS cat. no. 4611.0) for the years 1997–98 to 2000–01 and 2002–03, outputs include-
 - Expenditure and revenue in relation to solid waste, by state and council type.
- *Environment Protection, Mining and Manufacturing Industries, 2000–01* (ABS cat no. 4603.0), outputs include-
 - Environment protection expenditure relating to solid waste, by industry.
- *Electricity, Gas, Water and Waste Services, Australia, 2006–07* (ABS cat. no. 8226.0), outputs include-
 - Financial data on waste collection, treatment and disposal services, compiled from the ABS Economic Activity Survey and business tax data, for 2004–05 to 2006–07.
- *Australian Industry, 2010–11* (ABS cat. no. 8155.0), outputs include-
 - Financial data on waste collection, treatment and disposal services, compiled from the ABS Economic Activity Survey and business tax data, for 2007–08 to 2010–11.
- *ABS Economic Activity Survey, 2010–11* (to be published in upcoming ABS Waste Account, Australia, Experimental Estimates, February 2013) outputs include-
 - Economy-wide expenditure and income related to waste and recycling.

Household

Household surveys containing questions on waste are frequently conducted. These surveys relate to attitudes and behaviours rather than data such as physical quantities of waste or actual expenditure (see *Environmental Issues: People's Views and Practices* for the years 1994, 1996, 2000, 2003 and 2006 [ABS cat no. 4602.0] and *Environmental Issues: Waste Management and Transport Use, Mar 2009* [ABS cat no. 4602.0.55.002]).

History and development of use

Growing concern over environmental issues in the 1990s prompted the Australian Bureau of Statistics (ABS) to commence collecting both quantitative and qualitative data on environmental issues, including those on waste management, diversion and disposal to landfill.

An example of the ABS responding to these statistical needs is the *Environment Expenditure, Local Government, Australia, 2002–03* collection (ABS Cat no. 4611.0), which states that the collection “was developed in response to requests by local governments, local government associations and others for national information on local government financial transactions related to managing the

environment and natural resource". The most recent (2009–10) Waste Services survey was developed as a response to community and policy needs for more and better 'waste' data (e.g. Productivity Commission Inquiry Report on Waste Management, 2006²) and the Senate Inquiry into Management of Australia's Waste Streams, 2008³. Waste is also increasingly prominent as a national issue with the ongoing development of the *National Waste Policy*.

Key objectives and design attributes

As previously stated, the objective of the ABS is to provide statistics to inform decision making, research and discussion with the Australian government and community.

The ABS's work program takes a long term and high level approach to the compilation of Australia's statistics, with a focus on statistics collected at regular intervals on an ongoing basis.

The Warehouse is designed to be the single repository and management tool for all statistics collected by the ABS. The Warehouse is accessible by ABS staff only. It is a fully searchable system that can compile data and generate reports based on parameters defined by the user. Users can, therefore, develop products for publication across numerous surveys.

The ABS website is designed to provide users with information products that meet their statistical needs. Statistics and products are organised on the website according to the type of statistics, key statistics products and subject matter, and the website is also fully searchable.

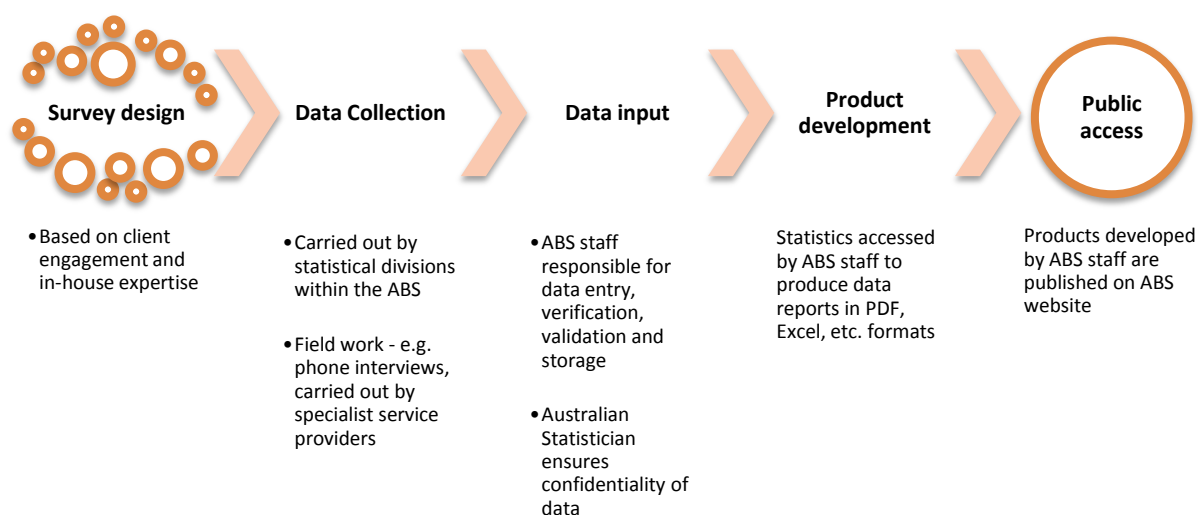


Figure 1 ABS Information Warehouse and public website

² http://www.pc.gov.au/_data/assets/pdf_file/0014/21614/waste.pdf

³ http://www.aph.gov.au/senate/committee/eca_ctte/aust_waste_streams/report/report.pdf

Data system structure, architecture and business requirements

The Warehouse manages survey statistics, and is built on a Lotus Notes-based platform. Survey statistics are loaded into the Warehouse for validation and storage. Statistics can then be accessed by staff across the organisation for incorporation into various statistical products that are made available via the ABS website.

Statistics on the ABS website are available free of charge to all users. Most statistics are provided either in Excel or PDF format. The surveys that have been undertaken relating specifically or substantially to waste are generally not searchable, that is, users cannot retrieve data based on set parameters; instead, users can only access data in the format determined by the ABS. Other customised data products may be available for a fee.

The *Census and Statistics Act 1905* (CS Act) (discussed in more detail in the section on ‘Supportive Legislation’) obliges the ABS to publish statistical information; therefore, all surveys conducted by the ABS are released to the public via the website. The Australian Statistician, the head of the ABS, can determine whether the survey results are released in whole or in part. Most of the statistics and information are freely available and a small amount of information is available for a fee.

The CS Act imposes obligations on the ABS to maintain the confidentiality of information collected under it⁴. The ABS must, therefore, carefully verify the information it collects prior to publication to determine if an individual or a company can be identified either through the information published, or by reading the information published along with other information that is otherwise available. The ABS may seek the approval of an individual or a company to publish identifying data.

Significant effort and resources are invested in the framing and design of surveys to gain a high response rate. The reputation of the ABS combined with high quality design yields a response rate of 80% to 95%, well above average response rates for the market research industry. Household surveys are generally conducted via phone interviews and business surveys via mail. Surveys are designed to strike a balance between data “needs” and ABS resources, with a requirement to minimise provider burden. Consultation with data users and providers is conducted to inform the design, identify methodology issues and test forms prior to the conduct of the survey.

The ABS used random sampling to select survey participants, rather than representative sampling, which means that every member of the target group has an equal chance of being selected for participation in the survey.

The ABS adheres to the Fundamental Principles of Official Statistics (UN). The Fundamental Principles of Official Statistics help ensure that official statistical systems meet a general set of criteria and its use is essentially an international endorsement of the statistical system to which it is

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<http://www.abs.gov.au/websitedbs/D3310114.nsf/4a256353001af3ed4b2562bb00121564/10ca14cb967e5b83ca2573ae00197b65!OpenDocument>

applied⁵. In addition, the ABS uses existing codes and categorisations in general use in Australia e.g. ANZSIC codes, when identifying and contacting organisations in certain industries.

Supportive legislation

The ABS was established as the Commonwealth Bureau of Census and Statistics by the *Census and Statistics Act 1905*. The National Statistical Agency became the ABS in 1975 with the passing of the *Australian Bureau of Statistics Act 1975*⁶ (ABS Act).

The functions of the ABS as defined in Section 6(1) of the ABS Act fall into two broad categories:

- to collect, compile, analyse and disseminate statistics and related information
- to coordinate the operations of official bodies in the collection, compilation and dissemination of statistics and related information, and to provide advice and assistance to official bodies in relation to statistics.

Roles and responsibilities of system operators

The Australian Statistics Advisory Council (ASAC) was established under the ABS Act to be the key advisory body to the Minister and the ABS on statistical services. It provides input to the directions and priorities of the ABS work program. All state and territory governments are represented on ASAC. The other Council members are chosen to represent a cross-section of perspectives, covering government, business, academic and community interests⁷.

The Australian Statistician and the ABS, under the direction of ASAC, establish organisational priorities, documented in the ABS Forward Work Program.

There is no particular unit within the ABS which is dedicated to collecting waste and recycling data. Such data is collected under different statistical programs, namely, the household survey program (for individual/household environmental views and behaviour) and the business survey program (for financial and, sometimes, physical data from economic units using or providing waste management services). In fact, most units will have a role in collecting waste and recycling data at some point in time.

Surveys are designed in house and ABS staff are responsible for data entry, verification, validation and storage of the statistics, and the development of information products which are published on the ABS website.

Field work (e.g. phone interviews) is undertaken by ABS interviewers.

⁵ <http://stats.oecd.org/glossary/detail.asp?ID=5093>

⁶ Australian Bureau of Statistics, Forward work program 2010-11 to 2013-14, p5,
[http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/9AF537ED0374B9C5CA2577490019BC6B/\\$File/1006.0_2010-11%20to%202013-14.pdf](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/9AF537ED0374B9C5CA2577490019BC6B/$File/1006.0_2010-11%20to%202013-14.pdf)

⁷ <http://www.asac.gov.au/>

Costs associated with system operation and maintenance

The ABS is financed by the Australian Government via annual allocations approved by Parliament for its administration and programs⁸. This funding is allocated across statistical programs in line with the objectives outlined in the Forward Work Program.

The costs associated with conducting a particular survey are allocated to business units on a proportional basis. For example, if 10% of a survey is dedicated to collecting statistics identified within the Environment Statistics program, then 10% of the cost of the survey is attributed to the Environment Statistics program.

Because the ABS waste and recycling data does not constitute a standalone system, and waste data is often collected via larger surveys covering other areas, it is not possible to easily determine the costs associated with collecting and publishing waste and recycling data.

Resources dedicated to the collection of environmental statistics are small but growing, in line with the increasing role of the ABS in environmental statistics.

A key objective of the ABS is to collect and publish high quality statistics, and to ensure this, sufficient resources are allocated. A high quality approach requires significant investment across all stages of the survey process, from design through to publication. Costs vary depending on factors such as:

- the type of survey (business/household)
- length of survey
- sample size (economy-wide or selected industry)
- number of data items
- number of form types.

⁸

<http://www.abs.gov.au/websitedbs/D3310114.nsf/4a256353001af3ed4b2562bb00121564/10ca14cb967e5b83ca2573ae00197b65!OpenDocument>

Limitations

Net Balance Management Group Pty Ltd (Net Balance) has prepared this report in accordance with the usual care and thoroughness of the consulting profession. This report has been prepared for use by DSEWPaC, and only those third parties who have been authorised in writing by Net Balance.

The Report is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the project brief. The methodology adopted and sources of information used by Net Balance are outlined in this report.

This report was prepared in March and April 2011, and updated in December 2012 to reflect subsequent feedback. It is based on the conditions encountered and information reviewed at the time of preparation. Net Balance disclaims responsibility for any changes that may have occurred after this time.

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