

ABS proposal for discussion: a national survey of the environment industry

1. Introduction

Over the past 1-2 years the Australian Bureau of Statistics (ABS) has received numerous requests from federal and State government departments, industry organisations, businesses, and researchers, as well as international organisations such as APEC, for data on the economic performance and structure of the environment industry in Australia. This is because comprehensive and comparable data on the economic structure, activities and development of this 'industry' is currently lacking on a national basis.

If the ABS were to develop a national survey of Australia's environment industry to address this data gap, the approach it would take to developing and running a national survey is described below, including:

- the concepts and classifications that could be used
- the types of businesses that could be surveyed
- the proposed data items that could be collected
- the methodology that could be used
- the likely costs involved

The ABS is keen to respond to user needs for reliable and consistent data about the environment industry. However establishment of a collection at present would require significant levels of user funding. This document is intended as a discussion paper for governments interested in investing in a national environment industry survey by the ABS.

2. Background

The growing significance of the environment industry is widely recognised. The US (Department of Commerce 2000) has estimated that global environment industry revenues were approximately US\$500 billion in 2000 and growing at more than 3% each year. While the majority of these revenues (84%) are earned in the US, Western Europe and Japan, it is anticipated that there will be marked growth in future demand for environmental goods and services in the Asia-Pacific region.

In Australia, the most recent estimate of the domestic market for environment industry is for 1996-97, when A\$8.6 billion was spent by Australian businesses, households and government on environmental goods and services (ABS 1999, Catalogue No.4603.0). However, there is currently a lack of comprehensive and reliable data on a national basis about the size, characteristics and economic performance of the Australian environment industry supplying those goods & services. Although the economic performance of businesses in the environment

industry are currently included in national economic statistics, it is not possible to separately identify these businesses and analyse them as an 'environment industry' using existing industry and commodity classifications. This reflects the fact that the internationally based industry and commodity classifications used by ABS were generally developed before the environment industry became of interest to policy-makers.

In the absence of national supply-side data on the industry it is possible to gain some broad impressions of its size and structure from demand statistics. If demand for environmental goods and services is taken as a proxy for supply, then the 1996-97 environment expenditure data suggests that the waste and waste water industries may constitute at least half of the Australian environment industry (ABS 1999 Catalogue No.4603.0). The remainder of the environment industry covers a wide range of environmental goods and services ranging from manufacture of technologies for renewable energy, environmental monitoring and pollution abatement through to the provision of consulting services, environmental education and R&D,

In recent years, a number of Australian governments and others have endeavoured to address the gap in data on Australia's environment industry. In December 2000, the Commonwealth Department of Environment (Environment Australia) commissioned a consultancy to prepare a *National Capability Statement on the Environment Industry*, to provide better information on the structure, capabilities and dynamics of the industry. Environment Australia also maintains an internet database of environment industry businesses and their capabilities. In May 2000, the Commonwealth Government launched a Renewable Energy Action Agenda, renewable energy being a significant sub-sector of the environment industry. A similar action agenda is currently being prepared for the environment industry by the Department of Industry, Science and Resources and Environment Australia to "develop a sustainable and internationally competitive environment industry able to capitalise on domestic and export business opportunities."

At the State level, surveys on environment industry have been, or are currently being, developed in Victoria, Queensland, South Australia, Western Australia and Tasmania. The New South Wales government has surveyed the renewable energy sub-sector of its environment industry and indicated that a wider survey would be of interest. In addition, some private sector organisations (such as Environment Business Australia) and researchers (such as Genoff 1998, 1999) have also undertaken surveys of the environment industry. A brief summary of each of these initiatives is contained in Attachment 1.

Notwithstanding these efforts, there remains a lack of data about the environment industry that is comprehensive and comparable, between States and over time. Existing surveys have used differing definitions and classifications to define the environment industry. In addition, surveys have generally been voluntary with response rates not higher than 30%. The ABS could therefore make a significant contribution to providing reliable and comparable estimates of the Australian environment industry covering all States and major areas of activity within the industry.

3. User needs for environment industry data

From consultations with a range of government and other organisations in the past year, the ABS understands that the main reasons decision-makers require data on the Australian environment industry include the following:

- to gain an understanding of the structure, characteristics and particular strengths of the Australian industry
- to assess changes in the industry's capabilities over time
- to assist with the development of policies to encourage and support growth, job creation and international trade in the environment industry
- to provide a benchmark against which the effectiveness of government policies aimed at supporting the industry's growth and development may be measured over time
- to assess the contribution of the industry to Australia's economic, social and environmental performance, and to ecologically sustainable development
- to enable comparison of the industry with other industry sectors, between States, and with other countries
- to assist with promoting Australian industry's expertise in international markets and with gaining greater access to those markets

The principal data items that the ABS understands are needed are identified in Part 7.

4. Definition of Environment Industry

In 1999 the OECD and the European statistical agency, Eurostat, jointly published international guidelines on collecting data about the environmental goods and services industry (OECD-Eurostat 1999). The manual was the result of meetings over 5 years of the OECD-Eurostat Working Group on the Environment Industry. The Working Group comprised experts from a range of OECD countries and was responsible for developing and testing a definition and classification of the environment industry. The ABS participated in and contributed to those meetings.

The OECD-Eurostat manual provides the following internationally accepted definition of the industry:

The environmental goods and services industry consists of activities which produce goods and services to reduce, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner technologies, products and services that reduce environmental risk and minimise pollution and resource use (OECD-Eurostat 1999, p.9)

This definition includes both activities aimed at redressing environmental damage after it has occurred as well as activities aimed at reducing or preventing such damage occurring in the first place.

This definition has been used as the basis for national surveys by a number of countries including the US, Canada and France. It was also tested and refined by member countries of the OECD-Eurostat Working Group on Environment Industry prior to publication of the 1999 manual.

The ABS would use this definition as the basis for any national survey of the Australian environment industry. The definition would be used to help guide the creation of a frame, or list of businesses, to be surveyed, as well as to guide discussion with government and industry stakeholders about precisely which business activities should be included in an Australian survey.

5. Classification of Environment Industry

The OECD-Eurostat manual provides a classification of the environment industry for use in data collection and analysis. In developing the classification the Working Group was very mindful of the need to provide a classification that was accurate, useful and flexible. The Working Group recognised that the industry is expected to undergo major structural changes in coming years, such as increasing specialisation, privatisation, and a shift from end-of-pipe to integrated technologies. In addition, the classification needed to be flexible enough to remain relevant as the industry moves into totally new activities and services.

The OECD-Eurostat classification distinguishes between 2 main types of activity: business activities and environmental activities.

Business activities are broken down into the following categories:

- Production of goods,
- Provision of services, and
- Construction or installation of facilities

Environmental activities are also broken down into 3 main categories:

- Pollution management activities, including:
 - air pollution control
 - waste water management,
 - solid waste management,
 - remediation and clean up of soil & water,
 - noise & vibration abatement, and
 - environmental monitoring, analysis & assessments
- Cleaner technologies and products, including:
 - cleaner/resource efficient technologies & processes
 - cleaner/resource efficient products
- Resource management activities, including:
 - indoor air pollution control
 - water supply
 - recycled materials & manufacturing
 - renewable energy

- energy saving & management
- sustainable agriculture & fisheries
- sustainable forestry
- natural risk management
- eco-tourism
- other (e.g. nature conservation, habitat & biodiversity)

Of these 3 environmental categories, Category 1, Pollution Management represents the core of environment industry activities, since these activities are unambiguously related to protecting the environment. Categories 2 and 3 are recognised as being less clear cut, with greater potential for disagreement as to which activities relate specifically to protecting and conserving the environment and which do not. For this reason the OECD recommends countries select those activities from Categories 2 and 3 which are of relevance and interest to domestic users.

The ABS would suggest that the environment industry be segmented according to the OECD-Eurostat matrix of business activity by type of environmental activity presented below. The environmental activities from Categories 2 and 3 which are of greatest relevance and interest in Australia is yet to be determined through consultation with both government and industry stakeholders.

| Types of Environmental Activity | Types of Business Activity | | |
|---------------------------------|--|-----------------------|---|
| | Production of equipment and specific materials | Provision of services | Construction and installation of facilities |
| Pollution management | | | |
| Cleaner technologies & products | | | |
| Resource management | | | |

(Source: OECD-Eurostat, 1999)

6. Scope of the Survey

In addition to the classification issues discussed in Part 5, there are 2 further considerations in determining the scope of any survey.

1. Specialised and non-specialised producers

It is the experience of other countries that the environment industry is made up of both businesses whose entire business is environment activity (specialised producers), and businesses which provide environmental products and services as a minor or secondary part of what they normally do (termed non-specialised producers). The surveys which have been conducted in Australia to date suggest this is also the case here.

ABS proposes to include both specialised and non-specialised businesses in any national environment industry survey. Including non-specialised businesses can present practical difficulties in trying to identify those units which are providing environment goods & services as a minor part of their normal business. However, it is important to include these businesses and to measure the extent of their environmental activities so that changes over time in the extent of specialisation in the industry can be measured. Surveying both specialised and non-specialised businesses is also consistent with international practice, therefore allowing international comparisons to be made.

2. Government & private sector activities

A second feature of the environment industry is that it typically includes both government and private sector organisations. Measuring the economic activity of both government and private sector organisations is recommended by the OECD manual because it facilitates analysis of any structural changes in the industry over time, e.g. increased privatisation of the production of environmental goods & services. Without such comprehensive data it is not possible to determine whether the industry has grown over a given period of time, or whether there may simply have been a transfer in responsibility and ownership from the public sphere to the private or vice versa.

The ABS proposes to collect data from both private and public sector organisations on their activities that accord with the definition of environment industry. Identification of relevant government organisations and activities will be undertaken in consultation with users.

7. Proposed Data Items to be Collected

The contact ABS has had with a range of users to date suggests there is a high degree of consensus on the data items that it would be useful to collect in a national environment industry survey. These data items are listed below:

Business characteristics

- Structure and location of the business
- Number and size of businesses in the industry
- Nature of environmental good/services provided
- Employees involved in environment industry

Environment revenues

- Total revenues of business
- Total revenues related to environment industry activities
- Environment revenues by client sectors
(government, manufacturing, business services, households)
- Environment revenues by location
(within a State, other States/Territories, overseas countries)
- Anticipated revenues for following financial year

Environment expenses

- Wages & salaries
- Investment in environment related R&D

Economic performance

- Industry value added
- Turnover & profitability
- Linkages to other sectors of economy

Most users have indicated the above data items would be required broken down by agreed sub-sector of the environment industry and by State.

If the ABS were to conduct a survey, it would consult widely with government and industry users to determine the final list of data items on which there is broad consensus as to their usefulness. The level of detail (sub-sector by state) at which the above items can be provided would depend in large part on the size of the survey sample, on the population of relevant businesses in any given State, and on the resources available for the survey.

8. Methodology

This section briefly outlines the way in which the ABS would develop and conduct a national environment industry survey.

1. Consultation with stakeholders

The first step involves consulting widely with government, industry and other decision-makers and analysts to obtain agreement on the classification of the environment industry within the OECD definition. In particular, user input would be important in determining which elements of the 'clean technologies' and 'resource management' categories in the OECD classification matrix should be collected for Australia. Once reasonable consensus has been reached on the classification it would be possible to commence steps 2 and 3 simultaneously.

2. Identifying relevant businesses

As it is not possible to comprehensively identify environment industry businesses using the current industry classification (ANZSIC), the ABS is unable to draw a frame (population) of businesses from the Business Register. Instead, ABS would require assistance from users in compiling a comprehensive register of businesses deemed to be within scope of the collection.

ABS is aware of a range of databases held by various government agencies and private sector organisations. It would be necessary to aggregate these various collections by applying agreed criteria to determine whether or not a business is to be included, and by eliminating any duplication as far as possible.

3. Designing a survey questionnaire

Once a core list of data items and desired outputs is agreed upon with users, ABS would design a form drawing on its extensive experience in surveying Australian businesses. International experience in designing and conducting surveys of the environment industry would be closely considered in the design of an Australian survey, particularly that of Statistics Canada which has now conducted 3 surveys of its environment industry (for a summary of the Canadian approach to surveying the environment industry see Attachment 2).

ABS routinely tests its survey forms with small samples of businesses to ensure that providers understand the questions asked and to assess their ability to provide the data sought. A final form would then be prepared incorporating the findings of forms testing. Finally, the survey would need to be tabled in Parliament as required under ABS enabling legislation.

4. Determining survey scope

For the first collection there would be value in conducting a census of all relevant businesses. This would provide a comprehensive benchmark of the industry upon which analysis of data from subsequent collections could be based. It would also provide valuable information on the structure of the industry that would assist in future collections with designing a survey sample that is truly representative of the industry. Whether or not a census is possible will depend largely on whether sufficient resources are available.

5. Survey dispatch, collection and processing

This includes form dispatch and collection, data entry and editing, and provision of advice and assistance to businesses requesting help with completing the form. Processing also includes intensive follow up of businesses to obtain a high response rate. Official ABS collections are conducted under the *Census and Statistics Act 1905* and as such are compulsory. Response rates are usually greater than 80%.

6. Publication of results

Results from an Environment Industry Survey would be published in both electronic and paper copies. Data would ideally be presented nationally and for each State and Territory at the industry wide level and for each major agreed sub-sector of the industry, as far as confidentiality provisions allow. The data would be comparable between State and Territories, as well as internationally. The results would be presented in table and graph format together with analysis of the major characteristics and trends evident. Publication of the data is usually possible within nine months of the dispatch of the survey forms to businesses.

9. Costs

The following estimates of costs for the collection are based upon ABS benchmarks drawn from a wide range of economic surveys currently being run by the ABS.

- **Survey development costs** will only apply for the first collection and relate primarily to the need to develop a frame (list of businesses) to be surveyed, to design and test a survey form, and to consult widely with users on these issues prior to dispatch of the actual collection. The usual timeframe for such developmental work is around 12 months.
- **Fixed costs** are incurred by the ABS regardless of the number of units surveyed and cover the creation of processing systems, management overheads, preparation of statistical output, etc.
- **Processing costs** are variable and depend upon the size of the sample to be surveyed. ABS's extensive experience with economic surveys indicates that processing costs (which includes dispatch, data entry, data editing, follow up with businesses, as well as data output), costs between \$50 to \$100 per form.

It is difficult to estimate precisely the likely size of the population of businesses in the environment industry. A survey conducted by the ABS in 1996-97 of the waste management industry identified 1,727 entities (of which 704 were public sector organisations) (ABS Cat No.8698.0). An ABS survey of the water and sewage industry in 1997-98 identified 549 relevant units (ABS Catalogue No. 8208.0). A survey by the Sustainable Energy Industry Association in 2000 identified 1,977 businesses believed to be involved in renewable energy and energy efficiency activities (SEIA 2000).

The above suggests the environment industry is comprised of at least 4,000 units. If the unknown number of businesses that may be specialised in environment industry sub-sectors other than waste, waste water and sustainable energy are taken into account, the population may comprise around 5,000 units in total. The estimate of processing costs below is therefore based on a sample size of 5,000 units.

Estimated Direct Costs for an ABS Environment Industry survey

| Item | Cost |
|--|-----------------------|
| Survey development (first collection only) | \$540,000 |
| Fixed costs | \$500,000 |
| Survey processing (@\$100 per form for 5,000 units) | \$500,000 |
| TOTAL | \$1.54 million |

10. Where to from here?

ABS recognises the strength of user demand for data about the environment industry and is keen to respond. However, ABS is not currently in a position to finance this collection on its own. Significant levels of user funding are required to make the collection possible within the next 12-18 months. ABS invites all stakeholders interested in reliable and comparable national and State level data on Australia's environment industry to get together and consider contributing to this collection.

Administratively it would be possible for ABS to accept contributions to the total costs from individual governments and to enter into a formal agreement or contract covering each contribution. Contributions could be made in one lump sum payment or staggered over several financial years. The scenario outlined below is intended as a guide only and detailed costs and contributions would have to be negotiated after there is a firm expression of interest by client agencies and the feasibility of any such survey has been firmly established.

For a survey cost of \$1.54 million

| Financial Year | Commonwealth agencies contribution | State agencies contribution |
|-----------------------|---|------------------------------------|
| 2000-01 | \$220,000 | \$220,000 |
| 2001-02 | \$300,000 | \$300,000 |
| 2002-03 | \$250,000 | \$250,000 |
| Total | \$770,000 | \$770,000 |

Funds can be held in a designated trust fund, covered by a formal agreement or contract, and returned in full if the collection does not proceed by an agreed date.

If you would like further information, please contact

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Attachment 1

Overview of Environment Industry Data Collection in Australia

Summary

Every state in Australia has displayed an interest in Environment Industry data in the past two years. This has resulted in various strategy papers and surveys by government departments, consultants and researchers. Many of the surveys conducted to date have arisen from shared policy interests. Since it is internationally recognized that environment industry is a new and rapidly growing industry, Australian policy-makers are keen to learn about the extent and activities of the industry here. Governments are keen to support the growth and development of the industry and to assist with its engagement with overseas markets. Reliable baseline and time series data on the industry are essential for these purposes.

The approach taken by past and current surveys to identifying and surveying the environment industry has varied considerably. Some surveys have been quantitative, other qualitative. The businesses selected as 'in scope' of an environment industry survey have differed between collections. Response rates from businesses have been typically low, as the collections are necessarily voluntary. The lack of comparable definitions for environment industry sectors, together with differences in scope and low response rates means that it is not currently possible to compare the industry on a state by state basis. Nor has it been possible to obtain good quality national estimates of the industry's size, structure and economic performance.

This paper provides a brief overview of past and current initiatives to collect data on the environment industries. The paper does not attempt to be comprehensive but to highlight major surveys known to the ABS. The summary further underlines the needs for a national statistical collection on the Australian environment industry.

National surveys

- Genoff, R., University of South Australia. *Environment Management, Products & Services Industries*, October 1998 and October 1999
 - The surveys were principally attitudinal surveys of business expectations
 - Questions sought business views on the following:
 - Markets
 - Business climate
 - Hiring intentions
 - Expenditure expectations related to:
 - R&D
 - New plant and equipment
 - Marketing
 - Upgrading plant and equipment
 - Building and construction
 - Export market development
 - 1998 survey sent to 800 businesses Australia wide with a 26% response rate

- ❑ Companies that responded employed approximately 54 600 persons
- ❑ Business categories included:
 - Waste management and recycling
 - Education and training
 - Corporate environment management
 - Legal and management services
 - EMS consultants/auditors
 - Hazardous and contaminated sites
 - Air quality
 - Consulting engineers
 - Technical providers
 - Energy providers
- Sustainable Energy Industry Association (SEIA). *The First National Survey of the Australian Sustainable Energy Industry*, December 2000
 - ❑ The aim of the survey was to obtain a national snapshot of the sector and set a framework for future analysis of the industry, possibly through annual surveys
 - ❑ Over 2200 surveys were sent out to a carefully constructed list of business and 1977 were deemed to be in scope after the removal of duplicates
 - ❑ The response rate was 15% (approximately 297 businesses)
 - ❑ Data items requested included:
 - Business identification details
 - Activity profile
 - Economic data - revenue, capital expenditure
 - ❑ The results of this survey should be treated with caution as it acknowledges that the survey sample may not be representative of the whole industry
- Department of Primary Industries and Energy. *Australian Renewable Energy Industry Survey*, 1997

Other National initiatives re environment industry

- Force 7 Group Pty Ltd t/a environment dataBases. *Environmental Industry Australia Directory 2000*
 - ❑ Consists of a hardcopy directory of companies that have identified themselves as 'Environment Industry' goods and service producers. This is linked to an associated web site (www.ozemail.com.au/~environmentdb) which is aimed at "...assisting Australian companies to raise their profile in the marketplace and promote their capabilities and expertise in environmental products and services"
 - ❑ Companies pay between A\$50 and A\$500 to be listed in the directory and on the web site. They can select from a range of non-mutually exclusive categories (178) in which they can be listed, suggest new categories or be placed in multiple categories
- Department of Industry, Science & Resources, *Environment Industry Action Agenda*, due for release in 2001

- Department of Industry, Science & Resources, *Renewable Energy Action Agenda*, May 2000
- Environment Australia, EnviroNET database on the internet of environment industry businesses
- Environment Australia has recently engaged a consultant to prepare a *National Capabilities Statement on Australia's Environment Industry*, due for publication in 2001

New South Wales

- Sustainable Energy Development Authority (SEDA). *The Contribution of the Sustainable Energy Industry to the NSW Economy*, July 1999
 - Report commissioned to establish the contribution of the sustainable energy industry to the NSW economy
 - Data for report collected via a postal survey of 839 known organisations with 403 replies (48% response rate)
 - Data items requested included:
 - Business identification details
 - Activity profile - field, sector and activity
 - Economic data - sales, employment
- NSW EPA Submission to ABS *Assessment of Strategic Information needs of NSW Government 2000-2004*, March 1999
 - "...the Environment Industry is of great interest to the EPA....the EPA would be happy to work with the ABS to define the boundaries of the industry for survey purposes"

Victoria

- Victorian Department of State and Regional Development. *Discussion Paper, Environmental Management and Renewable Energy Industries*, August 2000
 - The paper was developed as part of the Strategic Audit of Victorian Industry
 - The strategic audit of the environmental and renewable energy industries has a primary objective to: "...develop, in conjunction with industry, a clear vision of what is required to ensure the long-term success of the industry in domestic and export markets"
 - The paper acknowledges that the industry is made up of a variety of sectors and it is therefore difficult to create an industry identity and collect data within the current frameworks
 - The paper identifies what is believed to be the core activities of the industry in Victoria. They are:
 - Air quality management
 - Water and wastewater management
 - Solid waste management
 - Industrial waste management
 - Remediation, soil and water clean up
 - Noise/vibration abatement
 - Monitoring and measurement equipment

- o Recycling and resource recovery
 - o Cleaner technology/systems and products
 - o Ecosystem management
 - o Renewable energy and energy management
- Force 7 Group Pty Ltd t/a environment dataBases. *Environmental Industry Victoria 1999 Directory*.
 - Consists of a hardcopy directory of companies that have identified themselves as 'Environment Industry' goods and service producers. This is linked to an associated web site (www.ozemail.com.au/~environmentdb) which is aimed at "...assisting Australian companies to raise their profile in the marketplace and promote their capabilities and expertise in environmental products and services"
 - Companies pay between A\$50 and A\$500 to be listed in the directory and on the web site. They can select from a range of non-mutually exclusive categories (178) in which they can be listed, suggest new categories or be placed in multiple categories

Queensland

- Queensland EPA. *Environment Management Industry Survey 1997/98*
 - This survey was developed for the Sustainable Industries Division of the EPA but was deemed to be too complex for respondents to complete and was never conducted
 - A frame had been designed by the department using various business directories and the Yellowpages
 - The major areas of interest that were identified in the draft survey included:
 - o Business identification details
 - o Environmental markets
 - o Employee numbers by sub-sector
 - o Economic data by sub-sector

South Australia

- *South Australian Environment Industry Survey* , to be conducted in 2001
 - The ABS in South Australia has been contracted as a consultant to assist with a survey to gather a range of information about the Environment Industry in South Australia
 - The Department of Environment and Heritage have produced a scoping paper which set out the issues. A working group, including representatives from Industry, the ABS and the South Australian Government met in January 2001 for the first time to discuss and decide the methodology, timing and definitions
 - The survey is planned to be conducted in the early part of 2001 and will be conducted in respect of the 1999/2000 financial year

Western Australia

- Department of Commerce and Trade. *A Strategy for Western Australia's Environment Management Industry*, March 1998

- ❑ The strategy paper lists 4 major objectives:
 - Improve communication with the industry in order to maintain a flow of high-quality information and advice
 - Develop opportunities for exports and import replacement
 - Assist the industry to develop
 - Attract new investment
- ❑ A survey of industry views was conducted in the preparation of the strategic plan
- ❑ A quantitative survey was also conducted in 1993/94. The major environment management sectors identified were:
 - Waste and waste water
 - Land management
 - Site rectification
 - Waste management
 - Environmental services
 - R&D
 - Coastal/Offshore management
 - Air quality control
 - Noise control
 - Monitoring equipment
 - Environmental health
 - Clean technologies
 - Remote sensing
 - Information technology
 - Global environment management
 - Other

Tasmania

- Tasmanian Department of State Development. *Industry Audits: Environmental Industries*, April 2000
 - ❑ A comprehensive review of national and international literature on the environment industry combined with a two phase industry audit and consultation process
 - ❑ The audit involved the identification and offers of participation to 135 firms
 - ❑ 58 firms took place in the face to face survey
 - ❑ The survey was divided into 5 main components:
 - Corporate data - business identification details
 - The firm - including turnover, profitability, growth rates, employment levels and skills base, R&D
 - The market - including identification, pricing strategies, means of promotion, analysis of competitors
 - The business environment - including access to finance and skilled staff, government support programs, impacts of regulations
 - SWOT (strengths, weaknesses, opportunities and threats) analysis
 - ❑ The major categories which described the environment industry in Tasmania were:
 - Environmental consultancy services and management tools - 40%
 - Waste management and recycling - 31%
 - Energy conservation and renewable energy - 15%

- o Engineering based technologies - 10%
- o Other environment protection activities - 4%

Attachment 2 -

Summary of Environment Industry Data Collection Statistics Canada

- Statistics Canada have conducted environment industry surveys from 1995.
- Surveys were conducted and published as follows:
 - 1995 - published November 1998 - pilot survey
 - 1996 & 1997 - published October 1999
 - 1998 - published December 2000
- The survey is now moving from annual to biennial.

Definitions:

- Environment Industry is defined as:
"all companies operating in Canada that are involved in whole or in part in the production of environmental goods, the provision of environmental services and undertaking of environment construction activities."
- Environmental goods and services are defined as per OECD, 1999 definition. However, they make the point to include goods and services that "...are used or can potentially be used to measure, prevent, limit or correct environmental damage (both natural or by human activity) to..."
- The classification of industry groups changed (from SIC to NAICS) for the 1998 reference year, as this improved representation of a wider range of industries undertaking environment related activities. Therefore, estimates for 1998 are not exactly comparable to previous years.

Methodology

- The survey frame was developed in consultation with public and private groups. Information was sourced from extensive research and industry directories. Supplementary information was sourced from the Canadian Business Register.
- The Environment Industry survey was targeted at the business sector only. Additional information on environment industry revenues and activities was sourced from other Statistics Canada surveys.

Coverage and data collection

| | 1995 | 1996 | 1997 | 1998 |
|---|------|------|------|------|
| Initial mail-out | 4201 | 2206 | 2206 | 2674 |
| Fully and partially completed returned forms | 936 | 1389 | 1436 | 1680 |
| Non responses deemed in scope | 326 | 337 | 349 | 569 |
| Establishments derived from other sources | 3411 | 4016 | 4165 | 4045 |
| Total establishments | 4673 | 5742 | 5950 | 6294 |

- The surveys were a census of the frame for 1996 and 1997.
- Statistical unit is the establishment.

Data items

- Total revenues
- Revenues realised from the sale of environmental goods and services
- Types of environmental activities conducted by the establishment
- Breakdown of environmental revenues by client base and customer location
- Export revenue by region
- Anticipated revenue
- Total expenses on wages and salaries
- Total employment and total environmental employment

Results

Summary of key statistics

| | 1995 | 1996 | 1997 | 1998 |
|-----------------------------------|--------|--------|--------|--------|
| Revenue (\$b) | 10.2 | 11 | 11.5 | 14.3 |
| Number of Establishments | 4673 | 5742 | 5950 | 6294 |
| Total Employment | 149957 | 138668 | 159932 | 164341 |
| Total Export Revenue (\$m) | | 768 | 898 | 1184 |

- 'Environmental employment' was not able to be separately identified from total establishment employment in all 4 surveys - very difficult and increases respondent burden. Greater than 50% non-response rate for this question in 1998. Therefore, only total employment for establishments have been published.
- Estimates of environment-related construction activities derived from demand-side estimates - government and business expenditures on Environment Protection Expenditure.

Environmental revenues (%) by major categories

| | 1995 | 1996 | 1997 | 1998 |
|---------------------|------|------|------|------|
| Goods | 41 | 46 | 46 | 40 |
| Services | 39 | 40 | 41 | 44 |
| Construction | 20 | 14 | 13 | 16 |

Distribution of environmental revenues (%) by major industry group 1995-1997

| Industry Group (SIC) | 1995 | 1996 | 1997 |
|----------------------------------|------|------|------|
| Wholesale trade:other | 25 | 28 | 28 |
| Waste management | 26 | 24 | 24 |
| Construction: Engineering | 20 | 12 | 11 |
| Business services | 11 | 13 | 15 |
| All other | 18 | 19 | 22 |

Distribution of environmental revenues (%) by major industry group 1998

| Industry Group (NAICS) | 1998 |
|--|-------------|
| Wholesale trade | 22 |
| Waste management and remediation services | 21 |
| Construction | 16 |
| Engineering services | 15 |
| Machinery manufacturing | 5 |
| All other | 19 |

- In summary, Canada's Environment Industry is dominated (approximately 75-80%) by:
 - Wholesale trade - mainly recyclable materials wholesalers e.g. scrap metal
 - Waste management and remediation services
 - Construction
 - Engineering/business services

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