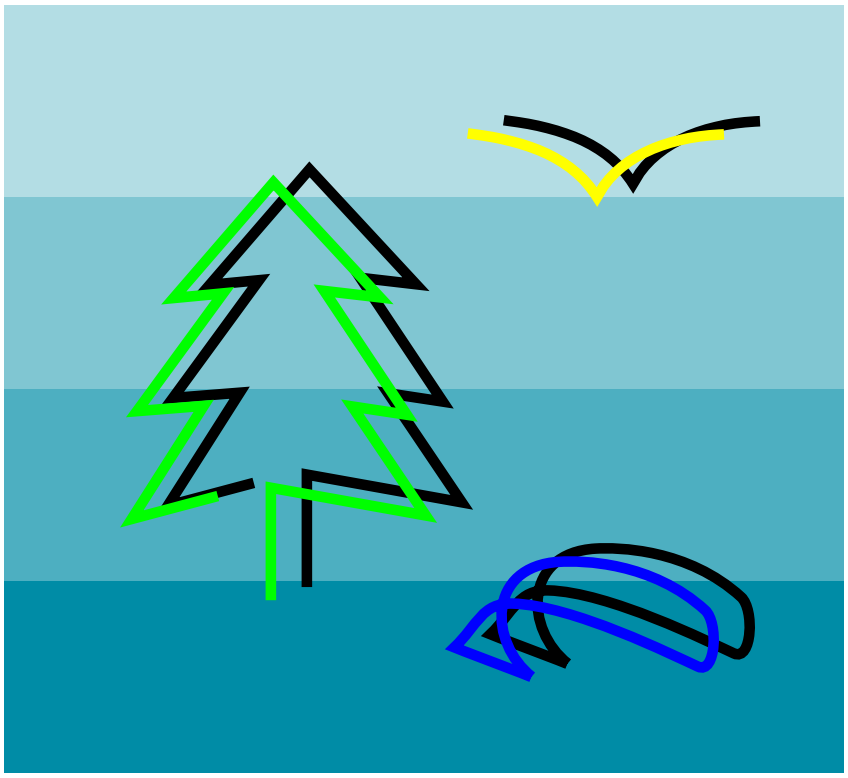
Statistics Canada - Item 16F0007XPE
National Accounts and Environment Division

Environment Industry, 1995, Preliminary Data



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Environment Industry, 1995, Preliminary Data

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Symbols

The following symbols are used in this report:

.. figures are not available

- amount to small to be expressed

Table of Contents

Environment Industry, 1995 Preliminary Data
Notes on Classification and Methodology

Introduction

The federal government's Canadian Environmental Industry Strategy consists of a number of initiatives to achieve a cleaner environment and a stronger environmental industry. Statistics Canada received funding from Industry Canada, under Initiative 8 of the strategy, to *develop a national statistical database on the environment industry*. Statistics Canada began a program consisting of new surveys, modifications to existing surveys and integration of statistics from various components of its economic statistics framework.

The environment "industry" does not exist as an explicit element in any existing classification. This is not surprising, because the environment industry consists of business involved in activities that span a number of different industries in the Standard Industrial Classification. Attempts had been made to identify environmental goods and services in existing classifications, but without appreciable success. It was necessary to develop new ways and new tools to obtain the information. These methods are outlined below.

A major objective of the approach adopted by Statistics Canada is to provide sufficient detail to permit comparability of the results with other countries and to satisfy a variety of data needs.

Classification

The Organization for Economic Cooperation and Development's (OECD) Working Group on the Environment Industry has developed a definition and a classification for the environment industry[1]. The presentation of data in Table 2 conforms, for the most part with this classification. Note that although there is international agreement that certain activities are environmental, there have been no satisfactory proposals on how to define or measure some of them adequately. For this reason, the OECD has defined a "core" group of products and services limited to those which do not present significant conceptual or measurement difficulties.

The OECD identified two areas of special concern because of methodological difficulties: integrated environmental technologies (or "clean" technologies) and "green" products (goods that are more environmentally benign in their production, use or disposal). Clean technologies were not included in this report unless they were adopted mainly for environmental purposes. Green products were excluded entirely. **Because of these exclusions the total revenue presented here is a minimum estimate of the size of the environment industry.**

Although the OECD does not include the production of goods and services to provide potable water in the environment industry they are included here as distinct categories to enable comparison with U.S. data. Recycling has also been included. Although some recycling activity may not be considered to be strictly environmental since the motive for doing it is economic, this perception is influenced by prices that can vary over time according to market forces and government policy. In this report a recycling activity can fall under one of two categories:

- Solid Waste Management
- Wholesaling of scrap materials

1. See "Interim Definition and Classification of the Environment Industry", OECD/Eurostat Informal Working Group on the Environment Industry, OCDE/GD(96)117, Paris, 1996.

The distinction for the purpose of classification is based on the value of the materials. Recycling services are generally provided where the materials concerned are worth less than the cost of collection. On the other hand, wholesaling of scrap involves materials, like metals, that have a relatively high re-sale value. Both categories are included in this report.

Valuation

The data presented in these tables are value of sales in the case of services, value of shipments in the case of goods and total expenditures for governments. There is a potential for double counting using these measures if the sales of goods in one industry are included in the cost of sales of other environmental sectors. Most of the products and services represented here are purchased by "final users" rather than intermediate users so the double counting is minimal[2].

The Estimation Process

It was not practical in the time allowed to measure all of the environment industry directly for the following reasons:

- a complete list of all the suppliers did not exist;
- most of the larger firms that produce environmental goods and services are not specialists in this domain. This makes it difficult to identify and survey them and;
- many companies do not have a precise idea whether their products are used for environmental or other purposes - producers of pumps and filters, for example.

However, it is possible to make use of the accounting identity that equates the total value of sales to the total cost of purchases. On the basis of this equality, it was decided to fill in the gaps in the information on suppliers by information on the demand for environmental goods and services. Information on purchases of environmental goods and services came from the following sources:

- Environmental Protection Expenditures Survey[3]
- Government environmental expenditures (annual surveys and administrative data)[4]
- International exports (see below)
- Capital expenditures by the waste management industry (from the Waste Management Industry survey)

The allocation of data on purchases was made as follows:

Business

It was necessary to distinguish between own-account and contracted portions in the estimation of purchases of goods and services in order to estimate the value of production for the market. Estimates of purchases also had to be assigned to producing sectors. For this purpose, it was

2. Capital expenditures by business and all government purchases are considered as "final" purchases.

3. See *Environmental Protection Expenditures in the Business Sector, 1994*. Report 16F0006XPE, December 1996.

4. See *Environmental Perspectives 3: Studies and Statistics*, Statistics Canada catalogue 11-528-XPE, No. 3, January, 1996.

assumed that all machinery and equipment was purchased rather than produced in-house. Services, operating costs and construction expenditures were allocated according to information collected by Statistics Canadaõs Environmental Protection Expenditures Survey.

Government

Government expenditures were also allocated to the producing sectors. This allocation was less complicated since these data are reported to Statistics Canada by function. The main problem in allocating government expenditures is the determination of the portion contracted to the private sector. Some Information for this came from existing surveys but it was not complete. A small telephone survey of municipalities was conducted to fill in the gaps. Future annual surveys of local government will be tailored to collect this information.

International trade

Initially, imports and exports of goods were assumed to be covered by six Harmonized System[5] codes selected for a similar project by the U.S. Environment Protection Agency[6]. These categories cover most of the filtering and incineration equipment but they exclude solid waste management equipment and other industry-specific machinery. However, they include some equipment that is not used for environmental purposes. Initially, it is assumed that overall, the undercoverage and overcoverage are comparable in size and therefore have no impact on the total estimate. The validity of this assumption is being investigated.

Exports of services are measured directly in the surveys of Consulting Engineers and Scientific and Technical Services. It is assumed that there are no other significant exporters of environmental services[7].

Imports will be adjusted once information on U.S. exports of environmental goods and services to Canada becomes available[8]. These will be used to develop an estimate that includes imports from countries other than the United States. Ultimately, Canadian exports of goods will be covered more accurately as the supply-side survey coverage is improved.

Direct measurement of suppliers

Specific surveys of suppliers accounted for about 60% of the coverage of the business sector sales. Information on suppliers is available from the following sources:

- Annual survey of Consulting Engineering
- Annual survey of Scientific and Technical Services
- Waste Management Industry Survey[9]
- Annual Wholesale Trade Survey: wholesalers of scrap materials

5. The Harmonized System is a classification of goods used by most OECD countries.
6. *International Trade in Environmental Protection Equipment An Assessment of Existing Data*, EPA 230-R-93-006
7. It is important to exclude revenues earned by foreign subsidiaries from estimates of international trade since these are shown as production in the foreign country.
8. These are being estimated by Environmental Business International, a U.S. market research firm that surveys the U.S. environment industry.
9. See *1994 Waste Management Industry Survey: Business Sector* (Interim Report), 16F0003XPE, December, 1996.

- Annual Survey of Manufacturers: producers of catalytic converters
- International Trade Statistics: imports of specific goods

Employment estimates

Employment was measured directly for certain components of the environment industry. For the portion that was estimated indirectly based upon purchases, employment was based upon known employment-to-sales ratios from Statistics Canada sources.

Data quality

For the reasons stated above, some estimates are weaker than others. Generally, the information derived from estimates of purchases is reliable in total but the allocation to specific categories is less certain. Estimates of exports and imports are relatively weak compared to other categories owing to fact that existing trade classifications do not make environmental goods and services explicit. These data will be improved by more direct observation from surveys of domestic and foreign suppliers.

The following tables are preliminary. The data will be revised in the fall as better estimates are developed. It is likely that further revisions will be made to the 1995 estimates as more information becomes available for other years. In order to ensure the accurate measurement of growth it is essential to ensure comparable coverage and methodology over time.

Table 1. Environment Industry, 1995 Preliminary Data

	millions of dollars
Supply by category of supplier:	
Business sales	9,227
Business own account	1,496
Government	4,837
Imports	1,188
Total supply	**16,748**
Supply by category of purchaser:	
Business	7,771
Household	272
Government	8,040
Exports	664
Total purchases	**16,748**

Note: This is a minimum estimate of the size of the environment industry.
Source: Statistics Canada, National Accounts and Environment Division.

Table 2. Environment Industry, 1995, Preliminary Data

SUPPLY BY INDUSTRY AND SECTOR	Business sales	Business own account	Government	Total domestic production	Imports	Total supply
			millions of dollars			
Producers of equipment and materials	**3,653**	**-**	**-**	**3,653**	**1,188**	**4,841**
Air production control	145	-	-	145	914	1,059
Water supply and purification	59	-	-	59	10	70
Waste water treatment	473	-	-	473	83	556
Solid waste	323	-	-	323	25	348
Other goods	253	-	-	253	156	408
Wholesaling of scrap materials	2,400	-	-	2,400	-	2,400
Services	**3,780**	**1,252**	**4,025**	**9,057**	**-**	**9,057**
Air production control	39	349	-	388	-	388
Water supply and purification	82	-	1,559	1,641	-	1,641
Waste water treatment	228	324	878	1,430	-	1,430
Solid waste management	2,125	330	623	3,077	-	3,077
Engineering	747	8	-	756	-	756
Other services	560	240	966	1,765	-	1,765
Construction	**1,793**	**244**	**811**	**2,849**	**-**	**2,849**
Total	**9,227**	**1,496**	**4,837**	**15,560**	**1,188**	**16,748**

Note: This is a minimum estimate of the size of the environment industry.
Source: Statistics Canada, National Accounts and Environment Division.

Table 3. Environment Industry, 1995, Preliminary Data

EMPLOYMENT BY INDUSTRY AND SECTOR	Business sales	Business own account	Government	Total employment
	number of employees			
Producers of equipment and materials	**13,322**	**-**	**-**	**13,322**
Air production control	657	..	..	657
Water supply and purification	269	..	..	269
Waste water treatment	2,142	..	..	2,142
Solid waste	1,464	..	..	1,464
Other goods	1,145	..	..	1,145
Wholesaling of scrap materials	7,644	..	..	7,644
Services	**31,891**	**12,230**	**44,861**	**88,982**
Air production control	425	3,823	-	4,248
Water supply and purification	898	-	18,221	19,119
Waste water treatment	2,494	3,551	10,259	16,304
Solid waste management	13,768	2,138	5,095	21,000
Engineering	8,182	89	-	8,271
Other services	6,124	2,630	11,286	20,040
Construction	**13,038**	**1,776**	**5,898**	**20,711**
Total	**58,251**	**14,006**	**50,758**	**123,015**

Note: This is a minimum estimate of the size of the environment industry.
Source: Statistics Canada, National Accounts and Environment Division**.**