



Research and Development in Canadian Industry, 2006

Reporting unit name and address

Si vous préférez ce questionnaire en
français, veuillez cocher

Please correct any mistakes in name or address

INFORMATION FOR RESPONDENTS

Survey Objective

This survey collects data which are essential to assure the availability of pertinent statistical information to monitor science and technology related activities in Canada and to support the development of science and technology policy. Your data will be used, for instance, to plan and evaluate research and development (R&D) incentive programs and to complete national totals for scientific R&D expenditures and personnel. The results of this survey will be published in **"Industrial Research and Development"** (Cat. No. 88-202-XIE) and **"Science Statistics"** (Cat. No. 88-001-XIE).

Authority

This survey is conducted under the authority of the Statistics Act, Revised Statutes of Canada, 1985, Chapter S19.

Legal requirement

Completion of this questionnaire is a legal requirement under the Statistics Act.

Confidentiality

Statistics Canada is prohibited from publishing any statistics that would divulge information relating to any identifiable organization without the previous written consent of that organization. The data reported on this questionnaire will be treated in strict confidence, used for statistical purposes and published in aggregate form only. The Access to Information Act or any other legislation does not affect the confidentiality provisions of the Statistics Act.

Federal / Provincial Agreement

In order to avoid duplication of enquiry, to reduce the cost of data collection and to provide consistent statistics, an agreement has been made with the Institut de la statistique du Québec, under Section 11 of the Statistics Act, Statutes of Canada, where data on firms located or having R&D activities in Québec will be transmitted to the Institut de la statistique du Québec. The Statistics Act of Québec includes the same provisions for confidentiality and penalties for disclosure of information as the Statistics Act.

Reporting period and coverage

This questionnaire should be completed for the **financial year ending in 2006**. This report should exclude foreign operations. Please report all amounts in **Canadian currency**.

Planned Data Linkage

In order to enhance the analytic possibilities of this survey, Statistics Canada intends to combine the information from the Research and Development in Canadian Industry Survey with the information your organization provided on the Energy R&D Expenditures by Area of Technology Survey, if applicable.

Please complete a separate questionnaire for each company **performing research and development (R&D)** activities in Canada.

- If your records do not permit separate reporting, ensure that questions 1 to 8 and 12 **only include** data on companies performing R&D in Canada.
- If your company performs R&D activities, **all questions should be completed**.
- If your company does not perform but funds R&D, **complete questions 2, 3, 4, 9, 10, 11, 13, 14 and certification**.
- Please see **Instruction Guide** for definitions starting on page 8.

CERTIFICATION

Name of person who completed this report (<i>please print</i>)		0001	Business address			0002			
Official position	0003	Date	0004	Postal Code	0005	Telephone No.	0006	Extension	0007
E-mail address:		0008	GST No. (BN No.)		0009	Fax No.		0010	

5-5300-402.1 2007-08-14 STC/SAT - 465-60041

6. PERSONNEL OF THIS REPORTING UNIT ENGAGED IN R&D (FULL-TIME EQUIVALENT - FTE*) (use rounded numbers only)

	Professionals								Supporting staff*		Total R&D personnel
	Scientists and engineers				Senior R&D administrators				Technicians and technologists	Other	
	Bachelors	Masters	Doctorates	Total	Bachelors	Masters	Doctorates	Total			
	0601	0611	0621	0631	0641	0651	0661	0671	0681	0691	
a) In 2006 (number of FTE)											
b) Planned for 2007 (number of FTE)	0602	0612	0622	0632	0642	0652	0662	0672	0682	0692	0693

* See **Instruction Guide**, page 8

** Divide wages and salaries for 2006 (Question 5b) by total R&D personnel.

If the average R&D wages and salaries does not seem reasonable, please review the data

Average R&D wages and salaries**

(CAN\$ thousands)

0699

7. REGIONAL INFORMATION FOR R&D PERFORMED WITHIN THIS REPORTING UNIT IN 2006 (Expenditures should be reported in thousands of Canadian dollars).

Region where R&D was performed	R&D expenditures		R&D personnel	
	Current	Capital	Professionals	Supporting staff
	(CAN\$ thousands)		(full-time equivalent**)	
1. Newfoundland and Labrador	0701	0711	0721	0731
2. Prince Edward Island	0702	0712	0722	0732
3. Nova Scotia	0703	0713	0723	0733
4. New Brunswick	0704	0714	0724	0734
5. Quebec (except National Capital Region)	0705	0715	0725	0735
6 a) National Capital Region:* Quebec (specify):	0706	0716	0726	0736
6 b) National Capital Region:* Ontario (specify):	0707	0717	0727	0737
7. Ontario (except National Capital Region)	0708	0718	0728	0738
8. Manitoba	0709	0719	0729	0739
9. Saskatchewan	0741	0751	0761	0771
10. Alberta	0742	0752	0762	0772
11. British Columbia	0743	0753	0763	0773
12. Yukon, Northwest Territories and Nunavut	0744	0754	0764	0774
Total (equal to 2006 expenditures and personnel reported in questions 5b) and 6a))	0745	0755	0765	0775

* See **Instruction Guide** for areas covered in the National Capital Region, page 10

** See **Instruction Guide** for definition of full time equivalent

Please complete Question 12 for each R&D unit identified above.

8. SOURCES OF FUNDS FOR R&D PERFORMED WITHIN THIS REPORTING UNIT IN 2006	Canadian sources	Non-Canadian
	(CAN\$ thousands)	
a) Reporting unit funding (include also funds from companies listed in question 1a)	0801	0811
b) Parent, affiliated and subsidiary companies (only those not included in question 8a)	(CAN\$ thousands)	
Names of companies (please print full legal name and attach additional sheet if necessary)	0802	0812
	0803	0813
	0804	0814
Sub-total (b)	0810	0819
c) Canadian Federal government:*	(CAN\$ thousands)	
(i) R&D grants and the R&D portion only of any other grants	0821	
Industry Canada: Technology Partnership Program	0822	
National Research Council: Industrial Research Assistance Program	0823	
Atlantic Canada Opportunities Agency	0824	
Canada Economic Development (Quebec Regions)	0825	
Western Economic Diversification Office	0826	
Other grant programs (specify):	0827	
(specify):	0820	
Sub total (c i)	0820	
(ii) R&D contracts and the R&D portion only of any other contracts	(CAN\$ thousands)	
Contracting departments: (Payments are often made through Public Works and Government Services Canada for other departments; please specify contracting department)	0831	
Canadian Space Agency	0832	
National Defence	0833	
Other contracts (specify):	0830	
Sub-total (c ii)	0830	
d) Provincial government:*	(CAN\$ thousands)	
(specify province):	0841	
(specify province):	0842	
Sub-total (d)	0840	
e) R&D contract work for other companies	(CAN\$ thousands)	
Names of companies (please print full legal name and attach additional sheet if necessary)	0851	0861
	0852	0862
	0853	0869
Sub-total (e)	0850	0860
f) Other organizations (i.e. universities, foreign government)	0870	0880
Sub-total (f)	0890	0895
Sub-totals (a to f)	0800	
Total (equal to the 2006 grand total expenditures of question 5b)	0800	

* Questions 8c) and 8d) – Do not include any funds or tax credits from tax incentives; these should be considered part of your internal funding reported in question 8a).

DATA ON PAYMENTS FOR R&D (questions 9 and 10)

9. PAYMENTS FOR R&D PERFORMED BY OTHER ORGANIZATIONS*
(2006 should equal the total of question 10)

(CAN\$ thousands)

a) Made in 2005	0904
b) Made in 2006	0901
c) Planned in 2007	0902
d) Forecast in 2008	0903

** Payments made outside Canada should be reported net of withholding taxes.*

10. RECIPIENTS OF PAYMENTS FOR R&D PERFORMED IN 2006 BY OTHER ORGANIZATIONS*
(2006 should equal the total of question 9b)

	In Canada	Outside Canada
(CAN\$ thousands)		
a) Parent, affiliated and subsidiary companies	1001	1011
b) Other companies	1002	1012
c) Private non-profit organizations	1003	1013
d) Industrial research institutes or associations	1004	1014
e) Hospitals	1005	1015
f) Universities	1006	1016
g) Provincial research organizations	1007	1017
h) Other (e.g.: individuals, non-university educational institutions, governments, etc.)	1008	1018
Total of items 10a) to 10h)	1098	1099

Total (equal to 2006 figure entered in question 9b)

1000

** Payments made outside Canada should be reported net of withholding taxes.*

DATA ON OTHER PAYMENTS MADE OR RECEIVED FOR TECHNOLOGY (question 11)

A company can acquire information based on R&D performed in the past by other companies, organizations or individuals. Similarly, it can sell information based on R&D it has performed in the past. In the preceding section, payments are reported in the support of R&D while this R&D is being done. In this section, consider only payments for information and rights derived from R&D performed in the past.

11. PAYMENTS MADE OR RECEIVED IN 2006 BY THIS REPORTING UNIT FOR PATENTS (SALE/PURCHASE, LICENSING), KNOW-HOW (UNPATENTED), INVENTIONS, TRADEMARKS (INCLUDING FRANCHISING), PATTERNS, DESIGN, AND R&D TECHNICAL ASSISTANCE*

	In Canada	Outside Canada
(CAN\$ thousands)		
a) Payments	1101	1111
to parent, affiliated and/or subsidiary companies		
to other organizations and/or individuals	1102	1112
Total	1100	1110
b) Receipts	1121	1131
from parent, affiliated and/or subsidiary companies		
from other organizations and/or individuals	1122	1132
Total	1120	1130

** Payments made outside Canada should be reported net of withholding taxes.*

SURVEY COMPLETION TIME (question 13)

13. PLEASE INDICATE HOW LONG IT TOOK YOU TO COMPLETE THIS QUESTIONNAIRE.

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 minutes
1301

DATA ON ENERGY R&D (question 14)

14. IN 2006, DID THIS REPORTING UNIT PERFORM OR FUND ANY ENERGY R&D?

- Yes** ▶ Please complete the enclosed “Energy R&D expenditures by area of technology” (green) questionnaire.
1401
- No** ▶ Please complete the certification on page 2 of the enclosed “Energy R&D expenditures by area of technology” (green) questionnaire and return with this questionnaire.
1402

COMMENTS

COMMENTS: *Reasons for major changes in reporting R&D expenditures and personnel – In order to eliminate the necessity to verify discrepancies between this report and your last return (2005) please explain any significant changes which might be misconstrued as an error in reporting.*

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FOR INFORMATION ONLY

INSTRUCTION GUIDE

RESEARCH AND DEVELOPMENT IN CANADIAN INDUSTRY

1. This survey has been carried out since 1955; you may have file copies of your returns for earlier years which will help you now. If you are filling a consolidated return for two or more related companies please ensure that consolidated figures are used for all questions (e.g. revenues, employment, R&D expenditures, technology payments). "This reporting unit", as used in the questionnaire, covers groups of related companies when a consolidated return is filed.
2. Please answer all questions. Your best estimates are satisfactory when precise figures are not available. Your estimates will be better than ours.
3. **Please return the completed questionnaire within 30 days of receipt.** If you are unable to do so, please inform us of the expected completion date. If you receive more than one copy of this survey questionnaire for the same business, please complete one and attach and return the duplicate(s). If you require assistance in the completion of this questionnaire or have any questions regarding the survey please address all enquiries to:

Science and Technology Surveys Section
Science, Innovation and Electronic Information Division
Statistics Canada
150 Tunney's Pasture Driveway
Ottawa, On
K1A 0T6
Tel: 1-866-824-5893
Email: sieidinfo@statcan.ca
Fax: 613-951-9920

R&D Definition (equivalent to Canada Revenue Agency – see information Circular 86-4R3)

Research and development (R&D) is systematic investigation carried out in the natural and engineering sciences by means of experiment or analysis to achieve a scientific or technological advance.

Research is original investigation undertaken on a systematic basis to gain new knowledge.

Development is the application of research findings or other scientific knowledge for the creation of new or significantly improved products or processes. If successful, development will usually result in devices or processes which represent an improvement in the "state of the art" and are likely to be patentable.

Research and development should be considered to be "Scientific Research and Experimental Development" as defined in Section 37, Regulation 2900 of the Income Tax Act; this section specifically excluded the following:

- (i) market research, sales promotion,
- (ii) quality control or routine analysis and testing of materials, devices or products,
- (iii) research in the social sciences or the humanities,
- (iv) prospecting, exploring or drilling for or producing minerals, petroleum or natural gas,
- (v) the commercial production of a new or improved material, device or product or the commercial use of a new or improved process,
- (vi) style changes, or routine data collection.

Example:

The investigation of electrical conduction in crystals was research. The application of this knowledge to the creation of a new amplifying device – the transistor – was development. The application of the device to the construction of new electrical circuits for television receivers was development. The formulation of new plastic cases for a television receiver is design, not development.

Research and development may be carried out either by a permanent R&D unit (e.g., R&D division) or by a unit generally engaged in any non-R&D activity such as engineering or production. In the first case, the R&D unit may spend part of its time on routine testing or trouble shooting or on some other activities which should not be included in R&D. In the second, only the R&D portion of such units' total activity should be considered.

Note:

Although the definition of "Scientific Research and Experimental Development" is considered to be the same as R&D, certain expenditures for scientific research and experimental development cannot be claimed for income tax purposes (e.g., land and buildings). All expenditures attributable to R&D are included in this report.

Interpretation

Generally speaking, industrial R&D is intended to result in an invention which may subsequently become a technological innovation. An essential requirement is that the outcome of the work is uncertain, i.e., that the possibility of obtaining a given technical objective cannot be known in advance on the basis of current knowledge or experience. Hence much of the work done by scientists and engineers is not R&D, since they are primarily engaged in "routine" production, engineering, quality control or testing. Although they apply scientific or engineering principles their work is not directed towards the discovery of new knowledge or the development of new products and processes. However, work elements which are not considered R&D by themselves but which directly support R&D projects, should be included with R&D in these cases. Examples of such work elements are design and engineering, shop work, computer programming, and secretarial work.

If the primary objective is to make further technical improvements to the product or process, then the work comes within the definition of R&D. If however, the product, process or approach is substantially set and the primary objective is to develop markets, to do pre-production planning or to get a production, or control system working smoothly, then the activity can no longer be considered as part of R&D even though it could be regarded as an important part of the total innovation process. Thus, the design, construction and testing of prototypes, models and pilot plants are part of R&D. But when necessary modifications have been made and testing has been satisfactorily completed, the boundary of R&D has been reached. Hence, the costs of tooling (design and try-out), construction drawings and manufacturing blueprints, and production start-up are not included in development costs.

Pilot plants may be included in development only if the main purpose is to acquire experience and compile data. As soon as they begin operating as normal production units, their costs can no longer be attributed to R&D. Similarly, once the original prototype has been found satisfactory, the costs of other "prototypes" built to meet a special need or fill a very small order are not to be considered as part of R&D.

ITEM	TREATMENT	REMARKS
Economic research, market research, management studies	Exclude	All activities in the social sciences.
Quality control, routine testing, style changes, minor adaptation of a product to meet a customer's specific requirement	Exclude	Even if carried out by staff normally engaged in R&D.
Prospecting, exploratory drilling, development of mines, oil or gas wells	Exclude	Except for R&D projects concerned with new equipment or techniques in these activities, such as in-situ and tertiary recovery research.
Engineering	Exclude	Engineering unless it is in direct support of R&D.
Design and drawing	Exclude	Design and drawing unless it is in direct support of R&D.
Prototypes, pilot plants	Include	As long as the primary objective is to make further improvements.
Contracts (questions 8(c)(ii) and 8(e))	Include	All contracts which require R&D. For contracts which include other work, report only the R&D costs.
Tooling up, trial production, trouble shooting	Exclude	Although R&D may be required as a result of these steps.
Patent and licence work	Exclude	All administrative and legal work connected with patents and licences.

Question 3 – Revenues in Canada - Represents the amount of revenues (in Canada) resulting from the sale of products and services (after deducting sales and excise taxes), and other revenues such as those generated from investment and rental. All goods sold include consignments shipped outside Canada. Revenues should be reported in Canadian currency.

Question 5 (e) – Software Development – Software refers to the encoded instructions executed by electronic devices including computers for performing operations and functions. See [Canada Information Circular 97-1](#) "Administration Guidelines for Software Development".

Question 5 (f) – Biotechnology – Biotechnology is defined as the application of science and engineering in the direct or indirect use of living organisms in their natural or modified forms in an innovative manner in the production of goods and services or to improve existing processes. Biotechnologies can be grouped in the following types of biotechnology: DNA (the coding), Proteins and Molecules (the functional blocks), Cell and Tissue Culture and Engineering, Process Biotechnologies, Sub-Cellular Organisms, Other (Bioinformatics, Environmental biotechnology). Please report Nanobiotechnologies in Question 5(j).

Question 5 (g) – Environmental Protection – Environmental protection is defined as the field of work devoted to the reduction or elimination of pollutants and wastes (including prevention, treatment and reuse of pollutants and wastes, and reduction of material and energy use). Expenditures made in order to improve employee health and workplace safety are excluded.

Question 5 (h) – Environmental benefits – Environmental benefits include potential energy savings and the reduction in raw materials use or waste generation either from increased efficiency, recycling or closed-loop systems. They can also include design changes resulting in products that are less damaging to the environment in their use or disposal.

Question 5 (i) – R&D in advanced materials – R&D in advanced materials is defined as the systematic investigation carried out in the natural and engineering sciences by means of experiment or analysis in order to gain new knowledge and create new or significantly improved products or processes which use advanced materials such as metals (including superalloys or high purity metals), ceramics and carbon (including optoelectronics such as optical fibres and carbon and graphite products) and polymers (including high performance reinforced plastics and other high performance polymers).

Question 5 (j) – Nanotechnology - Nanotechnology is the manufacturing of devices and products from molecular or nano-scale components with extraordinary properties. Examples of nanotechnology include: nanoparticles, nanomaterials, nanostructures, nanosystems, nanophotonics, nanoelectronics, nanomedicine, nanobiotechnology.

Question 6 – Full Time Equivalent (FTE) – R&D may be carried out by persons who work solely on R&D projects or by persons who devote only part of their time to R&D, and the balance to other activities such as testing, quality control and production engineering. To arrive at the total effort devoted to R&D in terms of personnel, it is necessary to estimate the full-time equivalent of these persons working only part-time in R&D.

FTE = Number of persons who work solely on R&D projects + the estimate of time of persons working only part of their time on R&D.

Example calculation: If out of five scientists engaged in R&D work, one works solely on R&D projects and the remaining four devote only one quarter of their working time to R&D, then: $FTE = 1 + 1/4 + 1/4 + 1/4 + 1/4 = 2$ scientists.

Question 6 – Supporting Staff

Technicians and technologists – Technically trained personnel who assist scientists and engineers in R&D, e.g. chemical technicians, draftspersons. They may be certified by either provincial educational authorities or by provincial or national scientific or engineering associations.

Other – Personnel directly engaged in the R&D program, e.g. machinists and electricians in construction of prototypes, or clerks, typists, accountants and storekeepers engaged in the administration or clerical support of R&D units.

Question 7 – Areas covered in the National Capital Region:

Alcove (QC)	Constance Bay (ON)	Gloucester (ON)	Larrimac (QC)	Orléans (ON)	Ste-Cécile-de Masham (QC)
Almonte (ON)	Corkery (ON)	Greely (ON)	Leitrim (ON)	Osgoode (ON)	Sarsfield (ON)
Angers (QC)	Cousineau (QC)	Halverson (QC)	Leonard (ON)	Ottawa (ON)	Shirley's Bay (ON)
Antrim (ON)	Cumberland (ON)	Harwood Plains (ON)	Limbou (QC)	Pakenham (ON)	South Gloucester (ON)
Appleton (ON)	Dalmeny (ON)	Hazeldean (ON)	Lucerne (QC)	Pamun (ON)	South March (ON)
Ashton (ON)	Davidson Corner (QC)	Herbert Corners (ON)	Luskville (QC)	Parkinson (QC)	Spring Hill (ON)
Aylmer (QC)	Deschênes (QC)	Heyworth (QC)	MacLarens Landing (ON)	Perkins (QC)	Stapledon (ON)
Barrhaven (ON)	Dirleton (ON)	Holland Mills (QC)	Malwood (ON)	Pointe-Gatineau (QC)	Stanley Corners (ON)
Baxters Corner (ON)	Duclos (QC)	Hull (QC)	Manion Corners (ON)	Poltimore (QC)	Steel (QC)
Bearbrook (ON)	Dunrobin (ON)	Huntley (ON)	Manotick (ON)	Poupore (QC)	Stittsville (ON)
Beech Grove (QC)	Dwyer Hill (ON)	Ironside (QC)	Mansfield (ON)	Quinnville (QC)	Strathearn (ON)
Bells Corners (ON)	Eardley (QC)	Jeanne-d'Arc (QC)	Marathon (ON)	Quyong (QC)	Tenaga (QC)
Blackburn Hamlet (ON)	Edwards (ON)	Jockvale (ON)	Marchhurst (ON)	Ramsayville (ON)	Twinn Elm (ON)
Blakeney (ON)	Elm (ON)	Johnston Corners (ON)	Marvelville (ON)	ReeveCraig (ON)	Val-des Monts (QC)
Breckenridge (QC)	Embrun (ON)	Kanata (ON)	Masson (QC)	Ribot (QC)	Val-du-Lac (QC)
Brisson (ON)	Fallowfield (ON)	Kars (ON)	Merivale (ON)	Richmond (ON)	Val-Paquin (QC)
Buckingham (QC)	Farm Point (QC)	Kenmore (ON)	Metcalfe (ON)	Rideau (ON)	Vanier (ON)
Burnet (QC)	Fitzroy Harbour (ON)	Kilmours (ON)	Mohr Corners (ON)	Rupert (QC)	Vars (ON)
Cantley (QC)	French Hill (ON)	Linburn (ON)	Munster (ON)	Russell (ON)	Wakefield (QC)
Carlsbad Springs (ON)	Galetta (ON)	Kirks Ferry (QC)	Navan (ON)	Ruthledge (QC)	Watterson Corners (ON)
Carp (ON)	Gatineau (QC)	La Pêche (QC)	Nepean (ON)	St-François-de-Masham (QC)	Wilson's Corners (ON)
Carsonby (ON)	Glen Almond (QC)	Lac-des-Loups (QC)	North Gower (ON)	St-Louis-de-Masham (QC)	Woodlawn (ON)
Cascades (QC)	Glen Cairn (ON)	Lac-McGregor (QC)	North Onslow (QC)	St-Onge (QC)	Woodridge (ON)
Chelsea (QC)	Gleneagle (QC)	Lascalles (QC)	Old Chelsea (QC)	St-Pierre-de-Wakefield (QC)	Wyman (QC)
			Onslow Corners (QC)		

The results of this survey will be published in

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<http://www.statcan.ca/cgi-bin/downpub/freepub.cgi?subject=193#193>

THANK YOU FOR YOUR CO-OPERATION

Questions:

Science and Technology Survey Section
 Science, Innovation and Electronic Information Division
 Statistics Canada
 Tel: 1-866-824-5893
 Email: sieidinfo@statcan.ca