

Science Statistics

Scientific and Technological
Activities of Provincial
Governments and
Provincial Research
Organizations, 2002/2003 to 2006/2007



October 2008 edition



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Statistics Canada
Science, Innovation and Electronic Information Division

Science Statistics

Scientific and Technological Activities of Provincial Governments and Provincial Research Organizations, 2002/2003 to 2006/2007

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Symbols

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- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- p preliminary
- r revised
- x suppressed to meet the confidentiality requirements of the *Statistics Act*
- E use with caution
- F too unreliable to be published

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Highlights

Scientific and technological activities of provincial governments and provincial research organizations, 2002/2003 to 2006/2007

This report includes scientific and technological (S&T) activities involving the generation, dissemination and application of new scientific and technological knowledge. The main activity is research and experimental development (R&D). Related scientific activities (RSA) are also included.

Newfoundland and Labrador, Ontario, Manitoba, Alberta and British Columbia participate in surveys of their provincial governments' science and technology activities which are conducted with Statistics Canada. The provincial government of Quebec conducts a survey of its R&D activities the results of which it shares with Statistics Canada. This report presents the results of these surveys as well as S&T activities of Provincial Research Organizations (PRO).

- In 2006/2007, total expenditures on scientific activities by the five provinces varied by socio-economic objectives. For all five provinces, protection and improvement of human health was ranked as one of the top three S&T expenditure objectives as determined by the amount spent (table 5).
- Of the five provinces, Alberta had the largest S&T expenditure increase at 19% (table 3-1). This increase reflects higher S&T spending in both the natural sciences at 19% (table 3-3) and the social sciences, 25% over the previous year (table 3-7).
- In 2006/2007 the distribution of S&T expenditures varied by province. Intramural S&T expenditures predominated in Manitoba (57%) and Alberta (47%). Ontario allocated 41% of its total S&T expenditures to the higher education sector and 27% on intramural spending. For British Columbia, 34% of S&T expenditures went to intramural spending and 21% to the higher education sector. Newfoundland and Labrador, allocated 47% of their S&T expenditures to business enterprises and 42% to intramural activities (table 3-2).
- In 2006/2007, Alberta dedicated 70% of their S&T expenditures to R&D followed by, Ontario at 63%, British Columbia at 47%, Manitoba at 32% and Newfoundland and Labrador at 12% (table 3-2).
- In 2006/2007 total expenditures of PRO on scientific activities reached over \$75 million, an increase of 5% over the previous year (table 14).

Analysis

Scientific and technological activities of provincial governments and provincial research organizations, 2002/2003 to 2006/2007

For Newfoundland and Labrador, Ontario, Manitoba, Alberta and British Columbia total expenditures on their provincial governments' science and technology activities are available. Scientific and technological (S&T) activities involve the generation, dissemination and application of new scientific and technological knowledge. The first component is research and experimental development (R&D). Related scientific activities (RSA) comprise the other component. S&T expenditures can also be categorized by science type, natural sciences and engineering and social sciences and the humanities and this report provides this information for the five provinces.

The 2006/2007 S&T expenditures for the provincial governments of Ontario, Manitoba, Alberta reported an increase in S&T spending while British Columbia indicated a decrease of 6.5% from the previous year (table 3-1).

The leading provinces for total R&D expenditures in 2006/2007 continued to be Ontario (\$548.9 million), Quebec (\$462.1 million) and Alberta (\$318.0 million) (table 3-1).

Provincial government research and development expenditures in the natural sciences and engineering are available for six provinces, Newfoundland and Labrador, Quebec, Ontario, Manitoba, Alberta and British Columbia. In 2006/2007, the Alberta government led the six provinces in the amount it spent on intramural R&D in the natural sciences and engineering at \$124 million whereas the Quebec government funded the highest amount of R&D in the business enterprise sector, \$33.5 million (table 3-5).

The provincial government of Ontario indicated that \$262.6 million was intended for R&D expenditures on natural sciences and engineering in the higher education sector in 2006/2007. The Quebec provincial government funded \$186.6 million of natural science and engineering R&D by the higher education sector and the third largest amount of funding to this sector for these R&D activities came from the Alberta provincial government at \$123.9 million (table 3-5).

The provinces allocate their S&T expenditures by socio-economic objectives. These objectives are:

1. Exploration and utilization of the earth
2. Infrastructure and general planning of land use
3. Control and care of the environment
4. Protection and improvement of human health
5. Production, distribution and rational utilization of energy
6. Agriculture production and technology
7. Fishing
8. Forestry

9. Industrial production and technology
10. Social development
11. Exploration and exploitation of space
12. Basic research
13. Other civil research

In 2006/2007, total expenditures on scientific activities by the five provinces varied by objectives. For all five provinces, protection and improvement of human health was ranked as one of the top three S&T expenditure objectives as determined by amount spent (table 5).

Newfoundland and Labrador's primary focus for S&T expenditures was on social development followed by industrial production and technology. Newfoundland and Labrador alone amongst the five provinces did not indicate that basic research was in their top five spending priorities for S&T objectives based on amount spent (table 5).

Alberta's top five S&T expenditures by objective were protection and improvement of human health; basic research; production, distribution and rational utilization of energy; control and care of the environment; and agriculture production and technology (table 5).

British Columbia's priorities for S&T activities were concentrated in protection and improvement of human health and basic research. Ontario indicated that these two activities were also its most important priorities, along with control and care of the environment (table 5).

In 2006/2007, the provincial government of Alberta dedicated 723 full-time equivalents to its R&D activities in the natural sciences and engineering of which 102 worked on administering extramural programs for R&D. Quebec's provincial government followed with 529 full-time equivalents working on R&D activities in the natural sciences and engineering with 139 performing tasks related to administering extramural R&D programs (tables 12-3 and 12-4).

Quebec had more full-time equivalent scientists and professionals engaged in research and development than any other Canadian province with 438. Alberta followed with 386 and Ontario with 257 (table 13).

This report also presents the results of the S&T activities of Provincial Research Organizations (PRO).

In 2006/2007 total expenditures of provincial research organizations (PRO) on scientific activities reached over \$75 million, an increase of 5% over the previous year (table 14).

More than 80% of Canada's \$76 million in S&T expenditures by provincial research organizations occurred in the provinces of Quebec and Saskatchewan. The PRO in Quebec accounted for \$31.9 million and the PRO in Saskatchewan accounted for \$29.9 million (table 14).

Canadian industrial contracts provided 42% of all funding for the scientific activities of the provincial research organizations, while provincial government contracts, subsidies, grants and contributions provided 47% of PRO funding (table 15).

Related products

Selected publications from Statistics Canada

88-202-X	Industrial Research and Development: Intentions
88-204-X	Federal Scientific Activities
88-221-X	Gross Domestic Expenditures on Research and Development in Canada and the Provinces
88-522-X	Science and Technology Activities and Impacts: A Framework for a Statistical Information
88F0006X	Science, Innovation and Electronic Information Division Working Papers
88F0017M	Science, Innovation and Electronic Information Division Research Papers

Selected CANSIM tables from Statistics Canada

358-0001	Gross domestic expenditures on research and development, by science type and by funder and performer sector, annual
358-0024	Business enterprise research and development (BERD) characteristics, by industry group based on the North American Industry Classification System (NAICS), annual
358-0026	Intellectual property management, by federal departments and agencies indicators, annual

Selected surveys from Statistics Canada

4201	Research and Development in Canadian Industry
4204	Research and Development of Canadian Private Non-Profit Organizations
4208	Provincial Research Organizations (PRO)
4209	Provincial Government Activities in the Natural Sciences
4210	Provincial Government Activities in the Social Sciences
4212	Federal Science Expenditures and Personnel, Activities in the Social Sciences and Natural Sciences
5109	Higher Education Research and Development Estimates

Selected summary tables from Statistics Canada

- *Research and development performed by the business enterprise sector*
- *Domestic spending on research and development (GERD), funding sector, by province*
- *Domestic spending on research and development (GERD), performing sector, by province*
- *Domestic spending on research and development (GERD)*

Statistical tables

Table 1
Provincial indicators, 2005

	Population ¹	Provincial Gross Domestic Product ²	Gross Domestic Expenditures on Research and Development ³	Gross Domestic Expenditures on Research and Development over Provincial Gross Domestic Product ³	Gross Domestic Expenditures on Research and Development over Capita
	thousands	millions of dollars		ratio	dollars
Canada ⁴	32,137	1,375,080	27,699	2.0	862
Newfoundland and Labrador	516	21,496	267	1.2	517
Prince Edward Island	138	4,118	63	1.5	457
Nova Scotia	938	31,575	464	1.5	495
New Brunswick	752	24,190	243	1.0	323
Quebec ⁵	7,574	272,672	7,193	2.6	950
Ontario ⁵	12,480	536,908	12,447	2.3	997
Manitoba	1,173	41,682	578	1.4	493
Saskatchewan	993	43,773	450	1.0	453
Alberta	3,239	222,159	2,286	1.0	706
British Columbia	4,230	169,404	2,462	1.5	582

1. CANSIM, table 051-0005

2. CANSIM, table 384-0002

3. Gross domestic expenditures on research and development in Canada and the provinces, national estimates 1996 to 2007, provincial estimates 2001 to 2005.

4. Includes the Yukon Territory, Northwest Territories and Nunavut, and the National Capital Region.

5. Quebec and Ontario Gross Domestic Expenditures on Research and Development figures exclude federal government expenditures of \$1,123 million performed in the National Capital Region.

Note(s): Components may not add to total due to rounding.

Source(s): CANSIM, table 051-0005 and table 384-0002.

Table 2
Provincial distribution of gross expenditures on research and development by performing and funding sectors, 2005/2006

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia	Subtotal Canada ¹	National Capital Region	Total Canada ¹
	millions of dollars												
Performing Sector	267	63	464	243	7,192	12,447	578	450	2,286	2,462	26,464	1,123	27,699
Federal government	28	28	66	26	368	395	83	68	130	91	1,292	1,123	2,414
Provincial governments	5	0	6	2	75	42	4	4	122	17	277	0	277
Provincial Research Organizations	0	0	0	2	10	0	0	11	0	0	23	0	23
Business enterprise	86	8	94	83	4,183	8,030	196	150	1,073	1,450	15,356	0	15,356
Higher Education	148	27	298	130	2,556	3,980	294	217	962	904	9,518	0	9,518
Private non-profit organizations	..	..	..	..	..	..	..	..	..	..	..	..	112
Funding Sector	267	63	464	243	7,192	12,447	578	450	2,286	2,462	26,464	1,123	27,699
Federal government	80	37	150	62	1,168	1,497	157	126	400	417	4,102	1,103	5,244
Provincial governments	7	1	13	7	393	476	21	30	297	110	1,353	1	1,367
Provincial Research Organizations	0	0	0	0 ^s	0	0	0	0	0	0	0	0	0 ^s
Business enterprise	98	7	94	84	3,768	6,965	195	154	1,072	962	13,402	19	13,431
Higher Education	76	16	158	80	1,180	1,793	149	115	396	377	4,340	0	4,340
Private non-profit organizations	2	1	22	7	158	342	38	15	61	98	743	0	777
Foreign	5	1	26	4	526	1,373	19	11	60	499	2,540	0	2,541

1. Includes the Yukon Territory, Northwest Territories and Nunavut.

Note(s): Quebec and Ontario figures exclude federal government expenditures on research and development performed in the National Capital Region. The private non-profit (PNP) sector appears in both the performing and funding sector for the gross domestic expenditure on research and development (GERD) for Canada. Commencing with reference year 2000 the data for the PNP sector performing research and development are not distributed by provinces, territories or the National Capital Region. The national totals of research and development by performing sector include the PNP sector. The data for the PNP sector funding research and development continue to be distributed by provinces, territories and the National Capital Region. Components may not add to total due to rounding.

Table 3-1
Total expenditures of provincial governments on scientific activities — By activity

	2002/2003	2003/2004	2004/2005 ^r	2005/2006 ^r	2006/2007
	thousands of dollars				
Science and technology					
Newfoundland and Labrador	..	..	..	..	41,086
Ontario	643,792	721,773	757,963	826,197	866,647
Manitoba	66,166	79,869	78,721	85,635	94,542
Alberta	333,421	313,546	362,633	381,769	455,926
British Columbia	297,707	260,153	230,163	327,791	306,369
Research and development					
Newfoundland and Labrador	..	..	..	..	4,830
Quebec ¹	412,961	559,537	415,774	423,949	462,147
Ontario	406,327	473,871	444,830	555,643	548,865
Manitoba	19,639	23,495	26,133	27,372	29,902
Alberta	248,785	241,407	263,370	274,501	318,022
British Columbia	175,814	163,386	130,198	225,411	144,525
Related scientific activities					
Newfoundland and Labrador	..	..	..	..	36,256
Ontario	237,465	247,902	313,133	270,554	317,782
Manitoba	46,527	56,374	52,588	58,263	64,640
Alberta	84,636	72,139	99,263	107,268	137,904
British Columbia	121,893	96,767	99,965	102,380	161,844

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Components may not add to total due to rounding.

Table 3-2
Total expenditures of provincial governments on scientific activities — By activity, and by sector of performance, 2006/2007

	Intramural	Business enterprise	Higher education	Hospitals and health organizations	Provincial research organizations	Other	Total
	thousands of dollars						
Science and technology							
Newfoundland and Labrador	17,221	19,377	747	52	0	3,689	41,086
Ontario	236,824	23,482	357,777	129,619	0	118,945	866,647
Manitoba	53,708	14,976	18,117	2,963	897	3,881	94,542
Alberta	211,840	54,925	132,927	19,287	0	36,948	455,926
British Columbia	104,609	22,018	64,818	55,613	0	59,311	306,369
Research and development							
Newfoundland and Labrador	1,490	2,716	413	0	0	211	4,830
Quebec ¹	76,526	34,027	246,137	49,551	45	55,861	462,147
Ontario	69,624	3,004	313,357	106,984	0	55,896	548,865
Manitoba	6,248	996	16,675	2,953	790	2,240	29,902
Alberta	124,533	21,816	129,589	17,282	0	24,803	318,022
British Columbia	17,592	14,490	46,493	48,640	0	17,310	144,525
Related scientific activities							
Newfoundland and Labrador	15,731	16,661	334	52	0	3,478	36,256
Ontario	167,200	20,478	44,420	22,635	0	63,049	317,782
Manitoba	47,460	13,980	1,442	10	107	1,641	64,640
Alberta	87,307	33,109	3,338	2,005	0	12,145	137,904
British Columbia	87,017	7,528	18,325	6,973	0	42,001	161,844

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Components may not add to total due to rounding.

Table 3-3
Total expenditures of provincial governments on scientific activities — In the natural sciences and engineering, by activity

	2002/2003	2003/2004	2004/2005 ^r	2005/2006 ^r	2006/2007
	thousands of dollars				
Science and technology					
Newfoundland and Labrador	..	..	..	..	5,070
Ontario	484,833	569,547	616,994	684,520	699,765
Manitoba	45,144	50,813	53,814	57,197	66,222
Alberta	311,509	291,865	330,023	356,834	424,710
British Columbia	214,022	199,528	155,933	199,860	199,399
Research and development					
Newfoundland and Labrador	..	..	..	..	4,080
Quebec ¹	301,518	436,550	323,202	306,544	346,429
Ontario	357,327	412,136	394,068	490,848	464,544
Manitoba	16,394	19,804	22,278	22,951	26,315
Alberta	242,518	235,564	251,888	266,386	307,283
British Columbia	115,614	117,570	73,069	136,630	84,125
Related scientific activities					
Newfoundland and Labrador	..	..	..	..	990
Ontario	127,506	157,412	222,926	193,672	235,221
Manitoba	28,750	31,009	31,536	34,246	39,907
Alberta	68,991	56,301	78,135	90,448	117,427
British Columbia	98,408	81,958	82,864	63,230	115,274

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Components may not add to total due to rounding.

Table 3-4
Total expenditures of provincial governments on scientific activities — In the natural sciences and engineering, by activity, 2006/2007

	Newfoundland and Labrador	Quebec ¹	Ontario	Manitoba	Alberta	British Columbia
	thousands of dollars					
Total science and technology	5,070	..	699,765	66,222	424,710	199,399
Total research and development	4,080	346,429	464,544	26,315	307,283	84,125
Current expenditures						
In-house	1,034	35,365	35,854	4,419	51,918	13,211
Contracts	93	842	32,562	524	46,761	15,592
Grants	2,918	291,974	345,050	20,183	176,507	53,358
Research fellowships	0	0	21,260	693	1,468	0
Administration of extramural research and development programs	5	16,718	7,276	496	14,502	1,701
Sub-total	4,050	344,899	442,002	26,315	291,156	83,862
Capital expenditures	30	1,530	22,542	0	16,128	263
Total related scientific activities	990	..	235,221	39,907	117,427	115,274
Current expenditures						
Education support	134	..	18,323	3,633	592	7,988
Technical surveys	452	..	62,987	11,407	66,897	42,267
Information services	0	..	28,380	395	19,206	27,418
Special services and studies	404	..	60,680	23,739	19,151	36,524
Museum services	0	..	47,490	586	1,797	450
Administration of extramural related scientific activities programs	0	..	4,158	48	2,769	627
Sub-total	990	..	222,018	39,808	110,412	115,274
Capital expenditures	0	..	13,203	99	7,015	0

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Components may not add to total due to rounding.

Table 3-5
Total expenditures of provincial governments on scientific activities — In natural sciences and engineering, by activity and sector of performance, 2006/2007

	Intramural	Business enterprise	Higher education	Hospitals and health organizations	Provincial research organizations	Other	Total
thousands of dollars							
Science and technology							
Newfoundland and Labrador	1,322	3,005	693	0	...	50	5,070
Ontario	196,258	18,147	293,156	103,960	...	88,244	699,765
Manitoba	29,019	14,371	15,857	2,894	790	3,291	66,222
Alberta	203,564	51,080	125,180	17,542	...	27,344	424,710
British Columbia	84,065	19,096	47,290	0	...	48,948	199,399
Research and development							
Newfoundland and Labrador	1,069	2,591	370	0	...	50	4,080
Quebec ¹	54,455	33,528	186,620	25,300	20	46,507	346,429
Ontario	65,672	891	262,584	100,945	...	34,452	464,544
Manitoba	4,915	996	14,490	2,884	790	2,240	26,315
Alberta	123,970	21,808	123,922	16,942	...	20,641	307,283
British Columbia	15,200	14,202	39,044	0	...	15,679	84,125
Related scientific activities							
Newfoundland and Labrador	253	414	323	0	...	0	990
Ontario	130,586	17,256	30,572	3,015	...	53,792	235,221
Manitoba	24,104	13,375	1,367	10	0	1,051	39,907
Alberta	79,594	29,272	1,258	600	...	6,703	117,427
British Columbia	68,865	4,894	8,246	0	...	33,269	115,274

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Components may not add to total due to rounding.

Table 3-6
Total expenditures of provincial governments on scientific activities — In natural sciences and engineering, by objective, 2006/2007

	Newfoundland and Labrador	Ontario	Manitoba	Alberta	British Columbia
thousands of dollars					
Total	5,070	699,765	66,222	424,710	199,399
Exploration and utilization of the earth	0	18,862	6,901	11,257	8,700
Infrastructure and general planning of land use	404	21,150	20,516	27,290	45,791
Control and care of the environment	350	143,274	6,588	55,876	13,020
Protection and improvement of human health	0	116,782	10,580	83,102	0
Production, distribution and rational utilization of energy	0	42,904	800	61,078	719
Agriculture production and technology	0	53,370	7,041	47,934	11,311
Fishing	1,149	4,181	1,084	0	409
Forestry	0	19,450	3,425	34,331	28,847
Industrial production and technology	2,471	64,376	1,692	28,371	33,241
Social development	0	51,456	805	1,797	0
Exploration and exploitation of space	0	61	0	588	0
Basic research	696	162,313	6,790	70,749	57,361
Other civil research	0	1,586	0	2,337	0

Note(s): Components may not add to total due to rounding.

Table 3-7
Total expenditures of provincial governments on scientific activities — In the social sciences and humanities, by activity

	2002/2003	2003/2004	2004/2005 ^r	2005/2006 ^r	2006/2007
	thousands of dollars				
Science and technology					
Newfoundland and Labrador	..	..	..	..	36,016
Ontario	158,959	152,226	140,969	141,677	166,882
Manitoba	21,022	29,056	24,907	28,438	28,320
Alberta	21,912	21,681	32,610	24,935	31,216
British Columbia	83,685	60,625	74,230	127,931	106,970
Research and development					
Newfoundland and Labrador	..	..	..	..	750
Quebec ¹	111,443	122,986	92,572	117,405	115,718
Ontario	49,000	61,735	50,762	64,795	84,321
Manitoba	3,245	3,691	3,855	4,421	3,587
Alberta	6,267	5,843	11,482	8,115	10,739
British Columbia	60,200	45,816	57,129	88,781	60,400
Related scientific activities					
Newfoundland and Labrador	..	..	..	..	35,266
Ontario	109,959	90,491	90,207	76,882	82,561
Manitoba	17,777	25,365	21,052	24,017	24,733
Alberta	15,645	15,838	21,128	16,820	20,477
British Columbia	23,485	14,809	17,101	39,150	46,570

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Components may not add to total due to rounding.

Table 3-8
Total expenditures of provincial governments on scientific activities — In the social sciences and humanities, by activity, 2006/2007

	Newfoundland and Labrador	Quebec ¹	Ontario	Manitoba	Alberta	British Columbia
	thousands of dollars					
Total science and technology	36,016	..	166,882	28,320	31,216	106,970
Total research and development	750	115,718	84,321	3,587	10,739	60,400
Current expenditures						
In-house	340	15,358	2,985	1,053	197	2,372
Contracts	0	1,005	36,404	2,130	1,934	6,028
Grants	329	93,647	27,715	223	8,243	51,980
Research fellowships	0	15	16,250	181	0	0
Administration of extramural research and development programs	77	5,291	963	0	364	0
Sub-total	746	115,316	84,317	3,587	10,738	60,380
Capital expenditures	4	403	4	0	1	20
Total related scientific activities	35,266	..	82,561	24,733	20,477	46,570
Current expenditures	35,232	..	81,756	23,621	18,525	44,767
Administration of extramural related scientific activities programs	0	..	705	96	1,843	1,797
Sub-total	35,232	..	82,461	23,717	20,368	46,564
Capital expenditures	34	..	100	1,016	109	6

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Components may not add to total due to rounding.

Table 3-9
Total expenditures of provincial governments on scientific activities — In the social sciences and humanities, by activity and by sector of performance, 2006/2007

	Intramural	Business enterprise	Higher education	Hospitals and health organizations	Provincial research organizations	Other	Total
thousands of dollars							
Science and technology							
Newfoundland and Labrador	15,899	16,372	54	52	...	3,639	36,016
Ontario	40,566	5,335	64,621	25,659	...	30,701	166,882
Manitoba	24,689	605	2,260	69	107	590	28,320
Alberta	8,275	3,845	7,747	1,745	...	9,604	31,216
British Columbia	20,544	2,922	17,528	55,613	...	10,363	106,970
Research and development							
Newfoundland and Labrador	421	125	43	0	...	161	750
Quebec ¹	22,071	499	59,518	24,252	25	9,354	115,718
Ontario	3,952	2,113	50,773	6,039	...	21,444	84,321
Manitoba	1,333	0	2,185	69	0	0	3,587
Alberta	562	8	5,667	340	...	4,162	10,739
British Columbia	2,392	288	7,449	48,640	...	1,631	60,400
Related scientific activities							
Newfoundland and Labrador	15,478	16,247	11	52	...	3,478	35,266
Ontario	36,614	3,222	13,848	19,620	...	9,257	82,561
Manitoba	23,356	605	75	0	107	590	24,733
Alberta	7,713	3,837	2,080	1,405	...	5,442	20,477
British Columbia	18,152	2,634	10,079	6,973	...	8,732	46,570

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.
Note(s): Components may not add to total due to rounding.

Table 3-10
Total expenditures of provincial governments on scientific activities — In the social sciences and humanities, by objective, 2006/2007

	Newfoundland and Labrador	Ontario	Manitoba	Alberta	British Columbia
thousands of dollars					
Total	36,016	166,882	28,320	31,216	106,970
Exploration and utilization of the earth	0	0	0	0	0
Infrastructure and general planning of land use	648	5,783	0	45	133
Control and care of the environment	0	156	4	1,029	0
Protection and improvement of human health	2,338	76,188	2,503	12,308	81,577
Production, distribution and rational utilization of energy	0	50	136	512	0
Agriculture production and technology	0	1,307	0	0	0
Fishing	0	0	0	0	0
Forestry	0	244	0	0	0
Industrial production and technology	5,301	25	871	765	1,310
Social development	27,433	29,970	24,316	14,519	13,964
Exploration and exploitation of space	0	0	0	0	0
Basic research	94	44,196	403	565	6,080
Other civil research	202	8,963	87	1,473	3,906

Note(s): Components may not add to total due to rounding.

Table 4-1
Total expenditures of provincial governments on research and development — In the natural sciences and engineering, by objective, 2006/2007

	Newfoundland and Labrador	Ontario	Manitoba	Alberta	British Columbia
thousands of dollars					
Total	4,080	464,544	26,315	307,283	84,125
Exploration and utilization of the earth	0	3,124	0	0	225
Infrastructure and general planning of land use	0	15,688	658	12,501	210
Control and care of the environment	240	45,596	1,731	12,716	2,323
Protection and improvement of human health	0	103,052	10,405	78,976	0
Production, distribution and rational utilization of energy	0	40,241	750	57,652	200
Agriculture production and technology	0	34,146	4,241	30,142	4,269
Fishing	950	1,560	0	0	409
Forestry	0	9,504	1,234	18,036	27,797
Industrial production and technology	2,468	50,833	1,692	28,354	0
Social development	0	7,609	164	0	0
Exploration and exploitation of space	0	61	0	588	0
Basic research	422	152,430	5,440	66,093	48,692
Other civil research	0	700	0	2,225	0

Note(s): Components may not add to total due to rounding.

Table 4-2
Total expenditures of provincial governments on research and development — In the social sciences and humanities, by objective, 2006/2007

	Newfoundland and Labrador	Ontario	Manitoba	Alberta	British Columbia
thousands of dollars					
Total	750	84,321	3,587	10,739	60,400
Exploration and utilization of the earth	0	0	0	0	0
Infrastructure and general planning of land use	161	583	0	0	0
Control and care of the environment	0	156	0	367	0
Protection and improvement of human health	33	36,086	2,105	4,417	54,116
Production, distribution and rational utilization of energy	0	0	100	0	0
Agriculture production and technology	0	1,025	0	0	0
Fishing	0	0	0	0	0
Forestry	0	195	0	0	0
Industrial production and technology	18	0	0	0	0
Social development	336	4,469	979	5,955	5,402
Exploration and exploitation of space	0	0	0	0	0
Basic research	0	40,452	403	0	882
Other civil research	202	1,355	0	0	0

Note(s): Components may not add to total due to rounding.

Table 5
Total expenditures on scientific activities, by objective, and by province, 2006/2007

	Newfoundland and Labrador	Ontario	Manitoba	Alberta	British Columbia
thousands of dollars					
Total	41,086	866,647	94,542	455,926	306,369
Exploration and utilization of the earth	0	18,862	6,901	11,257	8,700
Infrastructure and general planning of land use	1,052	26,933	20,516	27,335	45,924
Control and care of the environment	350	143,430	6,592	56,905	13,020
Protection and improvement of human health	2,338	192,970	13,083	95,410	81,577
Production, distribution and rational utilization of energy	0	42,954	936	61,590	719
Agriculture production and technology	0	54,677	7,041	47,934	11,311
Fishing	1,149	4,181	1,084	0	409
Forestry	0	19,694	3,425	34,331	28,847
Industrial production and technology	7,772	64,401	2,563	29,136	34,551
Social development	27,433	81,426	25,121	16,316	13,964
Exploration and exploitation of space	0	61	0	588	0
Basic research	790	206,509	7,193	71,314	63,441
Other civil research	202	10,549	87	3,810	3,906

Note(s): Components may not add to total due to rounding.

Table 6
Total expenditures on research and development, by objective and by province, 2006/2007

	Newfoundland and Labrador	Ontario	Manitoba	Alberta	British Columbia
thousands of dollars					
Total	4,830	548,865	29,902	318,022	144,525
Exploration and utilization of the earth	0	3,124	0	0	225
Infrastructure and general planning of land use	161	16,271	658	12,501	210
Control and care of the environment	240	45,752	1,731	13,083	2,323
Protection and improvement of human health	33	139,138	12,510	83,393	54,116
Production, distribution and rational utilization of energy	0	40,241	850	57,652	200
Agriculture production and technology	0	35,171	4,241	30,142	4,269
Fishing	950	1,560	0	0	409
Forestry	0	9,699	1,234	18,036	27,797
Industrial production and technology	2,486	50,833	1,692	28,354	0
Social development	336	12,078	1,143	5,955	5,402
Exploration and exploitation of space	0	61	0	588	0
Basic research	422	192,882	5,843	66,093	49,574
Other civil research	202	2,055	0	2,225	0

Note(s): Components may not add to total due to rounding.

Table 7-1
Intramural expenditures of provincial governments on scientific activities — In the natural sciences and engineering

	2002/2003	2003/2004	2004/2005	2005/2006 ^r	2006/2007
thousands of dollars					
Newfoundland and Labrador	..	..	..	..	1,322
Ontario	118,636	152,539	188,728	162,694	196,258
Manitoba	28,800	31,994	33,595	36,425	29,019
Alberta	141,406	142,742	173,523	190,588	203,564
British Columbia	111,893	92,873	81,840	72,773	84,065

Table 7-2
Intramural expenditures of provincial governments on scientific activities — In the social sciences and humanities

	2002/2003	2003/2004	2004/2005 ^f	2005/2006 ^f	2006/2007
	thousands of dollars				
Newfoundland and Labrador	..	..	..	..	15,899
Ontario	56,713	35,573	33,911	38,237	40,566
Manitoba	17,768	24,717	20,103	22,998	24,689
Alberta	3,989	5,241	6,914	6,418	8,275
British Columbia	17,612	12,942	14,848	21,279	20,544

Table 8
Intramural expenditures of provincial government on research and development — In the natural sciences and engineering

	2002/2003	2003/2004	2004/2005	2005/2006 ^f	2006/2007
	thousands of dollars				
Newfoundland and Labrador	..	..	..	..	1,069
Quebec	48,775	50,489	50,403	53,935	54,455
Ontario	40,710	44,216	41,889	40,639	65,672
Manitoba	2,083	2,761	3,054	3,511	4,915
Alberta	107,920	101,140	113,700	121,827	123,970
British Columbia	19,715	14,134	14,766	15,424	15,200

Table 9-1
Payments to business enterprises by provincial governments — On scientific activities in the natural sciences and engineering

	2002/2003	2003/2004	2004/2005	2005/2006 ^f	2006/2007
	thousands of dollars				
Newfoundland and Labrador	..	..	..	..	3,005
Ontario	12,896	7,016	23,023	12,628	18,147
Manitoba	250	391	654	619	14,371
Alberta	25,954	17,768	21,330	26,014	51,080
British Columbia	26,925	29,548	15,218	6,997	19,096

Table 9-2
Payments to business enterprises by provincial governments — On research and development in the natural sciences and engineering

	2002/2003	2003/2004	2004/2005	2005/2006 ^f	2006/2007
	thousands of dollars				
Newfoundland and Labrador	..	..	..	..	2,591
Quebec	25,948	65,606	28,264	25,146	33,528
Ontario	11,053	2,431	20,058	173	891
Manitoba	196	391	521	486	996
Alberta	13,892	8,328	7,469	11,354	21,808
British Columbia	25,165	28,109	7,630	5,437	14,202

Table 10-1
Payments to the higher education sector, by provincial governments — On scientific activities in the natural sciences and engineering

	2002/2003	2003/2004	2004/2005	2005/2006 ^f	2006/2007
	thousands of dollars				
Newfoundland and Labrador	..	..	..	..	693
Ontario	296,378	310,955	287,186	380,689	293,156
Manitoba	10,329	11,483	13,180	13,535	15,857
Alberta	106,710	116,525	125,836	128,275	125,180
British Columbia	64,553	55,396	38,821	52,409	47,290

Table 10-2
Payments to the higher education sector, by provincial governments — On research and development in the natural sciences and engineering

	2002/2003	2003/2004	2004/2005	2005/2006 ^f	2006/2007
	thousands of dollars				
Newfoundland and Labrador	..	..	..	..	370
Quebec	176,433	267,307	187,423	183,294	186,620
Ontario	269,122	280,805	244,334	352,256	262,584
Manitoba	10,105	11,476	13,139	13,494	14,490
Alberta	104,389	116,256	125,040	126,611	123,922
British Columbia	61,190	54,741	36,206	50,610	39,044

Table 11-1
Payments to other performers¹, by provincial governments — On scientific activities in the natural sciences and engineering

	2002/2003	2003/2004	2004/2005	2005/2006 ^f	2006/2007
	thousands of dollars				
Newfoundland and Labrador	..	..	..	..	50
Ontario	24,133	39,749	42,302	37,208	88,244
Manitoba	2,999	2,545	1,884	2,297	3,291
Alberta	29,639	13,034	8,769	11,757	27,344
British Columbia	2,439	7,543	13,307	48,631	48,948

1. Other performers include the federal government, municipal governments, individuals, institutions not identified with any other sector and foreign performers.

Table 11-2
Payments to other performers¹, by provincial governments — On research and development in the natural sciences and engineering

	2002/2003	2003/2004	2004/2005	2005/2006 ^f	2006/2007
	thousands of dollars				
Newfoundland and Labrador	..	..	..	..	50
Quebec ²	33,605	35,464	44,856	33,959	46,507
Ontario	9,273	30,691	30,871	10,322	34,452
Manitoba	1,244	786	1,073	1,157	2,240
Alberta	8,517	8,044	5,114	6,394	20,641
British Columbia	1,371	6,418	7,720	46,109	15,679

1. Other performers include the federal government, municipal governments, individuals, institutions not included with any other sector, and foreign performers.
 2. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Table 12-1
Personnel of provincial governments engaged in scientific activities — By activity and by province

	2002/2003	2003/2004	2004/2005	2005/2006 ^f	2006/2007
	number				
Science and technology					
Newfoundland and Labrador	..	..	..	..	236
Ontario	2,161	1,872	1,887	2,117	2,172
Manitoba	501	604	578	575	628
Alberta	1,205	1,198	1,258	1,329	1,480
British Columbia	1,365	933	836	736	824
Research and development					
Newfoundland and Labrador	..	..	..	..	20
Quebec ¹	724	721	729	781	790
Ontario	562	460	428	539	558
Manitoba	51	57	62	55	77
Alberta	740	656	665	675	731
British Columbia	214	166	157	196	181
Related scientific activities					
Newfoundland and Labrador	..	..	..	..	216
Ontario	1,599	1,412	1,459	1,578	1,614
Manitoba	450	547	517	519	551
Alberta	465	542	593	654	749
British Columbia	1,151	767	679	540	643

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Full-time equivalent. Components may not add to total due to rounding.

Table 12-2
Personnel of provincial governments engaged in scientific activities — By activity and category, 2006/2007

	Newfoundland and Labrador	Quebec ¹	Ontario	Manitoba	Alberta	British Columbia
	number					
Total scientific activities	236	..	2,172	628	1,480	824
Scientific and professional	182	..	1,043	385	762	483
Technical	46	..	611	176	461	249
Other	8	..	518	66	257	93
Research and development	18	597	483	72	624	177
Scientific and professional	7	337	225	42	336	118
Technical	10	205	171	20	169	51
Other	1	55	87	10	119	8
Administration of extramural programs for research and development	2	193	75	4	107	5
Scientific and professional	2	101	32	2	51	2
Technical	0	60	4	1	18	2
Other	0	32	40	1	39	1
Related scientific activities	216	..	1,557	549	680	622
Scientific and professional	173	..	770	338	334	343
Technical	37	..	401	155	266	196
Other	6	..	387	55	80	83
Administration of extramural programs for related scientific activities	0^s	..	57	2	69	21
Scientific and professional	0	..	16	2	42	19
Technical	0	..	36	0	9	0
Other	0 ^s	..	5	0	18	1

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Full-time equivalent. Components may not add to total due to rounding.

Table 12-3
Personnel of provincial governments engaged in scientific activities — By activity, in the natural sciences and engineering

	2002/2003	2003/2004	2004/2005	2005/2006 [†]	2006/2007
	number				
Science and technology					
Newfoundland and Labrador	..	..	..	..	14
Ontario	1,490	1,469	1,491	1,709	1,739
Manitoba	288	289	287	287	334
Alberta	1,113	1,120	1,186	1,256	1,375
British Columbia	1,199	767	654	562	638
Research and development					
Newfoundland and Labrador	..	..	..	..	11
Quebec ¹	524	510	501	540	529
Ontario	516	394	372	489	504
Manitoba	41	39	44	43	56
Alberta	738	642	665	674	723
British Columbia	209	157	145	152	157
Related scientific activities					
Newfoundland and Labrador	..	..	..	..	3
Ontario	974	1,075	1,119	1,220	1,235
Manitoba	247	250	243	244	278
Alberta	375	478	521	583	652
British Columbia	990	610	509	410	482

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Full-time equivalent. Components may not add to total due to rounding.

Table 12-4
Personnel of provincial governments engaged in scientific activities — In the natural sciences and engineering, by activity and category, 2006/2007

	Newfoundland and Labrador	Quebec ¹	Ontario	Manitoba	Alberta	British Columbia
	number					
Total scientific activities	14	..	1,739	334	1,375	638
Scientific and professional	3	..	767	146	667	319
Technical	9	..	558	152	459	232
Other	2	..	414	36	248	88
Research and development	11	390	441	52	621	152
Scientific and professional	1	175	186	28	333	95
Technical	9	177	170	17	169	50
Other	1	38	85	7	119	7
Administration of extramural programs for research and development	0^s	139	64	4	102	5
Scientific and professional	0 ^s	73	24	2	46	2
Technical	0	42	2	1	17	2
Other	0 ^s	24	38	1	39	1
Related scientific activities	3	..	1,189	278	611	476
Scientific and professional	2	..	548	115	267	217
Technical	0	..	351	135	264	181
Other	1	..	290	28	80	78
Administration of extramural programs for related scientific activities	0	..	46	1	40	6
Scientific and professional	0	..	9	1	21	5
Technical	0	..	35	0	8	0
Other	0	..	2	0	11	1

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Full-time equivalent. Components may not add to total due to rounding.

Table 12-5
Personnel of provincial governments engaged in scientific activities — In the social sciences and humanities

	2002/2003	2003/2004	2004/2005	2005/2006 ^r	2006/2007
	number				
Newfoundland and Labrador	..	..	..	..	222
Ontario	672	403	397	408	433
Manitoba	213	315	291	288	293
Alberta	92	78	72	73	105
British Columbia	166	166	183	174	186

Note(s): Full-time equivalent.

Table 12-6
Personnel of provincial governments engaged in scientific activities — In the social sciences and humanities, by activity and category, 2006/2007

	Newfoundland and Labrador	Quebec ¹	Ontario	Manitoba	Alberta	British Columbia
	number					
Total scientific activities	222	..	433	293	105	186
Scientific and professional	179	..	277	239	95	164
Technical	37	..	53	24	2	17
Other	6	..	103	30	8	5
Research and development	7	207	42	21	3	24
Scientific and professional	7	162	39	14	2	23
Technical	0	28	1	3	0	1
Other	0	17	2	3	1	0
Administration of extramural programs for research and development	2	54	12	0	5	0
Scientific and professional	2	28	8	0	5	0
Technical	0	18	1	0	0	0
Other	0	8	2	0	0	0
Related scientific activities	213	..	368	271	68	147
Scientific and professional	170	..	222	224	67	126
Technical	37	..	49	20	1	16
Other	6	..	97	27	0	5
Administration of extramural programs for related scientific activities	0^s	..	11	2	29	15
Scientific and professional	0	..	7	2	21	15
Technical	0	..	1	0	0	0
Other	0 ^s	..	3	0	8	0

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Full-time equivalent. Components may not add to total due to rounding.

Table 13
Provincial governments scientists and professionals engaged in scientific activities, by activity and by province

	2002/2003	2003/2004	2004/2005	2005/2006 ^f	2006/2007
	number				
Science and technology					
Newfoundland and Labrador	..	..	..	..	182
Ontario	1,275	1,098	1,086	1,038	1,043
Manitoba	290	379	359	357	385
Alberta	523	553	616	668	762
British Columbia	557	474	456	397	483
Research and development					
Newfoundland and Labrador	..	..	..	..	9
Quebec ¹	379	385	401	441	438
Ontario	355	272	276	263	257
Manitoba	31	38	41	38	45
Alberta	240	241	230	253	386
British Columbia	128	102	102	122	120
Related scientific activities					
Newfoundland and Labrador	..	..	..	..	173
Ontario	920	825	810	774	786
Manitoba	259	341	317	319	340
Alberta	283	312	386	415	376
British Columbia	429	372	355	275	363

1. Since 1994/1995, the Quebec provincial government collects only research and development activities.

Note(s): Full-time equivalent. Components may not add to total due to rounding.

Table 14
Total expenditures of provincial research organizations on scientific activities, by activity and by institute

	2002	2003	2004 ^f	2005 ^f	2006 ^f
	thousands of dollars				
Total science and technology	73,870	71,571	70,810	72,025	75,638
New Brunswick Research and Productivity Council	8,606	8,393	8,258	8,649	8,791
Centre de recherche industrielle du Québec	39,071	37,243	34,651	32,093	31,945
Industrial Technology Centre (Manitoba)	2,367	1,993	2,155	2,607	2,419
Saskatchewan Research Council	21,472	21,472	23,313	26,166	29,859
Northern Research Institute	867	850	785	984	888
Nunavut Research Institute	..	..	..	..	..
Aurora Research Institute (Northwest Territories)	1,487	1,620	1,648	1,526	1,736
Total research and development	25,794	24,724	25,062	23,026	21,812
New Brunswick Research and Productivity Council	1,808	1,813	1,734	1,989	2,021
Centre de recherche industrielle du Québec	16,243	13,743	13,838	10,360	7,820
Industrial Technology Centre (Manitoba)	..	..	..	..	..
Saskatchewan Research Council	7,301	8,847	9,325	10,467	11,646
Northern Research Institute	442	321	165	210	325
Nunavut Research Institute	..	..	..	..	..
Aurora Research Institute (Northwest Territories)	..	..	..	..	..
Total related scientific activities	48,076	46,847	45,748	48,999	53,826
New Brunswick Research and Productivity Council	6,798	6,580	6,524	6,660	6,770
Centre de recherche industrielle du Québec	22,828	23,500	20,813	21,733	24,125
Industrial Technology Centre (Manitoba)	2,367	1,993	2,155	2,607	2,419
Saskatchewan Research Council	14,171	12,625	13,988	15,699	18,213
Northern Research Institute	425	529	620	774	563
Nunavut Research Institute	..	..	..	..	..
Aurora Research Institute (Northwest Territories)	1,487	1,620	1,648	1,526	1,736

Note(s): Components may not add to total due to rounding. As of 2006 the Yukon Research Institute is known as the Northern Research Institute.

Table 15
Source of funds for scientific activities of the provincial research organizations

	2002	2003	2004 ^r	2005 ^r	2006 ^r
	percent				
Total	100.0	100.0	100.0	100.0	100.0
Provincial governments					
Subsidies, grants and contributions	39.1	39.7	28.8	26.0	30.5
Contracts	7.8	7.3	18.4	18.0	16.7
Federal government					
Subsidies, grants, contributions and contracts	6.1	5.0	3.9	5.5	5.2
Canadian industry contracts	36.3	40.1	41.2	42.7	41.5
Other Canadian sources	8.4	6.4	6.3	5.4	3.7
Foreign	2.3	1.5	1.4	2.4	2.4

Note(s): Components may not add to total due to rounding.

Table 16
Distribution of provincial research organization personnel, by institute, 2006

	Research and development			Science and technology		
	Scientific and professional	Technical	Other	Scientific and professional	Technical	Other
	number					
New Brunswick Research and Productivity Council	47	31	17	47	31	17
Centre de recherche industrielle du Québec	50	40	21	103	61	81
Industrial Technology Centre (Manitoba)	0	0	0	7	11	3
Saskatchewan Research Council	70	162	12	85	163	54
Northern Research Institute	6	0	1	6	0	1
NUNAVUT Research Institute	..	..	..	..	..	..
Aurora Research Institute (Northwest Territories)	4	6	1	4	6	149

Note(s): Full-time equivalent. Components may not add to total due to rounding. As of 2006 the Yukon Research Institute is known as the Northern Research Institute.

Data quality, concepts and methodology

Survey methodology

Foreword

The information in this document is intended primarily to be used by scientific and technological (S&T) policy makers, both federal and provincial, largely as a basis for interprovincial and intersectoral comparisons. The surveys which generate these statistics also provide input for the development of a national aggregate Research and Development (R&D) series. These national R&D estimates are used to complete international questionnaires for the Organization for Economic Co-operation and Development (OECD) and the United Nations Education, Scientific and Cultural Organization (UNESCO).

The statistics are aggregates of the provincial government science surveys conducted by Statistics Canada under contract with the provinces, and cover the period 2002/2003 to 2006/2007. The provincial government sector consists of all provincial government departments, ministries, agencies and provincial research organizations (PRO). The PRO are surveyed separately and included in this paper.

In the past, surveys have been conducted in as many as nine provinces, the exception being Prince Edward Island. Currently, surveys are being done in Newfoundland and Labrador, Ontario, Manitoba, Alberta and British Columbia. The following ministries or departments sponsor the scientific surveys: Newfoundland and Labrador Statistics Agency, Department of Finance; Ontario Ministry of Research & Innovation; Manitoba Department of Science, Technology, Energy & Mines; Alberta Advanced Education and Technology; and British Columbia Ministry of Technology, Trade and Economic Development (previously the Ministry of Advanced Education). The Institut de la Statistique du Québec conducts a similar survey collecting only research and development (R&D) data instead of total S&T activities for the province of Quebec.

Science surveys, like other surveys, depend on respondents' interpretation of definitions and methods of calculation. Accounting records are rarely available which use a science-based classification. Recognizing the fact that the data are estimates, they are still a good representation of science expenditures for the provinces. As in any ongoing statistical exercise, revisions will be necessary as definitions and procedures become clarified. It is also important to note that the same standards have been applied to the data of each province as are applied to data of the federal government.

For the national R&D statistics (GERD), estimates are made for provinces for which there is no survey. Gross Domestic Expenditures on Research and Development in Canada and the Provinces, National Estimates 1996 to 2007 Provincial Estimates 2001 to 2005 was published in Catalogue no. 88-221, volume 1, no.1.

We want to thank those who replied to each of the provincial and PRO surveys. Without their invaluable help and cooperation, the production of this report would not have been possible.

History of provincial government science and technology surveys

Prior to 1974, estimates were made for provincial government S&T expenditures using provincial estimates and Public Accounts.

In 1974, Ontario, Alberta and Nova Scotia sought the assistance of Statistics Canada in conducting surveys of S&T spending by their respective governments. In 1975, Saskatchewan joined this group, followed by British Columbia in 1977, Manitoba and New Brunswick in 1984, Newfoundland and Labrador in 1986 and Quebec in 1989.

In 1993/1994, three provinces, Newfoundland and Labrador, New Brunswick and Nova Scotia, did not contract with Statistics Canada for a survey due to budget constraints. In 1994/1995, the province of Quebec collected only R&D expenditures instead of total S&T. In 2001/2002 Saskatchewan did not contract with Statistics Canada for a survey. In 2004/2005, British Columbia did not contract Statistics Canada to conduct a survey however in 2005/2006 they agreed to come back. In 2006/2007, the province of Newfoundland and Labrador agreed to participate in the survey. We are pleased to announce the participation of the provinces of Prince Edward Island; New Brunswick; Nova Scotia and Saskatchewan for the 2007/2008 survey year.

Provincial research organizations

All of these organizations have been established by their respective provincial and territorial governments, with a variety of enabling legislation and powers, to provide technical support to primary and secondary industries, to assist in the exploitation of provincial and territorial natural resources and to enhance the economy of their provinces and territories. Small and medium-sized companies with limited in-house technical capability use the services of the provincial research organizations.

In the historical tables you will see other organizations listed that are no longer included in our survey:

In 2000, the transition of the incorporation of the Alberta Research Council (ARC) as a not-for-profit business under the Business Corporation Act was completed. As a result, activities of ARC are now reported on the Alberta Provincial Government Scientific Activities survey.

Federal / provincial workshops on S&T statistics

In the fall of 1977, the first federal-provincial meeting was held in Ottawa. Representatives from British Columbia, Alberta, Saskatchewan, Ontario and Nova Scotia attended; as well as Statistics Canada and members of the Ministry of State for Science and Technology (MOSST).

The next meeting was held in 1984 with representatives from British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec and New Brunswick attending. Statistics Canada sponsored the meeting and invited representatives from MOSST, Energy, Mines and Resources (EMR) and the Science Council. The objectives of the conference were to:

- Provide provincial science policy and statistical users with an overview of products and services of the Science and Technology Statistics Division (STSD);
- Provide a forum to allow discussion between STSD and provincial representatives to exchange views on science statistics; and
- Achieve consensus on how to proceed with future provincial surveys.

In 1999, Ontario proposed that Statistics Canada renew federal/provincial conferences and make them an annual event. Statistics Canada agreed and co-hosted the 1999 conference in Toronto. The agenda included topics such as innovation surveys, biotechnology surveys, intellectual properties in higher education, e-commerce and provincial needs and proposals.

Quebec and Statistics Canada co-hosted the 2000 conference held in Québec City. Discussions included economic indicators, an innovation study for Ontario, and biotechnology measurement.

In the fall of 2001, British Columbia and Statistics Canada co-hosted the conference in Victoria. Provincial representatives discussed high technology indicators, innovation index, and user needs and challenges. Statistics Canada presented an overview of current program developments and future plans.

Alberta and Statistics Canada co-hosted the 2002 conference held in Edmonton. Discussions included provincial indicators and an overview of current program developments and future plans.

In the fall of 2003, Statistics Canada was supposed to host the 5th annual conference in Ottawa. Due to budget constraints of many provincial governments, the conference was postponed and has not yet been re-instated.

Definitions

This report covers those scientific and technological activities which involve the generation, dissemination and application of new scientific and technological knowledge. The central activity is research and experimental development (R&D). In addition, there are a number of activities closely related to R&D; these are termed related scientific activities (RSA).

R&D is creative work undertaken on a systematic basis in order to increase the stock of scientific and technical knowledge, including knowledge of culture and society and the use of this stock of knowledge to devise new applications.

It requires the acquisition of knowledge and not just information. New knowledge involves the integration of newly acquired information into existing hypotheses or the re-evaluation of existing observations.

The major related scientific activities are education support, technical surveys, statistical surveys, information services, special services and studies, and museum services. Education support and museum services are largely self-explanatory.

Technical surveys are activities directed towards exploration and systematic description of the earth and its natural resources. The activities include gathering, processing, collating and analyzing of data on natural phenomena except when part of a research project or a museum service. The preparation of maps and survey reports, their printing and cataloguing, are also included.

Statistical surveys are activities directed toward the collecting, processing and disseminating of statistics on humankind, their economic and social activities. Included are the development of technical methodology, statistical analysis and vital statistics.

Information services are all work directed to recording, classifying, translating, and disseminating information resulting from R&D in the social sciences or required in support of such R&D. Included are the operations of specialized libraries and archives, the publication of scholarly journals and bibliographies, and the organizing of scientific conferences. Grants for the publication of scholarly works are also included.

Special services and studies in the natural sciences are activities directed towards the establishment of national and provincial standards for materials, devices, products and processes; the calibration of secondary standards; non-routine quality testing; feasibility studies and demonstration projects.

In the social sciences, special services and studies are systematic investigations carried out in order to provide information needed for planning or policy formulation, including feasibility studies and demonstration projects.

Scientific and technological activities take place in both natural sciences and social sciences and humanities. The natural sciences consist of disciplines concerned with understanding, exploring, developing or utilizing the natural world. The social sciences and humanities embrace all disciplines involving the study of human actions and conditions and the social, economic and institutional mechanisms affecting humans.

Six performing sectors are identified.

Intramural refers to the provincial ministry, department or agency performing a scientific activity.

Business enterprise denotes largely private corporations but also includes crown corporations with a commercial function (e.g., power utilities) and industrial research institutes not controlled by another institution.

The higher education sector covers post secondary educational institutions and affiliated teaching and research facilities.

Hospitals and health organizations – Canadian hospitals and health organizations which are not part of university medical schools, as well as private non-profit organizations.

Provincial research organizations include: New Brunswick Research and Productivity Council, Centre de recherche industriel du Québec, Industrial Technology Centre (Manitoba), Saskatchewan Research Council, Northern Research Institute, Nunavut Research Institute, Aurora Research Institute (Aurora College N.W.T.)

Other includes the federal government, municipal governments, individuals, institutions not identified with any other sector, and foreign performers.

Departmental personnel are classified into three major categories. *Scientific and professional* includes persons in a job requiring at least one academic degree or nationally recognized professional qualification. The *Technical* category includes people in jobs requiring specialized vocational or technical training beyond the secondary level. *Other* includes clerical, secretarial, administrative, operational and other support personnel. Personnel data are reported in full-time equivalent which is simply the portion of a person's time spent on S&T activities.

The objectives listed in this survey do not represent the total range of possible objectives; however, they are intended to cover the major areas of current technological interest. Respondents are asked to report expenditures under the objective which is primary to that expenditure.