Catalogue no. 88-001-X

Science Statistics

Scientific and Technological Activities of Provincial Governments and Provincial Research Organizations, 2004/2005 to 2008/2009

August 2010 Edition

Statistics Canada Statistique Canada

Canada

How to obtain more information

For information about this product or the wide range of services and data available from Statistics Canada, visit our website at *www.statcan.gc.ca*, e-mail us at *infostats@statcan.gc.ca,* or telephone us, Monday to Friday from 8:30 a.m. to 4:30 p.m., at the following numbers:

Statistics Canada's National Contact Centre

Toll-free telephone (Canada and the United States):

Inquiries line	1-800-263-1136
National telecommunications device for the hearing impaired	1-800-363-7629
Fax line	1-877-287-4369

Local or international calls:

Inquiries line	1-613-951-8116
Fax line	1-613-951-0581

Depository Services Program

Inquiries line	1-800-635-7943
Fax line	1-800-565-7757

To access this product

This product, Catalogue no. 88-001-X, is available free in electronic format. To obtain a single issue, visit our website at *www.statcan.gc.ca* and browse by "Key resource" > "Publications."

Standards of service to the public

Statistics Canada is committed to serving its clients in a prompt, reliable and courteous manner. To this end, Statistics Canada has developed *standards of service* that its employees observe. To obtain a copy of these service standards, please contact Statistics Canada toll-free at 1-800-263-1136. The service standards are also published on *www.statcan.gc.ca* under "About us" > "Providing services to Canadians."

Statistics Canada
Business Special Surveys and Technology Statistics Division

Science Statistics

Scientific and Technological Activities of Provincial Governments and Provincial Research Organizations, 2004/2005 to 2008/2009

August 2010 Edition

Published by authority of the Minister responsible for Statistics Canada

August 2010

Catalogue no. 88-001-X, vol. 34, no. 4

ISSN 1209-1278

Frequency: Irregular

Ottawa

Cette publication est également disponible en français.

Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

User information

Symbols

The following standard symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0s	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

Table of contents

Table of contents – continued

Data quality, concepts and methodology

Highlights

Scientific and technological activities of provincial governments and provincial research organizations, 2004/2005 to 2008/2009

This report includes scientific and technological (S&T) activities involving the generation, dissemination and application of new scientific and technological knowledge for the provincial governments of New Brunswick, Ontario, Manitoba, Saskatchewan and Alberta. Scientific expenditures for British Columbia are based on last year's survey. The provincial government of Quebec conducts a survey of its R&D activities, the results of which it shares with Statistics Canada.

The main S&T activity is research and development (R&D). Related scientific activities (RSA) are also included.

Note to readers

Data were not collected for British Columbia however intentions for 2008/2009 were obtained last year during the collection of data for reference year 2007/2008.

Total S&T activity expenditures by the provincial government of Ontario in 2008/2009 stabilized from a $96.9 million extraordinary expenditure from the previous year (2007/2008).

Saskatchewan conducted a limited pilot of 7 ministries when collecting data for reference year 2007/2008. For 2008/2009 the survey included 15 ministries. This difference in survey coverage contributes to the year over year expenditure and personnel changes.

Statistics Canada received permission from respondents to the Provincial Research Organization Survey to publish their information by name to support analysis.

- The leading provinces for total R&D expenditures in 2008/2009 continued to be Ontario ($514.2 million), Quebec ($511.7 million) and Alberta ($407.3 million) (Table 3-1).
- In 2008/2009, total expenditures on scientific activities by the six participating provincial governments varied by socio-economic objectives. Overall the top three S&T expenditure objectives were, "protection and improvement of human health", "basic research" and "control and care of the environment". (Table 5)
- Of the participating provincial governments, Alberta had the largest S&T expenditure increase of $30.5 million from the previous year followed by Manitoba with $7.6 million and Quebec with $7.4 million. (Table 3-1)
- In 2008/2009, most provinces increased their intramural (in-house) S&T expenditures. However, the distribution of S&T expenditures varied by province. Intramural S&T expenditures predominated in New Brunswick (58%) and Manitoba (56%). (Table 3-2)
- Over the last five reference years, the provincial governments of Ontario and Quebec exhibited consistent growth in R&D spending based on constant dollars calculations.
- In 2008/2009 total expenditures of Provincial Research Organizations (PROs) on scientific activities reached approximately $99.5 million, a decrease of 11% from the previous year. This total decrease masked the fact that all PROs had an increase in S&T expenditures except Aurora Research Institute. Aurora Research Institute completed a large three year R&D contract in early 2009. (Table 14)

Analysis

Scientific and technological activities of provincial governments and provincial research organizations, 2004/2005 to 2008/2009

The 2008/2009 S&T expenditures for the provincial governments of Alberta and Manitoba reported increases in S&T spending from the previous year. Total scientific activity expenditures in Ontario in 2008/2009 stabilized from a $96.9 million extraordinary expenditure from the previous year (2007/2008). (Table 3-1)

The leading provinces for total R&D expenditures in 2008/2009 continued to be Ontario ($514.2 million), Quebec ($511.7 million) and Alberta ($407.3 million) (Table 3-1).

Intramural expenditures for S&T increased for the provincial governments of New Brunswick, Ontario, Manitoba and Alberta from the previous reference year. (Table 7-1, 7-2)

S&T expenditures funded by the provincial government of Alberta increased for the business enterprise sector from $124.5 million to $130.5 million and for higher education from $131.5 million to $150.2 million (Table 3-5, 3-9). Ontario's funding to the business enterprise sector for S&T activities increased by $11.8 million to reach $62.1 million. (Table 3-2)

Provincial government research and development expenditures in the natural sciences and engineering are available for New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia. In 2008/2009, the Alberta government led in the amount spent on intramural R&D in the natural sciences and engineering at $150.4 million. (Table 3-5)

For 2008/2009 in the natural sciences and engineering, the Alberta government funded the highest amount of R&D in the business enterprise sector, $66.2 million (Table 3-5).

The provincial government of Quebec indicated that $252.3 million was intended to fund R&D expenditures on natural sciences and engineering in the higher education sector in 2008/2009. The Ontario provincial government funded $207.7 million to the higher education sector for R&D in the natural sciences and engineering. The third largest amount to the higher education sector for R&D activities came from the Alberta provincial government at $148.5 million. (Table 3-5)

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

1. Exploration and exploitation 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 structures and relationships

11. Exploration and exploitation of space

12. Basic research

13. Other civil research

    Examples provided to respondents are listed in the “Data quality, concepts and methodology” section at the end of this publication.

In 2008/2009, total expenditures on scientific activities by the six provincial governments varied by socio-economic objectives. The top four S&T expenditure objectives of the combined participating provinces were, “protection and improvement of human health”, “basic research”, “control and care of the environment” and “social structures and relationships”. (Table 5)

The primary focus for the provincial government of New Brunswick’s S&T spending in 2008/2009 was “infrastructure and general planning for land use” whereas the provincial governments of Ontario and Alberta shared “protection and improvement of human health” as their major S&T spending objective. For Manitoba it was “social structures and relationships” whereas in Saskatchewan it was “basic research”. (Table 5)

In 2008/2009, the provincial government of Alberta dedicated 808 full-time equivalents to its R&D activities of which 311 were in the scientific and professional category. Quebec’s provincial government followed with 784 full-time equivalents working on R&D activities. Quebec with 446 had more full-time equivalent scientists and professionals engaged in research and development than any other province. Ontario’s provincial government dedicated 548 full-time equivalents to R&D activities of which 342 were in the scientific and professional category. (Table 12-2)

This report also presents the results of the S&T activities of provincial research organizations (PROs).

In 2008/2009 total expenditures of PROs on scientific activities reached approximately $99.5 million, a decrease of 11% from the previous year. This total decrease masks the fact that all PROs had an increase in S&T expenditures except Aurora Research Institute. The decrease for Aurora Research Institute is explained by the completion of a large three-year R&D contract in early 2009. (Table 14)

Over 86% of Canada’s $99.5 million in S&T expenditures by the PROs occurred in Saskatchewan, Quebec and the Northwest Territories. Saskatchewan’s PRO accounted for $36.7 million; the PRO of Quebec spent $31.4 million while the PRO located in the Northwest Territories spent $17.7 million. (Table 14)

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 (GERD), and the Provinces
88-522-X	Science and Technology Activities and Impacts: A Framework for a Statistical Information
88F0006X	Business Special Surveys and Technology Statistics 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, 2007

	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]	**32,739**	**1,532,944**	**29,170**	**1.90**	**891**
Newfoundland and Labrador	509	29,226	262	0.90	515
Prince Edward Island	138	4,490	58	1.29	420
Nova Scotia	937	32,933	501	1.52	535
New Brunswick	745	26,993	314	1.16	422
Quebec [5]	7,658	297,384	7,824	2.63	1,022
Ontario [5]	12,718	585,723	13,601	2.32	1,069
Manitoba	1,187	48,718	585	1.20	493
Saskatchewan	994	50,811	441	0.87	444
Alberta	3,472	256,915	2,403	0.94	692
British Columbia	4,275	191,598	2,935	1.53	687

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 1998 to 2009, provincial estimates 2003 to 2007.
4. Includes the Yukon Territory, Northwest Territories and Nunavut.
5. Quebec and Ontario Gross Domestic Expenditures on Research and Development figures now include federal government expenditures 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, 2007/2008

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia	**Total Canada** [1]
	millions of dollars										
Performing sector											
Total	**262**	**58**	**501**	**314**	**7,824**	**13,601**	**585**	**441**	**2,403**	**2,935**	**29,170**
Federal government	28	13	77	46	410	1,582	85	63	116	108	**2,532**
Provincial governments [2]	5	0	0	12	90	57	6	11	141	30	**387**
Business enterprise	90	11	98	112	4,714	7,648	193	136	1,142	1,713	**15,882**
Higher education	140	34	327	144	2,610	4,314	302	230	1,004	1,083	**10,187**
Private non-profit organizations	..	..	..	..	..	..	..	..	..	..	**183**
Funding sector											
Total	**262**	**58**	**501**	**314**	**7,824**	**13,601**	**585**	**441**	**2,403**	**2,935**	**29,170**
Federal government	81	26	160	84	1,272	2,719	163	136	350	451	**5,491**
Provincial governments [2]	11	2	7	17	382	432	26	28	336	182	**1,454**
Business enterprise	92	11	117	114	4,161	6,748	185	127	1,178	1,146	**13,946**
Higher education	71	19	170	87	1,155	1,983	142	117	400	431	**4,574**
Private non-profit organizations	5	0	29	9	185	399	37	13	63	148	**968**
Foreign	2	0	18	2	669	1,319	32	20	75	577	**2,736**

1. Includes the Yukon Territory, Northwest Territories and Nunavut.
2. Includes provincial research organizations.

Note(s): Quebec and Ontario figures now include 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 or territories. 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 and territories. Components may not add to total due to rounding.

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	thousands of dollars				
Participating provinces					
Total science and technology	**1,436,597**	**1,627,227**	**1,736,829**	**2,207,007**	**2,139,124**
New Brunswick	..	..	..	63,158	62,516
Ontario	765,080 r	832,032 r	879,992 r	963,420 r	866,553
Manitoba	78,721	85,635	94,542	92,609	100,228
Saskatchewan [1]	..	..	..	62,751 E	178,176
Alberta	362,633	381,769	455,926	592,173	622,652
British Columbia	230,163	327,791	306,369	432,896	308,999 E
Total research and development	**1,280,305**	**1,506,876**	**1,503,461**	**1,896,171**	**1,781,031**
New Brunswick	..	..	..	27,181	28,246
Quebec [2]	415,774	423,949	462,147	504,320 r	511,681
Ontario	444,830	555,643	548,865	595,272	514,167
Manitoba	26,133	27,372	29,902	30,578	36,040
Saskatchewan [1]	..	..	..	47,578 E	66,795
Alberta	263,370	274,501	318,022	374,913	407,340
British Columbia	130,198	225,411	144,525	316,329	216,762 E
Total related scientific activities	**572,066**	**544,300**	**695,515**	**815,156**	**869,774**
New Brunswick	..	..	..	35,977	34,270
Ontario	320,250 r	276,389 r	331,127 r	368,148 r	352,386
Manitoba	52,588	58,263	64,640	62,031	64,188
Saskatchewan [1]	..	..	..	15,173 E	111,381
Alberta	99,263	107,268	137,904	217,260	215,312
British Columbia	99,965	102,380	161,844	116,567	92,237 E

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.
2. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.

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, 2008/2009

	Intramural	Business enterprise	Higher education	Hospitals and health organizations	Provincial research organizations	Other	**Total**
	thousands of dollars						
Participating provinces							
Total science and technology	**746,747**	**244,571**	**642,938**	**292,449**	**2,814**	**209,605**	**2,139,124**
New Brunswick	36,554	10,864	2,616	896	1,652	9,934	**62,516**
Ontario	249,626	62,065	270,976	158,515	0	125,371	**866,553**
Manitoba	56,157	19,359	17,845	2,842	990	3,035	**100,228**
Saskatchewan	25,725	13,730	99,870	18,873	172	19,806	**178,176**
Alberta	267,130	130,526	150,201	33,644	0	41,151	**622,652**
British Columbia [E]	111,555	8,027	101,430	77,679	0	10,308	**308,999**
Total research and development	**358,866**	**157,738**	**869,754**	**265,564**	**2,509**	**126,601**	**1,781,031**
New Brunswick	11,186	7,554	477	41	1,326	7,662	**28,246**
Quebec [1]	86,857	50,889	323,734	26,441	128	23,633	**511,681**
Ontario	61,533	13,868	249,714	130,663	0	58,389	**514,167**
Manitoba	9,669	3,874	17,798	2,402	970	1,327	**36,040**
Saskatchewan	5,261	9,814	31,753	12,638	85	7,244	**66,795**
Alberta	151,173	67,074	148,631	17,422	0	23,040	**407,340**
British Columbia [E]	33,187	4,665	97,647	75,957	0	5,306	**216,762**
Total related scientific activities	**474,738**	**137,722**	**96,918**	**53,326**	**433**	**106,637**	**869,774**
New Brunswick	25,368	3,310	2,139	855	326	2,272	**34,270**
Ontario	188,093	48,197	21,262	27,852	0	66,982	**352,386**
Manitoba	46,488	15,485	47	440	20	1,708	**64,188**
Saskatchewan	20,464	3,916	68,117	6,235	87	12,562	**111,381**
Alberta	115,957	63,452	1,570	16,222	0	18,111	**215,312**
British Columbia [E]	78,368	3,362	3,783	1,722	0	5,002	**92,237**

1. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	thousands of dollars				
Participating provinces					
Total science and technology	**1,156,764**	**1,298,411**	**1,390,096**	**1,772,764**	**1,657,341**
New Brunswick	..	..	..	40,138	37,566
Ontario	616,994	684,520	699,765	798,627	682,284
Manitoba	53,814	57,197	66,222	65,988	66,087
Saskatchewan [1]	..	..	..	41,367 E	123,559
Alberta	330,023	356,834	424,710	508,739	553,266
British Columbia	155,933	199,860	199,399	317,905	194,579 E
Total research and development	**1,064,505**	**1,223,359**	**1,228,696**	**1,571,826**	**1,448,963**
New Brunswick	..	..	..	19,041	17,892
Quebec [2]	323,202	306,544	346,429	376,047 r	390,360
Ontario	394,068	490,848	464,544	531,956	445,357
Manitoba	22,278	22,951	26,315	26,321	25,901
Saskatchewan [1]	..	..	..	34,801 E	52,077
Alberta	251,888	266,386	307,283	360,136	392,339
British Columbia	73,069	136,630	84,125	223,524	125,037 E
Total related scientific activities	**415,461**	**381,596**	**507,829**	**576,995**	**598,738**
New Brunswick	..	..	..	21,097	19,674
Ontario	222,926	193,672	235,221	266,671	236,927
Manitoba	31,536	34,246	39,907	39,667	40,186
Saskatchewan [1]	..	..	..	6,536 E	71,482
Alberta	78,135	90,448	117,427	148,603	160,927
British Columbia	82,864	63,230	115,274	94,381	69,542 E

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.
2. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.

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, 2008/2009

	New Brunswick	Quebec [1]	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia [E]	Total participating provinces
	thousands of dollars							
Total science and technology	**37,566**	**..**	**682,284**	**66,087**	**123,559**	**553,266**	**194,579**	**1,657,341**
Total research and development	**17,892**	**390,360**	**445,357**	**25,901**	**52,077**	**392,339**	**125,037**	**1,448,963**
Current expenditures								
In-house	8,477	42,449	43,325	3,364	2,259	68,097	31,494	199,465
Contracts	6,494	6,951	56,078	182	20,695	82,527	9,063	181,990
Grants	2,850	272,714	327,766	20,222	27,449	211,845	83,493	946,339
Research fellowships	0	48,073	5,518	1,485	0	475	0	55,551
Administration of extramural research and development programs	71	17,493	9,354	648	1,674	17,194	937	47,371
Sub-total	17,892	387,679	442,041	25,901	52,077	380,138	124,987	1,430,715
Capital expenditures	0	2,681	3,316	0	0	12,201	50	18,248
Total related scientific activities	**19,674**	**..**	**236,927**	**40,186**	**71,482**	**160,927**	**69,542**	**598,738**
Current expenditures								
Education support	2,141	..	6,481	76	63	510	1,367	10,638
Technical surveys	8,179	..	89,895	14,700	2,724	85,588	39,017	240,103
Information services	2,953	..	40,535	524	2,361	31,342	23,375	101,090
Special services and studies	4,503	..	41,364	24,175	62,068	33,971	4,161	170,242
Museum services	50	..	38,848	711	3,970	6,204	601	50,384
Administration of extramural related scientific activities programs	149	..	4,295	0	290	1,684	768	7,186
Sub-total	17,975	..	221,418	40,186	71,476	159,299	69,289	579,643
Capital expenditures	1,699	..	15,509	0	6	1,628	253	19,095

1. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.

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

Table 3-5
Total expenditures of provincial governments on scientific activities — In the natural sciences and engineering, by activity and sector of performance, 2008/2009

	Intramural	Business enterprise	Higher education	Hospitals and health organizations	Provincial research organizations	Other	**Total**
	thousands of dollars						
Participating provinces							
Total science and technology	**583,274**	**221,255**	**548,306**	**164,494**	**2,394**	**137,618**	**1,657,341**
New Brunswick	22,368	10,040	2,103	216	1,301	1,538	**37,566**
Ontario	187,336	52,117	218,991	129,023	…	94,817	**682,284**
Manitoba	29,537	15,789	14,965	2,393	990	2,413	**66,087**
Saskatchewan	12,868	10,597	92,911	0	103	7,080	**123,559**
Alberta	235,949	125,879	149,313	17,862	…	24,263	**553,266**
British Columbia [E]	95,216	6,833	70,023	15,000	…	7,507	**194,579**
Total research and development	**322,069**	**152,635**	**723,559**	**156,811**	**2,484**	**91,404**	**1,448,963**
New Brunswick	8,548	7,046	459	41	1,301	497	**17,892**
Quebec [1]	66,357	50,632	252,307	10,056	128	10,879	**390,360**
Ontario	55,995	12,514	207,658	117,134	…	52,056	**445,357**
Manitoba	4,185	2,081	14,945	2,393	970	1,327	**25,901**
Saskatchewan	4,130	9,608	31,459	0	85	6,795	**52,077**
Alberta	150,373	66,186	148,469	12,187	…	15,124	**392,339**
British Columbia [E]	32,481	4,568	68,262	15,000	…	4,726	**125,037**
Total related scientific activities	**327,562**	**119,252**	**77,054**	**17,739**	**38**	**57,093**	**598,738**
New Brunswick	13,820	2,994	1,644	175	0	1,041	**19,674**
Ontario	131,341	39,603	11,333	11,889	…	42,761	**236,927**
Manitoba	25,352	13,708	20	0	20	1,086	**40,186**
Saskatchewan	8,738	989	61,452	0	18	285	**71,482**
Alberta	85,576	59,693	844	5,675	…	9,139	**160,927**
British Columbia [E]	62,735	2,265	1,761	0	…	2,781	**69,542**

1. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.

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

Table 3-6
Total expenditures of provincial governments on scientific activities — In the natural sciences and engineering, by objective, 2008/2009

	New Brunswick	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia [E]	**Total participating provinces**
	thousands of dollars						
Total	**37,566**	**682,284**	**66,087**	**123,559**	**553,266**	**194,579**	**1,657,341**
Exploration and exploitation of the earth	1,751	28,312	9,293	735	13,441	6,350	**59,882**
Infrastructure and general planning of land use	23,177	36,703	21,136	1,702	27,406	40,026	**150,150**
Control and care of the environment	3,968	162,227	6,540	11,570	80,306	26,535	**291,146**
Protection and improvement of human health	3,880	192,060	6,909	2,832	99,958	0	**305,639**
Production, distribution and rational utilization of energy	0	32,065	332	4,305	87,068	16	**123,786**
Agriculture production and technology	1,438	61,069	3,471	17,024	48,203	6,238	**137,443**
Fishing	300	7,305	1,728	0	0	0	**9,333**
Forestry	2,501	44,980	3,251	1,363	47,813	27,747	**127,655**
Industrial production and technology	0	14,876	2,266	444	43,100	12,298	**72,984**
Social structures and relationships	50	38,268	1,479	4,007	5,848	0	**49,652**
Exploration and exploitation of space	0	1,226	0	0	50	0	**1,276**
Basic research	501	62,025	9,680	79,522	82,334	75,369	**309,431**
Other civil research	0	1,168	2	55	17,739	0	**18,964**

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	thousands of dollars				
Participating provinces					
Total science and technology	**279,833**	**328,816**	**346,733**	**434,243**	**481,783**
New Brunswick	..	..	..	23,020	24,950
Ontario	148,086 r	147,512 r	180,227 r	164,793 r	184,269
Manitoba	24,907	28,438	28,320	26,621	34,141
Saskatchewan [1]	..	..	..	21,384 E	54,617
Alberta	32,610	24,935	31,216	83,434	69,386
British Columbia	74,230	127,931	106,970	114,991	114,420 E
Total research and development	**215,800**	**283,517**	**274,765**	**324,315**	**332,068**
New Brunswick	..	..	..	8,140	10,354
Quebec [2]	92,572	117,405	115,718	128,273	121,321
Ontario	50,762	64,795	84,321	63,316	68,810
Manitoba	3,855	4,421	3,587	4,257	10,139
Saskatchewan [1]	..	..	..	12,747 E	14,718
Alberta	11,482	8,115	10,739	14,777	15,001
British Columbia	57,129	88,781	60,400	92,805	91,725 E
Total related scientific activities	**156,605**	**162,704**	**187,686**	**238,201**	**271,026**
New Brunswick	..	..	..	14,880	14,596
Ontario	97,324 r	82,717 r	95,906 r	101,477 r	115,459
Manitoba	21,052	24,017	24,733	22,364	24,002
Saskatchewan [1]	..	..	..	8,637 E	39,889
Alberta	21,128	16,820	20,477	68,657	54,385
British Columbia	17,101	39,150	46,570	22,186	22,695 E

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.
2. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.

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, 2008/2009

	New Brunswick	Quebec [1]	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia [E]	**Total participating provinces**
	thousands of dollars							
Total science and technology	**24,950**	**..**	**184,269**	**34,141**	**54,617**	**69,386**	**114,420**	**481,783**
Total research and development	**10,354**	**121,321**	**68,810**	**10,139**	**14,718**	**15,001**	**91,725**	**332,068**
Current expenditures								
In-house	2,464	13,755	3,820	3,431	925	192	633	**25,220**
Contracts	526	4,223	3,786	3,846	459	1,477	26,122	**40,439**
Grants	7,190	81,264	58,567	2,842	13,059	12,824	64,852	**240,598**
Research fellowships	0	16,460	1,064	20	100	0	45	**17,689**
Administration of extramural research and development programs	174	5,331	1,557	0	175	508	73	**7,818**
Sub-total	10,354	121,034	68,794	10,139	14,718	15,001	91,725	**331,765**
Capital expenditures	0	287	16	0	0	0	0	**303**
Total related scientific activities	**14,596**	**..**	**115,459**	**24,002**	**39,899**	**54,385**	**22,695**	**271,036**
Current expenditures	14,461	..	109,362	23,813	39,088	50,545	22,580	**259,849**
Administration of extramural related scientific activities programs	135	..	1,561	145	803	2,028	115	**4,787**
Sub-total	14,596	..	110,923	23,958	39,891	52,573	22,695	**264,636**
Capital expenditures	0	..	4,536	44	8	1,812	0	**6,400**

1. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.

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, 2008/2009

	Intramural	Business enterprise	Higher education	Hospitals and health organizations	Provincial research organizations	Other	**Total**
	thousands of dollars						
Participating provinces							
Total science and technology	**163,473**	**23,316**	**94,632**	**127,955**	**420**	**71,987**	**481,783**
New Brunswick	14,186	824	513	680	351	8,396	**24,950**
Ontario	62,290	9,948	51,985	29,492	…	30,554	**184,269**
Manitoba	26,620	3,570	2,880	449	0	622	**34,141**
Saskatchewan	12,857	3,133	6,959	18,873	69	12,726	**54,617**
Alberta	31,181	4,647	888	15,782	…	16,888	**69,386**
British Columbia [E]	16,339	1,194	31,407	62,679	…	2,801	**114,420**
Total research and development	**36,797**	**5,103**	**146,194**	**108,752**	**25**	**35,196**	**332,068**
New Brunswick	2,638	508	18	0	25	7,165	**10,354**
Quebec [1]	20,500	257	71,426	16,384	0	12,753	**121,321**
Ontario	5,538	1,354	42,056	13,529	…	6,333	**68,810**
Manitoba	5,484	1,793	2,853	9	0	0	**10,139**
Saskatchewan	1,131	206	294	12,638	0	449	**14,718**
Alberta	800	888	162	5,235	…	7,916	**15,001**
British Columbia [E]	706	97	29,385	60,957	…	580	**91,725**
Total related scientific activities	**147,176**	**18,470**	**19,864**	**35,587**	**395**	**49,544**	**271,036**
New Brunswick	11,548	316	495	680	326	1,231	**14,596**
Ontario	56,752	8,594	9,929	15,963	…	24,221	**115,459**
Manitoba	21,136	1,777	27	440	0	622	**24,002**
Saskatchewan	11,726	2,927	6,665	6,235	69	12,277	**39,899**
Alberta	30,381	3,759	726	10,547	…	8,972	**54,385**
British Columbia [E]	15,633	1,097	2,022	1,722	…	2,221	**22,695**

1. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.

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, 2008/2009

	New Brunswick	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia [E]	**Total participating provinces**
	thousands of dollars						
Total	**24,950**	**184,269**	**34,141**	**54,617**	**69,386**	**114,420**	**481,783**
Exploration and exploitation of the earth	0	194	0	0	0	0	**194**
Infrastructure and general planning of land use	0	6,134	0	0	28	0	**6,162**
Control and care of the environment	0	1,805	163	0	57	0	**2,025**
Protection and improvement of human health	1,617	60,677	3,040	23,428	17,670	93,572	**200,004**
Production, distribution and rational utilization of energy	10	2,858	51	0	0	0	**2,919**
Agriculture production and technology	0	0	0	0	0	0	**0**
Fishing	0	0	0	0	0	0	**0**
Forestry	0	227	0	0	0	0	**227**
Industrial production and technology	0	6,405	2,228	0	0	633	**9,266**
Social structures and relationships	21,092	62,666	27,710	30,978	49,835	14,352	**206,633**
Exploration and exploitation of space	0	0	0	0	0	0	**0**
Basic research	2,231	23,355	867	0	725	1,220	**28,398**
Other civil research	0	19,948	82	211	1,071	4,643	**25,955**

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, 2008/2009

	New Brunswick	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia [E]	**Total participating provinces**
	thousands of dollars						
Total	**17,892**	**445,357**	**25,901**	**52,077**	**392,339**	**125,037**	**1,058,603**
Exploration and exploitation of the earth	1,200	731	1,079	60	2,180	0	**5,250**
Infrastructure and general planning of land use	12,309	34,908	1,803	1,431	10,718	150	**61,319**
Control and care of the environment	302	49,765	1,650	9,336	22,240	15,800	**99,093**
Protection and improvement of human health	1,677	176,759	6,670	2,780	91,862	0	**279,748**
Production, distribution and rational utilization of energy	0	31,858	312	2,970	82,358	16	**117,514**
Agriculture production and technology	1,438	45,400	2,058	16,931	31,692	923	**98,442**
Fishing	255	936	0	0	0	0	**1,191**
Forestry	160	26,624	909	192	18,966	25,517	**72,368**
Industrial production and technology	0	14,601	2,266	0	43,100	8,411	**68,378**
Social structures and relationships	50	1,237	798	0	0	0	**2,085**
Exploration and exploitation of space	0	1,226	0	0	50	0	**1,276**
Basic research	501	60,586	8,356	18,322	82,334	74,220	**244,319**
Other civil research	0	726	0	55	6,839	0	**7,620**

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, 2008/2009

	New Brunswick	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia [E]	**Total participating provinces**
	thousands of dollars						
Total	**10,354**	**68,810**	**10,139**	**14,718**	**15,001**	**91,725**	**210,747**
Exploration and exploitation of the earth	0	194	0	0	0	0	**194**
Infrastructure and general planning of land use	0	322	0	0	15	0	**337**
Control and care of the environment	0	158	50	0	0	0	**208**
Protection and improvement of human health	18	31,453	2,739	12,638	5,238	87,356	**139,442**
Production, distribution and rational utilization of energy	10	1,358	0	0	0	0	**1,368**
Agriculture production and technology	0	0	0	0	0	0	**0**
Fishing	0	0	0	0	0	0	**0**
Forestry	0	187	0	0	0	0	**187**
Industrial production and technology	0	6,405	0	0	0	0	**6,405**
Social structures and relationships	10,135	11,107	6,683	2,080	9,618	4,369	**43,992**
Exploration and exploitation of space	0	0	0	0	0	0	**0**
Basic research	191	16,244	667	0	130	0	**17,232**
Other civil research	0	1,382	0	0	0	0	**1,382**

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

Table 5
Total expenditures on scientific activities, by objective, and by province, 2008/2009

	New Brunswick	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia [E]	**Total participating provinces**
	thousands of dollars						
Total	**62,516**	**866,553**	**100,228**	**178,176**	**622,652**	**308,999**	**2,139,124**
Exploration and exploitation of the earth	1,751	28,506	9,293	735	13,441	6,350	**60,076**
Infrastructure and general planning of land use	23,177	42,837	21,136	1,702	27,434	40,026	**156,312**
Control and care of the environment	3,968	164,032	6,703	11,570	80,363	26,535	**293,171**
Protection and improvement of human health	5,497	252,737	9,949	26,260	117,628	93,572	**505,643**
Production, distribution and rational utilization of energy	10	34,923	383	4,305	87,068	16	**126,705**
Agriculture production and technology	1,438	61,069	3,471	17,024	48,203	6,238	**137,443**
Fishing	300	7,305	1,728	0	0	0	**9,333**
Forestry	2,501	45,207	3,251	1,363	47,813	27,747	**127,882**
Industrial production and technology	0	21,281	4,494	444	43,100	12,931	**82,250**
Social structures and relationships	21,142	100,934	29,189	34,985	55,683	14,352	**256,285**
Exploration and exploitation of space	0	1,226	0	0	50	0	**1,276**
Basic research	2,732	85,380	10,547	79,522	83,059	76,589	**337,829**
Other civil research	0	21,116	84	266	18,810	4,643	**44,919**

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

Table 6
Total expenditures on research and development, by objective and by province, 2008/2009

	New Brunswick	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia [E]	**Total participating provinces**
	thousands of dollars						
Total	**28,246**	**514,167**	**36,040**	**66,795**	**407,340**	**216,762**	**1,269,350**
Exploration and exploitation of the earth	1,200	925	1,079	60	2,180	0	**5,444**
Infrastructure and general planning of land use	12,309	35,230	1,803	1,431	10,733	150	**61,656**
Control and care of the environment	302	49,923	1,700	9,336	22,240	15,800	**99,301**
Protection and improvement of human health	1,695	208,212	9,409	15,418	97,100	87,356	**419,190**
Production, distribution and rational utilization of energy	10	33,216	312	2,970	82,358	16	**118,882**
Agriculture production and technology	1,438	45,400	2,058	16,931	31,692	923	**98,442**
Fishing	255	936	0	0	0	0	**1,191**
Forestry	160	26,811	909	192	18,966	25,517	**72,555**
Industrial production and technology	0	21,006	2,266	0	43,100	8,411	**74,783**
Social structures and relationships	10,185	12,344	7,481	2,080	9,618	4,369	**46,077**
Exploration and exploitation of space	0	1,226	0	0	50	0	**1,276**
Basic research	692	76,830	9,023	18,322	82,464	74,220	**261,551**
Other civil research	0	2,108	0	55	6,839	0	**9,002**

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	thousands of dollars				
Total participating provinces	**477,686**	**462,480**	**512,906**	**574,959**	**583,274**
New Brunswick	..	..	..	21,142	22,368
Ontario	188,728	162,694	196,258	193,926	187,336
Manitoba	33,595	36,425	29,019	29,497	29,537
Saskatchewan [1]	..	..	..	9,807 [E]	12,868
Alberta	173,523	190,588	203,564	215,319	235,949
British Columbia	81,840	72,773	84,065	105,268	95,216 [E]

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.

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

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	thousands of dollars				
Total participating provinces	**80,376**	**93,567**	**101,899**	**132,576**	**163,473**
New Brunswick	..	..	..	10,991	14,186
Ontario	38,511 r	42,872 r	48,391 r	54,145 r	62,290
Manitoba	20,103	22,998	24,689	21,557	26,620
Saskatchewan 1	..	..	..	4,797 E	12,857
Alberta	6,914	6,418	8,275	27,321	31,181
British Columbia	14,848	21,279	20,544	13,765	16,339 E

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.

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

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	thousands of dollars				
Total participating provinces	**223,812**	**235,336**	**264,212**	**296,419**	**322,069**
New Brunswick	..	..	..	8,058	8,548
Quebec	50,403	53,935	54,455	59,081	66,357
Ontario	41,889	40,639	65,672	51,899	55,995
Manitoba	3,054	3,511	4,915	4,506	4,185
Saskatchewan 1	..	..	..	4,672 E	4,130
Alberta	113,700	121,827	123,970	138,568	150,373
British Columbia	14,766	15,424	15,200	29,635	32,481 E

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.

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

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	thousands of dollars				
Total participating provinces	**60,225**	**46,258**	**102,694**	**245,320**	**221,255**
New Brunswick	..	..	..	13,422	10,040
Ontario	23,023	12,628	18,147	41,530	52,117
Manitoba	654	619	14,371	13,741	15,789
Saskatchewan 1	..	..	..	4,851 E	10,597
Alberta	21,330	26,014	51,080	118,663	125,879
British Columbia	15,218	6,997	19,096	53,113	6,833 E

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.

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

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	thousands of dollars				
Total participating provinces	**63,942**	**42,596**	**71,425**	**179,673**	**152,635**
New Brunswick	..	..	..	8,850	7,046
Quebec	28,264	25,146	33,528	45,456 r	50,632
Ontario	20,058	173	891	12,900	12,514
Manitoba	521	486	996	218	2,081
Saskatchewan [1]	..	..	..	4,089 E	9,608
Alberta	7,469	11,354	21,808	62,545	66,186
British Columbia	7,630	5,437	14,202	45,615	4,568 E

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.

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

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	thousands of dollars				
Total participating provinces	**465,023**	**574,908**	**481,483**	**585,292**	**548,306**
New Brunswick	..	..	..	2,450	2,103
Ontario	287,186	380,689	293,156	334,491	218,991
Manitoba	13,180	13,535	15,857	14,912	14,965
Saskatchewan [1]	..	..	..	24,094 E	92,911
Alberta	125,836	128,275	125,180	130,046	149,313
British Columbia	38,821	52,409	47,290	79,299	70,023 E

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.

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

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	thousands of dollars				
Total participating provinces	**606,142**	**726,265**	**626,660**	**796,212**	**723,559**
New Brunswick	..	..	..	575	459
Quebec	187,423	183,294	186,620	246,683 r	252,307
Ontario	244,334	352,256	262,584	302,968	207,658
Manitoba	13,139	13,494	14,490	14,882	14,945
Saskatchewan [1]	..	..	..	23,854 E	31,459
Alberta	125,040	126,611	123,922	129,395	148,469
British Columbia	36,206	50,610	39,044	77,855	68,262 E

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.

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

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	thousands of dollars				
Total participating provinces	**66,262**	**99,893**	**167,827**	**192,248**	**137,618**
New Brunswick	..	..	..	2,010	1,538
Ontario	42,302	37,208	88,244	78,020	94,817
Manitoba	1,884	2,297	3,291	3,328	2,413
Saskatchewan [1]	..	..	..	2,135 E	7,080
Alberta	8,769	11,757	27,344	26,530	24,263
British Columbia	13,307	48,631	48,948	80,225	7,507 E

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.

Note(s): Other performers include the federal government, municipal governments, individuals, institutions not identified with any other sector and foreign performers. Components may not add to total due to rounding.

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	thousands of dollars				
Total participating provinces	**89,634**	**97,941**	**119,519**	**128,113**	**91,404**
New Brunswick	..	..	..	589	497
Quebec [1]	44,856	33,959	46,507	13,442 r	10,879
Ontario	30,871	10,322	34,452	23,321	52,056
Manitoba	1,073	1,157	2,240	2,234	1,327
Saskatchewan [2]	..	..	..	1,791 E	6,795
Alberta	5,114	6,394	20,641	16,317	15,124
British Columbia	7,720	46,109	15,679	70,419	4,726 E

1. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.
2. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.

Note(s): Other performers include the federal government, municipal governments, individuals, institutions not included with any other sector, and foreign performers. Components may not add to total due to rounding.

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	number				
Participating provinces					
Total science and technology	**4,559**	**4,757**	**5,104**	**5,871**	**6,074**
New Brunswick	..	..	..	396	401
Ontario	1,887	2,117	2,172	2,285	2,210
Manitoba	578	575	628	601	684
Saskatchewan [1]	..	..	..	188 [E]	323
Alberta	1,258	1,329	1,480	1,580	1,649
British Columbia	836	736	824	821	806 [E]
Total research and development	**2,041**	**2,246**	**2,337**	**2,699**	**2,702**
New Brunswick	..	..	..	134	140
Quebec [2]	729	781	790	775	785
Ontario	428	539	558	617	549
Manitoba	62	55	77	66	133
Saskatchewan [1]	..	..	..	71 [E]	75
Alberta	665	675	731	840	809
British Columbia	157	196	181	196	212 [E]
Total related scientific activities	**3,248**	**3,291**	**3,557**	**3,948**	**4,156**
New Brunswick	..	..	..	262	260
Ontario	1,459	1,578	1,614	1,669	1,662
Manitoba	517	519	551	535	551
Saskatchewan [1]	..	..	..	117 [E]	249
Alberta	593	654	749	740	840
British Columbia	679	540	643	625	594 [E]

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.
2. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.

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, 2008/2009

	New Brunswick	Quebec [1]	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia [E]	**Total participating provinces**
	number							
Total scientific activities	**401**	**..**	**2,210**	**684**	**323**	**1,649**	**806**	**6,074**
Scientific and professional	180	..	1,223	407	210	707	478	**3,205**
Technical	159	..	515	162	46	548	238	**1,668**
Other	63	..	472	114	68	394	90	**1,201**
Research and development	**137**	**579**	**459**	**125**	**46**	**683**	**195**	**2,224**
Scientific and professional	44	338	280	73	39	263	142	**1,179**
Technical	60	191	142	29	2	241	52	**717**
Other	33	51	38	24	4	179	1	**329**
Administration of extramural programs for research and development	**4**	**205**	**89**	**7**	**29**	**125**	**17**	**477**
Scientific and professional	4	108	62	5	6	48	4	**236**
Technical	0	68	2	1	2	20	0	**93**
Other	0	29	25	2	22	57	13	**148**
Related scientific activities	**255**	**..**	**1,587**	**548**	**235**	**757**	**587**	**3,969**
Scientific and professional	129	..	866	330	154	340	329	**2,148**
Technical	98	..	369	133	41	272	186	**1,099**
Other	28	..	351	85	41	144	72	**722**
Administration of extramural programs for related scientific activities	**5**	**..**	**75**	**3**	**14**	**84**	**6**	**187**
Scientific and professional	3	..	15	0	11	55	2	**87**
Technical	0	..	2	0	1	15	0	**18**
Other	2	..	58	3	1	14	4	**82**

1. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	number				
Participating provinces					
Total science and technology	**3,618**	**3,814**	**4,086**	**4,605**	**4,552**
New Brunswick	..	..	..	285	283
Ontario	1,491	1,709	1,739	1,820	1,685
Manitoba	287	287	334	304	320
Saskatchewan [1]	..	..	..	130 E	176
Alberta	1,186	1,256	1,375	1,403	1,447
British Columbia	654	562	638	663	641 E
Total research and development	**1,727**	**1,898**	**1,969**	**2,294**	**2,247**
New Brunswick	..	..	..	111	109
Quebec [2]	501	540	529	513	526
Ontario	372	489	504	553	488
Manitoba	44	43	56	47	57
Saskatchewan [1]	..	..	..	62 E	62
Alberta	665	674	723	822	802
British Columbia	145	152	157	186	203 E
Total related scientific activities	**2,392**	**2,457**	**2,647**	**2,826**	**2,831**
New Brunswick	..	..	..	174	174
Ontario	1,119	1,220	1,235	1,268	1,197
Manitoba	243	244	278	258	263
Saskatchewan [1]	..	..	..	68 E	114
Alberta	521	583	652	581	645
British Columbia	509	410	482	477	438 E

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.
2. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.

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, 2008/2009

	New Brunswick	Quebec [1]	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia [E]	**Total participating provinces**
	number							
Total scientific activities	**283**	**..**	**1,685**	**320**	**176**	**1,447**	**641**	**4,552**
Scientific and professional	72	..	863	137	91	589	343	**2,094**
Technical	149	..	488	137	28	530	214	**1,546**
Other	62	..	334	46	57	328	85	**912**
Research and development	**108**	**375**	**413**	**50**	**36**	**681**	**187**	**1,850**
Scientific and professional	24	182	234	21	33	262	135	**889**
Technical	51	162	141	24	2	241	52	**674**
Other	33	32	37	5	1	179	1	**287**
Administration of extramural programs for research and development	**1**	**151**	**75**	**7**	**26**	**121**	**16**	**397**
Scientific and professional	1	79	53	5	3	43	4	**187**
Technical	0	50	2	1	2	20	0	**74**
Other	0	22	21	2	21	57	13	**136**
Related scientific activities	**171**	**..**	**1,139**	**263**	**111**	**583**	**433**	**2,700**
Scientific and professional	47	..	574	112	53	245	203	**1,235**
Technical	97	..	343	113	23	257	162	**996**
Other	27	..	222	38	35	81	68	**470**
Administration of extramural programs for related scientific activities	**3**	**..**	**58**	**1**	**3**	**62**	**5**	**131**
Scientific and professional	1	..	2	0	2	39	1	**45**
Technical	0	..	2	0	1	11	0	**14**
Other	2	..	54	1	0	12	4	**73**

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	number				
Total participating provinces	**943**	**943**	**1,017**	**1,267**	**1,521**
New Brunswick	..	..	..	111	119
Ontario	397	408	433	465	526
Manitoba	291	288	293	297	364
Saskatchewan [1]	..	..	..	59 [E]	147
Alberta	72	73	105	177	202
British Columbia	183	174	186	158	164 [E]

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.
Note(s): Full-time equivalent. Components may not add to total due to rounding.

Table 12-6

Personnel of provincial governments engaged in scientific activities — In the social sciences and humanities, by activity and category, 2008/2009

	New Brunswick	Quebec [1]	Ontario	Manitoba	Saskat-chewan	Alberta	British Columbia [E]	**Total participating provinces**
	number							
Total scientific activities	**119**	**..**	**526**	**364**	**147**	**202**	**164**	**1,521**
Scientific and professional	108	..	360	270	119	118	135	**1,110**
Technical	10	..	28	25	17	19	24	**122**
Other	1	..	138	68	11	65	6	**289**
Research and development	**29**	**204**	**47**	**76**	**9**	**2**	**7**	**375**
Scientific and professional	20	156	46	52	6	2	7	**289**
Technical	9	29	0	5	0	0	0	**43**
Other	0	19	1	19	3	0	0	**42**
Administration of extramural programs for research and development	**3**	**54**	**14**	**0**	**3**	**5**	**1**	**80**
Scientific and professional	3	28	9	0	3	5	1	**48**
Technical	0	18	1	0	0	0	0	**19**
Other	0	7	4	0	0	0	1	**12**
Related scientific activities	**84**	**..**	**448**	**285**	**124**	**174**	**154**	**1,269**
Scientific and professional	82	..	293	218	101	95	126	**914**
Technical	1	..	26	21	17	15	24	**104**
Other	1	..	129	47	6	64	5	**251**
Administration of extramural programs for related scientific activities	3	**..**	**17**	**3**	**11**	**22**	**1**	**56**
Scientific and professional	2	..	13	0	9	17	1	**43**
Technical	0	..	1	0	0	4	0	**4**
Other	0	..	4	2	1	2	0	**9**

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

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
	number				
Participating provinces					
Total science and technology	**2,517**	**2,460**	**2,673**	**3,182**	**3,205**
New Brunswick	..	..	..	171	180
Ontario	1,086	1,038	1,043	1,275	1,223
Manitoba	359	357	385	382	407
Saskatchewan [1]	..	..	..	115 [E]	210
Alberta	616	668	762	762	707
British Columbia	456	397	483	477	478 [E]
Total research and development	**1,050**	**1,117**	**1,246**	**1,467**	**1,415**
New Brunswick	..	..	..	41	48
Quebec [2]	401	441	438	438	446
Ontario	276	263	257	378	342
Manitoba	41	38	45	37	77
Saskatchewan [1]	..	..	..	47 [E]	45
Alberta	230	253	386	389	311
British Columbia	102	122	120	137	146 [E]
Total related scientific activities	**1,868**	**1,783**	**1,865**	**2,154**	**2,236**
New Brunswick	..	..	..	130	132
Ontario	810	774	786	897	881
Manitoba	317	319	340	345	330
Saskatchewan [1]	..	..	..	68 [E]	165
Alberta	386	415	376	373	396
British Columbia	355	275	363	341	332 [E]

1. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in expenditures contributes to the differences between the 2007/2008 pilot survey and 2008/2009 data results including fifteen ministries.
2. Since 1994/1995, the Quebec provincial government collects only research and development activities. These research and development expenditures are not included in the science and technology totals.

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

	2004	2005	2006	2007	2008
	thousands of dollars				
Total science and technology	**70,810**	**72,025**	**75,638**	**111,890**	**99,471**
New Brunswick Research and Productivity Council	8,258	8,649	8,791	9,070	9,188
Centre de recherche industrielle du Québec	34,651	32,093	31,945	30,358	31,436
Industrial Technology Centre (Manitoba)	2,155	2,607	2,419	2,519	2,782
Saskatchewan Research Council	23,313	26,166	29,859	33,300	36,668
Northern Research Institute	785	984	888	809	1,674
Nunavut Research Institute	0	0	0	0	0
Aurora Research Institute (Northwest Territories)	1,648	1,526	1,736	35,834	17,723
Total research and development	**25,062**	**23,026**	**21,812**	**56,910**	**38,240**
New Brunswick Research and Productivity Council	1,734	1,989	2,021	2,268	1,838
Centre de recherche industrielle du Québec	13,838	10,360	7,820	8,882	8,323
Industrial Technology Centre (Manitoba)	0	0	0	0	0
Saskatchewan Research Council	9,325	10,467	11,646	11,322	12,101
Northern Research Institute	165	210	325	248	1,114
Nunavut Research Institute	0	0	0	0	0
Aurora Research Institute (Northwest Territories)	0	0	0	34,190	14,864
Total related scientific activities	**45,748**	**48,999**	**53,826**	**54,980**	**61,231**
New Brunswick Research and Productivity Council	6,524	6,660	6,770	6,802	7,350
Centre de recherche industrielle du Québec	20,813	21,733	24,125	21,476	23,113
Industrial Technology Centre (Manitoba)	2,155	2,607	2,419	2,519	2,782
Saskatchewan Research Council	13,988	15,699	18,213	21,978	24,567
Northern Research Institute	620	774	563	561	560
Nunavut Research Institute	0	0	0	0	0
Aurora Research Institute (Northwest Territories)	1,648	1,526	1,736	1,644	2,859

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
Distribution of provincial research organization personnel, by institute, 2008

	Research and development			Science and technology		
	Scientific and professional	Technical	Other	Scientific and professional	Technical	Other
	number					
New Brunswick Research and Productivity Council	15	8	4	43	33	18
Centre de recherche industrielle du Québec	56	43	9	131	78	35
Industrial Technology Centre (Manitoba)	0	0	0	7	11	3
Saskatchewan Research Council	71	195	16	83	198	58
Northern Research Institute	7	0	1	7	0	1
Nunavut Research Institute	0	0	0	0	0	0
Aurora Research Institute (Northwest Territories)	5	1	14	5	1	14

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 science and technology (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).

These statistics are the aggregates of provincial government science surveys collected by individual provinces and processed by Statistics Canada under contract with the provinces, and cover the period 2004/2005 to 2008/2009. The provincial government sector consists of all provincial government departments, ministries, selected provincial 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. For this reference period, surveys are being done in New Brunswick, Ontario, Manitoba, Saskatchewan, and Alberta. The following ministries or departments sponsor the scientific surveys: New Brunswick Department of Finance, Ontario Ministry of Research & Innovation; Manitoba Department of Science, Technology, Energy & Mines; Saskatchewan Advanced Education, Employment and Labour; and Alberta Advanced Education and Technology.

The 2008/2009 reference year data were not obtained from B.C. however forecasted figures were available from their 2007/2008 survey. These figures are marked through-out the tables as “use with caution”, they are not final expenditures. As such, caution should be exhibited when comparing these statistics for British Columbia among years. Saskatchewan conducted a limited pilot of seven ministries in 2007/2008. The difference in year over year expenditures can be attributed in part to the differences between the 2007/2008 pilot survey and 2008/2009 data which included fifteen ministries. The 2007/2008 expenditures by the provincial government of Saskatchewan are also marked with a “use with caution” notification. 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 the 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 and all sectors, according to the principles of OECD’s *Frascati Manual.*

For the national R&D statistics (GERD), no estimates are made for provinces for which there is not a corresponding survey. Gross Domestic Expenditures on Research and Development in Canada and the Provinces, National Estimates 1999 to 2010 Provincial Estimates 2004 to 2008 are scheduled for publication in Catalogue no. 88-221, in November 2010.

We want to thank those who responded 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 began collecting only R&D expenditures instead of total S&T. In 2001/2002 Saskatchewan did not contract with Statistics Canada for a survey.

Saskatchewan conducted a limited pilot of 7 ministries when collecting data for reference year 2007/2008. For 2008/2009 the survey included 15 ministries. This difference in survey coverage contributes to the year over year expenditure and personnel changes.

In 2004/2005 and 2008/2009, British Columbia did not contract Statistics Canada to conduct a survey however in 2005/2006 they returned to the survey activity. British Columbia will collect for reference year 2009/2010. In 2006/2007, the province of Newfoundland and Labrador participated in the survey. In 2008/2009, New Brunswick successfully completed collection for three fiscal years 2007/2008, 2008/2009 and 2009/2010. We are pleased to announce the participation of British Columbia, Alberta, Saskatchewan, Manitoba and Ontario for the 2009/2010 reference years.

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.

As of 2001, the Alberta Research Council Inc. (ARC) is included as an agency under the department of Innovation and Science of the Alberta Provincial Government. Previously, ARC was included in the Provincial Research Organization Survey.

The survey of Provincial Research Organizations is scheduled for redesign for reference year 2009. It is anticipated that there will be changes to questionnaire content and as such a break in data series.

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 humans, 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 science and technology information. 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 engineering and the social sciences and humanities. The natural sciences and engineering 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 related to health.

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.

Objectives of expenditures on scientific 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. The following list of examples although not exhaustive was presented in the survey guide to assist respondents.

Socio-economic objectives allow departments/ministries/agencies to classify their S&T resource allocations according to the purpose for which the expenditure is intended. The objectives are listed on the questionnaire at the highest level of aggregation with sub-levels given here for clarification of categories. In many cases, projects have multiple objectives and a department should assign its expenditures consistent with the stated objectives of the department. Care must be taken to avoid "double counting".

Please note that values are identified by either R&D or RSA and intramural performers versus extramural performers.

The objectives are based on the Nomenclature for the Analysis and Comparison of Scientific Programs and Budgets (NABS) produced by the Statistical Office of the European Communities (Eurostat).

1. Exploration and exploitation of the earth – scientific activities with objectives related to the exploration of the earth's crust and mantle, seas, oceans and atmosphere, and scientific activities on their utilization. It also includes climatic and meteorological research (e.g., drought management and the analysis of precipitation standards), polar exploration (under various headings, as appropriate) and hydrology.
   - General scientific activities
   - Mineral, oil and natural gas prospecting
   - Exploration and exploitation of the sea-bed
   - Earth's crust and mantle excluding sea-bed and studies of soil for agriculture (6)
   - Hydrology - excludes scientific activities on: water supplied and disposal (2) and water pollution (3)
   - Sea and oceans
   - Climatic and meteorological services
   - Atmosphere
   - Other scientific activities on the exploration and exploitation of the earth

   Excludes: scientific activities on pollution, soil improvement, land-use and fishing.

2. Infrastructure and general planning of land use – scientific activities on infrastructure and land development, including research on the construction of buildings.More generally, it covers all scientific activities relating to the general planning of land use. This includes scientific activities into protection against harmful effects in town and country planning but not scientific activities into other types of pollution.

   2.1 Transportation systems – covers scientific activities on transport systems, including road accident prevention and ancillary services such as electronic traffic aids and radar stations. Also included is general scientific activities on transport systems, road and rail traffic, inland waterway and sea transport, air traffic, pipeline transport systems, works transport systems, combined transport systems and scientific activities on the potential effects on the environment of the planning and operation of transport systems. Scientific activities on transport equipment is included only when it forms part of the co-ordinated programs for the development of improved and safer transport systems, otherwise, such research is classified in Objective 9.

   2.2 Telecommunication systems – covers scientific activities on telecommunications services and the planning and organization of telecommunications networks. It includes, in particular, general scientific activities on telecommunications systems, telephones, telex, data transmission, radio and television (including cable TV).

   2.3 Other scientific activities on the infrastructure and general planning of Land use i.e.
   - General scientific activities
   - General planning of land use
   - Construction and planning of building
   - Civil engineering – excludes scientific activities on building materials and industrial processes (objective 9)"
   - Water supply

3. Control and care of the environment – covers scientific activities into the control of pollution, aimed at the identification and analysis of the sources of pollution and their causes, and all pollutants, including their dispersal in the environment and the effects on man, species (fauna, flora, micro organisms) and biosphere. Development of monitoring facilities for the measurement of all kinds of pollution is included. The same is valid for the elimination and prevention of all forms of pollution in all types of environment.
   - General scientific activities on the environment
   - Protection of atmosphere and climate
   - Protection of ambient air
   - Solid waste
   - Protection of ambient water
   - Protection of soil and groundwater
   - Noise and vibration
   - Protection of species and habitats
   - Protection against natural hazards
   - Radioactive pollution
   - Other scientific activities on the environment

4. Protection and improvement of human health – scientific activities aimed at protecting, promoting and restoring human health broadly interpreted to include health aspects of nutrition and food hygiene. It ranges from preventative medicine, including all aspects of medical and surgical treatment, both for individuals and groups, and the provision of hospital and home care, to social medicine and paediatric and geriatric research.
   - General scientific activities
   - Medical scientific activities, hospital treatment, surgery
   - Preventative medicine
   - Biomedical engineering and medicines
   - Occupational medicine
   - Nutrition and food hygiene
   - Drug abuse and addiction
   - Social medicine
   - Hospital structure and organization of medical care
   - Other medical scientific activities

5. Production, distribution and rational utilization of energy – covers scientific activities into the production, storage, transportation, distribution and rational use of all forms of energy. It also includes scientific activities on processes designed to increase the efficiency of energy production and distribution, and the study of energy conservation.
   - General scientific activities
   - Fossil fuels and their derivatives
   - Nuclear fission
   - Radioactive waste management including decommissioning with regard to fuel/energy
   - Hydroelectric energy
   - Nuclear fusion
   - Conservation
   - Renewable energy sources
   - Rational utilization of energy
   - Other scientific activities on production, distribution and rational utilization of energy

6. Agricultural production and technology – covers scientific activities on animal products, veterinary medicine, crops, agricultural technology, agricultural biotechnology and other scientific activities on agricultural production and technology. It includes: scientific activities on chemical fertilizers, pesticides, insecticides, herbicides, biological pest control and the mechanization of agriculture; evaluation of the impact of scientific activities promoting productivity and technology in agriculture.

7. Fishing – covers scientific activities on fishing, salting, drying and initial freezing of products (but not on preparation and canning; objective 9). Scientific activities on fish-farming, exploration of new fishing grounds, exploration and development of new and unconventional sources of seafood.

8. Forestry – covers scientific activities into the ecological and economic aspects of forestry and timber production.

9. Industrial production and technology – covers scientific activities on the improvement of industrial production and technology. It includes scientific activities on industrial products and their manufacturing processes except where they form an integral part of the pursuit of other objectives (e.g. energy, agriculture, fishing, forestry).
   - General scientific activities
   - Increasing economic efficiency and competitiveness
   - Manufacturing and processing techniques
   - Extraction and processing of non-energy minerals and derived products
   - Products of the chemical industry
   - Petrochemical and coal by-products
   - Pharmaceutical products
   - Manufacture of motor vehicles and other means of transport
   - Aerospace equipment manufacturing and repairing
   - Manufacture of motor vehicles and parts
   - Manufacture of other modes of transportation
   - Electronic and related industries
   - Manufacture of office machinery and data-processing equipment
   - Manufacture of radio, television and communications equipment and apparatus
   - Software development
   - Manufacture of electrical machinery and apparatus
   - Manufacture of non-electronic and non-electrical machinery
   - Manufacture of instruments
   - Manufacture of medical and surgical equipment and orthopaedic appliances
   - Manufacture of food products and beverages
   - Manufacture of clothing and textiles and leather goods
   - All other manufacturing products
   - Recycling

10. Social structures and relationships – scientific activities on social objectives, as analysed in particular by social and human sciences, which have no obvious connection with other objectives. This analysis includes quantitative, qualitative, organizational and forecasting aspects of social problems.
   - General scientific activities
   - Education, training, recurrent education and retraining
   - Cultural activities, sport and recreation
   - Human resources
   - Management of businesses and institutions
   - Improvement of working conditions
   - Social security system
   - Political structure of society
   - Social change, social processes and social conflicts
   - Urban and regional studies
   - Other scientific activities with regard to society

11. Exploration and exploitation of space – all civil space scientific activities. Although civil space research is not, in general, concerned with particular objectives, it frequently has a specific goal, such as the increase of general knowledge (e.g., astronomy), or relates to particular applications (e.g., telecommunications satellites).
    - General scientific activities
    - Applied research programs
    - Other research on the exploration and exploitation of space

12. Basic research (advancement of science) – basic activities motivated by scientific curiosity with the objective of increasing scientific knowledge. It also includes funding used to support postgraduate studies and fellowships.
    - Mathematics and computer sciences
    - Physical sciences
    - Chemical sciences
    - Biological sciences
    - Earth and related (environmental) sciences
    - Engineering sciences
    - Medical sciences
    - Agricultural sciences
    - Social sciences
    - Humanities

13. Other civil research – civil scientific activities which cannot (yet) be classified to a particular objective.