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Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces



National Estimates 1998 to 2009
and Provincial Estimates 2003 to 2007



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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

Gross domestic expenditure on research and development (GERD), 1998-2007 historical, 2008, 2009 intentions

- Total research and development (R&D) spending intentions are expected to increase to \$29.9 billion (current dollars) in 2009. This is an anticipated increase of 1.2% over the preliminary data collected to date for 2008 (Table 1-1).
- While current dollar gross domestic expenditures on R&D have been increasing since 1999, constant dollar expenditures ceased increasing in 2006. In 2008, there was a 2.7% decline in spending from the previous year to \$24.4 billion (constant dollars). However, it should be noted that in response to the global economic downturn, respondents to the survey components of GERD may have adjusted their R&D intentions for the last two quarters of 2008 and for all of 2009. The next release of GERD in 2010 will update these intentions and provide a clearer picture of R&D movement in constant dollars (Table 1-1).
- The business enterprise sector remains the major performer and funder of R&D activities. In 2009 business enterprises are expected to perform \$16.1 billion, over half (54%) the share of total R&D performance. Business enterprise funding in 2009 is anticipated to reach \$14.2 billion (current dollars) (Table 1-2).
- The private non-profit sector continues to be the smallest R&D performer and funder. While this sector's share of R&D performance has remained below 1% since 1999, it has increased its share of R&D funding from 2.2% in 1999 to an expected 3.3% in 2009 (Table 1-2).
- The higher education sector is the second largest performer, with an estimated \$10.4 billion comprising over one-third (35%) of total R&D performance in 2009. Higher education is the third largest source of funding for R&D, with 2009's intentions of \$4.7 billion (Table 1-2).
- Federal government R&D performance places third and in 2009 it is anticipated to increase 3.3% to \$2.7 billion. The federal government is the second largest funding sector after business enterprise. In 2009 funding levels of this sector are expected to increase 2.2% to \$5.7 billion (Table 1-2).
- Provincial government (which includes provincial research organization) performance is expected to increase 1% to \$409 million in 2009. In general governments' fund more R&D than they perform. The provincial government funding of R&D is anticipated to increase in 2009 by 1.2% to \$1.5 billion (Table 1-2).
- In 2009 foreign sector funding is anticipated to increase 1% to \$2.8 billion (Table 1-2).
- Provincial R&D spending data are available for 2007. Starting in this publication release, data on the national capital regions (NCR) of Ontario and Quebec are included with their respective provincial data. This revision has been made historically to 1988 on Statistic Canada's key socioeconomic database CANSIM.
- In 2007, Ontario, which includes the NCR of Ontario, accounted for almost half (47%) of Canada's gross domestic expenditures on research and development at \$13.6 billion. Quebec, which includes the NCR of Quebec, comprised \$7.8 billion, over one-quarter (27%) of national expenditures. British Columbia represented 10% of gross domestic expenditures on R&D at \$2.9 billion while the neighboring Prairie provinces made up 12% or \$3.4 billion. The Atlantic provinces represented 4% or \$1.1 billion of total national GERD (Table 2).

- Quebec, Ontario, Alberta and British Columbia continue to lead R&D performance, with the business enterprise sector as the largest performer. In the remaining six provinces, the higher education sector is the most significant R&D performer (Table 4-1).
- The business enterprise sector is the largest funder in most provinces, with the exception of Saskatchewan and Prince Edward Island where the federal government is the lead funding sector, and Nova Scotia where the higher education sector leads (Table 4-2).

Analysis

Gross domestic expenditure on research and development

This 2009 release of gross domestic expenditure on research and development (GERD) in Canada represents national expenditure intentions for 2008 and 2009 and historical data from 1998. Provincial research and development (R&D) expenditures measure preliminary 2007 data and historical data from 2003.

The GERD performing sectors include government (federal, provincial and provincial research organisations), business enterprise, private non-profit, and higher education. The sectors for sources of funding data are the same as performing with the addition of the foreign sector, since payments made to R&D performed abroad are not measured.

Canada's GERD is separated into two fields of science: natural sciences and engineering, and social sciences and humanities. It should be noted that all R&D expenditures for the business enterprise sector, the largest performing R&D sector, are undertaken in the natural sciences and engineering field. As a result, natural sciences and engineering comprise over 90% of all R&D expenditures. In 2009, total R&D expenditures in natural sciences and engineering is anticipated to increase 1.2% to \$27.5 billion while R&D expenditures in the social sciences and humanities is anticipated to increase 1.4% to \$2.4 billion (current dollars).

International comparisons

The ratio of gross domestic expenditure on research and development (GERD) to gross domestic product (GDP) denotes the degree of R&D intensity or innovation of a country and is a commonly used summary statistic for international comparisons. However, this statistic should also be compared with GERD and GDP per capita values as it is influenced by a nation's economic and demographic structure, as well as the propensity to perform R&D in particular sectors.

Canada's GERD/GDP ratio for 2008 is 1.84, down from the ten year high of 2.09 attained in 2001. A lower GERD/GDP ratio indicates that R&D investments in Canada are diminishing as a percentage of total gross domestic product (Table 1-1).

The Organisation for Economic Co-operation and Development's (OECD) publishes international statistics on R&D in its *Main Science and Technology Indicators*. The most recent edition (volume 2009/1, p. 25) displays comprehensive data for 2007. In that year Sweden held the highest GERD/GDP ratio among OECD member countries at 3.60, followed by Finland at 3.48. Canada's investments in R&D as a percentage of GDP in 2007 at 1.88 ranked lower than the United States at 2.68 and the OECD average of 2.29, but was higher than the 1.77 ratio for the twenty-seven countries in the European Union (EU-27).

Regional data

Regional and national GERD definitions are similar. However, R&D expenditures by province can be easily misinterpreted. The expenditures data are associated with the region of location of the R&D activities, however, caution should be used in assuming that all R&D expenditures actually occur in this location. For example, supplies and equipment may be purchased from other locations, and cross-provincial border labour mobility can occur.

Regional performing sector expenditures are assigned to the province or territory in which the performing establishment is located. Similarly, regional funding sector expenditures represents R&D funding distributed in a province or territory; it does not require the funds to be raised within the province. For instance, when the federal

government is shown as funding R&D in a province, the funds are recorded in one of the performing sectors. Intramural federal funding expenditures represent federal performance conducted in the province. For example, in 2007 the federal government funded \$84 million of R&D in New Brunswick (Table 6-4). Of the total \$84 million in R&D funding, over half (\$45 million) was performed intramurally (by federal organization(s) located in New Brunswick), \$35 million was performed in New Brunswick's higher education sector and \$4 million in New Brunswick's business enterprise sector.

The private non-profit (PNP) sector funding and performing data for R&D appear only in the GERD national data. As of reference year 2000, R&D performance data for the private non-profit sector are not distributed by province or territory. However, R&D funding data for the private non-profit sector are distributed by province and territory. In 2007 the highest value of PNP funding, near \$400 million, occurred in Ontario. However, when compared to all other funding sources available for each province, PNP's share was highest in Manitoba at 6.3% (Table 4-2).

Data on the provincial distribution of R&D spending are available up to 2007. Expenditures for R&D performed by the federal government in the national capital region (NCR) are now included with the provincial totals. However NCR data for Ontario and Quebec are reported separately by field of science in Appendix I. In 2007, NCR R&D expenditures in Ontario were \$1.0 billion and NCR R&D expenditures in Quebec were \$100 million, for a NCR R&D total of \$1.1 billion (current dollars) (Appendix I).

The ratio of provincial GERD to provincial GDP in 2007 remained the highest in Quebec at 2.63 followed by a ratio of 2.32 in Ontario. However, the GERD per capita for 2007 is slightly higher in Ontario at \$1,069 versus Quebec at \$1,022. This reinforces the need to review more than one statistic when evaluating innovation. The lowest provincial GERD to provincial GDP ratio was reported in Saskatchewan (0.87) with a GERD per capita value of \$444. Comparatively, Prince Edward Island reported a higher GERD to GDP ratio at 1.29, but a lower GERD per capita value of \$420. Many varying factors such as economic structure and population impact these GERD ratios differently. Correspondingly, while Alberta's GERD to GDP ratio ranks 8th among the 10 provinces at 0.94, its GERD per capita value ranks third highest at \$692 (Table 2).

R&D expenditures in the social sciences and humanities rose 8% at the national level from 2006 to 2007. Ontario accounted for one-third of the total increase in the social sciences and humanities field, followed by Quebec and Alberta with each contributing one-fifth. British Columbia furnished 14% of the rise in this field, with the provinces of Newfoundland and Labrador, Nova Scotia, New Brunswick and Manitoba making up the remainder (Tables 10-1 to 10-11).

Statistical tables

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 1-1

Gross domestic expenditures on research and development — In current dollars, in 2002 constant dollars and as a percentage of gross domestic product

	Current dollars		Gross domestic expenditure on research and development over Gross domestic product	Gross domestic product implicit price index ²	2002 constant dollars, Gross domestic expenditure on research and development ³
	Gross domestic expenditure on research and development	Gross domestic product ¹			
	millions of dollars		ratio	index=2002	millions of dollars
1999 r	17,637	982,441	1.80	93.9	18,783
2000 r	20,556	1,076,577	1.91	97.8	21,018
2001 r	23,133	1,108,048	2.09	98.9	23,390
2002 r	23,536	1,152,905	2.04	100.0	23,536
2003 r	24,691	1,213,175	2.04	103.3	23,902
2004 r	26,783	1,290,906	2.07	106.6	25,125
2005 r	28,126	1,373,845	2.05	110.1	25,523
2006 r	28,599	1,449,215	1.97	112.9	25,331
2007	29,170	1,532,944	1.90	116.5	25,060
2008 p	29,487	1,600,081	1.84	121.1	24,390
2009 p	29,854	..	..	..	..

1. CANSIM, table 380-0017

2. CANSIM, table 384-0036

3. Gross domestic expenditure on research and development data are deflated by the gross domestic product implicit price index.

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 1-2
Gross domestic expenditures on research and development — By performing sector and funding sector

	Federal government	Provincial governments ¹	Business enterprise	Higher education	Private non-profit organizations	Foreign	Total
millions of dollars							
Performing sector							
1999 r	1,859	233	10,399	5,082	63	...	17,637
2000 r	2,080	230	12,395	5,793	58	...	20,556
2001 r	2,103	276	14,266	6,424	63	...	23,133
2002 r	2,190	282	13,545	7,455	63	...	23,536
2003 r	2,083	278	14,095	8,143	92	...	24,691
2004 r	2,084	290	15,249	9,058	103	...	26,783
2005 r	2,414	303	15,774	9,518	117	...	28,126
2006 r	2,496	333	16,021	9,625	125	...	28,599
2007	2,532	387	15,882	10,187	183	...	29,170
2008 p	2,605	405	15,980	10,310	188	...	29,487
2009 p	2,692	409	16,146	10,413	194	...	29,854
Funding sector							
1999 r	3,216	767	7,917	2,649	380	2,705	17,637
2000 r	3,560	853	9,223	2,892	445	3,582	20,556
2001 r	4,095	1,023	11,637	2,928	536	2,915	23,133
2002 r	4,251	1,152	12,117	3,462	628	1,925	23,536
2003 r	4,526	1,354	12,427	3,589	637	2,158	24,691
2004 r	4,651	1,370	13,381	4,147	735	2,499	26,783
2005 r	5,249	1,343	13,820	4,341	777	2,593	28,126
2006 r	5,222	1,405	14,144	4,435	830	2,562	28,599
2007	5,491	1,454	13,946	4,574	968	2,736	29,170
2008 p	5,594	1,495	14,034	4,629	981	2,754	29,487
2009 p	5,718	1,513	14,172	4,675	993	2,783	29,854

1. Includes provincial research councils and foundations.

Note(s): Components may not add to totals due to rounding. **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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D. Data for the National Capital Region (NCR) are now available in Appendix 1 at the end of this publication.

Source(s): CANSIM, table 358-0001

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 2
Provincial statistics and their relationship to gross domestic expenditures on research and development, 2007

	Provincial gross domestic product ¹		Gross domestic expenditures on research and development		Population ²		Gross domestic expenditures on research and development	
	millions of dollars	percent	millions of dollars	percent	thousands	percent	ratio	Per capita dollars
Canada ³	1,532,944	100	29,170	100	32,739	100	1.90	891
Newfoundland and Labrador	29,226	2	262	1	509	2	0.90	515
Prince Edward Island	4,490	0	58	0	138	0	1.29	420
Nova Scotia	32,933	2	501	2	937	3	1.52	535
New Brunswick	26,993	2	314	1	745	2	1.16	422
Quebec	297,384	19	7,824	27	7,658	23	2.63	1,022
Ontario	585,723	38	13,601	47	12,718	39	2.32	1,069
Manitoba	48,718	3	585	2	1,187	4	1.20	493
Saskatchewan	50,811	3	441	2	994	3	0.87	444
Alberta	256,915	17	2,403	8	3,472	11	0.94	692
British Columbia	191,598	12	2,935	10	4,275	13	1.53	687

1. CANSIM, table 384-0002.

2. CANSIM, table 051-0005.

3. Includes the Yukon, Northwest Territories and Nunavut.

Note(s): Components may not add to totals due to rounding. **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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D. Data for the National Capital Region (NCR) are now available in Appendix 1 at the end of this publication.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 3
Provincial distribution of the gross domestic expenditures on research and development

	Canada ¹	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
millions of dollars											
Research and development											
1999 r	17,637	127	26	339	164	4,917	8,865	365	323	1,154	1,284
2000 r	20,556	138	37	362	158	5,717	10,383	393	376	1,319	1,606
2001 r	23,133	142	37	376	162	6,416	11,733	457	396	1,588	1,760
2002 r	23,536	153	31	400	211	6,745	11,376	454	435	1,715	1,949
2003 r	24,691	173	43	409	215	6,965	11,983	455	398	1,901	2,050
2004 r	26,783	173	41	447	227	7,240	12,955	519	425	2,262	2,371
2005 r	28,126	267	66	466	258	7,260	13,665	582	454	2,423	2,550
2006 r	28,599	259	68	488	272	7,653	13,632	549	466	2,402	2,651
2007	29,170	262	58	501	314	7,824	13,601	585	441	2,403	2,935
2008 p	29,487	..	..	..	..	..	..	..	..	..	..
2009 p	29,854	..	..	..	..	..	..	..	..	..	..
Gross domestic product											
1999 r	982,441	12,184	3,159	23,059	19,041	210,809	409,020	31,966	30,778	117,080	120,921
2000 r	1,076,577	13,922	3,366	24,658	20,085	224,928	440,759	34,057	33,828	144,789	131,333
2001 r	1,108,048	14,179	3,431	25,909	20,684	231,624	453,701	35,157	33,127	151,274	133,514
2002 r	1,152,905	16,457	3,701	27,082	21,169	241,448	477,763	36,559	34,343	150,594	138,193
2003 r	1,213,175	18,119	3,798	28,851	22,366	250,752	493,081	37,451	36,653	170,113	145,642
2004 r	1,290,906	19,407	3,983	29,853	23,672	262,761	516,106	39,748	40,796	189,743	157,675
2005 r	1,373,845	21,960	4,096	31,199	24,716	272,049	537,383	41,681	43,996	219,810	169,664
2006 r	1,449,215	26,052	4,249	31,743	25,884	282,220	560,286	45,029	45,498	238,410	182,310
2007	1,532,944	29,226	4,490	32,933	26,993	297,384	585,723	48,718	50,811	256,915	191,598
2008 p	1,600,081	31,277	4,624	34,188	27,372	302,225	587,827	50,834	63,509	291,256	197,931
2009 p	..	..	..	..	..	..	..	..	..	..	..
percent											
Canada total											
1999 r	100.0	0.7	0.1	1.9	0.9	27.9	50.3	2.1	1.8	6.5	7.3
2000 r	100.0	0.7	0.2	1.8	0.8	27.8	50.5	1.9	1.8	6.4	7.8
2001 r	100.0	0.6	0.2	1.6	0.7	27.7	50.7	2.0	1.7	6.9	7.6
2002 r	100.0	0.7	0.1	1.7	0.9	28.7	48.3	1.9	1.8	7.3	8.3
2003 r	100.0	0.7	0.2	1.7	0.9	28.2	48.5	1.8	1.6	7.7	8.3
2004 r	100.0	0.6	0.2	1.7	0.8	27.0	48.4	1.9	1.6	8.4	8.9
2005 r	100.0	0.9	0.2	1.7	0.9	25.8	48.6	2.1	1.6	8.6	9.1
2006 r	100.0	0.9	0.2	1.7	1.0	26.8	47.7	1.9	1.6	8.4	9.3
2007	100.0	0.9	0.2	1.7	1.1	26.8	46.6	2.0	1.5	8.2	10.1
2008 p	100.0	..	..	..	..	..	..	..	..	..	..
2009 p	100.0	..	..	..	..	..	..	..	..	..	..
Gross domestic product											
1999 r	1.8	1.0	0.8	1.5	0.9	2.3	2.2	1.1	1.0	1.0	1.1
2000 r	1.9	1.0	1.1	1.5	0.8	2.5	2.4	1.2	1.1	0.9	1.2
2001 r	2.1	1.0	1.1	1.5	0.8	2.8	2.6	1.3	1.2	1.0	1.3
2002 r	2.0	0.9	0.8	1.5	1.0	2.8	2.4	1.2	1.3	1.1	1.4
2003 r	2.0	1.0	1.1	1.4	1.0	2.8	2.4	1.2	1.1	1.1	1.4
2004 r	2.1	0.9	1.0	1.5	1.0	2.8	2.5	1.3	1.0	1.2	1.5
2005 r	2.0	1.2	1.6	1.5	1.0	2.7	2.5	1.4	1.0	1.1	1.5
2006 r	2.0	1.0	1.6	1.5	1.1	2.7	2.4	1.2	1.0	1.0	1.5
2007	1.9	0.9	1.3	1.5	1.2	2.6	2.3	1.2	0.9	0.9	1.5
2008 p	1.8	..	..	..	..	..	..	..	..	..	..
2009 p	..	..	..	..	..	..	..	..	..	..	..

1. Includes the Yukon, Northwest Territories and Nunavut.

Note(s): Components may not add to totals due to rounding. **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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D. Data for the National Capital Region (NCR) are now available in Appendix 1 at the end of this publication.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 4-1
Provincial distribution of gross domestic expenditures on research and development — By performing sector, 2007

	Canada ¹	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
millions of dollars											
All sectors	29,170	262	58	501	314	7,824	13,601	585	441	2,403	2,935
Federal government	2,532	28	13	77	46	410	1,582	85	63	116	108
Provincial governments ²	387	5	0	0	12	90	57	6	11	141	30
Business enterprise	15,882	90	11	98	112	4,714	7,648	193	136	1,142	1,713
Higher education	10,187	140	34	327	144	2,610	4,314	302	230	1,004	1,083
Private non-profit organizations	183	..	..	..	..	..	..	..	..	..	..
percent											
Canada total as a percentage											
All sectors	100.0	0.9	0.2	1.7	1.1	26.8	46.6	2.0	1.5	8.2	10.1
Federal government	100.0	1.1	0.5	3.0	1.8	16.2	62.5	3.4	2.5	4.6	4.3
Provincial governments ²	100.0	1.3	0.0	0.0	3.1	23.3	14.7	1.6	2.8	36.4	7.8
Business enterprise	100.0	0.6	0.1	0.6	0.7	29.7	48.2	1.2	0.9	7.2	10.8
Higher education	100.0	1.4	0.3	3.2	1.4	25.6	42.3	3.0	2.3	9.9	10.6
Private non-profit organizations	100.0	..	..	..	..	..	..	..	..	..	..
Provincial total as a percentage											
All sectors	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Federal government	8.7	10.7	22.4	15.4	14.6	5.2	11.6	14.5	14.3	4.8	3.7
Provincial governments ²	1.3	1.9	0.0	0.0	3.8	1.2	0.4	1.0	2.5	5.9	1.0
Business enterprise	54.4	34.4	19.0	19.6	35.7	60.3	56.2	33.0	30.8	47.5	58.4
Higher education	34.9	53.4	58.6	65.3	45.9	33.4	31.7	51.6	52.2	41.8	36.9
Private non-profit organizations	0.6	..	..	..	..	..	..	..	..	..	..

1. Includes the Yukon, Northwest Territories and Nunavut.

2. Includes provincial research councils and foundations.

Note(s): Components may not add to totals due to rounding. **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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D. Data for the National Capital Region (NCR) are now available in Appendix 1 at the end of this publication.

Source(s): CANSIM, table 358-0001.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 4-2
Provincial distribution of gross domestic expenditures on research and development — By funding sector, 2007

	Canada ¹	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
millions of dollars											
All sectors	29,170	262	58	501	314	7,824	13,601	585	441	2,403	2,935
Federal government	5,491	81	26	160	84	1,272	2,719	163	136	350	451
Provincial governments ²	1,454	11	2	7	17	382	432	26	28	336	182
Business enterprise	13,946	92	11	117	114	4,161	6,748	185	127	1,178	1,146
Higher education	4,574	71	19	170	87	1,155	1,983	142	117	400	431
Private non-profit organizations	968	5	0	29	9	185	399	37	13	63	148
Foreign	2,736	2	0	18	2	669	1,319	32	20	75	577
percent											
Canada total as a percentage											
All sectors	100.0	0.9	0.2	1.7	1.1	26.8	46.6	2.0	1.5	8.2	10.1
Federal government	100.0	1.5	0.5	2.9	1.5	23.2	49.5	3.0	2.5	6.4	8.2
Provincial governments ²	100.0	0.8	0.1	0.5	1.2	26.3	29.7	1.8	1.9	23.1	12.5
Business enterprise	100.0	0.7	0.1	0.8	0.8	29.8	48.4	1.3	0.9	8.4	8.2
Higher education	100.0	1.6	0.4	3.7	1.9	25.3	43.4	3.1	2.6	8.7	9.4
Private non-profit organizations	100.0	0.5	0.0	3.0	0.9	19.1	41.2	3.8	1.3	6.5	15.3
Foreign	100.0	0.1	0.0	0.7	0.1	24.5	48.2	1.2	0.7	2.7	21.1
Provincial total as a percentage											
All sectors	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Federal government	18.8	30.9	44.8	31.9	26.8	16.3	20.0	27.9	30.8	14.6	15.4
Provincial governments ²	5.0	4.2	3.4	1.4	5.4	4.9	3.2	4.4	6.3	14.0	6.2
Business enterprise	47.8	35.1	19.0	23.4	36.3	53.2	49.6	31.6	28.8	49.0	39.0
Higher education	15.7	27.1	32.8	33.9	27.7	14.8	14.6	24.3	26.5	16.6	14.7
Private non-profit organizations	3.3	1.9	0.0	5.8	2.9	2.4	2.9	6.3	2.9	2.6	5.0
Foreign	9.4	0.8	0.0	3.6	0.6	8.6	9.7	5.5	4.5	3.1	19.7

1. Includes the Yukon, Northwest Territories and Nunavut.

2. Includes provincial research councils and foundations.

Note(s): Components may not add to totals due to rounding. **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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D. Data for the National Capital Region (NCR) are now available in Appendix 1 at the end of this publication.

Source(s): CANSIM, table 358-0001.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 5
National Gross Domestic Expenditures on Research and Development, in the total sciences, Canada

Funding sector	Performing sector						Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	Private non-profit organizations	
millions of dollars							
2009 P Total sciences							
Total	2,692	369	40	16,146	10,413	194	29,854
Federal government	2,619	3	2	267	2,780	47	5,718
Provincial governments	9	323	10	86	1,057	29	1,513
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	65	44	28	13,131	889	15	14,172
Higher education	.	.	.	.	4,675	.	4,675
Private non-profit organizations	.	.	.	.	909	83	993
Foreign	.	..	1	2,663	101	18	2,783
2008 P Total sciences							
Total	2,605	365	40	15,980	10,310	188	29,487
Federal government	2,526	3	2	265	2,753	46	5,594
Provincial governments	9	317	10	85	1,046	29	1,495
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	70	45	28	12,995	881	15	14,034
Higher education	.	.	.	.	4,629	.	4,629
Private non-profit organizations	.	.	.	.	900	81	981
Foreign	.	0	1	2,636	100	18	2,754
2007 Total sciences							
Total	2,532	330	57	15,882	10,187	183	29,170
Federal government	2,459	2	2	263	2,720	45	5,491
Provincial governments	9	290	10	84	1,034	28	1,454
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	64	38	44	12,915	870	14	13,946
Higher education	.	.	.	.	4,574	.	4,574
Private non-profit organizations	.	.	.	.	890	79	968
Foreign	.	0	1	2,619	99	17	2,736
2006 P Total sciences							
Total	2,496	311	22	16,021	9,625	125	28,599
Federal government	2,434	4	1	258	2,488	37	5,222
Provincial governments	7	274	10	110	993	12	1,405
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	55	33	10	13,224	808	14	14,144
Higher education	.	.	.	.	4,435	.	4,435
Private non-profit organizations	.	.	.	.	776	54	830
Foreign	.	0	0 ^s	2,429	126	7	2,562
2005 P Total sciences							
Total	2,414	280	23	15,774	9,518	117	28,126
Federal government	2,341	4	1	323	2,542	38	5,249
Provincial governments	9	247	12	90	973	13	1,343
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	64	30	10	12,902	803	10	13,820
Higher education	.	.	.	.	4,341	.	4,341
Private non-profit organizations	.	.	.	.	742	35	777
Foreign	.	0	0 ^s	2,460	116	17	2,593
2004 P Total sciences							
Total	2,084	265	25	15,249	9,058	103	26,783
Federal government	2,028	2	1	271	2,337	12	4,651
Provincial governments	7	236	14	59	1,039	15	1,370
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	49	26	10	12,529	755	13	13,381
Higher education	.	.	.	.	4,147	.	4,147
Private non-profit organizations	.	.	.	.	685	50	735
Foreign	.	0	0 ^s	2,390	96	13	2,499

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 5 – continued

National Gross Domestic Expenditures on Research and Development, in the total sciences, Canada

Funding sector	Performing sector						Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	Private non-profit organizations	
millions of dollars							
2003 † Total sciences							
Total	2,083	254	24	14,095	8,143	92	24,691
Federal government	2,027	2	1	299	2,182	15	4,526
Provincial governments	8	226	14	70	1,018	17	1,354
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	48	25	9	11,652	679	14	12,427
Higher education	.	.	.	.	3,589	.	3,589
Private non-profit organizations	.	.	.	.	599	38	637
Foreign	.	0	0 ^s	2,073	76	8	2,158
2002 † Total sciences							
Total	2,190	256	26	13,545	7,455	63	23,536
Federal government	2,124	2	1	300	1,817	6	4,251
Provincial governments	11	225	15	53	828	20	1,152
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	55	29	9	11,370	643	12	12,117
Higher education	.	.	.	.	3,462	.	3,462
Private non-profit organizations	.	.	.	.	604	24	628
Foreign	.	0	1	1,822	101	1	1,925
2001 † Total sciences							
Total	2,103	253	23	14,266	6,424	63	23,133
Federal government	2,044	0	1	457	1,587	6	4,095
Provincial governments	6	222	12	51	712	20	1,023
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	53	31	9	10,930	603	10	11,637
Higher education	.	.	.	.	2,928	.	2,928
Private non-profit organizations	.	.	.	.	510	26	536
Foreign	.	0	1	2,828	84	1	2,915
2000 † Total sciences							
Total	2,080	164	66	12,395	5,793	58	20,556
Federal government	2,023	0	2	239	1,293	3	3,560
Provincial governments	3	164	38	45	587	16	853
Provincial research organizations	.	.	1	.	.	.	1
Business enterprise	54	0	18	8,587	553	10	9,223
Higher education	.	.	.	.	2,892	.	2,892
Private non-profit organizations	.	.	.	.	418	27	445
Foreign	.	0	7	3,524	50	1	3,582
1999 † Total sciences							
Total	1,859	173	60	10,399	5,082	63	17,637
Federal government	1,814	0	1	309	1,085	7	3,216
Provincial governments	4	173	34	57	482	16	767
Provincial research organizations	.	.	3	.	.	.	3
Business enterprise	41	0	19	7,390	460	6	7,917
Higher education	.	.	.	.	2,649	.	2,649
Private non-profit organizations	.	.	.	.	349	31	380
Foreign	.	0	3	2,642	57	3	2,705
1998 † Total sciences							
Total	1,743	155	61	9,682	4,370	77	16,088
Federal government	1,691	0	3	262	863	11	2,830
Provincial governments	4	155	34	56	372	19	640
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	49	0	21	6,865	411	9	7,355
Higher education	.	.	.	.	2,339	.	2,339
Private non-profit organizations	.	.	.	.	335	37	372
Foreign	.	0	3	2,499	50	1	2,552

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 6-1
Provincial Gross Domestic Expenditures on Research and Development, in the total sciences — Newfoundland and Labrador

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Total sciences						
Total	28	5	..	90	140	262
Federal government	27	.	.	8	46	81
Provincial governments	..	5	.	0 ^s	6	11
Provincial research organizations	.	.	.	.	.	..
Business enterprise	1	.	.	80	12	92
Higher education	.	.	.	.	71	71
Private non-profit organizations	.	.	.	.	5	5
Foreign	.	.	.	2	1	2
2006 † Total sciences						
Total	27	4	..	96	132	259
Federal government	27	.	.	8	40	74
Provincial governments	..	4	.	0 ^s	2	7
Provincial research organizations	.	.	.	.	.	..
Business enterprise	1	.	.	85	15	100
Higher education	.	.	.	.	68	68
Private non-profit organizations	.	.	.	.	3	3
Foreign	.	.	.	3	4	7
2005 † Total sciences						
Total	28	5	..	86	149	267
Federal government	27	.	.	8	45	80
Provincial governments	..	5	.	1	1	7
Provincial research organizations	.	.	.	.	.	0
Business enterprise	1	.	.	74	23	97
Higher education	.	.	.	.	76	76
Private non-profit organizations	.	.	.	.	2	2
Foreign	.	.	.	3	2	5
2004 † Total sciences						
Total	23	5	..	30	116	173
Federal government	22	.	.	3	35	61
Provincial governments	..	5	.	1	1	7
Provincial research organizations	.	.	.	.	.	0
Business enterprise	1	.	.	19	16	36
Higher education	.	.	.	.	61	61
Private non-profit organizations	.	.	.	.	2	2
Foreign	.	.	.	7	0	7
2003 † Total sciences						
Total	23	5	..	31	114	173
Federal government	22	.	.	3	36	61
Provincial governments	..	5	.	1	1	7
Provincial research organizations	.	.	.	.	.	0
Business enterprise	1	.	.	21	10	31
Higher education	.	.	.	.	63	63
Private non-profit organizations	.	.	.	.	4	4
Foreign	.	.	.	6	0	6

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 6-2
Provincial Gross Domestic Expenditures on Research and Development, in the total sciences — Prince Edward Island

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Total sciences						
Total	13	..	..	11	34	58
Federal government	13	..	.	1	12	26
Provincial governments	.	..	.	0 ^s	2	2
Provincial research organizations	.	..	.	.	.	..
Business enterprise	0 ^s	..	.	10	1	11
Higher education	.	.	.	.	19	19
Private non-profit organizations	.	.	.	.	0	0
Foreign	.	.	.	0 ^s	.	0 ^s
2006 † Total sciences						
Total	26	..	..	11	31	68
Federal government	25	..	.	1	9	35
Provincial governments	.	..	.	0 ^s	2	2
Provincial research organizations	.	..	.	.	.	..
Business enterprise	0 ^s	..	.	10	1	11
Higher education	.	.	.	.	18	18
Private non-profit organizations	.	.	.	.	2	2
Foreign	.	.	.	0 ^s	.	0 ^s
2005 † Total sciences						
Total	28	..	..	11	27	66
Federal government	27	..	.	1	9	37
Provincial governments	.	..	.	0 ^s	0 ^s	1
Provincial research organizations	.	..	.	.	.	0
Business enterprise	1	..	.	7	0 ^s	8
Higher education	.	.	.	.	16	16
Private non-profit organizations	.	.	.	.	1	1
Foreign	.	.	.	2	.	2
2004 † Total sciences						
Total	10	..	..	7	24	41
Federal government	10	..	.	1	8	18
Provincial governments	.	..	.	0 ^s	0 ^s	1
Provincial research organizations	.	..	.	.	.	0
Business enterprise	0 ^s	..	.	6	1	6
Higher education	.	.	.	.	15	15
Private non-profit organizations	.	.	.	.	1	1
Foreign	.	.	.	0 ^s	.	0 ^s
2003 † Total sciences						
Total	12	..	..	7	25	43
Federal government	12	..	.	2	7	20
Provincial governments	.	..	.	0 ^s	1	1
Provincial research organizations	.	..	.	.	.	0
Business enterprise	0 ^s	..	.	5	0 ^s	5
Higher education	.	.	.	.	17	17
Private non-profit organizations	.	.	.	.	2	2
Foreign	.	.	.	0 ^s	.	0 ^s

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 6-3
Provincial Gross Domestic Expenditures on Research and Development, in the total sciences — Nova Scotia

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Total sciences						
Total	77	..	..	98	327	501
Federal government	76	.	..	3	81	160
Provincial governments	.	..	..	0 ^s	7	7
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	.	..	77	39	117
Higher education	.	.	.	.	170	170
Private non-profit organizations	.	.	.	.	29	29
Foreign	.	.	..	18	0 ^s	18
2006 † Total sciences						
Total	73	6	..	92	317	488
Federal government	72	.	..	3	82	158
Provincial governments	.	6	..	1	5	12
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	.	..	66	35	102
Higher education	.	.	.	.	171	171
Private non-profit organizations	.	.	.	.	22	22
Foreign	.	.	..	22	1	22
2005 † Total sciences						
Total	66	6	..	97	297	466
Federal government	65	.	..	5	80	150
Provincial governments	.	6	..	1	6	13
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	.	..	68	31	99
Higher education	.	.	.	.	158	158
Private non-profit organizations	.	.	.	.	22	22
Foreign	.	.	..	23	0	23
2004 † Total sciences						
Total	81	6	..	94	266	447
Federal government	80	.	..	4	73	157
Provincial governments	.	6	..	1	8	15
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	.	..	58	23	82
Higher education	.	.	.	.	141	141
Private non-profit organizations	.	.	.	.	22	22
Foreign	.	.	..	31	0	31
2003 † Total sciences						
Total	66	6	..	78	259	409
Federal government	64	.	..	6	60	131
Provincial governments	.	6	..	1	7	14
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	.	..	47	21	70
Higher education	.	.	.	.	146	146
Private non-profit organizations	.	.	.	.	24	24
Foreign	.	.	..	24	1	25

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 6-4
Provincial Gross Domestic Expenditures on Research and Development, in the total sciences — New Brunswick

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Total sciences						
Total	46	10	2	112	144	314
Federal government	45	.	0 ^s	4	35	84
Provincial governments	.	10	0 ^s	0 ^s	7	17
Provincial research organizations	.	.	.	.	.	..
Business enterprise	1	.	2	106	6	114
Higher education	.	.	.	.	87	87
Private non-profit organizations	.	.	.	.	9	9
Foreign	.	.	.	2	0 ^s	2
2006 † Total sciences						
Total	30	2	2	104	135	272
Federal government	29	.	0 ^s	2	34	65
Provincial governments	.	2	0 ^s	0 ^s	5	8
Provincial research organizations	.	.	.	.	.	..
Business enterprise	1	.	1	100	5	107
Higher education	.	.	.	.	84	84
Private non-profit organizations	.	.	.	.	7	7
Foreign	.	.	.	2	0 ^s	2
2005 † Total sciences						
Total	26	2	2	99	130	258
Federal government	25	.	0 ^s	3	35	63
Provincial governments	.	2	1	0 ^s	4	7
Provincial research organizations	.	.	.	.	.	0 ^s
Business enterprise	0 ^s	.	1	92	5	99
Higher education	.	.	.	.	80	80
Private non-profit organizations	.	.	.	.	7	7
Foreign	.	.	.	4	0 ^s	4
2004 † Total sciences						
Total	26	2	2	82	114	227
Federal government	26	.	0 ^s	1	30	57
Provincial governments	.	2	1	0 ^s	3	7
Provincial research organizations	.	.	.	.	.	0 ^s
Business enterprise	1	.	1	79	4	85
Higher education	.	.	.	.	70	70
Private non-profit organizations	.	.	.	.	5	5
Foreign	.	.	.	1	0 ^s	2
2003 † Total sciences						
Total	30	2	2	63	118	215
Federal government	30	.	0 ^s	1	30	61
Provincial governments	.	2	1	0 ^s	4	7
Provincial research organizations	.	.	.	.	.	0 ^s
Business enterprise	1	.	1	61	4	66
Higher education	.	.	.	.	72	72
Private non-profit organizations	.	.	.	.	7	7
Foreign	.	.	.	1	0 ^s	1

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 6-5
Provincial Gross Domestic Expenditures on Research and Development, in the total sciences — Quebec

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Total sciences						
Total	410	81	9	4,714	2,610	7,824
Federal government	399	.	0 ^s	101	772	1,272
Provincial governments	1	81	4	40	255	382
Provincial research organizations	.	.	..	.	.	..
Business enterprise	10	0	4	3,923	224	4,161
Higher education	.	.	.	.	1,155	1,155
Private non-profit organizations	.	.	.	.	185	185
Foreign	.	.	0 ^s	650	19	669
2006 r Total sciences						
Total	457	77	8	4,570	2,541	7,653
Federal government	449	.	0 ^s	97	678	1,223
Provincial governments	1	77	5	64	229	377
Provincial research organizations	.	.	..	.	.	..
Business enterprise	8	0	2	3,925	227	4,161
Higher education	.	.	.	.	1,200	1,200
Private non-profit organizations	.	.	.	.	179	179
Foreign	.	.	0 ^s	485	28	513
2005 r Total sciences						
Total	451	75	10	4,168	2,556	7,260
Federal government	441	.	0 ^s	99	703	1,243
Provincial governments	1	75	7	45	260	388
Provincial research organizations	.	.	0	.	.	0
Business enterprise	9	0	3	3,542	227	3,782
Higher education	.	.	.	.	1,180	1,180
Private non-profit organizations	.	.	.	.	158	158
Foreign	.	.	0 ^s	482	28	510
2004 r Total sciences						
Total	368	68	14	4,323	2,467	7,240
Federal government	360	.	0 ^s	101	650	1,111
Provincial governments	1	68	10	34	318	430
Provincial research organizations	.	.	0	.	.	0
Business enterprise	7	0	4	3,718	192	3,921
Higher education	.	.	.	.	1,129	1,129
Private non-profit organizations	.	.	.	.	160	160
Foreign	.	.	0 ^s	469	19	488
2003 r Total sciences						
Total	364	68	15	4,174	2,345	6,965
Federal government	356	.	0 ^s	97	646	1,099
Provincial governments	1	68	10	35	333	447
Provincial research organizations	.	.	0	.	.	0
Business enterprise	7	0	5	3,591	187	3,789
Higher education	.	.	.	.	998	998
Private non-profit organizations	.	.	.	.	165	165
Foreign	.	.	0 ^s	451	16	467

Note(s): Components may not add to totals due to rounding. **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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D. Data for the National Capital Region (NCR) are now available in Appendix 1 at the end of this publication.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 6-6
Provincial Gross Domestic Expenditures on Research and Development, in the total sciences — Ontario

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Total sciences						
Total	1,582	57	..	7,648	4,314	13,601
Federal government	1,531	0	..	95	1,093	2,719
Provincial governments	6	57	..	19	351	432
Provincial research organizations	.	.	..	.	.	..
Business enterprise	45	0	..	6,272	432	6,748
Higher education	.	.	.	.	1,983	1,983
Private non-profit organizations	.	.	.	.	399	399
Foreign	.	.	..	1,262	56	1,319
2006 r Total sciences						
Total	1,506	70	..	7,968	4,088	13,632
Federal government	1,462	0	..	95	1,003	2,560
Provincial governments	5	70	..	29	421	526
Provincial research organizations	.	.	..	.	.	..
Business enterprise	39	0	..	6,587	373	6,999
Higher education	.	.	.	.	1,864	1,864
Private non-profit organizations	.	.	.	.	357	357
Foreign	.	.	..	1,257	69	1,327
2005 r Total sciences						
Total	1,435	44	..	8,205	3,980	13,665
Federal government	1,383	0	..	141	997	2,521
Provincial governments	7	44	..	26	402	479
Provincial research organizations	.	.	..	.	.	0
Business enterprise	46	0	..	6,723	378	7,146
Higher education	.	.	.	.	1,794	1,794
Private non-profit organizations	.	.	.	.	342	342
Foreign	.	.	..	1,316	67	1,382
2004 r Total sciences						
Total	1,241	46	..	7,833	3,835	12,955
Federal government	1,203	0	..	106	914	2,223
Provincial governments	5	46	..	6	391	448
Provincial research organizations	.	.	..	.	.	0
Business enterprise	33	0	..	6,390	394	6,817
Higher education	.	.	.	.	1,791	1,791
Private non-profit organizations	.	.	.	.	283	283
Foreign	.	.	..	1,332	62	1,394
2003 r Total sciences						
Total	1,301	48	..	7,447	3,187	11,983
Federal government	1,260	0	..	136	826	2,222
Provincial governments	6	48	..	4	357	415
Provincial research organizations	.	.	..	.	.	0
Business enterprise	34	0	..	6,044	294	6,372
Higher education	.	.	.	.	1,423	1,423
Private non-profit organizations	.	.	.	.	243	243
Foreign	.	.	..	1,263	43	1,307

Note(s): Components may not add to totals due to rounding. **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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D. Data for the National Capital Region (NCR) are now available in Appendix 1 at the end of this publication.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 6-7
Provincial Gross Domestic Expenditures on Research and Development, in the total sciences — Manitoba

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Total sciences						
Total	85	6	..	193	302	585
Federal government	84	.	.	2	77	163
Provincial governments	0 ^s	6	..	1	19	26
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	.	..	164	20	185
Higher education	.	.	.	.	142	142
Private non-profit organizations	.	.	.	.	37	37
Foreign	.	.	.	25	7	32
2006 r Total sciences						
Total	81	6	..	175	287	549
Federal government	80	.	.	1	70	150
Provincial governments	0 ^s	6	..	1	19	26
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	.	..	162	21	184
Higher education	.	.	.	.	136	136
Private non-profit organizations	.	.	.	.	38	38
Foreign	.	.	.	12	4	16
2005 r Total sciences						
Total	83	4	..	200	294	582
Federal government	81	.	.	4	72	157
Provincial governments	0 ^s	4	..	1	15	21
Provincial research organizations	.	.	..	.	.	0
Business enterprise	2	.	..	179	19	200
Higher education	.	.	.	.	149	149
Private non-profit organizations	.	.	.	.	38	38
Foreign	.	.	.	17	2	18
2004 r Total sciences						
Total	73	4	..	182	260	519
Federal government	71	.	.	4	72	146
Provincial governments	0 ^s	4	..	1	19	25
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	.	..	164	16	181
Higher education	.	.	.	.	123	123
Private non-profit organizations	.	.	.	.	29	29
Foreign	.	.	.	13	2	15
2003 r Total sciences						
Total	63	4	..	150	239	455
Federal government	62	.	.	7	62	131
Provincial governments	0 ^s	4	..	3	16	22
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	.	..	133	19	153
Higher education	.	.	.	.	114	114
Private non-profit organizations	.	.	.	.	25	25
Foreign	.	.	.	7	2	9

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 6-8
Provincial Gross Domestic Expenditures on Research and Development, in the total sciences — Saskatchewan

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Total sciences						
Total	63	..	11	136	230	441
Federal government	62	.	0 ^s	6	68	136
Provincial governments	0 ^s	..	4	2	22	28
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	.	7	110	10	127
Higher education	.	.	.	.	117	117
Private non-profit organizations	.	.	.	.	13	13
Foreign	.	.	0 ^s	19	1	20
2006 † Total sciences						
Total	67	4	12	168	216	466
Federal government	66	.	1	4	53	123
Provincial governments	0 ^s	4	4	1	29	38
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	.	6	147	8	163
Higher education	.	.	.	.	114	114
Private non-profit organizations	.	.	.	.	12	12
Foreign	.	.	0 ^s	16	1	17
2005 † Total sciences						
Total	68	4	11	153	218	454
Federal government	67	.	1	4	54	126
Provincial governments	0 ^s	4	4	2	20	30
Provincial research organizations	.	.	0	.	.	0
Business enterprise	1	.	6	134	13	155
Higher education	.	.	.	.	116	116
Private non-profit organizations	.	.	.	.	14	14
Foreign	.	.	0 ^s	13	0 ^s	13
2004 † Total sciences						
Total	54	4	9	113	245	425
Federal government	53	.	1	5	65	123
Provincial governments	0 ^s	4	3	2	27	36
Provincial research organizations	.	.	0	.	.	0
Business enterprise	1	.	5	99	18	123
Higher education	.	.	.	.	122	122
Private non-profit organizations	.	.	.	.	12	12
Foreign	.	.	0 ^s	7	0 ^s	7
2003 † Total sciences						
Total	54	4	7	88	245	398
Federal government	53	.	1	3	64	121
Provincial governments	0 ^s	4	3	2	30	39
Provincial research organizations	.	.	0 ^s	.	.	0 ^s
Business enterprise	1	.	3	76	18	98
Higher education	.	.	.	.	121	121
Private non-profit organizations	.	.	.	.	12	12
Foreign	.	.	0 ^s	7	1	7

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 6-9
Provincial Gross Domestic Expenditures on Research and Development, in the total sciences — Alberta

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Total sciences						
Total	116	141	..	1,142	1,004	2,403
Federal government	114	2	..	9	224	350
Provincial governments	0 ^s	101	..	5	231	336
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	38	..	1,058	81	1,178
Higher education	.	.	..	.	400	400
Private non-profit organizations	.	.	..	.	63	63
Foreign	.	..	..	70	4	75
2006 † Total sciences						
Total	133	125	..	1,226	919	2,402
Federal government	132	4	..	13	223	372
Provincial governments	0 ^s	88	..	3	173	264
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	33	..	1,131	77	1,242
Higher education	.	.	..	.	383	383
Private non-profit organizations	.	.	..	.	57	57
Foreign	.	..	..	78	6	84
2005 † Total sciences						
Total	130	122	..	1,210	962	2,423
Federal government	128	4	..	21	252	405
Provincial governments	0 ^s	89	..	4	183	275
Provincial research organizations	.	.	..	.	.	0
Business enterprise	2	30	..	1,099	63	1,193
Higher education	.	.	..	.	396	396
Private non-profit organizations	.	.	..	.	61	61
Foreign	.	..	..	86	7	93
2004 † Total sciences						
Total	110	114	..	1,139	899	2,262
Federal government	109	2	..	10	206	328
Provincial governments	0 ^s	85	..	4	232	321
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	26	..	1,035	60	1,122
Higher education	.	.	..	.	347	347
Private non-profit organizations	.	.	..	.	49	49
Foreign	.	..	..	90	5	95
2003 † Total sciences						
Total	87	103	..	884	827	1,901
Federal government	86	2	..	12	221	321
Provincial governments	0 ^s	75	..	4	182	262
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	25	..	778	60	864
Higher education	.	.	..	.	314	314
Private non-profit organizations	.	.	..	.	44	44
Foreign	.	..	..	90	6	96

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 6-10
Provincial Gross Domestic Expenditures on Research and Development, in the total sciences — British Columbia

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Total sciences						
Total	108	30	..	1,713	1,083	2,935
Federal government	105	.	..	33	313	451
Provincial governments	0 ^s	30	..	18	134	182
Provincial research organizations	.	.	..	.	.	..
Business enterprise	3	0	..	1,097	46	1,146
Higher education	.	.	.	.	431	431
Private non-profit organizations	.	.	.	.	148	148
Foreign	.	.	.	566	11	577
2006 † Total sciences						
Total	91	18	..	1,583	959	2,651
Federal government	89	.	..	36	296	420
Provincial governments	0 ^s	18	..	10	107	134
Provincial research organizations	.	.	..	.	.	..
Business enterprise	2	0	..	989	47	1,038
Higher education	.	.	.	.	398	398
Private non-profit organizations	.	.	.	.	99	99
Foreign	.	.	.	549	13	562
2005 † Total sciences						
Total	91	18	..	1,537	904	2,550
Federal government	88	.	..	37	294	419
Provincial governments	0 ^s	18	..	11	81	110
Provincial research organizations	.	.	..	.	.	0
Business enterprise	2	0	..	975	44	1,020
Higher education	.	.	.	.	377	377
Private non-profit organizations	.	.	.	.	98	98
Foreign	.	.	.	516	10	525
2004 † Total sciences						
Total	91	16	..	1,432	832	2,371
Federal government	88	.	..	36	284	409
Provincial governments	0 ^s	16	..	10	39	64
Provincial research organizations	.	.	..	.	.	0
Business enterprise	3	0	..	948	32	982
Higher education	.	.	.	.	348	348
Private non-profit organizations	.	.	.	.	121	121
Foreign	.	.	.	439	8	447
2003 † Total sciences						
Total	80	15	..	1,171	785	2,050
Federal government	77	.	..	32	231	340
Provincial governments	0 ^s	15	..	21	88	124
Provincial research organizations	.	.	..	.	.	0
Business enterprise	2	0	..	896	65	963
Higher education	.	.	.	.	320	320
Private non-profit organizations	.	.	.	.	72	72
Foreign	.	.	.	223	7	230

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 6-11
Provincial Gross Domestic Expenditures on Research and Development, in the total sciences — Yukon, Northwest Territories and Nunavut

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Total sciences						
Total	4	.	34	24	.	63
Federal government	4	.	1	0 ^s	.	5
Provincial governments	.	.	1	0 ^s	.	..
Provincial research organizations	.	.	.	.	.	.
Business enterprise	.	.	32	19	.	51
Higher education	.	.	.	.	.	.
Private non-profit organizations	.	.	.	.	.	.
Foreign	.	.	.	5	.	5
2006 † Total sciences						
Total	5	.	..	28	.	33
Federal government	4	.	..	0	.	4
Provincial governments	.	.	..	0 ^s	.	..
Provincial research organizations	.	.	.	.	.	.
Business enterprise	.	.	..	23	.	23
Higher education	.	.	.	.	.	.
Private non-profit organizations	.	.	.	.	.	.
Foreign	.	.	.	6	.	6
2005 † Total sciences						
Total	9	.	..	10	.	19
Federal government	9	.	..	0 ^s	.	9
Provincial governments	.	.	..	0	.	..
Provincial research organizations	.	.	.	.	.	.
Business enterprise	.	.	..	10	.	10
Higher education	.	.	.	.	.	.
Private non-profit organizations	.	.	.	.	.	.
Foreign	.	.	.	0 ^s	.	0 ^s
2004 † Total sciences						
Total	6	.	..	13	.	19
Federal government	5	.	..	0 ^s	.	5
Provincial governments	.	.	..	0	.	..
Provincial research organizations	.	.	.	.	.	.
Business enterprise	.	.	..	13	.	13
Higher education	.	.	.	.	.	.
Private non-profit organizations	.	.	.	.	.	.
Foreign	.	.	.	0 ^s	.	0 ^s
2003 † Total sciences						
Total	5	.	..	1	.	6
Federal government	5	.	..	0	.	5
Provincial governments	.	.	..	0	.	..
Provincial research organizations	.	.	.	.	.	.
Business enterprise	.	.	..	1	.	1
Higher education	.	.	.	.	.	.
Private non-profit organizations	.	.	.	.	.	.
Foreign	.	.	.	0 ^s	.	0 ^s

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 7
National Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering, Canada

Funding sector	Performing sector						Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	Private non-profit organizations	
millions of dollars							
2009^p Natural sciences							
Total	2,499	333	40	16,146	8,305	179	27,503
Federal government	2,426	3	2	267	2,323	46	5,067
Provincial governments	9	287	10	86	845	28	1,263
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	65	44	28	13,131	852	15	14,134
Higher education	.	.	.	.	3,443	.	3,443
Private non-profit organizations	.	.	.	.	741	72	813
Foreign	.	..	1	2,663	101	18	2,783
2008^p Natural sciences							
Total	2,422	331	40	15,980	8,223	174	27,170
Federal government	2,343	3	2	265	2,300	45	4,956
Provincial governments	9	284	10	85	837	27	1,251
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	70	45	28	12,995	844	15	13,997
Higher education	.	.	.	.	3,409	.	3,409
Private non-profit organizations	.	.	.	.	734	70	804
Foreign	.	..	1	2,636	100	18	2,754
2007 Natural sciences							
Total	2,360	296	57	15,882	8,125	169	26,889
Federal government	2,287	2	2	263	2,272	43	4,870
Provincial governments	9	256	10	84	827	26	1,212
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	64	38	44	12,915	834	14	13,909
Higher education	.	.	.	.	3,368	.	3,368
Private non-profit organizations	.	.	.	.	725	68	793
Foreign	.	..	1	2,619	99	17	2,736
2006^r Natural sciences							
Total	2,340	280	22	16,021	7,714	109	26,486
Federal government	2,278	4	1	258	2,086	33	4,661
Provincial governments	7	243	10	110	794	8	1,172
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	55	33	10	13,224	775	14	14,111
Higher education	.	.	.	.	3,302	.	3,302
Private non-profit organizations	.	.	.	.	631	48	679
Foreign	.	..	0 ^s	2,429	126	6	2,561
2005^r Natural sciences							
Total	2,289	252	23	15,774	7,627	106	26,072
Federal government	2,217	4	1	323	2,126	35	4,705
Provincial governments	9	219	12	90	779	10	1,118
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	64	30	10	12,902	774	10	13,789
Higher education	.	.	.	.	3,229	.	3,229
Private non-profit organizations	.	.	.	.	603	31	634
Foreign	.	..	0 ^s	2,460	116	17	2,593
2004^r Natural sciences							
Total	1,965	241	25	15,249	7,280	98	24,857
Federal government	1,909	2	1	271	1,960	11	4,154
Provincial governments	7	212	14	59	831	14	1,137
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	49	26	10	12,529	728	12	13,354
Higher education	.	.	.	.	3,110	.	3,110
Private non-profit organizations	.	.	.	.	556	48	604
Foreign	.	..	0 ^s	2,390	96	13	2,499

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 7 – continued

National Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering, Canada

Funding sector	Performing sector						Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	Private non-profit organizations	
millions of dollars							
2003 † Natural sciences							
Total	1,963	229	24	14,095	6,544	87	22,942
Federal government	1,907	2	1	299	1,846	14	4,070
Provincial governments	8	202	14	70	814	15	1,124
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	48	25	9	11,652	654	13	12,402
Higher education	.	.	.	.	2,669	.	2,669
Private non-profit organizations	.	.	.	.	485	37	523
Foreign	.	..	0 ^s	2,073	76	8	2,158
2002 † Natural sciences							
Total	2,073	236	26	13,545	6,041	59	21,979
Federal government	2,007	2	1	300	1,588	5	3,904
Provincial governments	11	205	15	53	663	19	966
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	55	29	9	11,370	619	11	12,093
Higher education	.	.	.	.	2,577	.	2,577
Private non-profit organizations	.	.	.	.	493	23	516
Foreign	.	..	1	1,822	101	1	1,924
2001 † Natural sciences							
Total	2,010	234	23	14,266	5,150	59	21,742
Federal government	1,951	0	1	457	1,356	6	3,771
Provincial governments	6	203	12	51	570	18	860
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	53	31	9	10,930	578	9	11,617
Higher education	.	.	.	.	2,150	.	2,150
Private non-profit organizations	.	.	.	.	412	25	436
Foreign	.	..	1	2,828	84	1	2,915
2000 † Natural sciences							
Total	1,995	146	66	12,395	4,591	55	19,248
Federal government	1,938	0	2	239	1,106	3	3,288
Provincial governments	3	146	38	45	470	15	717
Provincial research organizations	.	.	1	.	.	.	1
Business enterprise	54	0	18	8,587	531	10	9,200
Higher education	.	.	.	.	2,092	.	2,092
Private non-profit organizations	.	.	.	.	342	26	367
Foreign	.	..	7	3,524	50	1	3,582
1999 † Natural sciences							
Total	1,774	160	60	10,399	4,020	54	16,468
Federal government	1,729	0	1	309	943	7	2,989
Provincial governments	4	160	34	57	386	13	654
Provincial research organizations	.	.	3	.	.	.	3
Business enterprise	41	0	19	7,390	440	6	7,896
Higher education	.	.	.	.	1,909	.	1,909
Private non-profit organizations	.	.	.	.	285	26	311
Foreign	.	..	3	2,642	57	2	2,704
1998 † Natural sciences							
Total	1,667	139	61	9,682	3,466	68	15,083
Federal government	1,615	0	3	262	751	10	2,641
Provincial governments	4	139	34	56	297	17	548
Provincial research organizations	.	.	0 ^s	.	.	.	0 ^s
Business enterprise	49	0	21	6,865	393	8	7,336
Higher education	.	.	.	.	1,697	.	1,697
Private non-profit organizations	.	.	.	.	278	32	310
Foreign	.	..	3	2,499	50	1	2,552

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Table 8-1
Provincial Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering
— Newfoundland and Labrador

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Natural sciences						
Total	28	4	..	90	104	226
Federal government	27	.	.	8	35	70
Provincial governments	0 ^s	4	.	0 ^s	5	9
Provincial research organizations	.	.	.	.	.	..
Business enterprise	1	.	.	80	12	92
Higher education	.	.	.	.	50	50
Private non-profit organizations	.	.	.	.	2	2
Foreign	.	.	.	2	1	2
2006 r Natural sciences						
Total	27	4	..	96	101	228
Federal government	27	.	.	8	31	65
Provincial governments	0 ^s	4	.	0 ^s	2	6
Provincial research organizations	.	.	.	.	.	..
Business enterprise	1	.	.	85	15	100
Higher education	.	.	.	.	49	49
Private non-profit organizations	.	.	.	.	1	1
Foreign	.	.	.	3	4	7
2005 r Natural sciences						
Total	28	5	..	86	117	235
Federal government	27	.	.	8	35	71
Provincial governments	0 ^s	5	.	1	1	7
Provincial research organizations	.	.	.	.	.	0
Business enterprise	1	.	.	74	23	97
Higher education	.	.	.	.	55	55
Private non-profit organizations	.	.	.	.	1	1
Foreign	.	.	.	3	2	5
2004 r Natural sciences						
Total	23	5	..	30	89	147
Federal government	22	.	.	3	28	53
Provincial governments	0 ^s	5	.	1	1	7
Provincial research organizations	.	.	.	.	.	0
Business enterprise	1	.	.	19	16	36
Higher education	.	.	.	.	43	43
Private non-profit organizations	.	.	.	.	1	1
Foreign	.	.	.	7	0	7
2003 r Natural sciences						
Total	23	5	..	31	85	144
Federal government	22	.	.	3	29	53
Provincial governments	0 ^s	5	.	1	1	6
Provincial research organizations	.	.	.	.	.	0
Business enterprise	1	.	.	21	10	31
Higher education	.	.	.	.	44	44
Private non-profit organizations	.	.	.	.	1	1
Foreign	.	.	.	6	0	6

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 8-2
Provincial Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering
— Prince Edward Island

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Natural sciences						
Total	13	..	..	11	25	49
Federal government	13	..	.	1	9	23
Provincial governments	.	..	.	0 ^s	1	1
Provincial research organizations	.	..	.	.	.	..
Business enterprise	0 ^s	..	.	10	1	11
Higher education	.	.	.	.	13	13
Private non-profit organizations	.	.	.	.	0	0
Foreign	.	.	.	0 ^s	.	0 ^s
2006 r Natural sciences						
Total	26	..	..	11	22	59
Federal government	25	..	.	1	7	33
Provincial governments	.	..	.	0 ^s	1	1
Provincial research organizations	.	..	.	.	.	..
Business enterprise	0 ^s	..	.	10	1	11
Higher education	.	.	.	.	13	13
Private non-profit organizations	.	.	.	.	1	1
Foreign	.	.	.	0 ^s	.	0 ^s
2005 r Natural sciences						
Total	28	..	..	11	20	58
Federal government	27	..	.	1	7	36
Provincial governments	.	..	.	0 ^s	0 ^s	1
Provincial research organizations	.	..	.	.	.	0
Business enterprise	1	..	.	7	0 ^s	8
Higher education	.	.	.	.	12	12
Private non-profit organizations	.	.	.	.	0 ^s	0 ^s
Foreign	.	.	.	2	.	2
2004 r Natural sciences						
Total	10	..	..	7	17	34
Federal government	10	..	.	1	6	17
Provincial governments	.	..	.	0 ^s	0 ^s	1
Provincial research organizations	.	..	.	.	.	0
Business enterprise	0 ^s	..	.	6	1	6
Higher education	.	.	.	.	10	10
Private non-profit organizations	.	.	.	.	0 ^s	0 ^s
Foreign	.	.	.	0 ^s	.	0 ^s
2003 r Natural sciences						
Total	12	..	..	7	18	37
Federal government	12	..	.	2	5	19
Provincial governments	.	..	.	0 ^s	0 ^s	1
Provincial research organizations	.	..	.	.	.	0
Business enterprise	0 ^s	..	.	5	0	5
Higher education	.	.	.	.	12	12
Private non-profit organizations	.	.	.	.	1	1
Foreign	.	.	.	0 ^s	.	0 ^s

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 8-3
Provincial Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering — Nova Scotia

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Natural sciences						
Total	77	..	..	98	250	424
Federal government	75	.	..	3	65	144
Provincial governments	.	..	..	0 ^s	6	6
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	.	..	77	38	116
Higher education	.	.	.	.	114	114
Private non-profit organizations	.	.	.	.	26	26
Foreign	.	.	..	18	0 ^s	18
2006 r Natural sciences						
Total	73	6	..	92	246	417
Federal government	72	.	..	3	68	144
Provincial governments	.	6	..	1	4	11
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	.	..	66	35	102
Higher education	.	.	.	.	117	117
Private non-profit organizations	.	.	.	.	21	21
Foreign	.	.	..	22	1	22
2005 r Natural sciences						
Total	66	6	..	97	226	394
Federal government	65	.	..	5	64	134
Provincial governments	.	6	..	1	5	11
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	.	..	68	30	99
Higher education	.	.	.	.	105	105
Private non-profit organizations	.	.	.	.	21	21
Foreign	.	.	..	23	0	23
2004 r Natural sciences						
Total	81	6	..	94	202	383
Federal government	80	.	..	4	60	144
Provincial governments	.	6	..	1	6	14
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	.	..	58	22	81
Higher education	.	.	.	.	93	93
Private non-profit organizations	.	.	.	.	21	21
Foreign	.	.	..	31	0	31
2003 r Natural sciences						
Total	65	6	..	78	201	350
Federal government	64	.	..	6	50	120
Provincial governments	.	6	..	1	5	12
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	.	..	47	21	69
Higher education	.	.	.	.	101	101
Private non-profit organizations	.	.	.	.	23	23
Foreign	.	.	..	24	1	25

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 8-4
Provincial Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering
— New Brunswick

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Natural sciences						
Total	46	8	2	112	99	268
Federal government	45	.	0 ^s	4	26	76
Provincial governments	.	8	0 ^s	0 ^s	6	14
Provincial research organizations	.	.	.	.	.	..
Business enterprise	1	.	2	106	6	114
Higher education	.	.	.	.	52	52
Private non-profit organizations	.	.	.	.	9	9
Foreign	.	.	.	2	0 ^s	2
2006 r Natural sciences						
Total	30	2	2	104	91	228
Federal government	29	.	0 ^s	2	26	57
Provincial governments	.	2	0 ^s	0 ^s	4	6
Provincial research organizations	.	.	.	.	.	..
Business enterprise	1	.	1	100	5	107
Higher education	.	.	.	.	49	49
Private non-profit organizations	.	.	.	.	7	7
Foreign	.	.	.	2	0 ^s	2
2005 r Natural sciences						
Total	26	2	2	99	84	213
Federal government	25	.	0 ^s	3	24	53
Provincial governments	.	2	1	0 ^s	3	6
Provincial research organizations	.	.	.	.	.	0 ^s
Business enterprise	0 ^s	.	1	92	5	99
Higher education	.	.	.	.	46	46
Private non-profit organizations	.	.	.	.	6	6
Foreign	.	.	.	4	0 ^s	4
2004 r Natural sciences						
Total	26	2	2	82	74	186
Federal government	26	.	0 ^s	1	22	49
Provincial governments	.	2	1	0 ^s	3	6
Provincial research organizations	.	.	.	.	.	0 ^s
Business enterprise	1	.	1	79	4	85
Higher education	.	.	.	.	40	40
Private non-profit organizations	.	.	.	.	5	5
Foreign	.	.	.	1	0 ^s	2
2003 r Natural sciences						
Total	30	2	2	63	80	177
Federal government	30	.	0 ^s	1	23	54
Provincial governments	.	2	1	0 ^s	3	6
Provincial research organizations	.	.	.	.	.	0 ^s
Business enterprise	1	.	1	61	4	66
Higher education	.	.	.	.	43	43
Private non-profit organizations	.	.	.	.	7	7
Foreign	.	.	.	1	0 ^s	1

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 8-5
Provincial Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering — Quebec

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Natural sciences						
Total	399	59	9	4,714	2,093	7,275
Federal government	388	.	0 ^s	101	645	1,135
Provincial governments	1	59	4	40	204	309
Provincial research organizations	.	.	..	.	.	..
Business enterprise	10	0	4	3,923	210	4,147
Higher education	.	.	.	.	872	872
Private non-profit organizations	.	.	.	.	143	143
Foreign	.	.	0 ^s	650	19	669
2006 r Natural sciences						
Total	447	54	8	4,570	2,059	7,139
Federal government	438	.	0 ^s	97	580	1,115
Provincial governments	1	54	5	64	184	309
Provincial research organizations	.	.	..	.	.	..
Business enterprise	8	0	2	3,925	213	4,148
Higher education	.	.	.	.	917	917
Private non-profit organizations	.	.	.	.	138	138
Foreign	.	.	0 ^s	485	28	513
2005 r Natural sciences						
Total	439	54	10	4,168	2,064	6,736
Federal government	429	.	0 ^s	99	603	1,131
Provincial governments	1	54	7	45	208	315
Provincial research organizations	.	.	0	.	.	0
Business enterprise	9	0	3	3,542	214	3,768
Higher education	.	.	.	.	890	890
Private non-profit organizations	.	.	.	.	121	121
Foreign	.	.	0 ^s	482	28	510
2004 r Natural sciences						
Total	358	50	14	4,323	1,981	6,727
Federal government	350	.	0 ^s	101	556	1,007
Provincial governments	1	50	10	34	254	349
Provincial research organizations	.	.	0	.	.	0
Business enterprise	7	0	4	3,718	180	3,910
Higher education	.	.	.	.	850	850
Private non-profit organizations	.	.	.	.	122	122
Foreign	.	.	0 ^s	469	19	488
2003 r Natural sciences						
Total	353	50	15	4,174	1,891	6,484
Federal government	345	.	0 ^s	97	555	998
Provincial governments	1	50	10	35	266	363
Provincial research organizations	.	.	0	.	.	0
Business enterprise	7	0	5	3,591	176	3,778
Higher education	.	.	.	.	748	748
Private non-profit organizations	.	.	.	.	130	130
Foreign	.	.	0 ^s	451	16	467

Note(s): Components may not add to totals due to rounding. **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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D. Data for the National Capital Region (NCR) are now available in Appendix 1 at the end of this publication.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 8-6
Provincial Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering – Ontario

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Natural sciences						
Total	1,422	52	..	7,648	3,473	12,595
Federal government	1,371	0	..	95	923	2,389
Provincial governments	6	52	..	19	281	357
Provincial research organizations	.	.	..	.	.	..
Business enterprise	45	0	..	6,272	414	6,731
Higher education	.	.	..	.	1,465	1,465
Private non-profit organizations	.	.	..	.	335	335
Foreign	.	.	..	1,262	56	1,319
2006 r Natural sciences						
Total	1,360	66	..	7,968	3,289	12,684
Federal government	1,316	0	..	95	834	2,245
Provincial governments	5	66	..	29	337	437
Provincial research organizations	.	.	..	.	.	..
Business enterprise	39	0	..	6,587	358	6,984
Higher education	.	.	..	.	1,393	1,393
Private non-profit organizations	.	.	..	.	299	299
Foreign	.	.	..	1,257	69	1,327
2005 r Natural sciences						
Total	1,322	41	..	8,205	3,219	12,787
Federal government	1,270	0	..	141	831	2,242
Provincial governments	7	41	..	26	322	395
Provincial research organizations	.	.	..	.	.	0
Business enterprise	46	0	..	6,723	365	7,133
Higher education	.	.	..	.	1,352	1,352
Private non-profit organizations	.	.	..	.	282	282
Foreign	.	.	..	1,316	67	1,382
2004 r Natural sciences						
Total	1,132	42	..	7,833	3,139	12,146
Federal government	1,095	0	..	106	766	1,967
Provincial governments	5	42	..	6	313	366
Provincial research organizations	.	.	..	.	.	0
Business enterprise	33	0	..	6,390	381	6,804
Higher education	.	.	..	.	1,382	1,382
Private non-profit organizations	.	.	..	.	235	235
Foreign	.	.	..	1,332	62	1,394
2003 r Natural sciences						
Total	1,191	44	..	7,447	2,584	11,267
Federal government	1,150	0	..	136	698	1,984
Provincial governments	6	44	..	4	286	340
Provincial research organizations	.	.	..	.	.	0
Business enterprise	34	0	..	6,044	283	6,362
Higher education	.	.	..	.	1,075	1,075
Private non-profit organizations	.	.	..	.	199	199
Foreign	.	.	..	1,263	43	1,307

Note(s): Components may not add to totals due to rounding. **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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D. Data for the National Capital Region (NCR) are now available in Appendix 1 at the end of this publication.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 8-7
Provincial Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering – Manitoba

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Natural sciences						
Total	85	5	..	193	236	518
Federal government	84	.	.	2	65	151
Provincial governments	0 ^s	5	..	1	15	21
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	.	..	164	19	184
Higher education	.	.	.	.	99	99
Private non-profit organizations	.	.	.	.	31	31
Foreign	.	.	.	25	7	32
2006 r Natural sciences						
Total	81	5	..	175	224	485
Federal government	80	.	.	1	58	138
Provincial governments	0 ^s	5	..	1	15	21
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	.	..	162	20	183
Higher education	.	.	.	.	95	95
Private non-profit organizations	.	.	.	.	32	32
Foreign	.	.	.	12	4	16
2005 r Natural sciences						
Total	83	4	..	200	227	514
Federal government	81	.	.	4	59	144
Provincial governments	0 ^s	4	..	1	12	17
Provincial research organizations	.	.	..	.	.	0
Business enterprise	2	.	..	179	18	199
Higher education	.	.	.	.	105	105
Private non-profit organizations	.	.	.	.	32	32
Foreign	.	.	.	17	2	18
2004 r Natural sciences						
Total	73	3	..	182	201	459
Federal government	71	.	.	4	60	134
Provincial governments	0 ^s	3	..	1	15	20
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	.	..	164	15	180
Higher education	.	.	.	.	85	85
Private non-profit organizations	.	.	.	.	24	24
Foreign	.	.	.	13	2	15
2003 r Natural sciences						
Total	63	3	..	150	185	400
Federal government	62	.	.	7	52	121
Provincial governments	0 ^s	3	..	3	13	18
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	.	..	133	18	152
Higher education	.	.	.	.	79	79
Private non-profit organizations	.	.	.	.	21	21
Foreign	.	.	.	7	2	9

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 8-8
Provincial Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering
— Saskatchewan

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Natural sciences						
Total	63	..	11	136	188	399
Federal government	62	.	0 ^s	6	59	127
Provincial governments	0 ^s	..	4	2	18	24
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	.	7	110	9	127
Higher education	.	.	.	.	88	88
Private non-profit organizations	.	.	.	.	13	13
Foreign	.	.	0 ^s	19	1	20
2006 r Natural sciences						
Total	67	4	12	168	174	424
Federal government	66	.	1	4	46	116
Provincial governments	0 ^s	4	4	1	23	32
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	.	6	147	8	163
Higher education	.	.	.	.	85	85
Private non-profit organizations	.	.	.	.	11	11
Foreign	.	.	0 ^s	16	1	17
2005 r Natural sciences						
Total	68	4	11	153	176	412
Federal government	67	.	1	4	47	119
Provincial governments	0 ^s	4	4	2	16	26
Provincial research organizations	.	.	0	.	.	0
Business enterprise	1	.	6	134	13	155
Higher education	.	.	.	.	86	86
Private non-profit organizations	.	.	.	.	14	14
Foreign	.	.	0 ^s	13	0 ^s	13
2004 r Natural sciences						
Total	54	4	9	113	199	379
Federal government	53	.	1	5	57	116
Provincial governments	0 ^s	4	3	2	22	31
Provincial research organizations	.	.	0	.	.	0
Business enterprise	1	.	5	99	18	123
Higher education	.	.	.	.	89	89
Private non-profit organizations	.	.	.	.	12	12
Foreign	.	.	0 ^s	7	0 ^s	7
2003 r Natural sciences						
Total	54	4	7	88	197	350
Federal government	53	.	1	3	54	112
Provincial governments	0 ^s	4	3	2	24	33
Provincial research organizations	.	.	0 ^s	.	.	0 ^s
Business enterprise	1	.	3	76	17	97
Higher education	.	.	.	.	89	89
Private non-profit organizations	.	.	.	.	11	11
Foreign	.	.	0 ^s	7	1	7

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 8-9
Provincial Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering — Alberta

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Natural sciences						
Total	115	139	..	1,142	809	2,206
Federal government	114	2	..	9	183	308
Provincial governments	0 ^s	99	..	5	185	288
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	38	..	1,058	78	1,176
Higher education	.	.	..	.	306	306
Private non-profit organizations	.	.	..	.	53	53
Foreign	.	..	..	70	4	75
2006 r Natural sciences						
Total	133	124	..	1,226	758	2,241
Federal government	132	4	..	13	189	338
Provincial governments	0 ^s	87	..	3	138	229
Provincial research organizations	.	.	..	.	.	..
Business enterprise	1	33	..	1,131	75	1,240
Higher education	.	.	..	.	302	302
Private non-profit organizations	.	.	..	.	48	48
Foreign	.	..	..	78	6	84
2005 r Natural sciences						
Total	130	122	..	1,210	786	2,247
Federal government	128	4	..	21	209	362
Provincial governments	0 ^s	89	..	4	146	239
Provincial research organizations	.	.	..	.	.	0
Business enterprise	2	30	..	1,099	62	1,192
Higher education	.	.	..	.	311	311
Private non-profit organizations	.	.	..	.	51	51
Foreign	.	..	..	86	7	93
2004 r Natural sciences						
Total	110	114	..	1,139	729	2,092
Federal government	109	2	..	10	168	290
Provincial governments	0 ^s	85	..	4	186	275
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	26	..	1,035	59	1,121
Higher education	.	.	..	.	270	270
Private non-profit organizations	.	.	..	.	41	41
Foreign	.	..	..	90	5	95
2003 r Natural sciences						
Total	87	101	..	884	683	1,756
Federal government	86	2	..	12	186	286
Provincial governments	0 ^s	74	..	4	146	224
Provincial research organizations	.	.	..	.	.	0
Business enterprise	1	25	..	778	59	863
Higher education	.	.	..	.	250	250
Private non-profit organizations	.	.	..	.	36	36
Foreign	.	..	..	90	6	96

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 8-10
Provincial Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering
— British Columbia

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Natural sciences						
Total	107	30	..	1,713	848	2,698
Federal government	104	.	..	33	262	399
Provincial governments	0 ^s	30	..	18	107	155
Provincial research organizations	.	.	..	.	.	..
Business enterprise	3	0	..	1,097	46	1,145
Higher education	.	.	.	.	310	310
Private non-profit organizations	.	.	.	.	113	113
Foreign	.	.	.	566	11	577
2006 r Natural sciences						
Total	91	15	..	1,583	749	2,439
Federal government	89	.	..	36	247	372
Provincial governments	0 ^s	15	..	10	85	111
Provincial research organizations	.	.	..	.	.	..
Business enterprise	2	0	..	989	46	1,037
Higher education	.	.	.	.	284	284
Private non-profit organizations	.	.	.	.	73	73
Foreign	.	.	.	549	13	562
2005 r Natural sciences						
Total	91	15	..	1,537	707	2,351
Federal government	88	.	..	37	245	370
Provincial governments	0 ^s	15	..	11	65	92
Provincial research organizations	.	.	..	.	.	0
Business enterprise	2	0	..	975	43	1,020
Higher education	.	.	.	.	269	269
Private non-profit organizations	.	.	.	.	75	75
Foreign	.	.	.	516	10	525
2004 r Natural sciences						
Total	91	15	..	1,432	648	2,187
Federal government	88	.	..	36	237	362
Provincial governments	0 ^s	15	..	10	31	56
Provincial research organizations	.	.	..	.	.	0
Business enterprise	3	0	..	948	31	981
Higher education	.	.	.	.	247	247
Private non-profit organizations	.	.	.	.	94	94
Foreign	.	.	.	439	8	447
2003 r Natural sciences						
Total	80	14	..	1,171	620	1,885
Federal government	77	.	..	32	194	303
Provincial governments	0 ^s	14	..	21	70	105
Provincial research organizations	.	.	..	.	.	0
Business enterprise	2	0	..	896	65	962
Higher education	.	.	.	.	228	228
Private non-profit organizations	.	.	.	.	56	56
Foreign	.	.	.	223	7	230

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 8-11
Provincial Gross Domestic Expenditures on Research and Development, in the natural sciences and engineering — Yukon, Northwest Territories and Nunavut

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Natural sciences						
Total	4	.	34	24	.	63
Federal government	4	.	1	0 ^s	.	5
Provincial governments	.	.	1	0 ^s	.	..
Provincial research organizations	.	.	.	.	.	.
Business enterprise	.	.	32	19	.	51
Higher education	.	.	.	.	.	.
Private non-profit organizations	.	.	.	.	.	.
Foreign	.	.	.	5	.	5
2006 r Natural sciences						
Total	5	.	..	28	.	33
Federal government	4	.	..	0	.	4
Provincial governments	.	.	..	0 ^s	.	..
Provincial research organizations	.	.	.	.	.	.
Business enterprise	.	.	..	23	.	23
Higher education	.	.	.	.	.	.
Private non-profit organizations	.	.	.	.	.	.
Foreign	.	.	.	6	.	6
2005 r Natural sciences						
Total	9	.	..	10	.	19
Federal government	9	.	..	0 ^s	.	9
Provincial governments	.	.	..	0	.	..
Provincial research organizations	.	.	.	.	.	.
Business enterprise	.	.	..	10	.	10
Higher education	.	.	.	.	.	.
Private non-profit organizations	.	.	.	.	.	.
Foreign	.	.	.	0 ^s	.	0 ^s
2004 r Natural sciences						
Total	6	.	..	13	.	19
Federal government	5	.	..	0 ^s	.	5
Provincial governments	.	.	..	0	.	..
Provincial research organizations	.	.	.	.	.	.
Business enterprise	.	.	..	13	.	13
Higher education	.	.	.	.	.	.
Private non-profit organizations	.	.	.	.	.	.
Foreign	.	.	.	0 ^s	.	0 ^s
2003 r Natural sciences						
Total	5	.	..	1	.	6
Federal government	5	.	..	0	.	5
Provincial governments	.	.	..	0	.	..
Provincial research organizations	.	.	.	.	.	.
Business enterprise	.	.	..	1	.	1
Higher education	.	.	.	.	.	.
Private non-profit organizations	.	.	.	.	.	.
Foreign	.	.	.	0 ^s	.	0 ^s

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 9
National Gross Domestic Expenditures on Research and Development, in the social sciences and humanities, Canada

Funding sector	Performing sector						Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	Private non-profit organizations	
millions of dollars							
2009 p Social sciences							
Total	193	36	..	..	2,108	14	2,351
Federal government	193	..	..	..	458	1	652
Provincial governments	0	36	..	..	211	2	249
Provincial research organizations	..	..	..	..	..	..	..
Business enterprise	..	..	..	..	37	0 ^s	38
Higher education	..	..	..	..	1,233	..	1,233
Private non-profit organizations	..	..	..	..	169	11	180
Foreign	..	..	..	..	..	0 ^s	0 ^s
2008 p Social sciences							
Total	183	34	..	..	2,087	14	2,318
Federal government	183	..	..	..	453	1	638
Provincial governments	0	34	..	..	209	2	245
Provincial research organizations	..	..	..	..	..	..	..
Business enterprise	..	..	..	..	37	0 ^s	37
Higher education	..	..	..	..	1,220	..	1,220
Private non-profit organizations	..	..	..	..	167	11	178
Foreign	..	..	..	..	..	0 ^s	0 ^s
2007 Social sciences							
Total	172	34	..	..	2,062	15	2,283
Federal government	172	..	..	..	448	4	623
Provincial governments	0	34	..	..	207	4	244
Provincial research organizations	..	..	..	..	..	..	..
Business enterprise	..	..	..	..	37	0 ^s	37
Higher education	..	..	..	..	1,206	..	1,206
Private non-profit organizations	..	..	..	..	165	7	171
Foreign	..	..	..	..	..	1	1
2006 r Social sciences							
Total	156	31	..	..	1,911	15	2,113
Federal government	156	..	..	..	401	4	561
Provincial governments	0	31	..	..	199	4	233
Provincial research organizations	..	..	..	..	..	..	..
Business enterprise	..	..	..	..	33	0 ^s	34
Higher education	..	..	..	..	1,133	..	1,133
Private non-profit organizations	..	..	..	..	145	7	151
Foreign	..	..	..	..	..	1	1
2005 r Social sciences							
Total	124	28	..	..	1,891	11	2,054
Federal government	124	..	..	..	416	3	544
Provincial governments	0	28	..	..	195	3	225
Provincial research organizations	..	..	..	..	..	..	..
Business enterprise	..	..	..	..	30	1	30
Higher education	..	..	..	..	1,111	..	1,111
Private non-profit organizations	..	..	..	..	139	4	143
Foreign	..	..	..	..	..	0 ^s	0 ^s
2004 r Social sciences							
Total	118	24	..	..	1,778	5	1,926
Federal government	118	..	..	..	377	1	497
Provincial governments	0	24	..	..	208	1	233
Provincial research organizations	..	..	..	..	..	..	..
Business enterprise	..	..	..	..	27	1	28
Higher education	..	..	..	..	1,037	..	1,037
Private non-profit organizations	..	..	..	..	129	2	131
Foreign	..	..	..	..	..	0 ^s	0 ^s

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 9 – continued

National Gross Domestic Expenditures on Research and Development, in the social sciences and humanities, Canada

Funding sector	Performing sector						Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	Private non-profit organizations	
millions of dollars							
2003 r Social sciences							
Total	120	24	..	..	1,599	5	1,748
Federal government	120	..	..	..	336	1	457
Provincial governments	0	24	..	..	204	2	230
Provincial research organizations	..	..	..	..	..	..	..
Business enterprise	..	..	..	..	25	1	26
Higher education	..	..	..	..	920	..	920
Private non-profit organizations	..	..	..	..	114	1	115
Foreign	..	..	..	..	..	0 ^s	0 ^s
2002 r Social sciences							
Total	117	21	..	..	1,414	4	1,556
Federal government	117	..	..	..	229	1	346
Provincial governments	0	21	..	..	165	1	187
Provincial research organizations	..	..	..	..	..	..	..
Business enterprise	..	..	..	..	24	1	24
Higher education	..	..	..	..	885	..	885
Private non-profit organizations	..	..	..	..	111	1	112
Foreign	..	..	..	..	..	0 ^s	0 ^s
2001 r Social sciences							
Total	93	19	..	..	1,274	4	1,390
Federal government	93	..	..	..	231	0 ^s	324
Provincial governments	0	19	..	..	142	2	163
Provincial research organizations	..	..	..	..	..	..	..
Business enterprise	..	..	..	..	25	1	26
Higher education	..	..	..	..	778	..	778
Private non-profit organizations	..	..	..	..	98	1	99
Foreign	..	..	..	..	..	0 ^s	0 ^s
2000 r Social sciences							
Total	85	17	..	..	1,202	3	1,307
Federal government	85	..	..	..	187	0 ^s	272
Provincial governments	0	17	..	..	117	1	136
Provincial research organizations	..	..	..	..	..	..	..
Business enterprise	..	..	..	..	22	0 ^s	23
Higher education	..	..	..	..	800	..	800
Private non-profit organizations	..	..	..	..	76	1	77
Foreign	..	..	..	..	..	0 ^s	0 ^s
1999 r Social sciences							
Total	85	13	..	..	1,062	9	1,170
Federal government	85	..	..	..	142	0 ^s	227
Provincial governments	0	13	..	..	96	3	112
Provincial research organizations	..	..	..	..	..	..	..
Business enterprise	..	..	..	..	20	0 ^s	21
Higher education	..	..	..	..	740	..	740
Private non-profit organizations	..	..	..	..	64	5	69
Foreign	..	..	..	..	..	1	1
1998 r Social sciences							
Total	76	16	..	..	904	9	1,005
Federal government	76	..	..	..	112	1	189
Provincial governments	0	16	..	..	75	2	93
Provincial research organizations	..	..	..	..	..	..	..
Business enterprise	..	..	..	..	18	1	19
Higher education	..	..	..	..	642	..	642
Private non-profit organizations	..	..	..	..	57	5	62
Foreign	..	..	..	..	..	0 ^s	0 ^s

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 10-1
Provincial Gross Domestic Expenditures on Research and Development, in the social sciences and humanities
— Newfoundland and Labrador

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Social sciences						
Total	..	0 ^s	..	..	36	37
Federal government	10	10
Provincial governments	..	0 ^s	..	..	1	2
Provincial research organizations
Business enterprise
Higher education	21	21
Private non-profit organizations	4	4
Foreign
2006 r Social sciences						
Total	..	0 ^s	..	..	31	31
Federal government	9	9
Provincial governments	..	0 ^s	..	..	0 ^s	1
Provincial research organizations
Business enterprise
Higher education	19	19
Private non-profit organizations	2	2
Foreign
2005 r Social sciences						
Total	..	0	..	..	32	32
Federal government	10	10
Provincial governments	..	0	..	..	0 ^s	0 ^s
Provincial research organizations
Business enterprise
Higher education	21	21
Private non-profit organizations	1	1
Foreign
2004 r Social sciences						
Total	..	0	..	..	27	27
Federal government	7	7
Provincial governments	..	0	..	..	0 ^s	0 ^s
Provincial research organizations
Business enterprise
Higher education	18	18
Private non-profit organizations	2	2
Foreign
2003 r Social sciences						
Total	..	0	..	..	29	29
Federal government	7	7
Provincial governments	..	0	..	..	0 ^s	0 ^s
Provincial research organizations
Business enterprise
Higher education	19	19
Private non-profit organizations	3	3
Foreign

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Table 10-2
Provincial Gross Domestic Expenditures on Research and Development, in the social sciences and humanities
— Prince Edward Island

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Social sciences						
Total	9	9
Federal government	3	3
Provincial governments
Provincial research organizations
Business enterprise
Higher education	5	5
Private non-profit organizations	0	0
Foreign
2006 r Social sciences						
Total	9	9
Federal government	2	2
Provincial governments
Provincial research organizations
Business enterprise
Higher education	5	5
Private non-profit organizations	1	1
Foreign
2005 r Social sciences						
Total	7	7
Federal government	2	2
Provincial governments
Provincial research organizations
Business enterprise
Higher education	5	5
Private non-profit organizations	0 ^s	0 ^s
Foreign
2004 r Social sciences						
Total	7	7
Federal government	2	2
Provincial governments
Provincial research organizations
Business enterprise
Higher education	5	5
Private non-profit organizations	0 ^s	0 ^s
Foreign
2003 r Social sciences						
Total	7	7
Federal government	1	1
Provincial governments
Provincial research organizations
Business enterprise
Higher education	5	5
Private non-profit organizations	1	1
Foreign

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Table 10-3
Provincial Gross Domestic Expenditures on Research and Development, in the social sciences and humanities — Nova Scotia

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Social sciences						
Total	77	77
Federal government	16	16
Provincial governments	1	1
Provincial research organizations
Business enterprise	1	1
Higher education	56	56
Private non-profit organizations	2	3
Foreign
2006 r Social sciences						
Total	71	71
Federal government	14	14
Provincial governments	1	1
Provincial research organizations
Business enterprise	0 ^s	0 ^s
Higher education	54	54
Private non-profit organizations	1	1
Foreign
2005 r Social sciences						
Total	71	71
Federal government	16	16
Provincial governments	1	1
Provincial research organizations
Business enterprise	0 ^s	0 ^s
Higher education	53	53
Private non-profit organizations	1	1
Foreign
2004 r Social sciences						
Total	64	64
Federal government	13	13
Provincial governments	2	2
Provincial research organizations
Business enterprise	1	1
Higher education	48	48
Private non-profit organizations	1	1
Foreign
2003 r Social sciences						
Total	58	58
Federal government	10	10
Provincial governments	2	2
Provincial research organizations
Business enterprise	0 ^s	0 ^s
Higher education	45	45
Private non-profit organizations	1	1
Foreign

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Table 10-4
Provincial Gross Domestic Expenditures on Research and Development, in the social sciences and humanities
— New Brunswick

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Social sciences						
Total	..	2	..	..	45	47
Federal government	8	8
Provincial governments	..	2	..	..	1	3
Provincial research organizations
Business enterprise
Higher education	35	35
Private non-profit organizations
Foreign
2006 r Social sciences						
Total	44	44
Federal government	8	8
Provincial governments	1	1
Provincial research organizations
Business enterprise
Higher education	35	35
Private non-profit organizations
Foreign
2005 r Social sciences						
Total	46	46
Federal government	11	11
Provincial governments	1	1
Provincial research organizations
Business enterprise
Higher education	34	34
Private non-profit organizations
Foreign
2004 r Social sciences						
Total	40	40
Federal government	8	8
Provincial governments	1	1
Provincial research organizations
Business enterprise
Higher education	31	31
Private non-profit organizations
Foreign
2003 r Social sciences						
Total	38	38
Federal government	7	7
Provincial governments	1	1
Provincial research organizations
Business enterprise
Higher education	30	30
Private non-profit organizations
Foreign

Note(s): CComponents may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Table 10-5
Provincial Gross Domestic Expenditures on Research and Development, in the social sciences and humanities — Quebec

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Social sciences						
Total	10	22	..	..	517	550
Federal government	10	..	..	..	126	137
Provincial governments	..	22	..	..	51	73
Provincial research organizations	..	..	..	..	..	..
Business enterprise	..	..	..	..	14	14
Higher education	..	..	..	..	283	283
Private non-profit organizations	..	..	..	..	42	42
Foreign	..	..	..	..	..	..
2006 r Social sciences						
Total	10	22	..	..	481	514
Federal government	10	..	..	..	98	108
Provincial governments	..	22	..	..	46	69
Provincial research organizations	..	..	..	..	..	..
Business enterprise	..	..	..	..	13	13
Higher education	..	..	..	..	284	284
Private non-profit organizations	..	..	..	..	40	40
Foreign	..	..	..	..	..	..
2005 r Social sciences						
Total	12	21	..	..	492	525
Federal government	12	..	..	..	100	112
Provincial governments	..	21	..	..	52	74
Provincial research organizations	..	..	..	..	..	..
Business enterprise	..	..	..	..	14	14
Higher education	..	..	..	..	290	290
Private non-profit organizations	..	..	..	..	37	37
Foreign	..	..	..	..	..	..
2004 r Social sciences						
Total	10	18	..	..	486	514
Federal government	10	..	..	..	94	104
Provincial governments	..	18	..	..	64	82
Provincial research organizations	..	..	..	..	..	..
Business enterprise	..	..	..	..	11	11
Higher education	..	..	..	..	279	279
Private non-profit organizations	..	..	..	..	38	38
Foreign	..	..	..	..	..	..
2003 r Social sciences						
Total	10	17	..	..	454	482
Federal government	10	..	..	..	90	100
Provincial governments	..	17	..	..	67	84
Provincial research organizations	..	..	..	..	..	..
Business enterprise	..	..	..	..	11	11
Higher education	..	..	..	..	250	250
Private non-profit organizations	..	..	..	..	36	36
Foreign	..	..	..	..	..	..

Note(s): Components may not add to totals due to rounding. **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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D. Data for the National Capital Region (NCR) are now available in Appendix 1 at the end of this publication.

Table 10-6
Provincial Gross Domestic Expenditures on Research and Development, in the social sciences and humanities — Ontario

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Social sciences						
Total	160	5	..	..	841	1,006
Federal government	160	..	..	..	170	330
Provincial governments	..	5	..	..	70	75
Provincial research organizations	..	..	..	..	..	..
Business enterprise	..	..	..	..	18	18
Higher education	..	..	..	..	518	518
Private non-profit organizations	..	..	..	..	64	64
Foreign	..	..	..	..	..	..
2006 r Social sciences						
Total	146	4	..	..	799	949
Federal government	146	..	..	..	170	315
Provincial governments	..	4	..	..	84	88
Provincial research organizations	..	..	..	..	..	..
Business enterprise	..	..	..	..	16	16
Higher education	..	..	..	..	471	471
Private non-profit organizations	..	..	..	..	58	58
Foreign	..	..	..	..	..	..
2005 r Social sciences						
Total	113	4	..	..	761	878
Federal government	113	..	..	..	166	279
Provincial governments	..	4	..	..	80	84
Provincial research organizations	..	..	..	..	..	..
Business enterprise	..	..	..	..	13	13
Higher education	..	..	..	..	442	442
Private non-profit organizations	..	..	..	..	60	60
Foreign	..	..	..	..	..	..
2004 r Social sciences						
Total	109	4	..	..	696	809
Federal government	109	..	..	..	148	257
Provincial governments	..	4	..	..	78	82
Provincial research organizations	..	..	..	..	..	..
Business enterprise	..	..	..	..	13	13
Higher education	..	..	..	..	409	409
Private non-profit organizations	..	..	..	..	48	48
Foreign	..	..	..	..	..	..
2003 r Social sciences						
Total	110	4	..	..	603	717
Federal government	110	..	..	..	129	239
Provincial governments	..	4	..	..	71	75
Provincial research organizations	..	..	..	..	..	..
Business enterprise	..	..	..	..	11	11
Higher education	..	..	..	..	348	348
Private non-profit organizations	..	..	..	..	44	44
Foreign	..	..	..	..	..	..

Note(s): Components may not add to totals due to rounding. **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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D. Data for the National Capital Region (NCR) are now available in Appendix 1 at the end of this publication.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 10-7
Provincial Gross Domestic Expenditures on Research and Development, in the social sciences and humanities
— Manitoba

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Social sciences						
Total	..	1	..	..	66	67
Federal government	12	12
Provincial governments	..	1	..	..	4	5
Provincial research organizations
Business enterprise	0 ^s	0 ^s
Higher education	43	43
Private non-profit organizations	6	6
Foreign
2006 r Social sciences						
Total	..	1	..	..	63	65
Federal government	12	12
Provincial governments	..	1	..	..	4	5
Provincial research organizations
Business enterprise	1	1
Higher education	41	41
Private non-profit organizations	6	6
Foreign
2005 r Social sciences						
Total	..	1	..	..	67	68
Federal government	13	13
Provincial governments	..	1	..	..	3	4
Provincial research organizations
Business enterprise	1	1
Higher education	44	44
Private non-profit organizations	6	6
Foreign
2004 r Social sciences						
Total	..	1	..	..	60	61
Federal government	12	12
Provincial governments	..	1	..	..	4	5
Provincial research organizations
Business enterprise	1	1
Higher education	38	38
Private non-profit organizations	5	5
Foreign
2003 r Social sciences						
Total	..	1	..	..	54	55
Federal government	10	10
Provincial governments	..	1	..	..	3	4
Provincial research organizations
Business enterprise	1	1
Higher education	36	36
Private non-profit organizations	4	4
Foreign

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Table 10-8
Provincial Gross Domestic Expenditures on Research and Development, in the social sciences and humanities
— Saskatchewan

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Social sciences						
Total	42	42
Federal government	8	8
Provincial governments	4	4
Provincial research organizations
Business enterprise
Higher education	29	29
Private non-profit organizations	0 ^s	0 ^s
Foreign
2006 r Social sciences						
Total	42	42
Federal government	7	7
Provincial governments	6	6
Provincial research organizations
Business enterprise
Higher education	29	29
Private non-profit organizations	0 ^s	0 ^s
Foreign
2005 r Social sciences						
Total	42	42
Federal government	7	7
Provincial governments	4	4
Provincial research organizations
Business enterprise
Higher education	30	30
Private non-profit organizations	0 ^s	0 ^s
Foreign
2004 r Social sciences						
Total	46	46
Federal government	8	8
Provincial governments	5	5
Provincial research organizations
Business enterprise
Higher education	32	32
Private non-profit organizations	1	1
Foreign
2003 r Social sciences						
Total	48	48
Federal government	9	9
Provincial governments	6	6
Provincial research organizations
Business enterprise
Higher education	32	32
Private non-profit organizations	1	1
Foreign

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 10-9
Provincial Gross Domestic Expenditures on Research and Development, in the social sciences and humanities — Alberta

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Social sciences						
Total	..	2	..	..	195	197
Federal government	42	42
Provincial governments	..	2	..	..	46	48
Provincial research organizations
Business enterprise	3	3
Higher education	94	94
Private non-profit organizations	10	10
Foreign
2006 r Social sciences						
Total	..	1	..	..	161	161
Federal government	33	33
Provincial governments	..	1	..	..	35	35
Provincial research organizations
Business enterprise	2	2
Higher education	82	82
Private non-profit organizations	9	9
Foreign
2005 r Social sciences						
Total	..	0 s	..	..	176	176
Federal government	43	43
Provincial governments	..	0 s	..	..	37	37
Provincial research organizations
Business enterprise	1	1
Higher education	85	85
Private non-profit organizations	10	10
Foreign
2004 r Social sciences						
Total	..	0	..	..	169	169
Federal government	38	38
Provincial governments	..	0	..	..	46	46
Provincial research organizations
Business enterprise	1	1
Higher education	76	76
Private non-profit organizations	8	8
Foreign
2003 r Social sciences						
Total	..	1	..	..	143	145
Federal government	35	35
Provincial governments	..	1	..	..	36	38
Provincial research organizations
Business enterprise	1	1
Higher education	63	63
Private non-profit organizations	8	8
Foreign

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Gross Domestic Expenditures on Research and Development in Canada (GERD), and the Provinces – National Estimates 1998 to 2009 and Provincial Estimates 2003 to 2007

Table 10-10
Provincial Gross Domestic Expenditures on Research and Development, in the social sciences and humanities
— British Columbia

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Social sciences						
Total	1	1	..	..	235	236
Federal government	1	..	..	..	51	52
Provincial governments	0	1	..	..	27	28
Provincial research organizations	..	..	..	..	..	..
Business enterprise	0	..	..	..	1	1
Higher education	..	..	..	..	121	121
Private non-profit organizations	..	..	..	..	35	35
Foreign	..	..	..	..	..	..
2006 r Social sciences						
Total	0^s	2	..	..	210	212
Federal government	0 ^s	..	..	..	48	48
Provincial governments	0	2	..	..	21	24
Provincial research organizations	..	..	..	..	..	..
Business enterprise	0	..	..	..	1	1
Higher education	..	..	..	..	113	113
Private non-profit organizations	..	..	..	..	26	26
Foreign	..	..	..	..	..	..
2005 r Social sciences						
Total	0	2	..	..	197	199
Federal government	0	..	..	..	49	49
Provincial governments	0	2	..	..	16	18
Provincial research organizations	..	..	..	..	..	..
Business enterprise	0	..	..	..	1	1
Higher education	..	..	..	..	108	108
Private non-profit organizations	..	..	..	..	23	23
Foreign	..	..	..	..	..	..
2004 r Social sciences						
Total	0	1	..	..	183	184
Federal government	0	..	..	..	47	47
Provincial governments	0	1	..	..	8	9
Provincial research organizations	..	..	..	..	..	..
Business enterprise	0	..	..	..	0 ^s	0 ^s
Higher education	..	..	..	..	101	101
Private non-profit organizations	..	..	..	..	27	27
Foreign	..	..	..	..	..	..
2003 r Social sciences						
Total	0	1	..	..	165	166
Federal government	0	..	..	..	38	38
Provincial governments	0	1	..	..	18	19
Provincial research organizations	..	..	..	..	..	..
Business enterprise	0	..	..	..	1	1
Higher education	..	..	..	..	92	92
Private non-profit organizations	..	..	..	..	16	16
Foreign	..	..	..	..	..	..

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

Table 10-11
Provincial Gross Domestic Expenditures on Research and Development, in the social sciences and humanities — Yukon, Northwest Territories and Nunavut

Funding sector	Performing sector					Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	
millions of dollars						
2007 Social sciences						
Total
Federal government
Provincial governments
Provincial research organizations
Business enterprise
Higher education
Private non-profit organizations
Foreign
2006 r Social sciences						
Total
Federal government
Provincial governments
Provincial research organizations
Business enterprise
Higher education
Private non-profit organizations
Foreign
2005 r Social sciences						
Total
Federal government
Provincial governments
Provincial research organizations
Business enterprise
Higher education
Private non-profit organizations
Foreign
2004 r Social sciences						
Total
Federal government
Provincial governments
Provincial research organizations
Business enterprise
Higher education
Private non-profit organizations
Foreign
2003 r Social sciences						
Total
Federal government
Provincial governments
Provincial research organizations
Business enterprise
Higher education
Private non-profit organizations
Foreign

Note(s): Components may not add to totals due to rounding. 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 private non-profit 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 private non-profit sector funding research and development continue to be distributed by provinces and territories. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D.

How to read the GERD matrix

Introduction to GERD Terminology - Research and development expenditures in Canada are estimated annually by type of sector, by sources of funds and by science type using a series of surveys supplemented by modelling:

- Type of sector – Research and development (R&D) expenditures can be spent by organization within six sectors in Canada: federal government organizations, provincial government organizations, provincial research organizations, business enterprises, higher education organizations (including universities, and affiliated teaching hospitals), and private non-profit organizations.
- Sources of funds – Intramural research and development (R&D) expenditures are spent within organizations performing the R&D. The organizations can fund their own R&D performance or undertake R&D on behalf of other organizations. The R&D performing organizations indicate the source of funds, by sector, for their intramural R&D expenditures. In the GERD matrix, the source of funds data are shown by funding sector.
- Science type – Research and development (R&D) expenditures are spent by organizations performing in either the natural sciences and engineering or the social sciences and humanities. Only intramural R&D expenditures in the natural sciences and engineering for the provincial research organisations and business enterprises are included in the GERD.

Organizations of any type can perform and/or fund R&D at any time. The GERD data draws upon intramural R&D expenditures only. Therefore, the payments of organisations for R&D performed by other organisations, or extramural R&D expenditures, are not included.

Definition of GERD - Gross domestic Expenditure on Research and Development (GERD) is the total value of *intramural* research and development expenditures (R&D) of all organizations in *performing* sectors. The data are presented in a matrix as there are two dimensions to the reporting of R&D expenditures by performing sector and funding sector. GERD data is based on the source of funds provided by the performing sector.

Tabular Results - The table below contains total R&D expenditures for each of the performing sectors' columns (federal government, provincial governments, provincial research organizations, business enterprises, higher education and private non-profit organizations).

Each of the performing sectors indicates the funding sectors for their intramural R&D expenditures. This is an important distinction because it explains the financial sources of performers' R&D activities. The funding sectors include all of the performing sectors and foreign sources of funds.

Data Sources Used to Populate the Tabular Results - Federal government intramural R&D expenditures are estimated by the annual Federal Science Expenditure and Personnel survey. Intramural R&D expenditures represent spending on R&D performed by federal departments and agencies. As the GERD matrices within the publication indicate, federal departments and agencies receive funding for intramural R&D performance from provincial governments and from the business enterprise sector.

The provincial governments' intramural R&D expenditures are derived from annual provincial surveys of scientific activities. The survey is conducted on a cost-shared basis, and is collected under the authority of the provincial government which means every province can choose when to participate. Survey-based expenditures for the most recent reference year are available for the following provinces: Newfoundland and Labrador, New Brunswick, Ontario, Manitoba, Alberta and British Columbia. The provincial government of Quebec conducts a survey of its intramural R&D activities which it shares with Statistics Canada to construct the GERD matrix.

The annual survey of the Research and Development Activities of Provincial Research Organizations is the source of expenditure data displayed in the column for provincial research organizations.

The annual survey of Research and Development in Canadian Industry is the source of the business enterprise sector's R&D expenditure data.

An estimation model is used to populate R&D intramural expenditures for the higher education sector.

The annual survey of Research and Development in Private Non-Profit Organizations provides national R&D expenditure data for this sector.

Reference Documents - Users interested in total R&D spending for a sector such as the federal government are referred to the intramural and extramural R&D spending published in Science Statistics (88-001-X), and Federal Scientific Activities (88-204-X).

Tabulation Notes - Funding sector R&D expenditures shown in the GERD matrix do not equal extramural R&D spending of individual funding sectors for a number of reasons including: differences in financial years of the organisations funding the R&D and the organisations performing the R&D; the time it takes to perform the R&D; organisations sub-contracting parts of the R&D work to organisations in other sectors; payments for work that is related to the R&D but not part of the contracted R&D; differences in the costs of performing the R&D and the payments for the R&D work; and R&D performing organisations not indicating accurately their sources of funds by funding sector.

GERD data are presented separately for total sciences, for natural sciences and engineering, and for social sciences and humanities. Total sciences is the sum of natural sciences and engineering and social sciences and humanities. Only natural sciences and engineering data are collected and published for the business enterprise sector and provincial research organizations.

GERD data presented in these matrix tables are used to compare Canada's R&D performance internationally. They are assembled based on guidelines presented in the Organisation for Economic Co-operation and Development's Frascati Manual (2002). For a graphical representation similar to the one shown below, see page 122 of the manual.

This table is for reference purposes only.

Text table 1 Gross domestic expenditure on research and development (GERD) matrix - Canada

Funding sector	Performing sector Total intramural (domestic) research and development performed by:						Total
	Federal government	Provincial governments	Provincial research organizations	Business enterprise	Higher education	Private non-profit organizations ¹	
Total	millions of dollars						GERD is total intramural (domestic) R&D expenditures provided by the performing sector
	Federal government intramural (domestic) R&D expenditures provided by this performing sector and identifying the funding sector	Provincial governments intramural (domestic) R&D expenditures provided by this performing sector and identifying the funding sector	Provincial research organizations intramural (domestic) R&D expenditures provided by this performing sector and identifying the funding sector	Business enterprise intramural (domestic) R&D expenditures provided by this performing sector and identifying the funding sector	Higher education intramural (domestic) R&D expenditures provided by this performing sector and identifying the funding sector	Private non-profit organizations intramural (domestic) R&D expenditures provided by this performing sector and identifying the funding sector	
Federal government							Federal government
Provincial governments							Provincial governments
Provincial research organizations							Provincial research organizations
Business enterprise							Business enterprise
Higher education							Higher education
Private non-profit organizations							Private non-profit organizations
Foreign ²							Foreign

1. These data are not distributed provincially.

2. Foreign enterprises within same group or other foreign governments or international organizations.

Data sources and methodology

Definitions

Gross domestic expenditure on research and development (GERD) is a statistical series, constructed by adding together the intramural expenditures on research and development (R&D) as reported by the performing sectors. As a term used by OECD Member countries, it is defined as "total intramural expenditure on R&D performed on the national territory during a given period. GERD includes R&D performed within a country and funded from abroad but excludes payments for R&D performed abroad".¹ GERD is constructed by adding together the intramural expenditures of the performing sectors.

GERD is often displayed as a matrix of performing and funding sectors. The GERD and GERD matrix are fundamental to the national and international examination of R&D expenditures.

The matrix illustrates three aspects of a country's R&D effort:

- it shows how much R&D each sector performed over a 12-month period;
- it shows the amount of R&D each sector financed over a 12-month period (as indicated by the R&D performing sector); and
- it indicates the flow of funds between sectors.

The GERD is an indicator of science and technology (S&T) activities; it is appropriately used as a summary of R&D activities and the basic flow of funds. General guidelines to follow when using a summary statistical series such as the GERD, include:

- Such series provide only a summary of very complex patterns of activities. The series should, therefore, be used in conjunction with other relevant information;
- Users generally refer to R&D data with a question in mind: "Is our national university research effort declining?" "Does my firm spend a higher proportion of its funds on R&D than the average for my industry?" etc. It is, therefore, necessary to identify the basic data relevant to each question in order to know which R&D indicator is best suited to answering the question. The user should keep in mind that the data used for the R&D indicator may be accurate enough to answer one question but not another.

Provincial estimates of GERD

In a country as large as Canada it is useful to have a general idea of where R&D activities are located to indicate the level of scientific and technical endeavour in a particular area and to use the statistics in association with other provincial data. For these reasons, an estimate of the provincial distribution of the Canadian GERD has been prepared.

The definition of GERD in a provincial context is similar to that provided above.

The expenditures are assigned to the province in which the performing establishment is located. Personnel may live in an adjoining province (e.g., the National Capital Region) and materials and equipment will often come from another province or country; these factors must be taken into consideration when using GERD as a provincial indicator of S&T activity.

1. The Measurement of Scientific and Technological Activities - Proposed Standard Practice for Surveys of Research and Experimental Development, Frascati Manual 2002. OECD, Paris, 2002, p. 121.

The funding shown is of R&D carried out in a province; it is not R&D funding from a province. For example, when the federal government is shown as the funder for R&D in a province, the funds are received from the central government and are to be spent on R&D in an establishment in that province. The federal government, of course, raises funds from many sources, outside of that province. Similarly, when R&D is shown as being funded by the business enterprise sector, the funds are not necessarily raised from activities within the province. Most provincial governments provide minimal funding towards federal government performance, so statistical zeros are applied.

The provincial and territorial R&D expenditures for the business enterprise sector are collected on the Research and Development in Canadian Industry Survey. This survey does not collect sources of funds by province or territory. The provincial and territorial distribution by sources of funds of the business enterprise sector R&D expenditures is derived through a modeling system, which prorates values based on reported business enterprise provincial and territorial R&D. The provincial and territorial distribution of total R&D is proportionally distributed to the reported national sources of funds.

Limitations of GERD

The GERD, like any other social or economic statistic, can only be approximately true. Different components are of different accuracy: sector estimates probably vary from 5% to 15% in accuracy. However, the GERD estimates are sufficiently reliable for their main use as an aggregate indicator for science policy.

One of the most important problems relating to GERD concerns its definition. There remains some ambiguity in defining precisely what constitutes R&D or, for example, in a continuing project, determining the precise point at which the project passes the boundary of R&D and becomes exploitation of a process or product on which it may be said that the R&D stage has been completed. This ambiguity is perhaps less serious in internal time series, where it may be expected that the year-to-year application of the definitions by the same reporting units are at least consistent.

A second difficulty arises with regards to survey design. The people best qualified to apply the R&D definitions and classifications - scientific and technical personnel engaged in the direct management of S&T activity - rarely participate in the statistical agency's data collection process. Because the data collected are concerned not with scientific and technical content, but financial and labour inputs to achieving this content, the questionnaires tend to be addressed to and completed by financial and management staff. This is a fundamental problem of all surveys addressed to large organizations, whether they are public or private.

These two problems account for the limited amount of geographic and scientific detail in the published GERD. The amount of detail presented, for example, in the Canadian GERD as published by Statistics Canada is limited by the nature of the surveys, and the other data collection and analysis instruments. Nor is it possible to increase the amount of detail because this would require switching to new kinds of data collection instruments in a vastly expanded survey operation.

Another reason for the limited detail about sectors stems from the fact that R&D is often a secretive endeavour. Private sector companies usually want to surprise competitors with a new product. Thus the money spent on the R&D may be reported, but details about R&D projects would not. Similarly, a government department such as National Defence might report R&D expenditures but not the nature and detail of the respective R&D projects.

To summarize, the GERD serves as a general indicator of R&D activity and not as a detailed inventory of R&D projects within an organization, sector, or province. It is an estimate and as such can show trends in R&D expenditures by sector and sub-sector, by province and country, from year-to-year. In this capacity, the GERD estimates are sufficiently reliable for their main use as an aggregate indicator for science policy.

R&D performers and funders categorized

Sectoring

Considering that the GERD is the aggregate of the total R&D expenditures of the performing sectors, it is useful now to look at these sectors individually. Sectors are reviewed in terms of an international (OECD) framework for measuring R&D expenditures. There are four major sectors of R&D performance and five for funding:

- Government;
- Business enterprises;
- Higher education;
- Private non-profit organizations;
- Foreign (funding only).

The sectors for the GERD, as chosen and defined by the OECD, are based largely on existing United Nations classifications and in particular, the System for National Accounts (SNA). Under the general heading of "Institutional classifications", the OECD approach focuses on the characteristic properties of the performing and funding institutions. Each statistical unit is classified according to its principal economic activity and, consequently, the whole of the R&D resources of the unit classified are allocated to one sector or sub-sector.

Government

The OECD definition of this sector is: "All departments, offices and other bodies which furnish, but normally do not sell to the community, those common services, other than higher education, which cannot otherwise be conveniently and economically provided, as well as those that administer the state and the economic and social policy of the community. (Public enterprises are included in the business enterprise sector)".²

Public enterprises such as Petro-Canada and Ontario Hydro are excluded from this sector and included in the business enterprise sector. Many non-profit organizations and bodies, however, are included in this sector if they either serve or are controlled by government, or both.

In Canada the distribution of GERD amongst the government sub-sectors is published. The sub-sectors are the federal government, the provincial governments and the provincial research organizations (PRO's). Currently Canada has seven PRO's. They are the New Brunswick Research and Productivity Council, the "Centre de recherche industrielle du Québec (CRIQ)", the Industrial Technology Centre (Manitoba), the Saskatchewan Research Council, the Northern Research Institute (Yukon), the Nunavut Research Institute and the Aurora Research Institute (Northwest Territory).

Business enterprise

This sector is composed of all firms, organizations and institutions whose primary activity is the production of goods or services for sale to the general public at a price intended approximately to cover at least the cost of production as well as non-profit institutes serving such firms. Included are government-owned enterprises such as Ontario Hydro and Canadian National Railways.

2. Ibid., p. 62.

Higher education

This sector is composed of all universities, colleges of technology and other institutes of post-secondary education, whatever their source of finance or legal status. It also includes all research institutes, experimental stations and clinics operating **under the direct control of** or **administered by** higher education establishments.

Private non-profit organizations

This sector comprises private or semi-private organizations which are not established primarily with the aim of making a profit.

It consists of voluntary associations (scientific and professional societies, health-oriented groups), philanthropic foundations and research institutes supported by the associations and foundations. These kinds of institutions are usually maintained by fees, dues and donations from members and sponsors and by grants from governments and enterprises. They may also obtain revenue from the sale of their products such as publications or special studies.

Non-profit institutes and organizations excluded from this sector are those which are controlled by enterprises, government, or higher education. Such non-profit institutes and organizations are included with the respective sectors whose interests they mainly serve.

The PNP sector appears in both the performing and funding sector for the 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 NCR. However, the national totals of research and development by performing sector include the PNP sector. The PNP sector continues to be distributed for the funding sector.

Foreign

This sector consists of: "All institutions and individuals located outside the political borders of a country, except vehicles, ships, aircraft and space satellites operated by domestic entities and testing grounds acquired by such entities."³

This sector also includes all international organizations (except business enterprises), including facilities and operations within the country's borders. Foreign-owned subsidiaries are not included in this sector (e.g., Ford Canada is, for the purposes for measuring R&D expenditures, a domestic organization in the Canadian business enterprise sector, even though its parent company is the Ford Motor Company of the United States).

The foreign sector is included in the GERD only as a funding sector (see matrix), since by definition the GERD includes R&D performed within a country and **funded from abroad** but excludes payments made abroad for R&D. Thus, funding from the foreign sector is implicitly included in the intramural expenditures of the four performing sectors.

Science type

Definition of natural sciences and engineering

The natural sciences and engineering field embraces the disciplines of study concerned with understanding, exploring, developing or utilizing the natural world. Included are the engineering, mathematical, life and physical sciences.

3. Op cit., p.72.

Definition of social sciences and humanities

The social sciences and humanities field embraces all disciplines involved in studying human actions and conditions and the social, economic and institutional mechanisms affecting humans. Included are such disciplines as anthropology, demography, economics, geography, history, languages, literature and linguistics, law, library science, philosophy, political science, psychology, religious studies, social work, sociology, and urban and regional studies.

Appendix I

National Capital Region table

Text table A

Gross Domestic Expenditures on Research and Development - National Capital Region (NCR) Quebec/Ontario

	National Capital Region		Total
	Quebec	Ontario	
	millions of dollars		
Total sciences			
2003	49	950	999
2004	48	912	960
2005	83	1,040	1,123
2006	86	1,012	1,098
2007	100	1,034	1,134
Natural sciences and engineering			
2003	39	842	881
2004	38	805	844
2005	72	930	1,002
2006	83	870	953
2007	90	878	968
Social sciences and humanities			
2003	10	108	118
2004	9	107	116
2005	11	110	121
2006	3	142	145
2007	10	157	166