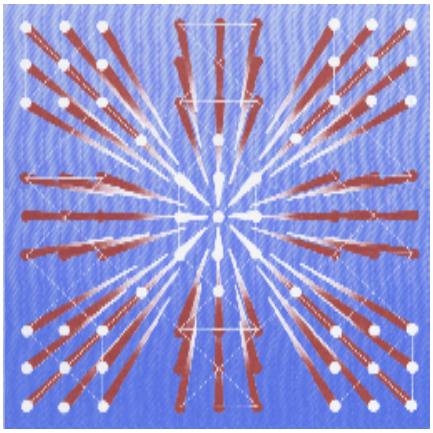
Catalogue no. 88-204-XIE

Federal Scientific Activities 2001-2002e



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e estimates

p preliminary figures.

r revised figures.

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Note

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Foreword

The Federal Government is a principal funder of science and technology in Canada, spending almost $7 billion dollars each year. This report presents information on the disposition of monies and human resources for science and technology (S&T) by federal departments and agencies. The information has been assembled to serve as a reference document for program managers, government officials, the media and the general public. It records the allocation of S&T resources for the last ten years.

The statistics are collected through the survey of S&T activities of federal departments and agencies, which records past, current and proposed expenditures for activities in the natural and social sciences. The data are consistent with expenditures of departments and agencies as reported in the "Main Estimates 2001-2002", but may not reflect changes to 2001-2002 spending plans resulting from supplementary estimates or other departmental planning decisions, possibly in response to the events of September 11, 2001.

Over 65 different Federal Government departments and agencies either perform S&T activities or have a budgetary allocation to fund S&T. Costs that are not part of the budgets of scientific programs (indirect costs such as services provided by other departments without charge or the portion of administration costs attributable to scientific activities) are included in departmental totals. However, these costs have not been included in the provincial data nor in expenditures classified by socio-economic objective.

According to international convention, science and technology activities are divided into two fields; natural sciences and engineering (NSE) and social sciences and humanities (SSH). These fields of science are further divided into research and development (R&D) and related scientific activities (RSA). The Federal Government may choose to perform S&T in its own laboratories (intramural expenditures) or may pay another organization to perform S&T (extramural expenditures). Data are presented in this report on S&T activities funded by the Federal Government for R&D and RSA and distinguished by performer (that is, intramurally by the Government itself or extramurally, by business enterprises (industry), universities, provincial and municipal governments, private non-profit organizations, other Canadian performers and foreign performers). Definitions of these terms are provided in the Technical Notes section. Those Crown Corporations, such as Petro Canada, which have an industrial function, are not included. They are treated as commercial enterprises and the crown corporation expenditures in aggregate are included in the Statistics Canada report, Industrial Research and Development, Catalogue No. 88-202-XIB.

Considerable effort has been expended to maintain the continuity and compatibility of the data series to permit analysis and study of the impact of scientific activities. Efforts of the departments and agencies in ensuring accurate and complete information are gratefully acknowledged. Readers desiring more detailed and specific information are invited to contact the Science and Innovation Survey Section, Science, Innovation and Electronic Information Division, 7-O, R.H. Coats Building, Tunney's Pasture, Ottawa, Ontario, K1A 0T6. 613 951-6347, Facsimile: 613 951-9920. Internet: bert.plaus@statcan.ca. Web Site: http://www.statcan.ca

This publication was prepared by **Lloyd Lizotte**, Subject Matter Manager, under the direction of **Bert Plaus**, Chief, Science and Innovation Surveys Section, Science, Innovation and Electronic Information Division.

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Highlights

- The Federal Government's budgetary Science & Technology (S&T) estimates for 2001-2002 were $7.4 billion, an increase of 8.0% over 2000-2001. The preliminary expenditures for 2000-2001 were $6.8 billion.

- The Federal Government's spending on S&T including Research and Development (R&D) remained a stable 3.6% of the total federal budget through most of the 1990's, then climbed to 4% in 1998-99 and is estimated at 4.5% for 2001-2002.

- The total $7.4 billion in federal S&T expenditures do not include federal R&D tax credits. According to Canada Customs and Revenue Agency, the value of these tax credits is approximately $1.3 billion annually.

- The central activity of S&T is scientific research and experimental development (R&D). In 2001-2002, the Federal Government was expected to spend $4.6 billion on R&D, an increase of 10% from 2000-2001. This includes both intramural performance and extramural funding of R&D. The increased federal expenditures were due to the funding of the Canada Foundation of Innovation (CFI). Established in 1997, CFI's mandate is to increase the capability of Canadian universities, colleges and hospitals to carry out world class R&D by investing in the research infrastructure.

- In 2001-2002, the Federal Government planned to perform 42% of its own R&D and 78% of its own RSA for a total of 56% of its own S&T.

- In 2001-2002, 31,681 person-years were involved in federal S&T activities, a 1.1% increase from 2000-2001. Fifty-five percent, or 17,559 person-years, were engaged in RSA activities.

- The government also funds science activities performed in other sectors: business enterprise, higher education, provincial governments, private non-profit organizations, and other Canadian and foreign organizations. Of these extramural sectors, the business enterprise sector received 16% and the higher education sectors received 22% of total federal S&T expenditures in 2001-2002.

- R&D planned payments in 2001-2002 to business enterprises amounted to $924 million, up from 2000-2001 forecasted expenditures of $854 million.

- Higher education received funding of $1,426 million for R&D and $172 million for RSA in 2001-2002. The three granting councils, the Canadian Institutes of Health Research, the Natural Sciences and Engineering Research Council, and the Social Sciences and Humanities Research Council, as well as the Canada Foundation for Innovation are the major Federal Government funders of R&D performed in Canadian universities.

1. Expenditure Overview

1. Expenditure Overview

The Overview section provides an aggregate of government expenditures by field of science (NSE and SSH) and by activity (R&D and RSA). The performers of S&T are also identified for the period 1992-93 to 2001-2002.

The Federal Government planned to spend $7.4 billion on scientific and technological (S&T) activities for the estimate year 2001-2002, an increase of 8.0% over forecasted expenditures on S&T for 2000-2001.

The central activity of S&T is scientific research and experimental development (R&D). In 2001-2002, the Federal Government is expected to spend $4.6 billion on R&D. This includes both intramural performance and extramural funding of R&D.

Activities in the natural sciences and engineering (NSE) will receive the bulk of Federal Government funding (77% in 2001-2002), most of which (76%) is for research and development (R&D).

Most of the monies (83%) for the social sciences and humanities (SSH) will be spent on related scientific activities (RSA) such as data collection, information services and special services and studies. Statistics Canada alone accounted for 48% of these expenditures.

In 2001-2002, most of the federal S&T expenditures (56%) were for activities to be performed within its own scientific establishments as has been the case in the preceeding years. In 2001-2002, the Federal Government will perform 42% of its own R&D and 79% of its own RSA.

The departments and agencies with the largest estimated expenditures on natural science activities in 2001-2002 are the National Research Council ($660 million), the Natural Sciences and Engineering Research Council ($613 million), Environment Canada ($567 million) and the Canadian Institutes of Health Research ($476 million). In 2001-2002 they accounted for 41% of the Government's total S&T expenditures.

Statistics Canada is the government's major spender of social science funds, $683 million in 2001-2002, up from a preliminary estimate of $591 million in 2000-2001. This growth is because the year 2001 was a census year.

2. Federal S&T Activities Questionnaire

The questionnaire on scientific activities is designed to correspond as much as possible to the system of budgetary estimates used by the Federal Government. This is done to ease the response burden, assist in editing and, most importantly, to produce comparable data for policy planning and program evaluation. Thus, the questionnaire covers the same time span as the Estimates including: proposed estimates for the fiscal year, e.g. 2001-2002; forecast expenditures for the current fiscal year, e.g. 2000-2001, and actual expenditures for the past fiscal year, e.g. 1999-2000 (as also reported in the Public Accounts).

In addition to the expenditures attributable to program budgets, there are additional costs attributable to scientific activities which must be included if a full picture of the resources devoted to science activities is to be obtained. These include other sources of funds and other S&T costs which are defined below:

Information in Reference to Table 1.9

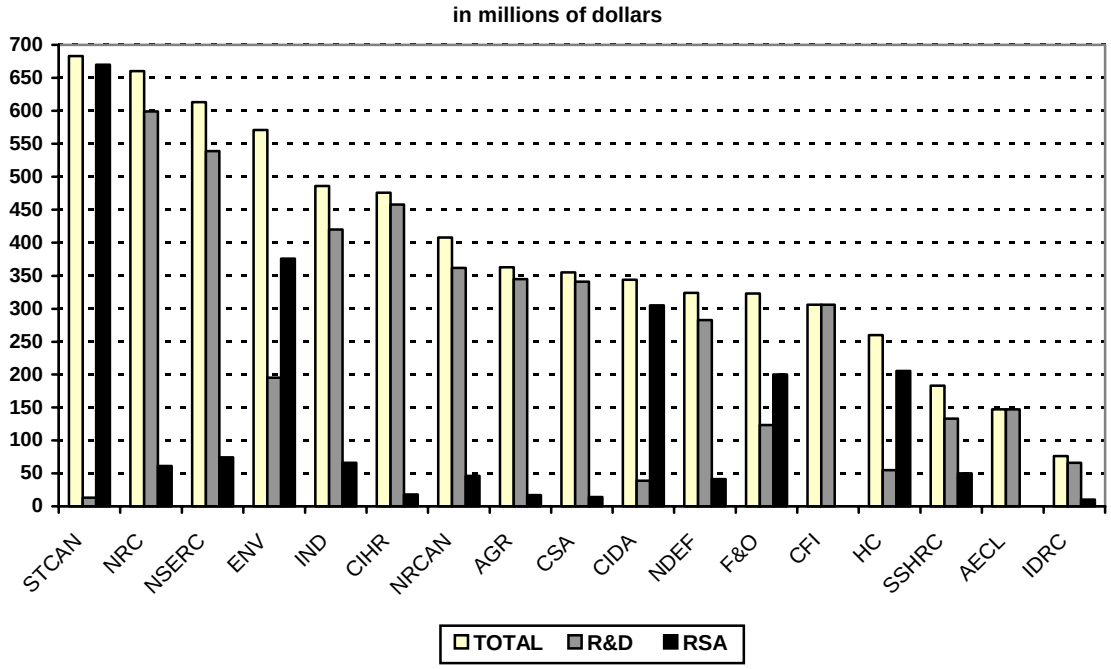
- **Budgetary Sources** - as expressed in the Main Estimates:
  - Individual Departmental budgets.
  - Other Federal Government Departments and Agencies - transfers into the program from other Federal Government departments and agencies, net of transfers out.
- **External Sources** - Income from other sources such as industry and provincial governments.
- **Other S&T Costs:**

  Non-Program Costs are costs that are not part of the budgets of scientific programs and include services provided by other departments, such as:

  - accommodation by Public Works and Government Services Canada and own department
  - employer's share of health and unemployment insurance premiums paid by Treasury Board
  - employee compensation under Workers Compensation Acts paid by Human Resources Development
  - cost of legal services provided by the Department of Justice Canada
  - cheque issue cost by Public Works and Government Services Canada
  - overhead - portion of a central administration program costs attributable to scientific activities

Chart 1.1

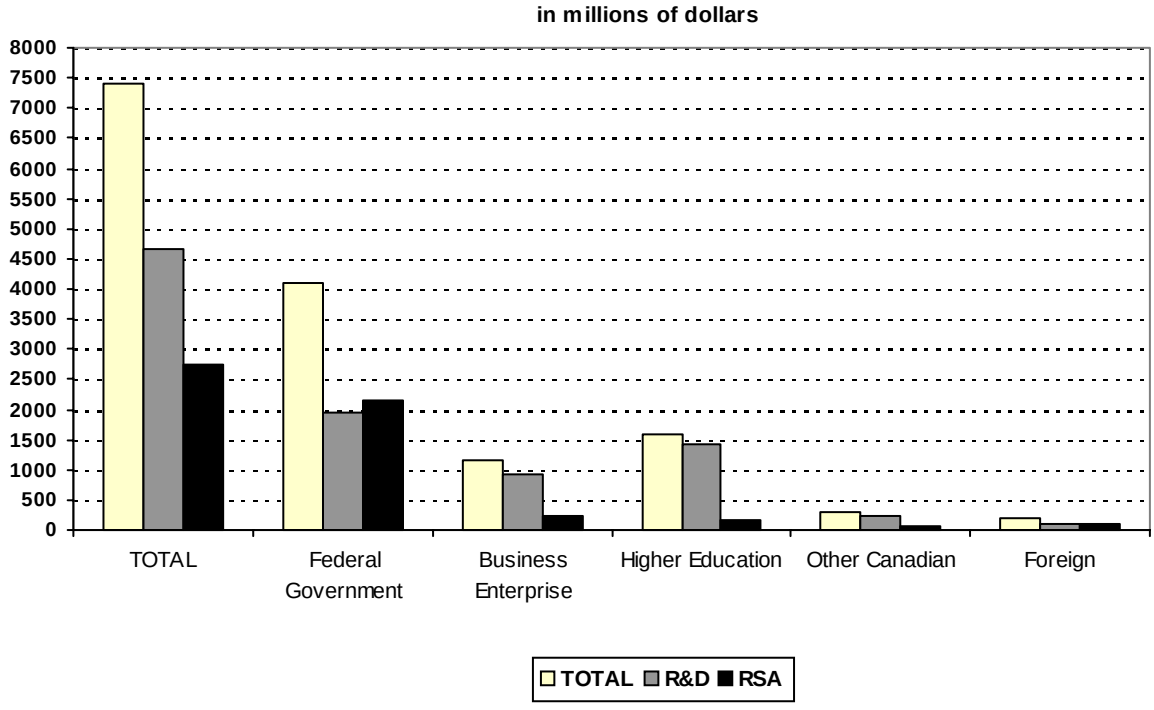
Federal Expenditures on Science and Technology, by Major Department or Agency, 2001-2002[e]



***Source**: Chapter 3*

Chart 1.2

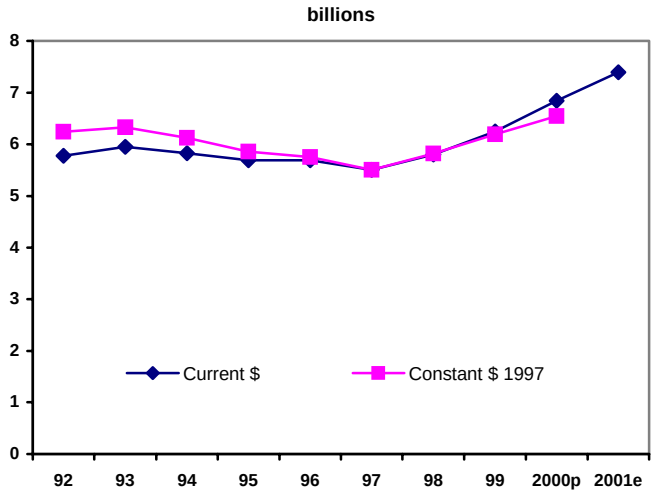
Distribution of Federal Expenditures on Science and Technology, by Sector, 2001-2002[e]



***Source**: Table 1.19*

Chart 1.3

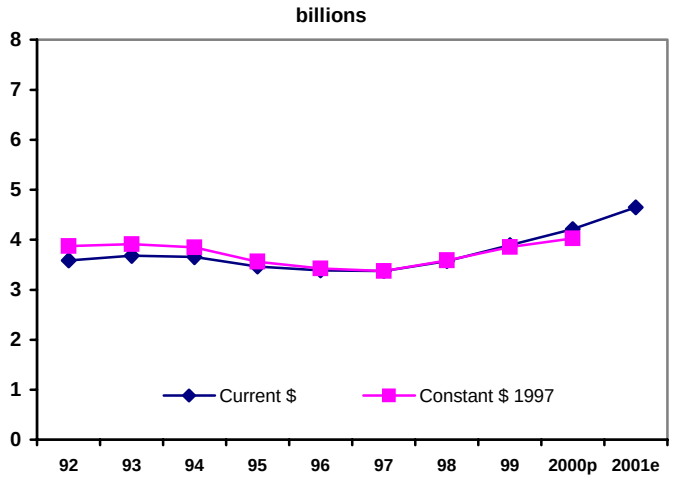
Federal Expenditures on Science and Technology, 1992 to 2001[e]



Source: *Table 1.6*

Chart 1.4

Federal Expenditures on Research and Development, 1992 to 2001[e]

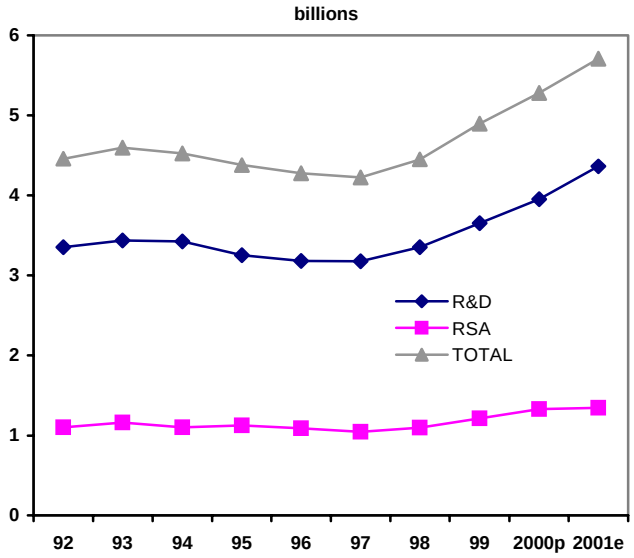


Source: *Table 1.7*

Science and Technology Expenditures by Field of Science, 1992 to 2001[e]

Chart 1.5

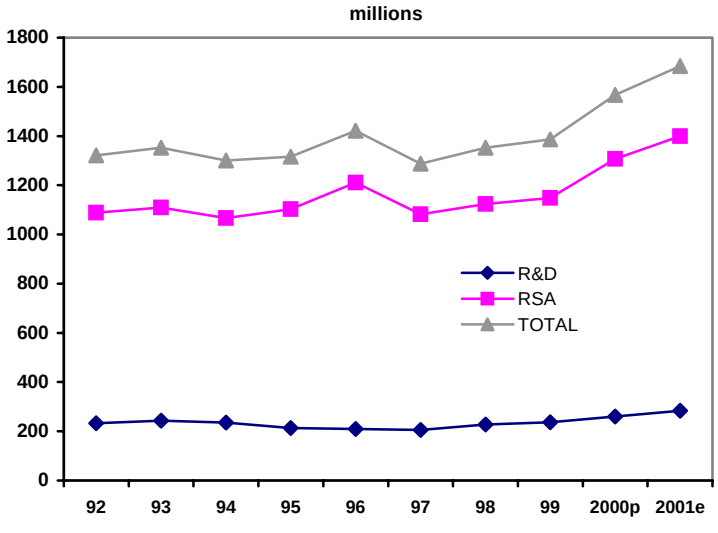
Natural Sciences and Engineering



Source: *Tables 1.14, 1.15 and 1.16*

Chart 1.6

Social Sciences and Humanities



Source: *Tables 1.14, 1.15 and 1.16*

TABLE 1.1 Federal Budgetary Main Estimates and Expenditures on R&D and S&T in Current Dollars and in Constant 1997 Dollars, 1992 to 2001[e]

Year	Current Dollars					GDP Implicit Price Index[2]	Constant 1997 Dollars		
	Budgetary Main Estimates[1]	S&T	%	R&D	%		Budgetary Main Estimates[1]	S&T	R&D
	in millions of dollars						in millions of dollars		
1992	160,517	5,780	3.6	3,587	2.2	92.6	173,344	6,242	3,874
1993	161,089	5,951	3.7	3,677	2.3	94.0	171,371	6,331	3,912
1994	160,738	5,827	3.6	3,657	2.3	95.1	169,020	6,127	3,845
1995	164,191	5,693	3.5	3,465	2.1	97.2	168,921	5,857	3,565
1996[r]	156,985	5,694	3.6	3,391	2.2	98.9	158,731	5,757	3,429
1997[r]	149,555	5,509	3.7	3,379	2.3	100.0	149,555	5,509	3,379
1998[r]	145,457	5,802	4.0	3,578	2.5	99.6	146,041	5,825	3,592
1999[r]	151,559	6,252	4.1	3,890	2.6	100.9	150,207	6,196	3,855
2000[p]	156,157	6,846	4.4	4,211	2.7	104.6	149,290	6,545	4,026
2001[e]	165,236	7,391	4.5	4,646	2.8	..	..	..	..

Source 1: Part 1, Government Expenditures Plan, Estimates.
Source 2: Canadian Economic Observer, Catalogue No. 11-010-XPB, Monthly, August 2001.

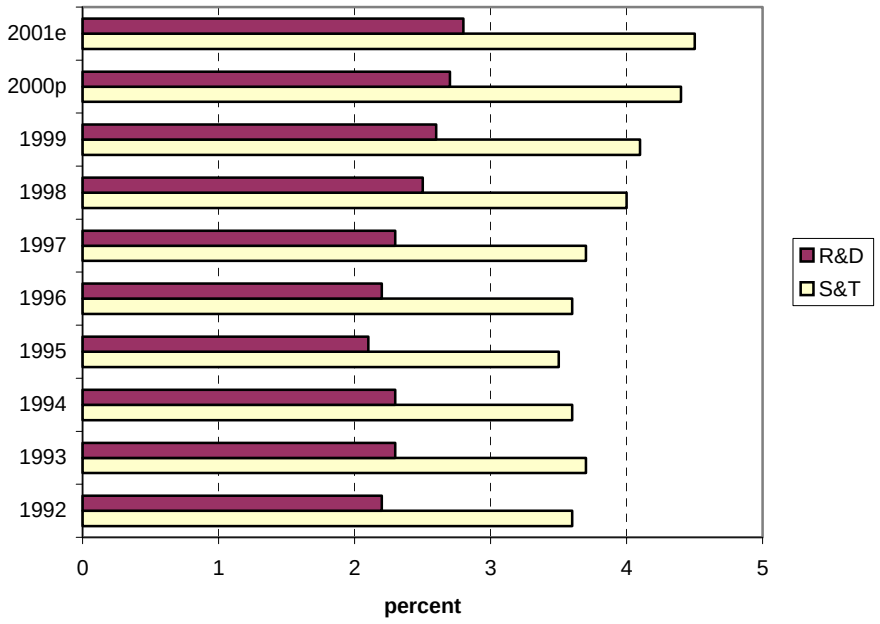
The standard measure or indicator of a country's R&D effort is the summary statistic, "Gross Domestic Expenditures on R&D or GERD". Frequently this is expressed as a percent of Gross Domestic Product (GDP). The Federal Government values that are part of GERD are its R&D activities performed intramurally and can be found in Table 1.15. For further discussion and explanation of GERD, please refer to Volume 25, No. 8 of Statistics Canada Catalogue No. 88-001-XIB.

TABLE 1.2 Gross Domestic Expenditures on R&D (GERD) by Performing and Funding Sector, 2001[e]

Funding sector	Performing Sector						
	Federal government	Provincial government	Provincial Research Organizations	Business Enterprises	Higher Education	Private non-profit	Total
	in millions of dollars						
Federal Government	1,907	-	2	361	1,431	31	3,732
Provincial Government	2	181	42	70	635	22	952
Provincial Research Organizations	-	-	3	-	-	-	3
Business Enterprises	44	-	22	8,078	603	23	8,770
Higher Education	-	-	-	-	3,609	-	3,609
Private non-profit	-	-	-	-	462	103	565
Foreign	-	-	4	3,147	75	14	3,240
Total	**1,953**	**181**	**73**	**11,656**	**6,815**	**193**	**20,871**

Chart 1.7

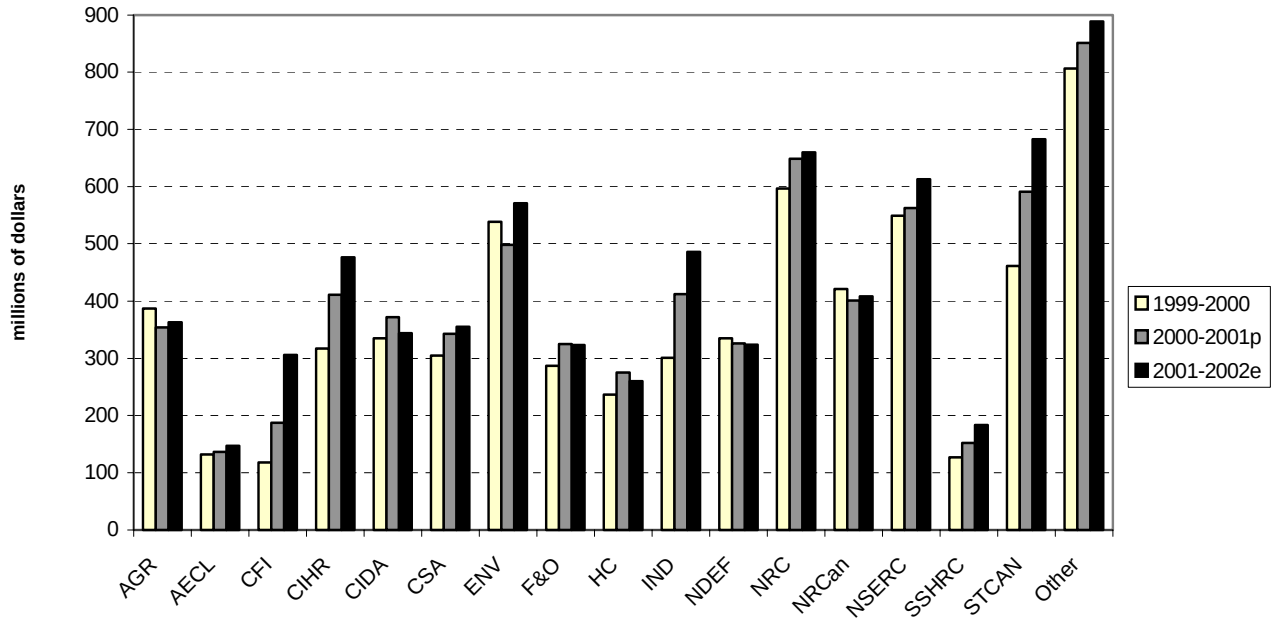
Federal Expenditures on R&D and S&T as a Percentage of Federal Budgetary Main Estimates, 1992 to 2001[e]



Source: *Table 1.1*

Chart 1.8

Federal Expenditures on Science and Technology, by Major Department or Agency, 1999-2000, 2000-2001[p] and 2001-2002[e]



Source: *Table 1.10*

Chart 1.9

Trends in GERD by Performing Sector, in Current Dollars, (1992 and 2001[e])

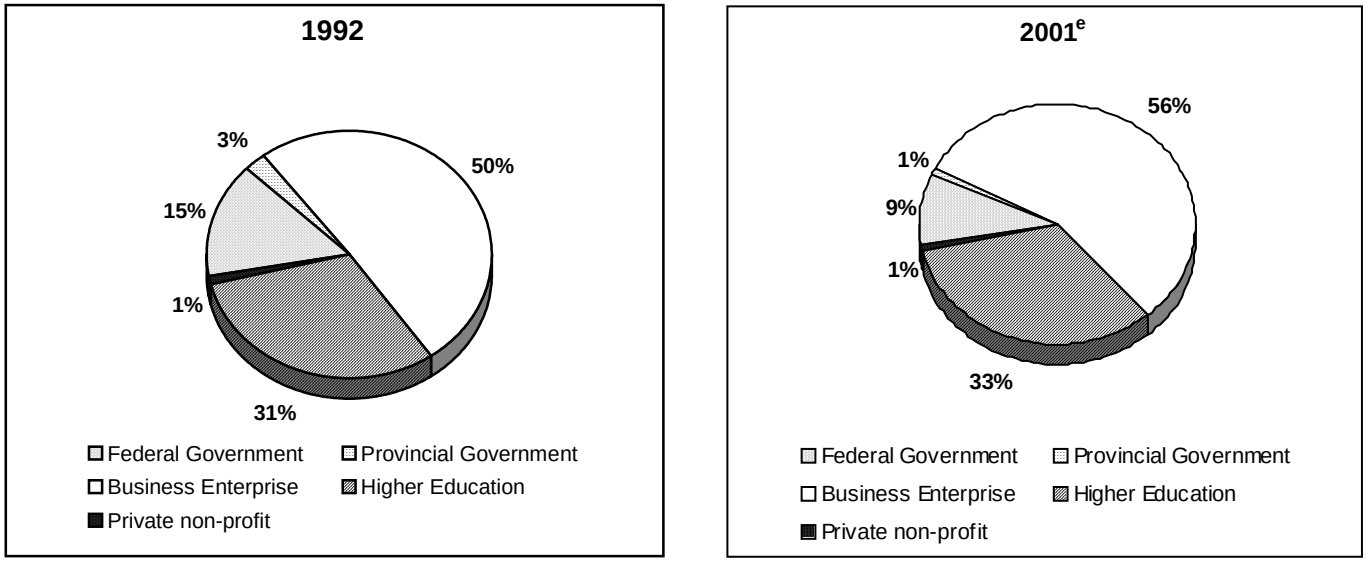


Chart 1.10

Trends in GERD by Funding Sector, in Current Dollars, (1992 and 2001[e])

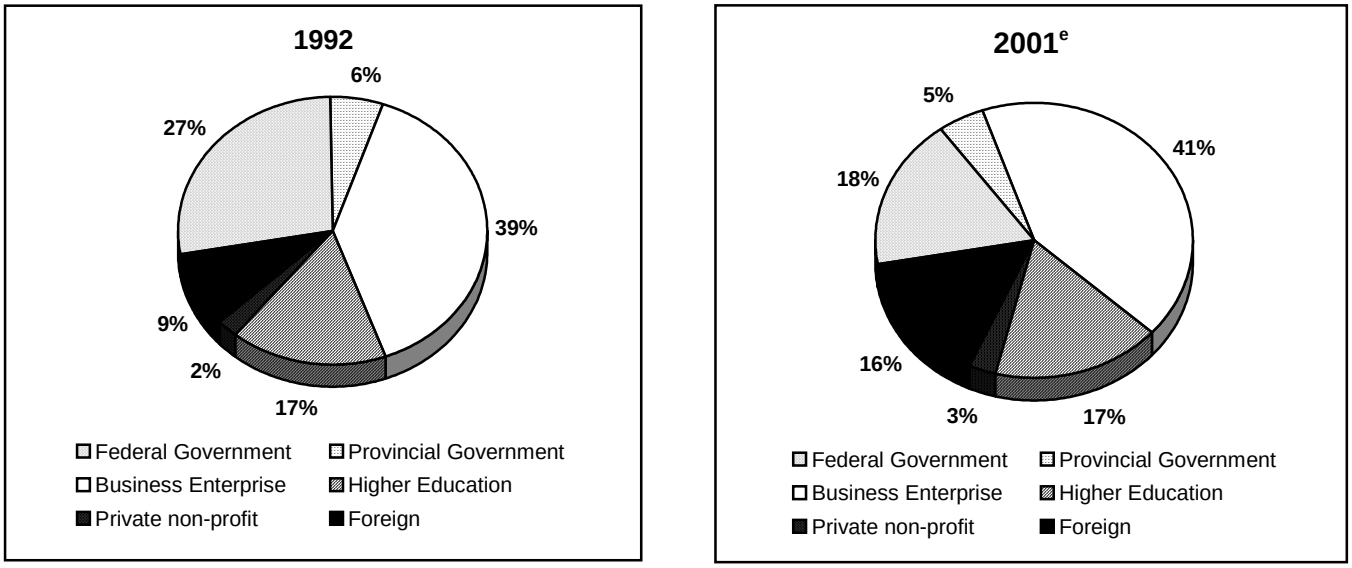


TABLE 1.3 Percentage of GERD performed by the Government Sector for Selected OECD Countries

Countries	1991	1992	1993	1994[r]	1995[r]	1996[r]	1997[r]	1998[r]	1999[r]	2000
Australia	..	28.1	..	26.5	..	23.6	..	23.4	..	..
Austria	..	..	8.9	..	..	..	..	..	..	..
Belgium	6.1	..	6.2	3.5	3.4	3.1	3.1	..	..	..
Canada	**19.5**	**18.8**	**17.3**	**15.0**	**14.2**	**14.5**	**13.0**	**12.8**	**12.5**	**12.0**
Denmark	17.7	17.8	17.8	..	17.0	16.3	15.4	15.2	15.6	..
Finland	20.2	20.6	20.5	18.9	16.6	15.8	13.6	12.6	11.4	11.1
France	22.7	20.9	21.1	20.6	21.0	20.3	18.7	18.6	17.9	..
Germany	13.9	14.1	15.0	15.1	15.4	15.2	14.6	14.7	14.0	13.7
Italy	22.7	22.0	21.4	21.3	21.1	20.0	20.7	21.3	21.2	..
Japan	7.6	8.3	9.3	9.0	9.6	9.4	8.8	9.2	9.9	..
Netherlands	18.3	18.4	18.1	18.6	18.1	17.7	17.1	17.7	..	..
Sweden	4.1	..	4.1	..	3.7	..	3.5	..	3.4	..
United Kingdom	14.5	14.6	14.2	14.6	14.4	14.3	13.6	13.3	10.7	..
United States	9.8	9.9	10.2	10.0	9.6	8.7	8.2	7.9	7.2	..

Source: *Main Science and Technology Indicators, OECD, 2001.*

TABLE 1.4 Percentage of GERD financed by the Government Sector for Selected OECD Countries

Countries	1991	1992	1993	1994[r]	1995[r]	1996[r]	1997[r]	1998[r]	1999[r]	2000
Australia	..	50.2	..	47.4	..	45.8	..	47.8	..	..
Austria	46.5	47.4	48.0	49.4	47.3	43.6	41.5	39.4	39.3	38.2
Belgium	31.3	..	32.5	26.4	26.3	25.6	24.9	..	..	..
Canada *	**43.4**	**..**	**40.7**	**38.1**	**35.9**	**34.1**	**32.7**	**30.8**	**31.2**	**31.2**
Denmark	39.7	38.6	37.7	..	39.6	35.7	36.1	..	..	..
Finland	40.9	..	39.8	..	35.1	..	30.9	30.0	29.2	..
France	48.8	43.5	43.5	41.6	41.9	41.5	38.8	37.3	..	..
Germany	35.8	35.9	36.5	36.5	36.8	36.9	35.9	34.9	33.0	32.3
Italy	49.6	48.5	51.3	50.2	53.0	50.8	51.2	51.1	51.1	..
Japan	18.2	19.4	21.6	21.5	22.8	18.7	18.2	19.3	19.5	..
Netherlands	48.6	48.9	48.5	43.8	42.2	41.5	39.1	37.9	..	..
Sweden	34.0	..	33.0	..	28.8	..	25.8	..	24.5	..
United Kingdom	35.0	33.4	32.5	33.2	33.2	31.9	31.1	31.0	27.9	..
United States	38.7	37.9	37.7	37.2	35.6	33.4	31.8	30.7	29.2	..

Source: Main Science and Technology Indicators, OECD, 2001.

**The OECD has included general university funds.*

Chart 1.11

Percentage of GERD performed by the Government Sector for Selected OECD Countries, 1999

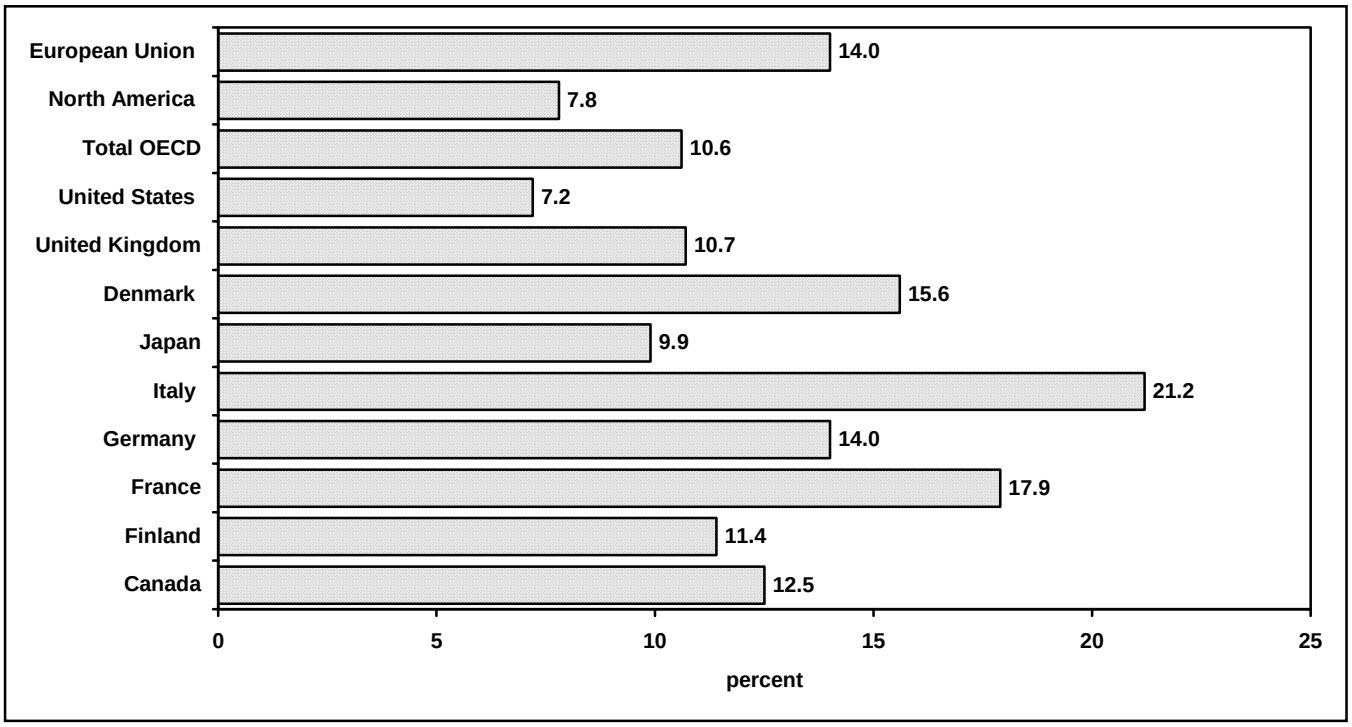


Chart 1.12

Percentage of GERD financed by the Government Sector for Selected OECD Countries, 1999

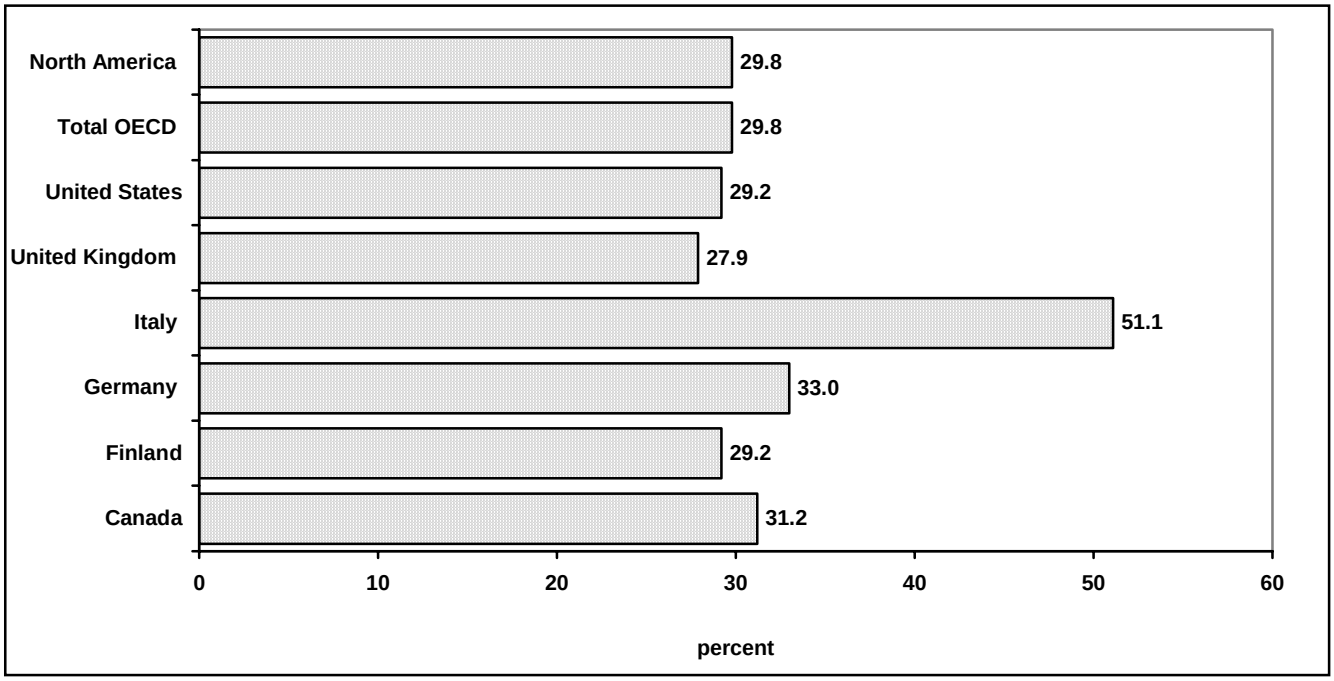


TABLE 1.5 Federal Science Expenditures by Activity, by Major Department or Agency in Constant 1997 Dollars, 1992-93 to 2001-2002[e]

Department or Agency	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
Science and Technology					in millions of dollars					
GDP Implicit Price Index	92.6	94.0	95.1	97.2	98.9	100.0	99.6	100.9	104.6	..
AECL	180	171	178	173	243	174	136	131	130	..
AGR	386	389	374	368	372	359	352	384	338	..
CIDA	369	354	324	344	343	303	315	332	356	..
CIHR	…	…	…	…	…	…	…	314	393	..
CSA	401	412	336	308	256	230	344	302	328	..
EMR	361	374	...	...	...	...	...	…	…	..
ENV[1]	681	705	577	544	461	453	429	533	476	..
F&O	249	254	249	251	249	204	282	284	311	..
FOR	107	122	...	...	...	...	...	...	…	..
HC	188	203	189	207	216	210	205	234	263	..
IND[2]	279	398	408	333	294	407	344	298	394	..
IDRC	116	122	107	91	89	78	85	81	76	..
MRC	278	276	279	259	245	238	278	…	…	..
NDEF	297	272	265	240	256	311	305	332	312	..
NRC	554	535	531	495	484	524	556	592	620	..
NRCan	...	...	488	489	435	396	388	417	383	..
NSERC	541	528	519	485	458	436	501	544	538	..
SSHRC	111	109	108	104	94	96	104	126	145	..
STCAN	379	369	371	418	541	400	439	457	565	..
Other	766	736	822	750	722	690	761	834	916	..
Total	**6,242**	**6,331**	**6,127**	**5,857**	**5,757**	**5,509**	**5,825**	**6,196**	**6,545**	**..**
Research and Development										
GDP Implicit Price Index	92.6	94.0	95.1	97.2	98.9	100.0	99.6	100.9	104.6	..
AECL	172	165	171	168	243	174	136	131	130	..
AGR	344	349	340	337	354	340	336	367	323	..
CIHR	…	…	…	…	…	…	…	301	385	..
CIDA	75	65	65	52	53	48	49	50	39	..
CSA	389	403	330	299	248	224	338	297	310	..
EMR	289	288	...	...	...	...	...	...	…	..
ENV[1]	129	144	183	168	137	127	116	194	142	..
F&O	120	121	120	102	96	78	109	109	119	..
FOR	99	113	...	...	...	...	...	...	…	..
HC	53	56	61	65	75	65	54	55	62	..
IND[2]	261	337	339	276	233	345	275	237	331	..
IDRC	103	110	94	80	77	64	67	70	67	..
MRC	267	265	270	251	237	229	267	…	…	..
NDEF	292	267	261	236	225	264	264	290	271	..
NRC	495	469	472	431	434	470	501	525	556	..
NRCan	...	...	393	415	376	350	346	373	341	..
NSERC	481	467	463	437	415	393	445	477	473	..
SSHRC	75	72	73	72	65	65	68	91	105	..
Other	232	220	211	176	164	143	219	288	371	..
Total	**3,874**	**3,912**	**3,845**	**3,565**	**3,429**	**3,379**	**3,592**	**3,855**	**4,026**	**..**

See notes at end of section.

TABLE 1.6 Federal Expenditures on S&T in Current Dollars, Constant 1997 Dollars, and by Performing Sector[3], 1992-93 to 2001-2002[e]

Sector of performance	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Current Dollars										
Intramural	3,349	3,457	3,399	3,427	3,575	3,351	3,455	3,658	3,942	4,108
Canadian business enterprises	952	954	930	885	801	927	952	926	1,104	1,159
Canadian higher education	980	973	983	933	894	860	989	1,173	1,354	1,598
Canadian non-profit institutions	99	116	127	103	112	110	122	181	136	232
Other Canadian performers[4]	112	138	91	86	65	39	50	84	82	81
Foreign	288	313	297	259	247	222	233	229	228	214
TOTAL	**5,780**	**5,951**	**5,827**	**5,693**	**5,694**	**5,509**	**5,802**	**6,252**	**6,846**	**7,391**
Constant 1997 Dollars GDP Implicit Price Index	**92.6**	**94.0**	**95.1**	**97.2**	**98.9**	**100.0**	**99.6**	**100.9**	**104.6**	**..**
Intramural	3,617	3,678	3,574	3,526	3,615	3,351	3,469	3,625	3,769	..
Canadian business enterprises	1,028	1,015	978	910	810	927	956	918	1,055	..
Canadian higher education	1,058	1,035	1,034	960	904	860	993	1,163	1,294	..
Canadian non-profit institutions	107	123	134	106	113	110	122	179	130	..
Other Canadian performers[4]	121	147	96	88	66	39	50	83	78	..
Foreign	311	333	312	266	250	222	234	227	218	..
TOTAL	**6,242**	**6,331**	**6,127**	**5,857**	**5,757**	**5,509**	**5,825**	**6,196**	**6,545**	**..**
Percent						percent				
Intramural	58	58	58	60	63	61	60	58	58	..
Canadian business enterprises	16	16	16	16	14	17	16	15	16	..
Canadian higher education	17	17	17	16	16	15	17	19	20	..
Canadian non-profit institutions	2	2	2	2	2	2	2	3	2	..
Other Canadian performers[4]	2	2	2	1	1	1	1	1	1	..
Foreign	5	5	5	5	4	4	4	4	3	..
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**..**

See notes at end of section.

TABLE 1.7 Federal Expenditures on R&D in Current Dollars, Constant 1997 Dollars, and by Performing Sector[3], 1992-93 to 2001-2002[e]

Sector of performance	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					in millions of dollars					
Current Dollars										
Intramural	1,716	1,757	1,754	1,727	1,792	1,720	1,743	1,859	1,909	1,953
Canadian business enterprises	768	773	756	665	573	721	749	713	854	924
Canadian higher education	820	814	835	797	761	725	842	1,010	1,200	1,426
Canadian non-profit institutions	50	66	74	59	75	71	82	130	88	186
Other Canadian performers[4]	65	90	62	65	50	22	38	59	57	57
Foreign	168	178	177	151	141	120	124	118	104	101
TOTAL	**3,587**	**3,677**	**3,657**	**3,465**	**3,391**	**3,379**	**3,578**	**3,890**	**4,211**	**4,646**
Constant 1997 Dollars										
GDP Implicit Price Index	**92.6**	**94.0**	**95.1**	**97.2**	**98.9**	**100.0**	**99.6**	**100.9**	**104.6**	**..**
Intramural	1,853	1,869	1,844	1,777	1,812	1,720	1,750	1,842	1,825	..
Canadian business enterprises	829	822	795	684	579	721	752	707	816	..
Canadian higher education	886	866	878	820	769	725	845	1,001	1,147	..
Canadian non-profit institutions	54	70	78	61	76	71	82	129	84	..
Other Canadian performers[4]	70	96	65	67	51	22	38	58	54	..
Foreign	181	189	186	155	143	120	124	117	99	..
TOTAL	**3,874**	**3,912**	**3,845**	**3,565**	**3,429**	**3,379**	**3,592**	**3,855**	**4,026**	**..**
Percent					percent					
Intramural	48	48	48	50	53	51	49	48	45	..
Canadian business enterprises	21	21	20	19	17	21	21	18	20	..
Canadian higher education	23	22	23	23	22	21	24	26	29	..
Canadian non-profit institutions	1	2	2	2	2	2	2	3	2	..
Other Canadian performers[4]	2	2	2	2	2	1	1	2	1	..
Foreign	5	5	5	4	4	4	3	3	3	..
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**..**

See notes at end of section.

TABLE 1.8 Federal Expenditures on RSA in Current Dollars, Constant 1997 Dollars, and by Performing Sector[3], 1992-93 to 2001-2002[e]

Sector of performance	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					in millions of dollars					
Current Dollars										
Intramural	1,632	1,700	1,646	1,699	1,783	1,631	1,712	1,799	2,034	2,155
Canadian business	184	181	174	221	228	206	203	212	250	235
Canadian higher education	160	159	147	135	133	135	147	164	154	172
Canadian non-profit institutions	49	51	53	45	37	40	40	51	49	46
Other Canadian performers[4]	46	49	28	21	17	17	14	25	25	24
Foreign	121	134	121	107	105	101	109	111	123	113
TOTAL	**2,193**	**2,274**	**2,170**	**2,228**	**2,303**	**2,130**	**2,224**	**2,362**	**2,635**	**2,745**
Constant 1997 Dollars GDP Implicit Price Index	92.6	94.0	95.1	97.2	98.9	100.0	99.6	100.9	104.6	..
Intramural	1,762	1,809	1,731	1,748	1,803	1,631	1,719	1,783	1,945	..
Canadian business enterprises	199	193	183	227	231	206	204	210	239	..
Canadian higher education	173	169	155	139	134	135	148	163	147	..
Canadian non-profit	53	54	56	46	37	40	40	51	47	..
Other Canadian performers[4]	50	52	29	22	17	17	14	25	24	..
Foreign	131	143	127	110	106	101	109	110	118	..
TOTAL	**2,368**	**2,419**	**2,282**	**2,292**	**2,329**	**2,130**	**2,233**	**2,341**	**2,519**	**..**
Percent					percent					
Intramural	75	75	76	76	77	76	77	76	77	..
Canadian business enterprises	8	8	8	10	10	10	9	9	9	..
Canadian higher education	7	7	7	6	6	6	6	7	6	..
Canadian non-profit institutions	2	2	2	2	2	2	2	2	2	..
Other Canadian performers[4]	2	2	1	1	1	1	1	1	1	..
Foreign	6	6	6	5	4	5	5	5	5	..
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**..**

See notes at end of section.

Chart 1.13

Federal Expenditures on S&T, 1992 to 2001[e], in Current Dollars

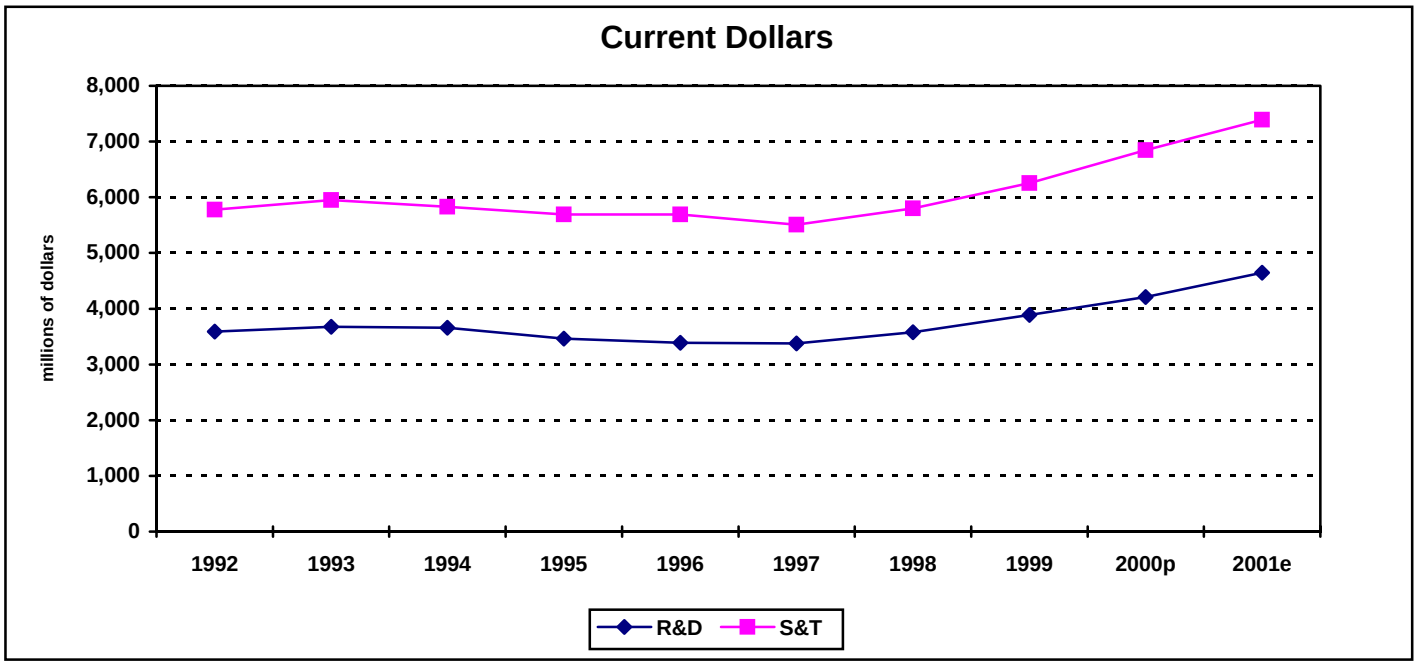
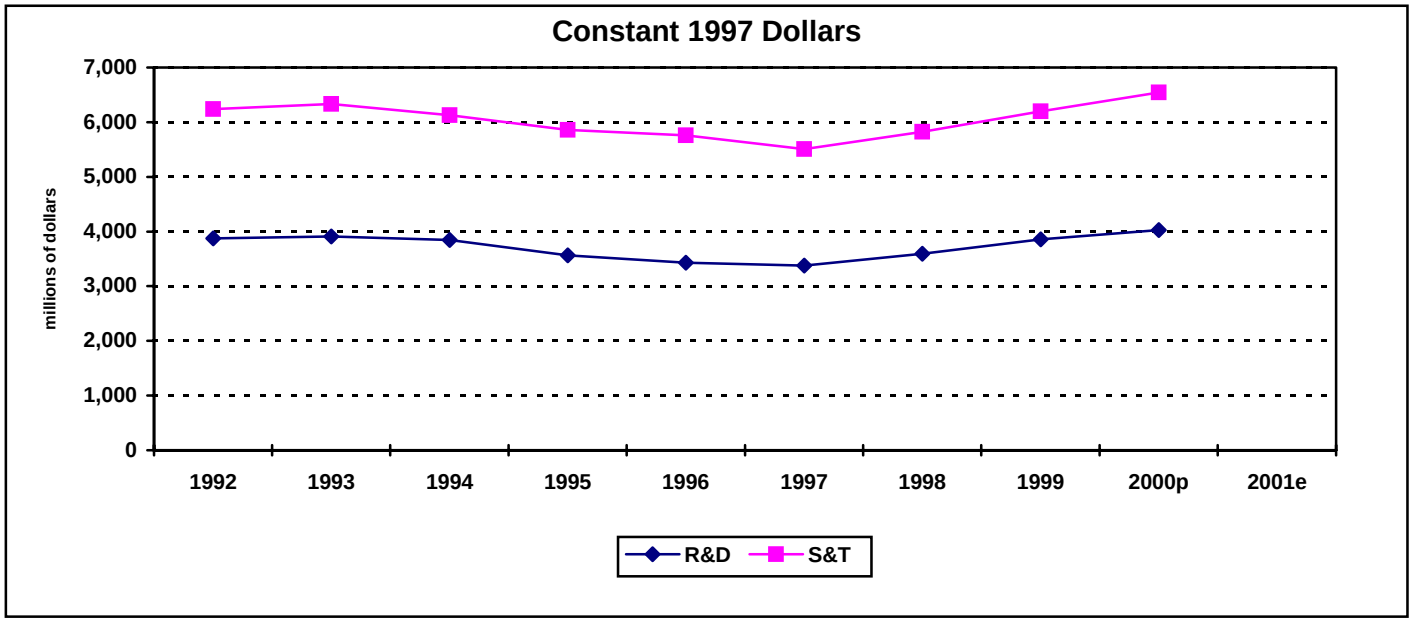


Chart 1.14

Federal Expenditures on S&T, 1992 to 2001[e], in Constant 1997 Dollars



***Source**: Tables 1.6 and 1.7*

TABLE 1.9 Federal Expenditures on S&T, by Major Department or Agency and Source of Funds, 2001-2002[e]

Department or Agency	Total estimated expenditures on science	Sources of Funds				
		External sources	Other S&T Costs		Budgetary Sources	
			Indirect non-program costs	Administrative costs of department	Other Federal Agencies*	Own Department
	in millions of dollars					
Agriculture	363	-	16	31	-	316
Canadian Space Agency	355	-	2	-	-	353
Environment	571	34	33	36	27	441
Fisheries and Oceans	323	9	18	-	13	283
Health Canada	260	-	16	33	-	227
Industry Canada	486	-	12	-	-28	502
National Defence	324	-	6	-	-9	327
National Research Council	660	18	14	-	41	587
Natural Resources Canada	408	14	22	-	-10	382
Natural Sciences and Engineering Research Council	613	-	3	-	-5	615
Social Sciences and Humanities Research Council	183	-	2	-	33	148
Statistics Canada	683	31	47	-	57	548

**Negative amounts denote net transfer from budget for S&T.*

TABLE 1.10 Federal Expenditures on S&T, by Major Department or Agency, 1992-93 to 2001-2002[e]

Department or Agency	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[P]	2001-2002[e]
						in millions of dollars				
Major Department or Agency	**5,421**	**5,604**	**5,494**	**5,401**	**5,397**	**5,231**	**5,492**	**5,928**	**6,503**	**7,016**
AECL	167	161	169	168	240	174	135	132	136	147
AGR	357	366	356	358	368	359	351	387	354	363
BC	35	39	36	35	39	41	45	41	41	51
CFI	…	…	…	…	…	2	31	118	187	306
CH[1]	..	8	84	82	82	78	1	1	1	1
CIHR	…	…	…	…	…	…	…	317	411	476
CMC	46	46	56	53	56	55	54	55	61	60
CIDA	342	333	308	334	339	303	314	335	372	344
COMM	52	…	…	…	…	…	…	…	…	…
CSA	371	387	320	299	253	230	343	305	343	355
EA / FA&IT	54	52	60	58	59	58	49	54	46	48
E&I	42	…	…	…	…	…	…	…	…	…
EMR	334	352	…	…	…	…	…	…	…	…
ENV[1]	631	663	549	529	456	453	427	538	498	571
FOR	99	115	…	…	…	…	…	…	…	…
F&O	231	239	237	244	246	204	281	287	325	323
HC	174	191	180	201	214	210	204	236	275	260
HRDC	…	62	66	60	60	65	74	60	78	78
IDRC	107	115	102	88	88	78	85	82	80	76
IND[2]	…	374	388	324	291	407	343	301	412	486
ISTC	258	…	…	…	…	…	…	…	…	…
MRC	257	259	265	252	242	238	277	…	…	…
NA	40	43	62	65	46	36	35	35	41	46
NDEF	275	256	252	233	253	311	304	335	326	324
NL	53	58	49	49	43	42	40	42	48	49
NRC	513	503	505	481	479	524	554	597	649	660
NRCan	…	…	464	475	430	396	386	421	401	408
NSERC	501	496	494	471	453	436	499	549	563	613
PCA	…	…	…	…	…	…	82	68	68	69
SSHRC	103	102	103	101	93	96	104	127	152	183
STCAN	351	347	353	406	535	400	437	461	591	683
TB	28	37	36	35	32	35	37	44	44	36
Other Department or Agency*	**359**	**347**	**333**	**292**	**297**	**278**	**310**	**324**	**343**	**375**
TOTAL	**5,780**	**5,951**	**5,827**	**5,693**	**5,694**	**5,509**	**5,802**	**6,252**	**6,846**	**7,391**

** See Table 1.20*
See notes at end of section.

TABLE 1.11 Federal Expenditures on R&D, by Major Department or Agency, 1992-93 to 2001-2002[e]

Department or Agency	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					in millions of dollars					
Agriculture	319	328	323	328	350	340	335	370	338	345
Atomic Energy of Canada Limited	159	155	163	163	240	174	135	132	136	147
Canadian Economic Development for Quebec Regions	28	30	35	24	28	22	23	12	10	6
Canadian Foundation for Innovation	...	...	...	...	...	2	31	118	187	306
Canadian Institutes of Health Research	...	...	...	...	...	...	...	304	403	458
Canadian International Development Agency	69	61	62	51	52	48	49	50	41	39
Canadian Space Agency	360	379	314	291	245	224	337	300	324	341
Energy, Mines and Resources (EMR)	268	271	...	...	...	...	…	…	…	…
Forestry Canada (FOR)	92	106	...	...	...	...	…	…	…	…
Natural Resources Canada	...	...	374	403	372	350	345	376	357	362
Environment[1]	119	135	174	163	135	127	116	196	149	195
Fisheries and Oceans	111	114	114	99	95	78	109	110	124	123
Health Canada	49	53	58	63	74	65	54	55	65	55
Industry, Science & Technology Canada	242	...	...	...	...	...	…	…	…	…
Communications	44	...	...	...	...	...	…	…	…	…
Industry Canada[2]	...	317	322	268	230	345	274	239	346	420
International Development Research Centre	95	103	89	78	76	64	67	71	70	66
Medical Research Council	247	249	257	244	234	229	266	…	…	…
National Defence	270	251	248	229	223	264	263	293	283	283
National Research Council	458	441	449	419	429	470	499	530	582	599
Natural Sciences and Engineering Research council	445	439	440	425	410	393	443	481	495	539
Social Sciences and Humanities Research Council	69	68	69	70	64	65	68	92	110	133
Statistics Canada	12	10	10	10	9	11	12	13	14	13
Other	131	167	156	137	125	108	152	148	177	216
TOTAL	**3,587**	**3,677**	**3,657**	**3,465**	**3,391**	**3,379**	**3,578**	**3,890**	**4,211**	**4,646**

See notes at end of section.

TABLE 1.12 Federal S&T Expenditures, by Department or Agency and Performing Sector[3], 2001-2002[e]

Department or agency	Intramural	Sector of performance: Canadian business enterprises	Higher education	Other Canadian performers	Foreign	Total
			in millions of dollars			
Agriculture	343	--	1	18	--	363
Atomic Energy of Canada Limited	131	15	--	-	2	147
Bank of Canada	51	-	-	-	-	51
Canadian Foundation for Innovation	6	-	300	-	-	306
Canadian Institutes of Health Research	23	-	433	11	8	476
Canadian International Development Agency	17	175	60	16	76	344
Canadian Space Agency	82	243	6	-	23	355
Environment	458	36	10	63	5	571
Fisheries and Oceans	311	1	3	8	-	323
Foreign Affairs and International Trade	10	-	14	-	24	48
Health Canada	242	3	4	9	1	260
Human Resources Development	36	4	2	35	-	78
Industry Canada	107	369	-	3	7	486
International Development Research Centre	45	--	3	2	26	76
National Defence	178	127	4	1	15	324
National Library	49	-	-	-	--	49
National Research Council	526	85	40	2	7	660
Natural Resources Canada	333	51	4	18	2	408
Natural Sciences and Engineering Research Council	31	14	544	12	12	613
Parks Canada Agency	66	1	1	1	--	69
Social Sciences and Humanities Research Council	16	--	142	20	4	183
Statistics Canada	682	-	-	1	-	683
Other	365	34	27	92	1	518
TOTAL	**4,108**	**1,159**	**1,598**	**313**	**214**	**7,391**

See notes at end of section.

TABLE 1.13 Federal Expenditures by Activity, 1992-93 to 2001-2002[e]

Scientific activity	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					in millions of dollars					
R&D										
Current expenditures	3,227	3,319	3,287	3,140	3,086	3,062	3,241	3,559	3,865	4,260
Administration of extramural programs	159	163	164	162	164	163	200	186	205	219
Capital expenditures	201	195	205	163	141	154	137	144	140	167
Sub-total R&D	**3,587**	**3,677**	**3,657**	**3,465**	**3,391**	**3,379**	**3,578**	**3,890**	**4,211**	**4,646**
RSA										
Data collection	901	969	882	923	1,048	1,004	1,059	1,146	1,314	1,442
Information services	524	527	543	539	482	425	432	446	498	500
Special services and studies	418	406	369	447	463	436	452	485	527	494
Education support	181	176	170	139	139	142	157	168	174	197
Administration of extramural programs	34	32	36	34	33	32	35	40	45	43
Capital expenditures	134	164	171	147	139	91	89	77	78	69
Sub-total RSA	**2,193**	**2,274**	**2,170**	**2,228**	**2,303**	**2,130**	**2,224**	**2,362**	**2,635**	**2,745**
TOTAL	**5,780**	**5,951**	**5,827**	**5,693**	**5,694**	**5,509**	**5,802**	**6,252**	**6,846**	**7,391**

TABLE 1.14 Federal Expenditures, by Type of Science and by Performer[3], 1992-93 to 2001-2002[e]

Sector of performance	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
	in millions of dollars									
Total Science:										
Intramural	3,349	3,457	3,399	3,427	3,575	3,351	3,455	3,658	3,942	4,108
Canadian business enterprises	952	954	930	885	801	927	952	926	1,104	1,159
Canadian higher education	980	973	983	933	894	860	989	1,173	1,354	1,598
Canadian non-profit institutions	99	116	127	103	112	110	122	181	136	232
Other Canadian performers[4]	112	138	91	86	65	39	50	84	82	81
Foreign	288	313	297	259	247	222	233	229	228	214
TOTAL	**5,780**	**5,951**	**5,827**	**5,693**	**5,694**	**5,509**	**5,802**	**6,252**	**6,846**	**7,391**
Natural sciences and engineering										
Intramural	2,464	2,570	2,519	2,486	2,507	2,417	2,459	2,648	2,774	2,841
Canadian business enterprises	913	915	885	846	767	892	924	896	1,070	1,126
Canadian higher education	805	804	818	773	737	702	836	1,002	1,171	1,389
Canadian non-profit institutions	48	56	67	59	66	57	56	128	77	170
Other Canadian performers[4]	72	92	71	69	56	28	42	57	53	51
Foreign	157	162	166	144	140	126	134	134	134	131
TOTAL	**4,459**	**4,599**	**4,526**	**4,377**	**4,273**	**4,222**	**4,450**	**4,866**	**5,279**	**5,708**
Social sciences and humanities										
Intramural	884	887	880	941	1,068	934	996	1,010	1,168	1,267
Canadian business enterprises	39	39	45	40	34	35	29	30	33	33
Canadian higher education	175	169	165	159	157	158	153	171	183	209
Canadian non-profit institutions	51	60	59	44	46	53	65	52	59	61
Other Canadian performers[4]	41	47	20	17	9	11	9	27	29	30
Foreign	131	150	132	115	107	96	99	95	94	83
TOTAL	**1,321**	**1,352**	**1,301**	**1,316**	**1,421**	**1,287**	**1,352**	**1,386**	**1,567**	**1,683**

See notes at end of section.

TABLE 1.15 Federal Expenditures on R&D, by Type of Science and by Performer[3], 1992-93 to 2001-2002[e]

Sector of performance	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					in millions of dollars					
Total sciences:										
Intramural	1,716	1,757	1,754	1,727	1,792	1,720	1,743	1,859	1,909	1,953
Canadian business enterprises	768	773	756	665	573	721	749	713	854	924
Canadian higher education	820	814	835	797	761	725	842	1,010	1,200	1,426
Canadian non-profit institutions	50	66	74	59	75	71	82	130	88	186
Provincial and municipal governments	12	35	33	38	27	6	9	13	14	12
Other Canadian performers	53	55	29	27	23	16	29	46	43	45
Foreign	168	178	177	151	141	120	124	118	104	101
TOTAL	**3,587**	**3,677**	**3,657**	**3,465**	**3,391**	**3,379**	**3,578**	**3,890**	**4,211**	**4,646**
Natural sciences and engineering:										
Intramural	1,656	1,694	1,694	1,669	1,724	1,651	1,667	1,774	1,822	1,867
Canadian business enterprises	762	770	750	662	570	720	747	711	853	923
Canadian higher education	733	729	749	713	680	644	762	913	1,091	1,298
Canadian non-profit institutions	25	33	43	34	52	47	43	109	58	151
Provincial and municipal governments	10	32	30	37	25	4	8	13	13	11
Other Canadian performers	48	49	25	23	21	15	27	37	32	32
Foreign	119	127	131	114	110	94	97	95	81	80
TOTAL	**3,353**	**3,434**	**3,422**	**3,252**	**3,181**	**3,174**	**3,350**	**3,653**	**3,951**	**4,363**
Social sciences and humanities										
Intramural	61	63	60	58	68	69	76	85	86	86
Canadian business enterprises	5	2	5	3	3	2	3	2	1	1
Canadian higher education	86	85	86	85	81	80	80	97	109	128
Canadian non-profit institutions	26	33	30	24	24	24	39	21	29	35
Provincial and municipal governments	2	3	3	1	2	2	1	1	--	--
Other Canadian performers	5	6	4	4	2	1	2	9	11	13
Foreign	48	52	46	38	31	27	27	23	23	21
TOTAL	**233**	**243**	**235**	**213**	**210**	**205**	**228**	**237**	**260**	**283**

See notes at end of section.

TABLE 1.16 Federal Expenditures on RSA, by Type of Science and by Performer[3], 1992-93 to 2001-2002[e]

Sector of performance	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					in millions of dollars					
Total sciences:										
Intramural	1,632	1,700	1,646	1,699	1,783	1,631	1,712	1,799	2,034	2,155
Canadian business enterprises	184	181	174	221	228	206	203	212	250	235
Canadian higher education	160	159	147	135	133	135	147	164	154	172
Canadian non-profit institutions	49	51	53	45	37	40	40	51	49	46
Provincial and municipal governments	10	9	11	9	6	6	5	5	3	3
Other Canadian performers	36	40	17	12	11	11	9	20	22	21
Foreign	121	134	121	107	105	101	109	111	123	113
TOTAL	**2,193**	**2,274**	**2,170**	**2,228**	**2,303**	**2,130**	**2,224**	**2,362**	**2,635**	**2,745**
Natural sciences and engineering:										
Intramural	808	876	825	816	783	766	792	874	952	974
Canadian business enterprises	151	145	135	184	197	172	177	185	218	203
Canadian higher education	71	75	69	60	58	58	74	89	80	91
Canadian non-profit institutions	23	23	24	25	14	11	14	19	19	20
Provincial and municipal governments	7	5	10	6	5	4	3	3	3	3
Other Canadian performers	7	5	6	4	5	4	4	4	4	5
Foreign	38	36	35	30	30	33	37	39	53	50
TOTAL	**1,104**	**1,164**	**1,104**	**1,125**	**1,091**	**1,048**	**1,100**	**1,213**	**1,329**	**1,346**
Social sciences and humanities:										
Intramural	824	824	820	883	1,000	866	920	925	1,082	1,181
Canadian business enterprises	33	37	40	37	31	33	26	28	32	31
Canadian higher education	89	84	78	75	76	77	73	75	75	82
Canadian non-profit institutions	26	27	29	20	23	29	26	31	30	26
Provincial and municipal governments	4	3	1	3	1	2	2	2	1	--
Other Canadian performers	30	35	12	8	5	7	5	16	18	16
Foreign	83	98	86	77	75	69	72	72	70	62
TOTAL	**1,089**	**1,109**	**1,066**	**1,103**	**1,211**	**1,082**	**1,124**	**1,149**	**1,307**	**1,399**

See notes at end of section.

TABLE 1.17 Federal Expenditures, by Activity and Performer, 1999-2000

Activity	Intramural	Performer						
		Business enterprises	Higher education	Canadian non-profit institutions	Provincial and municipal gvts	Foreign performers	Other	Total
	in millions of dollars							
R&D								
In-house R&D	1,401	…	…	…	…	…	…	1,401
R&D contracts	37	362	21	5	2	14	11	452
Supporting contracts	82	…	…	…	…	…	…	82
R&D grants and contributions	…	340	958	115	11	92	27	1,543
Research fellowships	9	12	31	10	-	13	8	82
Administration of extramural programs	186	…	…	…	…	…	…	186
Capital expenditures	144	…	…	…	…	…	…	144
Sub-total R&D	**1,859**	**713**	**1,010**	**130**	**13**	**118**	**46**	**3,890**
RSA								
Data collection	1,063	43	10	18	3	7	3	1,146
Information services[5]	380	13	12	13	--	24	4	446
Special services and studies[6]	231	154	5	17	2	70	7	485
Education support	9	3	136	4	-	10	6	168
Administration of extramural programs	40	…	…	…	…	…	…	40
Capital expenditures	77	…	…	…	…	…	…	77
Sub-total RSA	**1,799**	**212**	**164**	**51**	**5**	**111**	**20**	**2,362**
TOTAL	**3,658**	**926**	**1,173**	**181**	**18**	**229**	**66**	**6,252**

See notes at end of section.

TABLE 1.18 Federal Expenditures, by Activity and Performer, 2000-2001[p]

Activity	Intramural	Performer						
		Business enterprises	Higher education	Canadian non-profit institutions	Provincial and municipal gvts	Foreign performers	Other	Total
		in millions of dollars						
R&D								
In-house R&D	1,447	…	…	…	…	…	…	1,447
R&D contracts	37	380	22	6	2	12	9	467
Supporting contracts	69	…	…	…	…	…	…	69
R&D grants and contributions	…	462	1,141	73	12	85	25	1,798
Research fellowships	10	12	37	9	--	8	9	97
Administration of extramural programs	219	…	…	…	…	…	…	219
Capital expenditures	140	…	…	…	…	…	…	140
Sub-total R&D	**1,909**	**854**	**1,200**	**88**	**14**	**104**	**43**	**4,211**
RSA								
Data collection	1,225	48	11	18	3	7	3	1,314
Information services[5]	429	15	11	12	--	25	4	498
Special services and studies[6]	247	183	5	15	--	69	7	527
Education support	10	3	127	3	-	22	8	174
Administration of extramural programs	45	…	…	…	…	…	…	45
Capital expenditures	78	…	…	…	…	…	…	78
Sub-total RSA	**2,034**	**250**	**154**	**49**	**3**	**123**	**22**	**2,635**
TOTAL	**3,942**	**1,104**	**1,354**	**136**	**17**	**228**	**65**	**6,846**

See notes at end of section.

TABLE 1.19 Federal Expenditures, by Activity and Performer, 2001-2002[e]

Activity	Intramural	Performer						
		Business enterprises	Higher education	Canadian non-profit institutions	Provincial and municipal gvts	Foreign performers	Other	Total
		in millions of dollars						
R&D								
In-house R&D	1,446	…	…	…	…	…	…	1,446
R&D contracts	37	377	23	6	2	13	10	468
Supporting contracts	74	…	…	…	…	…	…	74
R&D grants and contributions	…	534	1,363	170	10	74	24	2,175
Research fellowships	10	12	40	9	-	15	11	85
Administration of extramural programs	205	…	…	…	…	…	…	205
Capital expenditures	167	…	…	…	…	…	…	167
Sub-total R&D	**1,953**	**924**	**1,426**	**186**	**12**	**101**	**45**	**4,646**
RSA								
Data collection	1,361	48	5	17	2	7	3	1,442
Information services[5]	429	14	15	14	--	24	5	500
Special services and studies[6]	244	170	4	12	--	59	4	494
Education support	9	3	147	4	-	23	10	197
Administration of extramural programs	43	…	…	…	…	…	…	43
Capital expenditures	69	…	…	…	…	…	…	69
Sub-total RSA	**2,155**	**235**	**172**	**46**	**3**	**113**	**21**	**2,745**
TOTAL	**4,108**	**1,159**	**1,598**	**232**	**15**	**214**	**66**	**7,391**

See notes at end of section.

TABLE 1.20 Federal Expenditures on S&T, by Department or Agency, 1992-93 to 2001-2002[e]

Department or Agency	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
					in millions of dollars					
ACOA	16	35	41	34	21	7	29	27	25	14
AECB	8	8	7	7	4	3	3	…	…	…
CBC	7	8	8	7	7	6	…	…	…	…
CCA	34	...	...	...	...	...	…	…	…	…
CCMD	--	1	2	2	2	1	2	1	2	2
CFIA	..	..	..	..	28	30	30	32	36	33
CHRC	1	--	1	1	--	1	1	1	1	1
C&I	...	1	2	1	2	2	2	3	4	4
CMHC	23	23	24	21	19	20	25	30	24	26
CMN	20	22	26	29	35	26	23	23	26	26
CNSC	…	…	…	…	…	…	…	3	3	3
COL	5	5	4	3	4	1	1	1	1	1
EPC	-	--	1	1	--	--	…	…	…	…
FIN	24	24	22	20	19	20	22	26	24	24
FORD - / CED(Qué)	29	31	35	25	29	22	23	13	10	6
GC	…	…	…	…	…	…	…	…	…	47
IAND	16	16	13	8	5	4	2	4	4	4
IC	2	...	...	...	...	...	…	…	…	…
JUS	6	7	7	6	6	6	9	14	14	14
LAB	1	...	...	...	...	...	…	…	…	…
M&C	9	...	...	...	...	...	…	…	…	…
NCC	1	--	…	…	…	…	…	…	…	…
NEB	3	5	5	4	3	2	1	1	1	1
NFB	1	1	1	1	1	1	1	1	1	1
NGC	29	30	34	37	33	46	49	42	42	46
NMST	18	18	24	24	25	24	23	24	26	25
NREV / CCRA	7	7	8	7	6	7	9	9	7	7
NTA	1	1	1	...	...	...	…	…	…	…
PC	24	28	4	2	--	--	--	5	6	3
PSC	1	1	1	1	2	7	6	7	7	7
PW	7	...	...	...	...	...	…	…	…	…
PW&GS	...	7	6	6	6	5	6	6	6	6
RCMP	1	1	1	--	1	1	1	1	1	1
SECS	6	--	...	...	...	...	…	…	…	…
SGEN	7	7	6	6	6	5	5	5	6	6
SWC	--	--	--	1	1	2	4	3	4	4
TPT	28	30	30	21	17	20	20	17	20	21
TSBC	--	--	…	...	...	...	…	…	…	…
WEDO	24	30	18	16	14	9	13	24	43	43
Other Department or Agency	**359**	**347**	**333**	**292**	**297**	**278**	**310**	**324**	**343**	**375**
Major Department or Agency*	**5,421**	**5,604**	**5,494**	**5,401**	**5,397**	**5,231**	**5,492**	**5,928**	**6,503**	**7,016**
Total	**5,780**	**5,951**	**5,827**	**5,693**	**5,694**	**5,509**	**5,802**	**6,252**	**6,846**	**7,391**

**See Table 1.10*

TABLE 1.21 Federal Expenditures on Intramural R&D, by Department or Agency, 1992-93 to 2001-2002[e]

Department or Agency	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
	in millions of dollars									
AGR	304	313	306	317	346	338	333	351	319	326
AECL	138	136	140	143	219	154	114	123	127	131
CFIA	...	...	...	...	12	13	11	10	15	13
CSA	78	79	54	63	57	49	81	51	58	69
COMM	31	...	...	...	...	...	…	…	…	…
EMR	226	223	...	...	...	...	…	…	…	…
ENV[1]	107	120	146	131	113	106	93	115	126	123
F & O	101	110	111	89	92	75	105	108	122	121
FOR	76	80	...	...	...	...	…	…	…	…
HC	23	34	29	33	41	40	39	43	52	43
IDRC	22	21	21	20	28	27	28	38	37	35
IND[2]	21	77	85	82	43	38	39	39	38	41
NDEF	159	145	146	127	136	140	142	173	160	157
NRCan	...	…	305	342	320	309	303	307	291	296
NRC	343	326	321	294	300	340	349	389	437	465
NSERC	16	17	17	17	17	17	20	22	25	27
Other	71	76	73	69	68	74	86	133	102	106
Total	**1,716**	**1,757**	**1,754**	**1,727**	**1,792**	**1,720**	**1,743**	**1,859**	**1,909**	**1,953**

1 The Government reorganization transferred the Canadian Parks Services to the Department of Canadian Heritage for 1994-95. Parks Canada was established as an agency of the federal government by an Act of Parliament in December, 1998.

2 Figures for Industry Canada, 1993-94 reflect the reorganization of Industry, Science and Technology Canada and program components of Communications, Consumer and Corporate Affairs and Investment Canada.

3 As reported by the funder, the federal government, not by the performers.

4 Other Canadian performers includes provincial and municipal governments.

5 Includes information services and museum services.

6 Includes testing and standardization, economic and feasibility studies and operations and policy studies.

2. Federal Personnel

2. Federal Personnel

In this section intramural expenditure data are complemented by data on the person-years devoted to scientific activities.

Person-year is a measure of the time actually devoted to the conduct of scientific activities. An employee who is engaged in scientific activities for half a year has a person-year full-time equivalence (FTE) of 0.5.

Personnel statistics for 2001-2002 were based on the plans of departments and agencies at the beginning of the fiscal year.

In 2001-2002, 31,681 federal government person-years were devoted to S&T activities, of which 55% were engaged in RSA activities.

The international comparison of total government R&D personnel is shown in Table 2.1.

TABLE 2.1 Government Sector Total R&D Personnel (FTE) for Selected OECD Countries

Countries	1992	1993	1994	1995	1996	1997	1998	1999
				Full-time equivalent				
Australia	19,804	..	19,309	..	19,388	..	18,946	..
Austria	..	2,107	..	..	..	..	..	..
Belgium	..	2,019	2,026	2,019	2,012	2,070	..	..
Canada*	**20,074**	**19,820**	**19,246**	**17,743**	**16,613**	**15,645**	**15,296**	**15,698**
Denmark	4,648	4,916	..	5,439	5,506	5,675	..	6,236
Finland	..	6,655	6,849	6,430	..	6,826	7,498	7,454
France	67,934	67,958	68,082	68,539	69,184	52,693	52,082	..
Germany	73,500	71,363	72,825	75,148	74,725	73,495	73,369	72,700
Italy	32,868	33,164	32,768	33,039	32,225	31,292	..	..
Japan	55,376	56,015	55,633	55,990	56,176	56,554	58,762	59,025
Netherlands	14,930	15,190	15,970	16,020	16,030	16,160	16,451	..
Spain	16,678	17,266	17,546	17,153	17,866	19,189	20,170	22,283
Sweden	..	3,289	..	3,518	..	3,334	..	3,195
United Kingdom	38,000	34,000	32,000	28,919	27,486	25,897	29,197	29,672
United States	..	..	..	..	..	..	..	..

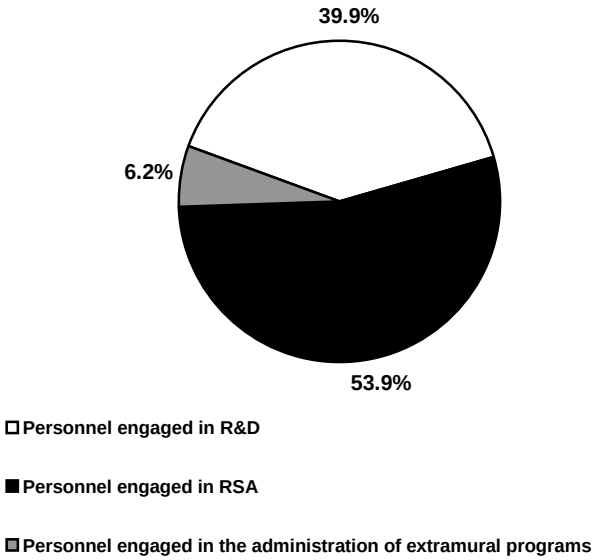
** Including Provincial Government personnel.*

***Source**: OECD. Main Science and Technology Indicators 2001.*

Chart 2.1

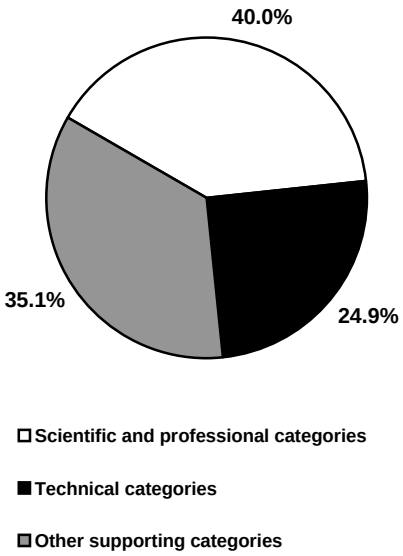
Federal Personnel Engaged in S&T Activities, 2001-2002[e]

By Activity



***Source**: Table 2.2.*

By Category



***Source**: Table 2.5.*

The total number of person-years devoted to scientific activities in the Federal Government remained fairly stable over the period from 1991-92 to 1993-94. However, the estimated total of person-years decreased by 4,660 or 13.7% from 1993-94 to 1998-99 or an average of 2.7% per year. An increase is estimated for 2001-2002 of 1.1% or 355 person years.

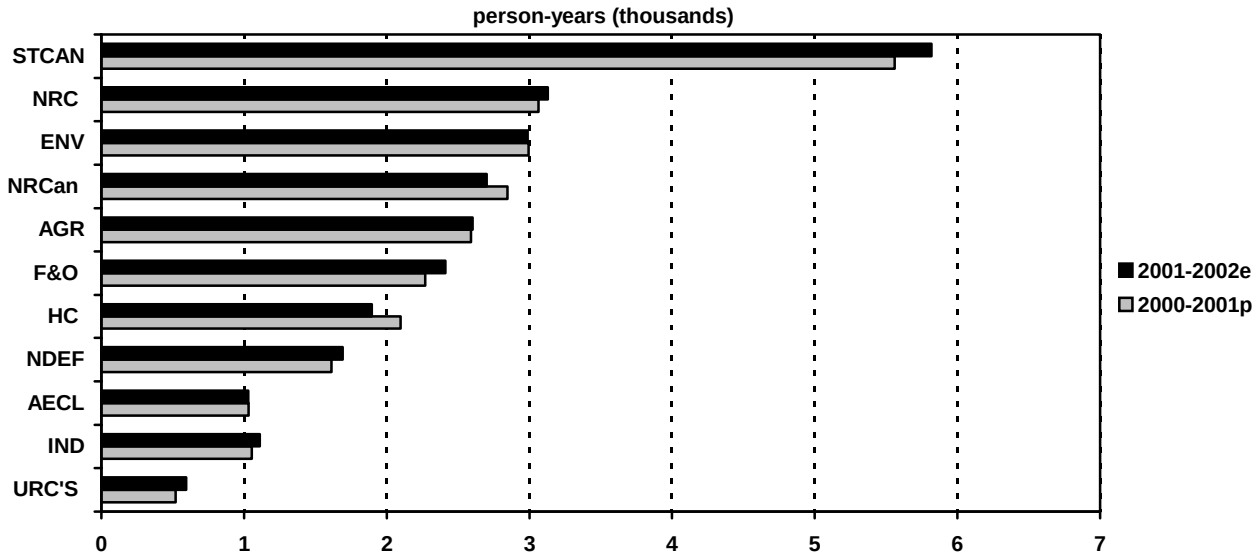
For 2001-2002, 66% of the estimated total personnel were in Natural Sciences and Engineering, of which 65% were engaged in Research and Development (R&D). In contrast, personnel in Social Sciences and Humanities will account for 34%, of which only 5% will be engaged in R&D.

For the Social Sciences and Humanities, Statistics Canada remains the largest employer of personnel for S&T. Note that the increases for Statistics Canada in 2000-2001 and 2001-2002 are due to the 2001 Census.

Sixty-five percent of total S&T personnel are in two categories: Scientific and Professional (40%) and Technical (25%).

Chart 2.2

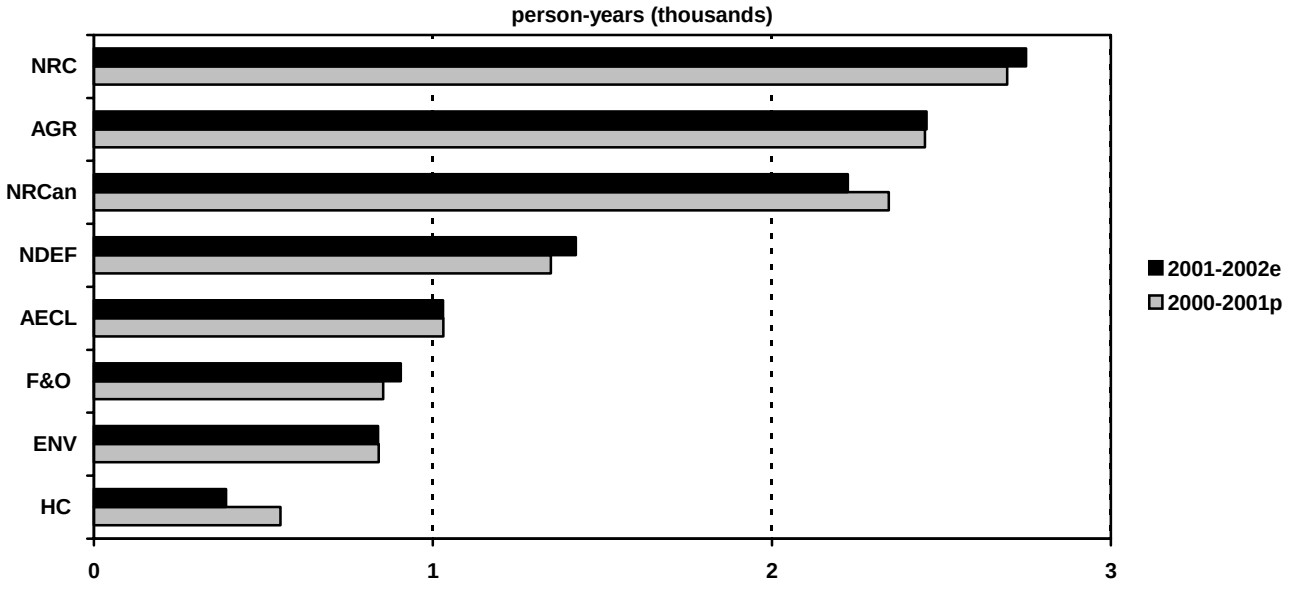
Federal Personnel Engaged in S&T Activities, by Department or Agency, 2000-2001[p] and 2001-2002[e]



Source: *Table 2.3*

Chart 2.3

Federal Personnel Engaged in R&D Activities, by Department or Agency, 2000-2001[p] and 2001-2002[e]



Source *:Table 2. 4.*

TABLE 2.2 Federal Personnel Engaged in S&T Activities, 1992-93 to 2001-2002[e]

Activity	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					person-years					
Total Science:										
Research and development	15,834	15,818	15,369	14,312	13,645	12,798	12,533	12,765	12,692	12,633
Related scientific activities	16,797	16,473	16,189	16,021	15,329	15,437	15,372	16,189	16,734	17,092
Administration of extramural R&D programs	1,437	1,419	1,363	1,243	1,191	1,155	1,196	1,315	1,448	1,489
Administration of extramural RSA programs	420	435	429	430	429	398	384	441	451	467
Total	**34,489**	**34,145**	**33,349**	**32,005**	**30,594**	**29,787**	**29,485**	**30,711**	**31,326**	**31,681**
Natural Sciences and Engineering:										
Research and development	15,416	15,405	14,966	13,926	13,235	12,429	12,179	12,353	12,309	12,255
Related scientific activities	7,623	7,434	7,155	7,129	6,487	6,656	6,457	7,035	7,070	7,128
Administration of extramural R&D programs	1,219	1,195	1,148	1,045	1,025	998	1,039	1,144	1,271	1,314
Administration of extramural RSA programs	260	266	247	255	259	230	217	241	240	245
Total	**24,518**	**24,300**	**23,516**	**22,355**	**21,006**	**20,313**	**19,891**	**20,773**	**20,890**	**20,942**
Social Sciences and Humanities:										
Research and development	418	413	403	385	410	369	355	412	383	378
Related scientific activities	9,174	9,039	9,034	8,892	8,842	8,781	8,915	9,154	9,664	9,964
Administration of extramural R&D programs	218	224	215	198	166	157	157	171	177	175
Administration of extramural RSA programs	160	169	181	175	170	168	167	200	212	222
Total	**9,971**	**9,845**	**9,833**	**9,650**	**9,588**	**9,475**	**9,594**	**9,938**	**10,436**	**10,739**

TABLE 2.3 Federal Personnel Engaged in S&T Activities, by Major Department or Agency, 1992-93 to 2001-2002[e]

Department or Agency	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
						person-years				
Agriculture	3,681	3,726	3,635	3,365	2,981	2,593	2,569	2,546	2,590	2,600
Atomic Energy of Canada Limited	2,762	2,572	2,568	2,560	1,700	1,460	1,195	1,170	1,031	1,030
Canadian Heritage	...	...	708	628	565	537	…	…	…	…
Environment[1]	4,702	4,662	3,523	3,417	2,967	2,901	2,844	3,001	2,993	2,987
Fisheries and Oceans	2,332	2,182	2,101	2,318	2,319	2,124	2,059	2,257	2,270	2,410
Health Canada	1,399	1,359	1,412	1,334	1,622	1,872	1,807	1,911	2,096	1,895
Communications	461	...	...	...	...	...	…	…	…	…
Industry Canada	...	1,064	878	880	901	931	1,001	987	1,053	1,110
National Defence	1,828	1,819	1,664	1,248	1,428	1,424	1,567	1,560	1,612	1,691
National Research Council of Canada	3,220	3,325	3,307	3,099	3,097	3,202	3,266	3,310	3,063	3,127
Energy, Mines and Resources	2,638	2,607	...	...	...	...	…	…	…	…
Forestry	957	993	...	...	...	...	…	…	…	…
Natural Resources Canada	...	...	3,562	3,265	3,052	2,848	2,698	2,807	2,845	2,699
Statistics Canada	4,617	4,489	4,607	4,894	5,004	4,959	5,042	5,096	5,560	5,818
Other	5,892	5, 347	5,384	4,997	4,958	4,936	5,437	6,066	6,213	6,314
Total	**34,489**	**34,145**	**33,349**	**32,005**	**30,594**	**29,787**	**29,485**	**30,711**	**31,326**	**31,681**

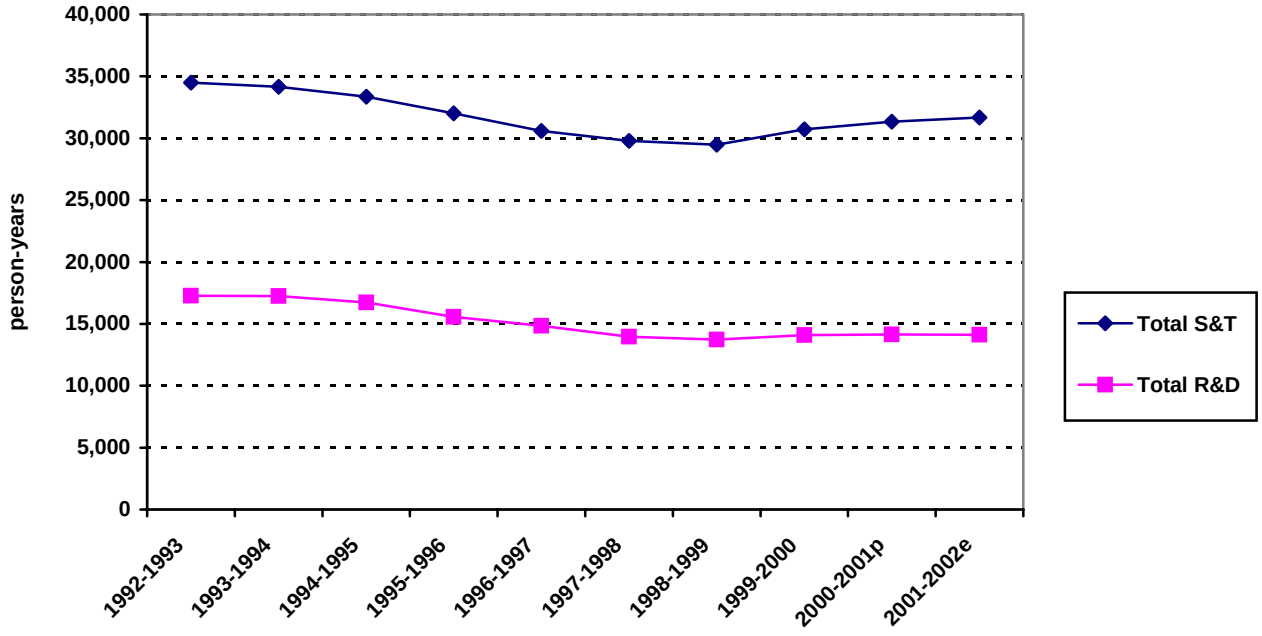
[1] *The Government reorganization transferred the Canadian Parks Services to the Department of Canadian Heritage for 1994-95.*

TABLE 2.4 Federal Personnel Engaged in R&D, by Major Department or Agency, 1992-93 to 2001-2002[e]

Department or Agency	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					person-years					
Agriculture	3,294	3,327	3,244	3,011	2,820	2,427	2,426	2,410	2,452	2,456
Atomic Energy of Canada Limited	2,240	2,147	2,024	2,015	1,700	1,460	1,195	1,170	1,031	1,030
Environment	794	784	815	976	832	771	736	830	840	838
Fisheries and Oceans	1,099	1,042	1,004	902	877	798	772	853	853	905
Health Canada	337	322	327	353	477	539	517	515	550	390
Communications	360	...	...	...	...	...	...	...	...	...
Industry Canada[1]	...	519	428	411	360	350	395	401	435	454
National Defence	1,748	1,742	1,602	1,179	1,236	1,169	1,298	1,291	1,348	1,422
National Research Council of Canada	2,796	2,926	2,897	2,692	2,651	2,729	2,777	2,808	2,694	2,750
Energy, Mines and Resources	2,212	2,179	...	...	...	...	...	...	...	...
Forestry	812	833	...	...	...	...	...	...	...	...
Natural Resources Canada	...	...	2,976	2,646	2,536	2,371	2,284	2,306	2,345	2,224
Statistics Canada	133	118	118	127	125	144	141	158	136	136
Other	1,446	1,298	1,297	1,243	1,222	1,194	1,188	1,338	1,457	1,517
Total	**17,271**	**17,237**	**16,732**	**15,555**	**14,836**	**13,952**	**13,729**	**14,080**	**14,141**	**14,122**

[1] *Figures for Industry Canada, 1994-95 reflect the reorganization of Industry, Science and Technology Canada and program components of Communications, Consumer and Corporate Affairs and Investment Canada*

Chart 2.4 Federal Personnel Engaged in R&D and S&T activities, 1992-93 to 2001-2002[e]



Source: Tables 2.3 and 2.4

TABLE 2.5 Federal Personnel Engaged in S&T Activities, by Category and Activity, 1992-93 to 2001-2002[e]

Category	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					person-years					
S&T Personnel										
Executive	753	713	682	653	...	...	...	...	...	…
Scientific and professional[1]	11,360	11,536	11,917	11,327	11,770	11,544	11,732	12,142	12,565	12,679
Administrative and foreign service	4,416	4,510	4,458	4,590	...	...	...	...	…	…
Technical[1]	8,402	8,526	8,196	7,846	7,773	7,653	7,426	7,775	7,849	7,880
Administrative support[1]	6,369	5,674	5,001	4,786	11,051	10,590	10,327	10,794	10,912	11,122
Operational	2,996	2,992	2,906	2,726	...	...	...	...	…	…
Military personnel	194	195	188	76	...	...	...	...	…	…
Total S&T personnel[2]	**34,489**	**34,145**	**33,349**	**32,005**	**30,594**	**29,787**	**29,485**	**30,711**	**31,326**	**31,681**
R&D Personnel										
Executive	266	253	232	229	...	...	...	...	…	…
Scientific and professional[1]	6,311	6,389	6,341	5,999	6,312	5,848	5,852	6,018	6,273	6,290
Administrative and foreign service	1,513	1,603	1,550	1,560	...	...	...	...	…	…
Technical[1]	4,483	4,523	4,689	4,296	4,098	3,906	3,824	3,870	3,800	3,708
Administrative support[1]	2,424	2,272	1,863	1,727	4,426	4,198	4,053	4,192	4,068	4,124
Operational	2,097	2,019	1,883	1,677	...	...	...	...	…	…
Military personnel	177	179	173	67	...	...	...	...	…	…
Total R&D personnel[2]	**17,271**	**17,237**	**16,732**	**15,555**	**14,836**	**13,952**	**13,729**	**14,080**	**14,141**	**14,122**

[1] *Questions on Personnel resources have been compressed from seven to three principal categories; Scientific & Professional (including Executive), Technical and Administrative Support (which includes Administrative and Foreign Service, Operational and Military).*

[2] *Including Administration of Extramural Programs Personnel.*

TABLE 2.6 Federal Personnel Engaged in S&T, by Category and by Major Department or Agency, 2001-2002[e]

Department or Agency	R&D Personnel[1]				S&T Personnel[1]			
	Scientific and Professional[2]	Technical	Other[3]	Total	Scientific and Professional[2]	Technical	Other[3]	Total
	person-years							
Agriculture	734	796	926	2,456	801	844	955	2,600
Atomic Energy of Canada Limited	550	370	110	1,030	550	370	110	1,030
Environment	505	215	117	838	1,455	896	636	2,987
Fisheries and Oceans	345	352	208	905	936	909	566	2,410
Health Canada	201	167	22	390	1,168	383	344	1,895
Industry Canada	196	26	232	454	393	32	685	1,110
National Defence	693	285	444	1,422	846	354	492	1,692
National Research Council of Canada	1,217	753	780	2,750	1,388	814	925	3,127
Natural Resources Canada	1,237	584	403	2,224	1,413	794	492	2,699
Statistics Canada	87	11	38	136	1,299	1,468	3,051	5,818
Other	525	149	844	1,517	2,430	1,016	2,866	6,312
Total	**6,290**	**3,708**	**4,124**	**14,122**	**12,679**	**7,880**	**11,122**	**31,681**

1 *Including Administration of Extramural Programs Personnel*
2 *Including executives*
3 *Including administration and foreign service, administrative support, operations and military personnel.*

TABLE 2.7 Federal Personnel Engaged in S&T Activities in the Natural Sciences and Engineering, by Category and Activity, 1992-93 to 2001-2002[e]

Category	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					person-years					
S&T Personnel										
Executive	387	370	342	329	...	...	...	...	…	…
Scientific and professional[1]	8,777	8,839	9,158	8,709	8,937	8,655	8,681	9,005	9,325	9,348
Administrative and foreign service	2,257	2,301	2,217	2,231	...	...	...	...	…	…
Technical[1]	6,751	6,782	6,474	6,131	6,020	5,816	5,553	5,833	5,770	5,713
Administrative support[1]	3,688	3,333	2,707	2,591	6,049	5,842	5,657	5,935	5,795	5,881
Operational	2,493	2,507	2,453	2,308	...	...	...	...	…	…
Military personnel	167	168	166	54	...	...	...	...	…	…
Total S&T personnel[2]	**24,518**	**24,300**	**23,516**	**22,355**	**21,006**	**20,313**	**19,891**	**20,773**	**20,890**	**20,942**
R&D Personnel										
Executive	240	229	208	204	...	...	...	...	…	…
Scientific and professional[1]	6,077	6,156	6,107	5,783	6,032	5,609	5,617	5,749	6,020	6,045
Administrative and foreign service	1,403	1,490	1,448	1,461	...	...	...	...	…	…
Technical[1]	4,408	4,448	4,620	4,231	4,039	3,837	3,761	3,795	3,725	3,636
Administrative support[1]	2,260	2,108	1,697	1,570	4,188	3,981	3,839	3,953	3,835	3,888
Operational	2,086	2,007	1,874	1,668	...	...	...	...	…	…
Military personnel	161	162	160	54	...	...	...	...	…	…
Total R&D Personnel[2]	**16,635**	**16,600**	**16,114**	**14,971**	**14,260**	**13,427**	**13,217**	**13,497**	**13,580**	**13,569**

[1] *Questions on personnel resources have been compressed from seven to three principal categories: Scientific & Professional (including Executive), Technical and Administrative Support (which includes Administrative and Foreign Service, Operational and Military).*

[2] *Including Administration of Extramural Programs Personnel.*

TABLE 2.8 Federal Personnel Engaged in S&T Activities in the Social Sciences and Humanities, by Category and Activity, 1992-93 to 2001-2002[e]

Category	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					person-years					
S&T Personnel										
Executive	366	343	341	324	...	...	...	...	…	…
Scientific and professional[1]	2,583	2,697	2,759	2,618	2,833	2,889	3,051	3,137	3,239	3,331
Administrative and foreign service	2,160	2,209	2,242	2,359	...	...	...	...	…	…
Technical[1]	1,651	1,744	1,723	1,715	1,752	1,837	1,873	1,942	2,079	2,167
Administrative support[1]	2,681	2,341	2,295	2,195	5,003	4,748	4,670	4,859	5,118	5,240
Operational	503	485	453	417	...	...	...	...	…	…
Military personnel	27	27	22	22	...	...	...	...	…	…
Total S&T personnel[2]	**9,971**	**9,845**	**9,833**	**9,651**	**9,588**	**9,475**	**9,594**	**9,938**	**10,436**	**10,739**
R&D Personnel										
Executive	25	24	24	25	...	...	...	...	…	…
Scientific and professional[1]	235	233	234	217	279	240	236	269	253	245
Administrative and foreign service	110	113	103	98	...	...	...	...	…	…
Technical [1]	75	75	69	65	58	69	63	75	76	72
Administrative support[1]	164	164	166	157	238	217	213	239	232	236
Operational	11	12	9	9	...	...	...	...	…	…
Military personnel	17	17	13	13	…	...	...	...	...	...
Total R&D personnel[2]	**637**	**638**	**618**	**584**	**576**	**526**	**512**	**583**	**561**	**553**

[1] *Questions on personnel resources have been compressed from seven to three principal categories: Scientific & Professional (including Executive), Technical and Administrative Support (which includes Administrative and Foreign Service, Operational and Military).*

[2] *Including Administration of Extramural Programs Personnel.*

3. Departmental or Agency Highlights

3. Departmental or Agency Expenditures and Personnel for Science and Technology

This section provides information on the scientific programs and activities carried out by departments in support of their mandates. Departments and agencies that are major performers or funders are reviewed separately. For comparison purposes the three university research councils are grouped together in Table 3.18.

The departments with the largest estimated expenditures on science activities in 2001-2002 were Environment Canada, the National Research Council, the Natural Sciences and Engineering Research Council and Statistics Canada. In 2001-2002 they accounted for 34% of the government's total expenditures. The three research councils, the Canadian Institutes of Health Research, the Natural Sciences and Engineering Research Council, the Social Sciences and Humanities Research Council, and the Canada Foundation for Innovation funded 89% of Federal Government expenditures in the university sector.

The National Research Council, the departments of Agriculture, Environment, Fisheries and Oceans, Statistics Canada, and National Resources were the major performers of S&T in the Federal Government. Together they accounted for 65% of the total intramural activity.

Chart 3.1

Federal S&T Expenditures by Department or Agency, 2001-2002[e] (Percent change from previous year)

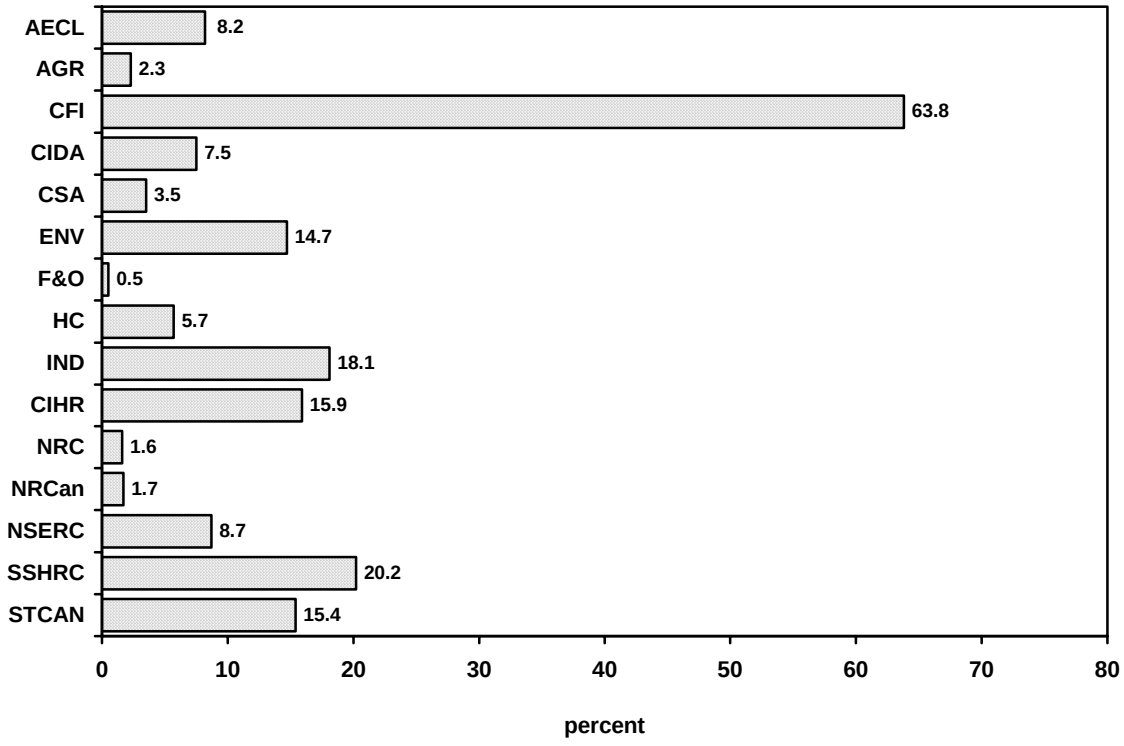


TABLE 3.1 Federal Expenditures on S&T and R&D as a Percentage of Federal Budgetary Main Estimates by Major Department, 2001-2002[e]

Department or Agency	Budgetary Main estimates[1]	S&T		R&D	
	$000,000	$000,000	%[2]	$000,000	%[2]
AGR	1,832	363	19.8	345	18.8
AECL	122	147	120.5	147	120.5
CIDA	1,793	344	19.2	39	2.2
CSA	352	355	100.9	341	96.9
ENV	622	571	91.8	195	31.4
F&O	1,310	323	24.7	123	9.4
HC	2,302	260	11.3	55	2.4
IND	1,207	486	40.3	420	34.8
CIHR	431	476	110.4	458	106.3
NDEF	11,390	324	2.8	283	2.5
NRC	577	660	114.4	599	103.8
NRCan	639	408	63.8	362	56.7
NSERC	607	613	101.0	539	88.8
SSHRC	161	183	113.7	133	82.6
STCAN	547	683	124.9	13	2.4
Other	141,344	1,195	0.8	594	0.4
Total	**165,236**	**7,391**		**4,646**	

[1] *Part 1, Government Expenditures Plan, Estimates.*

[2] *Some departments S&T and R&D exceed 100% of the Federal Budgetary Main Estimates due to receipts and revenues and cost of services provided without charge by other departments.*

Agriculture and Agri-Food Canada (AGR)

Agriculture and Agri-Food Canada's R&D mandate is "to improve the ongoing competitiveness of the Canadian food and agriculture sector through the development and transfer of innovative technologies"[6]. The Department of Agriculture and Agri-Food Canada, plans to spend $363 million on S&T in 2001-2002, with 95% devoted to R&D. Almost all S&T activities are conducted intramurally; only 5% is split among the industrial sector, universities and other recipients. S&T activities are conducted through research centres across the country that specialize in local problems. The research centres study soil properties, forestry, water use and management, energy, environmental quality, production development including animal crossbreeding, feed lot systems, genetics, processing, distribution, retailing and consumer concerns.

TABLE 3.2 Agriculture and Agri-Food Canada: Resources on S&T, by Activity and Performer, 1992-93 to 2001-2002[e]

Resources on S&T	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**357**	**366**	**356**	**358**	**368**	**359**	**351**	**387**	**354**	**363**
NSE	**345**	**354**	**347**	**348**	**359**	**350**	**344**	**380**	**348**	**356**
R&D[1]	319	328	321	327	350	340	335	370	338	345
RSA	26	26	26	21	9	10	9	10	9	11
SSH	**12**	**12**	**9**	**10**	**9**	**9**	**7**	**7**	**7**	**7**
R&D[1]	--	--	2	--	--	-	-	-	-	-
RSA	12	12	7	10	9	9	7	7	7	7
Total capital expenditures	**41**	**22**	**24**	**23**	**35**	**34**	**32**	**26**	**24**	**25**
By performer						percent				
Intramural	95	95	94	96	98	99	99	95	94	94
Business enterprises	2	2	2	1	1	--	--	--	--	--
Higher Education	1	1	1	1	--	--	--	--	--	--
Other Canadian[3]	2	2	3	2	--	--	--	5	5	5
Foreign	--	--	--	--	1	1	--	--	--	--
S&T personnel						person-years				
Total	**3,681**	**3,726**	**3,635**	**3,365**	**2,981**	**2,593**	**2,569**	**2,546**	**2,590**	**2,600**
Scientific and professional[4]	1,011	1,039	1,044	1,014	866	748	789	780	799	801
Technical	1,198	1,228	1,190	1,119	947	836	812	810	834	844
Other[5]	1,472	1,459	1,401	1,232	1,168	1,009	968	956	957	955

See notes at end of section.

Atomic Energy of Canada Limited (AECL)

AECL was established in 1952 to undertake research into atomic energy, as well as prepare and develop its commercial applications. In 2001-2002, Atomic Energy of Canada Limited plans to spend $147 million on natural sciences and engineering research and development. Ninety three per cent of the activities are performed intramurally in facilities of the agency. It operates two major research establishments, Chalk River Nuclear Laboratories and Whiteshell Nuclear Research Establishment at Pinawa, Manitoba. The Whiteshell laboratories are now in a closure mode leading to decommissioning.

TABLE 3.3 Atomic Energy of Canada: Resources on S&T, by Activity and Performer, 1992-93 to 2001-2002[e]

Resources on S&T	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**167**	**161**	**169**	**168**	**240**	**174**	**135**	**132**	**136**	**147**
NSE	**167**	**161**	**169**	**168**	**240**	**174**	**135**	**132**	**136**	**147**
R&D[1]	159	155	163	163	240	174	135	132	136	147
RSA	8	6	6	5	-	-	-	-	-	-
Total capital expenditures	**11**	**5**	**8**	**7**	**-**	**--**	**1**	**--**	**1**	**3**
By performer						percent				
Intramural	87	88	86	88	91	89	84	93	93	89
Business enterprises	9	9	12	9	7	8	12	5	6	10
Higher Education	1	1	1	1	--	--	1	--	--	--
Other Canadian[3]	2	--	--	--	-	-	-	-	--	--
Foreign	1	2	1	2	2	3	3	2	1	1
S&T personnel						person-years				
Total	**2,762**	**2,572**	**2,568**	**2,560**	**1,700**	**1,460**	**1,195**	**1,170**	**1,031**	**1,030**
Scientific and professional[4]	930	870	891	897	780	670	578	576	549	550
Technical	682	674	754	745	550	470	392	391	370	370
Other[5]	1,150	1,028	923	918	370	320	225	203	112	110

See notes at end of section.

Canada Foundation for Innovation (CFI)

The Federal Government has made a major commitment to promoting innovation. In 1997, the Canada Foundation for Innovation was created with an $800 million investment to fund new and modernized research infrastructure at universities, colleges, research hospitals and not-for-profit research institutions. Substantial additional funding has been allocated to CFI for future years.

TABLE 3.4 Canada Foundation for Innovation: Resources on S&T, by Activity and Performer, 1997-98 to 2001-2002[e]

Resources on S&T	1997-98	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
			in millions of dollars		
Total S&T expenditure	**2**	**31**	**118**	**187**	**306**
NSE & SSH	**2**	**31**	**118**	**187**	**306**
R&D[1]	2	31	118	187	306
RSA	-	-	-	-	-
By performer			percent		
Intramural	100	13	3	3	2
Higher Education	-	87	97	97	98

See notes at end of section.

Canadian International Development Agency (CIDA)

The Canadian International Development Agency provides Official Development Assistance (ODA) to developing countries to help them achieve self-sustainable economic and social development. In 2001-2002, this will include investments of $231 million in natural sciences and engineering, representing 67% of CIDA's science expenditures; and $113 million on social sciences and humanities, representing 33% of expenditures.

CIDA derives it scientific component from a computer model based upon past typical expenditure patterns. Data provided should be considered only as a gross estimate as shifts in expenditure patterns are not readily identifiable.

TABLE 3.5 Canadian International Development Agency: Resources on S&T, by Activity and Performer, 1992-93 to 2001-2002[e]

Resources on S&T	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**342**	**333**	**308**	**334**	**339**	**303**	**314**	**335**	**372**	**344**
NSE	**200**	**186**	**177**	**218**	**222**	**194**	**200**	**216**	**251**	**231**
R&D[1]	51	45	45	37	37	34	35	35	26	24
RSA	149	141	132	181	185	160	165	181	225	207
Data collection and Information services	29	27	24	33	34	27	28	30	36	33
Special services and studies	105	98	94	133	134	117	121	132	158	143
Other[2]	15	16	14	15	17	16	16	20	30	31
SSH	**142**	**147**	**131**	**116**	**117**	**109**	**114**	**119**	**121**	**113**
R&D	19	16	17	15	15	14	15	15	15	14
RSA	123	131	114	101	102	95	99	104	106	98
Data collection and Information services	37	52	31	26	26	25	25	25	25	24
Special services and studies	41	38	44	38	38	34	39	41	47	37
Other[2]	45	41	39	37	38	36	35	37	34	37
By performer						percent				
Intramural	3	3	4	4	4	5	5	5	5	5
Business enterprises	35	34	34	48	48	46	46	47	51	51
Higher Education	23	21	21	19	19	19	18	18	14	17
Other Canadian[3]	6	6	6	5	5	5	5	4	4	5
Foreign	33	36	35	24	24	25	26	26	26	22
S&T personnel						person-years				
Total	**148**	**142**	**155**	**188**	**194**	**194**	**196**	**210**	**211**	**211**
Scientific and professional[4]	32	29	32	36	34	32	33	32	35	35
Technical	3	3	3	3	3	3	3	3	1	1
Other[5]	113	110	120	149	157	159	160	175	175	175

See notes at end of section.

Canadian Space Agency (CSA)

The Canadian Space Agency objectives are "to develop and apply space S&T to meet Canadian needs and foster the development of an international competitive space industry"[6]. CSA is responsible for coordinating all the Federal Government's policies and programs in civil space-related research, science and technology, industrial development and international cooperation. In 2001-2002, the CSA funded more than 57% of the $377million in R&D contracts awarded to industry by government. The CSA's total S&T expenditures has decreased to $355 in 2001-2002 from $371 million in 1992-93. All of this is being spent in the natural sciences and engineering.

The CSA is responsible for ensuring the implementation of the following programs:

- Earth Observation
- Satellite Communications
- Canadian Space Station Program
- Canadian Astronaut Program
- Space Science
- Space Technology
- Executive and Horizontal Coordination

TABLE 3.6 Canadian Space Agency: Resources on S&T, by Activity and Performer, 1992-93 to 2001-2002[e]

Resources on S&T	1992-93	1993-94	1994-95[r]	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**371**	**387**	**320**	**299**	**253**	**230**	**343**	**305**	**343**	**355**
NSE	**371**	**387**	**320**	**299**	**253**	**230**	**343**	**305**	**343**	**355**
R&D[1]	360	379	314	291	245	224	337	300	324	341
RSA	11	8	6	8	8	6	5	5	19	14
Total capital expenditures	**35**	**33**	**7**	**7**	**5**	**3**	**4**	**4**	**18**	**12**
By performer						percent				
Intramural	24	22	19	24	25	24	25	18	22	23
Business enterprises	68	69	68	62	56	62	65	70	70	68
Higher Education	2	1	2	2	3	3	2	2	2	2
Other Canadian[3]	--	--	--	--	--	--	--	--	--	--
Foreign	6	8	11	12	16	11	8	9	6	6
S&T personnel						person-years				
Total	**341**	**355**	**355**	**370**	**392**	**344**	**324**	**377**	**419**	**429**
Scientific and professional[4]	170	193	195	212	180	164	148	175	185	193
Technical	29	23	23	26	28	25	22	24	23	22
Other[5]	142	139	137	132	184	155	154	178	211	214

See notes at end of section.

Department of Environment (ENV)

The Department undertakes programs to reduce risk to human health and the environment. It provides weather and environmental predictions and warnings, as well as emergency preparedness services to enhance safety from environmental hazards. Almost 90% of the Department's expenditures are on S&T activities and almost two-thirds of its employees are classified in S&T.

Environment Canada supports primarily the natural sciences and engineering. With a 2001-2002 S&T budget of $571 million, it is one of the largest federal S&T spenders. A major part of the Department budget (78%) is spent in its own laboratories, with 66% devoted to RSA and 34% to R&D. The department operates a network of laboratories across the country that deal with regional and national environmental concerns.

TABLE 3.7 Department of Environment: Resources on S&T, by Activity and Performer, 1992-93 to 2001-2002[e]

Resources on S&T	1992-93	1993-94[r]	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**631**	**663**	**549**	**529**	**456**	**453**	**427**	**538**	**498**	**571**
NSE	**535**	**574**	**544**	**525**	**452**	**450**	**423**	**534**	**494**	**567**
R&D[1]	116	132	173	163	134	127	115	196	148	194
RSA	419	442	371	362	318	323	308	338	346	373
Data Collection and Information services	375	396	323	317	283	300	290	320	336	362
Other[2]	44	46	48	45	35	23	18	18	9	10
SSH	**96**	**89**	**5**	**4**	**4**	**3**	**4**	**4**	**4**	**4**
R&D[1]	3	3	1	1	--	--	--	--	--	--
RSA	93	86	4	3	4	3	4	4	4	4
Total capital expenditures	**69**	**63**	**51**	**38**	**26**	**29**	**23**	**25**	**19**	**16**
By performer						percent				
Intramural	93	93	87	88	88	89	86	78	88	80
Business enterprises	3	3	5	5	7	6	8	6	7	6
Higher Education	1	1	3	3	2	2	2	2	2	2
Other Canadian[3]	2	2	4	3	2	2	3	14	2	11
Foreign	1	1	1	1	1	1	1	1	1	1
S&T personnel						person-years				
Total	**4,702**	**4,662**	**3,523**	**3,417**	**2,967**	**2,901**	**2,844**	**3,001**	**2,993**	**2,987**
Scientific and professional[4]	1,465	1,476	1,607	1,646	1,408	1,384	1,351	1,465	1,459	1,455
Technical	1,455	1,493	1,065	1,036	972	927	882	903	896	896
Other[5]	1,782	1,693	851	735	587	590	611	633	638	636

See notes at end of section.

Department of Fisheries and Oceans (F&O)

Science in F&O involves the collection, analysis and interpretation of data in the fields of fisheries biology, aquaculture science and oceanography, fish habitat and the marine environment, and hydrography. Using this analysis and interpretation, scientists provide timely advice in support of management for the conservation, protection, and sustainable utilization of marine and aquatic resources, and for safe navigation. The two largest departmental research establishments are the Bedford Institute of Oceanography in Nova Scotia, and the Institute of Ocean Sciences in British Columbia. Major centres are also located at the Maurice Lamontagne Institute in Quebec, and the Freshwater Institute in Manitoba. F&O will spend an estimated $323 million on S&T activities in 2001-2002, about 1% less than in 2000-2001. Ninety-six per cent of the activities are performed intramurally.

TABLE 3.8 Department of Fisheries and Oceans*: Resources on S&T, by Activity and Performer, 1992-93 to 2001-2002[e]

Resources on S&T	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**231**	**239**	**237**	**244**	**246**	**204**	**281**	**287**	**325**	**323**
NSE	**221**	**233**	**231**	**238**	**237**	**194**	**271**	**279**	**316**	314
R&D[1]	110	114	114	99	95	78	109	110	124	123
RSA	111	119	116	139	142	116	162	169	192	191
Data collection and Information services	96	100	102	115	119	97	136	142	161	160
Other[2]	14	19	14	24	23	19	26	27	31	31
SSH	**10**	**6**	**6**	**6**	**9**	**10**	**10**	**8**	**9**	**9**
R&D[1]	-	-	-	-	--	--	--	--	--	--
RSA	10	6	6	6	9	10	10	8	9	9
Total capital expenditures	**16**	**29**	**27**	**12**	**7**	**4**	**3**	**3**	**3**	**3**
By performer						percent				
Intramural	91	95	97	95	97	96	96	97	96	96
Business enterprises	7	4	2	4	2	3	3	--	--	--
Higher Education	1	--	--	--	--	--	--	1	1	1
Other Canadian[3]	1	1	1	1	1	1	1	2	3	3
Foreign	--	--	--	--	--	--	--	--	--	--
S&T personnel						person-years				
Total	**2,332**	**2,182**	**2,101**	**2,318**	**2,319**	**2,124**	**2,059**	**2,257**	**2,270**	**2,410**
Scientific and professional[4]	890	831	821	892	887	814	789	871	881	936
Technical	862	830	789	882	889	810	786	856	856	909
Other[5]	580	521	491	544	543	500	484	530	533	566

See notes at end of section.
** Includes Canadian Coast Guard (CCG)*

External Affairs/Foreign Affairs and International Trade (EA/ FA&IT)

The Department of Foreign Affairs and International Trade exists to serve Canada and Canadians in world affairs. In 2001-2002 the department plans to spend $48 million on S&T activities, with 50% going into financing operations and policy studies by foreign performers, 29% to higher education and 21% to be spent intramurally. Global mass communications together with the revolutionary advances in electronic technology, have made the strategic use of information a key element of foreign policy. With S&T initiatives, Foreign Affairs and International Trade can bring Canada's voice and values to the world.

TABLE 3.9 External Affairs/Foreign Affairs and International Trade: Resources on S&T, by Activity and Performer,1992-93 to 2001-2002[e]

Resources on S&T	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**54**	**52**	**60**	**58**	**59**	**58**	**49**	**54**	**46**	**48**
SSH	**54**	**52**	**60**	**58**	**59**	**58**	**49**	**54**	**46**	**48**
R&D[1]	-	-	-	-	-	-	-	-	-	-
RSA	54	52	60	58	59	58	49	54	46	48
Total capital expenditures	--	--	--	--	--	--	--	--	--	--
By performer						percent				
Intramural	22	20	17	19	19	20	20	20	23	21
Business enterprises	1	1	9	1	1	-	-	-	-	-
Higher Education	33	31	27	24	24	31	29	30	29	29
Other Canadian[3]	-	-	-	2	4	3	-	-	-	-
Foreign	44	48	47	54	52	46	51	50	48	50
S&T personnel						person-years				
Total	**111**	**111**	**106**	**75**	**75**	**80**	**74**	**74**	**74**	**72**
Scientific and professional[4]	29	29	27	24	24	34	28	29	29	24
Technical	-	-	2	1	1	1	1	2	2	2
Other[5]	82	82	77	50	50	45	45	43	43	46

See notes at end of section.

Health Canada (HC)

Health Canada is responsible for maintaining and improving the health of Canadians. The Department's major activities include developing health policy; administering the *Canada Health Act*; protecting health by regulating food, drug, environmental and pesticide safety; promoting disease prevention and health; and providing a range of health services to First Nations and the Inuit.

In 2001-2002, it is expected that Health Canada will spend $260 million on S&T activities, 6% less than in 2000-2001. Natural science activities account for 96% of these expenditures while 4% will be spent in the social sciences and humanities. Most S&T activities of HC are performed intramurally (93%).

TABLE 3.10 Health Canada: Resources on S&T, by Activity and Performer, 1992-93 to 2001-2002[e]

Resources on S&T	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**174**	**191**	**180**	**201**	**214**	**210**	**204**	**236**	**275**	**260**
NSE	**128**	**144**	**154**	**170**	**187**	**185**	**189**	**219**	**258**	**250**
R&D[1]	30	37	42	49	60	51	45	47	58	51
RSA	98	107	112	121	127	134	144	172	200	199
Data collection and Information services	52	71	76	89	87	95	99	125	134	135
Special services and studies	41	31	29	26	34	34	36	42	56	58
Other[2]	5	5	7	6	6	5	9	5	10	5
SSH	**46**	**47**	**26**	**31**	**27**	**25**	**15**	**16**	**17**	**10**
R&D[1]	19	17	16	14	15	14	9	9	7	3
RSA	27	30	10	17	12	11	6	7	10	6
Total capital expenditures	**6**	**7**	**9**	**7**	**6**	**4**	**11**	**5**	**16**	**8**
By performer						percent				
Intramural	73	75	76	74	76	80	85	89	90	93
Business enterprises	3	2	3	3	2	2	2	1	1	1
Higher Education	11	9	12	13	12	9	7	6	5	2
Other Canadian[3]	12	12	8	9	9	8	5	4	3	3
Foreign	1	2	1	1	1	1	1	--	--	--
S&T personnel						person-years				
Total	**1,399**	**1,359**	**1,412**	**1,334**	**1,622**	**1,872**	**1,807**	**1,911**	**2,096**	**1,895**
Scientific and professional[4]	808	836	884	789	1,008	1,172	1,161	1,123	1,248	1,168
Technical	214	198	217	235	329	404	367	446	473	383
Other[5]	377	325	311	310	285	296	279	342	376	344

See notes at end of section.

Human Resources Development Canada (HRDC)

The Department of Human Resources Development Canada (HRDC) was created in November 1993 as part of an initiative to streamline government, improve service delivery and provide a more integrated approach to Canada's national investment in people. In 2001-2002 HRDC plans to spend $77 million on S&T. Over the next few years, HRDC will implement the new Service Delivery Network (SDN) to improve program and service delivery. Implementation of a strategic information plan to guide the future systems-development activities of the Department and maximize the use of new technology is being developed and will become a key part of building the SDN.

TABLE 3.11 Human Resources Development: Resources on S&T, by Activity and Performer, 1993-94 to 2001-2002[e]

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
					in millions of dollars				
Total S&T expenditures	**62**	**66**	**60**	**60**	**65**	**74**	**60**	**78**	**77**
SSH	**62**	**66**	**60**	**60**	**65**	**74**	**60**	**78**	**77**
R&D[1]	34	35	22	18	17	31	14	23	25
RSA	28	31	38	42	48	43	46	55	52
Total capital expenditures	-	-	-	-	-	--	--	--	--
By performer					percent				
Intramural	26	24	49	53	44	32	41	46	46
Business enterprises	13	13	8	5	5	4	6	5	5
Higher Education	8	7	4	4	6	5	5	3	3
Other Canadian[3]	52	55	39	37	44	59	48	46	46
Foreign	1	1	--	1	--	--	-	-	-
S&T personnel					person-years				
Total	**251**	**363**	**338**	**273**	**268**	**337**	**428**	**445**	**448**
Scientific and professional[4]	183	280	254	184	179	248	316	328	330
Technical	25	32	32	21	24	24	31	32	33
Other[5]	43	51	52	68	65	65	81	85	85

See notes at end of section.

Industry Canada (IND)

The Science and Technology (S&T) component of Industry Canada involves identifying and acting upon emerging areas of domestic and international science and technology critical to maintaining a competitive industrial base, linking science, technology and industry to better exploit technology, and providing programs which foster basic research and the promotion of science to Canadian youth.

In 2001-2002, Industry Canada plans to spend $486 million on S&T compared to $412 million in 2000-2001. The increase reflects the S&T grants under the Technology Partnerships Canada (TPC).

TPC is a central element in the Government's agenda to promote technological development as a catalyst for economic growth and job creation through increased productivity and competitiveness.

TABLE 3.12 Industry Canada: Resources on S&T, by Activity and Performer, 1992-93 to 2001-2002[e]

	ISTC	IND								
Resources on S&T	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**258**	**374**	**388**	**324**	**291**	**407**	**343**	**301**	**412**	**486**
NSE	**247**	**357**	**376**	**309**	**277**	**392**	**326**	**283**	**396**	**473**
R&D[1]	242	317	322	268	230	345	274	239	346	420
RSA	5	40	54	41	47	47	52	45	50	52
SSH - RSA	**11**	**17**	**12**	**15**	**14**	**15**	**17**	**17**	**16**	**14**
Total capital expenditures	**--**	**52**	**71**	**56**	**21**	**8**	**4**	**2**	**3**	**9**
By performer						percent				
Intramural	12	35	38	42	36	25	32	33	25	22
Business enterprises	81	58	58	54	61	73	65	64	72	76
Other Canadians[3]	7	6	3	3	3	2	1	1	1	1
Foreign	-	1	1	1	-	-	2	2	2	1
S&T personnel						person-years				
Total	**322**	**1,064**	**878**	**880**	**901**	**931**	**1,001**	**987**	**1,053**	**1,110**
Scientific and professional[4]	37	357	320	332	333	346	361	345	374	393
Technical	3	137	40	32	34	32	34	27	31	32
Other[5]	282	570	518	516	534	553	606	615	648	685

See notes at end of section.

International Development Research Centre (IDRC)

The objective of IDRC is to initiate, encourage, support and conduct research into the problems of the developing regions of the world and into the means of applying and adapting scientific, technical and other knowledge to the economic and social advancement of those regions.

IDRC's 2001-2002 expenditures on S&T will be $76 million. Because of its mandate, IDRC spends 34% of its funds in the foreign sector.

TABLE 3.13 International Development Research Centre: Resources on S&T, by Activity and Performer, 1992-93 to 2001-2002[e]

Resources on S&T	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					in millions of dollars					
Total S&T expenditures	**107**	**115**	**102**	**88**	**88**	**78**	**85**	**82**	**80**	**76**
NSE	**38**	**41**	**35**	**30**	**27**	**22**	**19**	**23**	**23**	**22**
R&D[1]	37	41	35	30	27	21	18	21	21	20
RSA	--	--	--	--	--	--	1	2	2	2
Data collection and information services	--	--	--	--	--	--	1	1	1	1
Other[2]	--	--	--	--	--	--	--	--	--	--
SSH	**69**	**73**	**67**	**58**	**61**	**56**	**66**	**59**	**57**	**54**
R&D[1]	58	62	54	49	49	43	50	50	49	46
RSA	11	11	13	9	12	14	16	9	8	8
Data collection and Information services	6	7	8	5	6	7	7	7	7	6
Special services and studies	--	--	--	--	--	--	--	-	-	-
Other[2]	4	4	4	3	5	6	9	2	2	2
By performer						percent				
Intramural	30	30	29	32	45	52	53	59	59	59
Business enterprises	--	--	--	--	1	--	--	--	--	--
Higher Education	4	4	4	3	4	3	3	4	4	4
Other Canadian[3]	2	1	6	5	4	5	7	3	3	3
Foreign	64	65	61	60	46	40	37	34	34	34
S&T personnel						person-years				
Total	**206**	**225**	**229**	**208**	**168**	**161**	**161**	**177**	**172**	**156**
Scientific and professional[4]	81	88	90	82	66	62	67	80	81	82
Technical	33	36	37	33	27	29	22	21	25	16
Other[5]	92	101	102	93	75	70	72	76	66	58

See notes at end of section.

Department of National Defence (NDEF)

The purpose of R&D within NDEF is to use science and technology to improve the capabilities and effectiveness of the Canadian Forces. The R&D program of NDEF is carried out by a combination of in-house sources at five Defence Research Establishments and by contracting out to Canadian industry, universities and other government departments. The Defence Research Establishments are: the Defence Research Establishments Atlantic, Valcartier, Ottawa, Suffield, and the Defence and Civil Institute of Environmental Medicine.

National Defence recently created a new science and technology agency, Defence Research and Development Canada (DRDC), to support the research and development needs of the Canadian Forces.

In 2001-2002, $115 million of the defence R&D funds will be spent in Canadian industry and $4 million in Canadian universities.

TABLE 3.14 Department of National Defence: Resources on S&T, by Activity and Performer, 1992-93 to 2001-2002[e]

Resources on S&T	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**275**	**256**	**252**	**233**	**253**	**311**	**304**	**335**	**325**	**324**
NSE	**271**	**251**	**249**	**230**	**240**	**294**	**288**	**319**	**309**	**308**
R&D[1]	267	248	246	227	215	259	259	290	280	279
RSA	4	3	3	3	25	35	29	29	29	29
SSH	**4**	**5**	**3**	**3**	**13**	**16**	**16**	**16**	**16**	**16**
R&D[1]	3	3	2	2	8	4	4	4	4	4
RSA	2	2	1	1	5	12	12	12	12	12
Total capital expenditures	**25**	**15**	**20**	**12**	**14**	**17**	**12**	**35**	**32**	**32**
By performer						percent				
Intramural	60	58	59	56	60	53	54	58	56	55
Business enterprises	34	35	35	38	33	39	39	36	38	39
Higher Education	2	3	2	3	3	2	2	1	1	1
Other Canadian[3]	1	1	1	--	2	--	--	--	--	--
Foreign	3	3	3	3	2	6	5	4	5	5
S&T personnel						person-years				
Total	**1,828**	**1,819**	**1,664**	**1,248**	**1,428**	**1,424**	**1,567**	**1,561**	**1,612**	**1,692**
Scientific and professional[4]	599	611	578	449	505	514	781	771	792	846
Technical	446	428	382	324	416	424	370	356	349	354
Other[5]	783	780	704	475	507	486	416	434	471	492

See notes at end of section.

National Research Council of Canada (NRC)

Research and development are the organization's most important activities, with a focus on important Canadian economic sectors, including information technologies, automated manufacturing, transportation, advanced materials, biotechnology, the resource industries, and the environment. NRC also performs research in the public interest in areas such as public safety and national security. NRC also has the responsibility for the operation and administration of astronomical observatories established or maintained by the Government of Canada. It is also mandated to provide vital scientific and technological services to the research and industrial communities. NRC supports Canada's science and technology (S&T) infrastructure by providing facilities, financial assistance programs, and specialized services.

The NRC is one of the Federal Government's largest S&T spenders with its 2001-2002 budget of $660 million. Most of the NRC's budget (80%) will be spent intramurally, 13% will go to the industrial sector, and 6% to universities.

TABLE 3.15 National Research Council of Canada: Resources on S&T, by Activity and Performer, 1992-93 to 2001-2002[e]

Resources on S&T	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**513**	**503**	**505**	**481**	**479**	**524**	**554**	**597**	**649**	**660**
NSE	**513**	**503**	**505**	**481**	**479**	**524**	**554**	**597**	**649**	**660**
R&D[1]	458	441	449	419	429	470	499	530	582	599
RSA	55	62	56	62	50	54	55	66	67	61
Data collection and Information services	37	35	32	38	34	37	39	50	50	45
Other[2]	18	27	24	24	16	17	16	16	17	16
Total capital expenditures	**50**	**53**	**62**	**41**	**44**	**60**	**51**	**33**	**37**	**64**
By performer						percent				
Intramural	77	77	75	74	73	75	73	76	78	80
Business enterprises	12	13	14	16	17	16	18	15	15	13
Higher Education	7	6	7	7	7	7	7	6	6	6
Other Canadian[3]	2	2	1	1	1	1	1	1	--	--
Foreign	2	2	3	2	2	1	1	2	1	1
S&T personnel						person-years				
Total	**3,220**	**3,325**	**3,307**	**3,099**	**3,097**	**3,202**	**3,266**	**3,310**	**3,063**	**3,127**
Scientific and professional[4]	1,389	1,425	1,424	1,328	1,322	1,272	1,258	1,248	1,359	1,388
Technical	808	864	856	812	814	875	900	906	797	814
Other[5]	1,023	1,036	1,027	959	961	1,055	1,108	1,156	907	925

See notes at end of section.

Natural Resources Canada (NRCan)

NRCan advances the development of Canada's economy by providing expert scientific and economic knowledge to Canadians, and by promoting the sustainable development and use of Canada's natural resources and the competitiveness of the energy, forest, mining, geomatic, and geoscience sectors.

NRCan is a science and policy department. About 64% of the Department's budget is devoted to science and technology. NRCan was formed in 1994 through the amalgamation of the former departments of Energy, Mines and Resources Canada and Forestry Canada. Between 1995-96 and 2001-2002 NRCan's total S&T budgetary allocation will decrease by 14% from $475 million to $408 million. During the same period, the Department's S&T staff complement will decrease by approximately 17%, or 566 full-time equivalents (FTEs).

TABLE 3.16 Natural Resources Canada: Resources on S&T, by Activity and Performer,1992-93 to 2001-2002[e]

	EMR		NRCan							
Resources on S&T	1992-93	1993-94[r]	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
	in millions of dollars									
Total S&T expenditures	**334**	**352**	**464**	**475**	**430**	**396**	**386**	**421**	**401**	**408**
NSE	**334**	**352**	**464**	**475**	**430**	**396**	**386**	**421**	**401**	**408**
R&D[1]	268	271	373	403	372	351	345	376	357	362
RSA	66	81	91	72	58	45	41	45	45	46
Data collection and Information services	47	60	79	66	47	39	37	39	40	40
Other[2]	19	21	12	6	11	6	4	5	5	5
Total capital expenditures	**39**	**42**	**33**	**30**	**37**	**36**	**34**	**26**	**25**	**25**
By performer					percent					
Intramural	85	84	82	85	86	88	86	82	82	82
Business enterprises	10	10	7	7	7	7	9	12	13	12
Higher Education	2	2	2	1	1	--	--	1	1	1
Other Canadian[3]	3	3	9	7	6	4	4	4	4	4
Foreign	--	1	--	--	--	1	1	1	--	1
S&T personnel					person-years					
Total	**2,638**	**3,600**	**3,562**	**3,265**	**3,052**	**2,848**	**2,698**	**2,807**	**2,845**	**2,699**
Scientific and professional[4]	1,260	1,682	1,658	1,455	1,576	1,454	1,400	1,466	1,482	1,413
Technical	709	1,012	1,016	866	886	834	802	833	844	794
Other[5]	669	906	888	944	590	560	496	508	519	492

See notes at end of section.

Statistics Canada (STCAN)

Statistics Canada collects and disseminates the data needed to help understand the commercial, industrial, financial, social, and economic activities in Canada and also the conditions of her people. Specifically, statistics are produced in such areas as health and welfare, education, wholesale and retail trade, public administration, community, business and personal services, and labour and employment to name a few. Statistics Canada also conducts the quinquennal Census of Population and the Census of Agriculture.

This information is then provided to government at every level, to business, labour, academic and social institutions, to professional associations, to the international statistical community, and to the public. Statistics Canada is the Federal Government's major spender of social sciences and humanities funds. The department plans to spend $683 million in 2001-2002 compared to $591million in 2000-2001.

TABLE 3.17 Statistics Canada: Resources on S&T, by Activity and Performer, 1992-93 to 2001-2002[e]

Resources on S&T	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**351**	**347**	**353**	**406**	**535***	**400**	**437**	**461**	**591**	**683***
SSH	**351**	**347**	**353**	**406**	**535**	**400**	**437**	**461**	**591**	**683**
R&D[1]	12	10	10	10	10	11	12	13	13	13
RSA	339	337	343	396	525	389	425	448	578	670
Data collection and Information services	309	304	312	365	480	360	394	412	553	647
Special services and studies	20	19	20	17	17	18	20	20	20	19
Other[2]	10	14	11	14	28	11	11	15	5	3
Total capital expenditures	**10**	**13**	**11**	**15**	**29**	**11**	**12**	**15**	**5**	**3**
By performer						percent				
Intramural	100	100	100	100	100	100	100	100	100	100
Business enterprises	-	-	-	-	-	-	-	-	-	-
Higher Education	-	-	-	-	-	-	-	-	-	-
Other Canadian[3]	-	-	-	-	-	-	-	-	-	-
Foreign	--	--	--	--	--	-	-	-	-	-
S&T personnel						person-years				
Total	**4,617**	**4,489**	**4,607**	**4,894**	**5,004***	**4,959**	**5,042**	**5,096**	**5,560**	**5,818***
Scientific and professional[4]	1,013	1,077	1,105	1,129	1,090	1,195	1,210	1,234	1,265	1,299
Technical	893	1,002	1,054	1,104	1,108	1,193	1,242	1,281	1,408	1,468
Other[5]	2,711	2,410	2,448	2,661	2,806	2,571	2,590	2,581	2,887	3,051

See notes at end of section.
**Census year.*

University Research Councils

The Federal Government provides R&D grants to universities primarily through three councils: the Natural Sciences and Engineering Research Council (NSERC), the Canadian Institutes of Health Research (CIHR), and the Social Sciences and Humanities Research Council (SSHRC). Altogether, these councils will distribute $1,271 million in 2001-2002.

In 2001-2002, NSERC will provide an estimated $613 million in grants for natural sciences and engineering. About 88% of NSERC's budget goes to Canadian universities, 1% to industry, 1% to foreign research organizations and the remainder to cover administrative costs. The CIHR will provide another $476 million for the health sciences. SSHRC will grant about $183 million in 2001-2002 for social science research which includes scholarly publications and major editorial projects, career scholars and international scholar exchanges.

TABLE 3.18 University Research Councils: Resources on S&T, 1992-93 to 2001-2002[e]

Resources on S&T	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T expenditures	**861**	**857**	**862**	**824**	**788**	**770**	**880**	**993**	**1,126**	**1,271**
NSERC	**501**	**496**	**494**	**471**	**453**	**436**	**499**	**549**	**563**	**613**
R&D[1]	445	439	440	425	410	393	443	481	495	538
RSA	56	57	54	46	43	43	56	68	68	74
MRC	**257**	**259**	**265**	**252**	**242**	**238**	**277**	**…**	**…**	**…**
R&D[1]	247	249	257	244	234	229	266	…	…	…
RSA	10	10	8	8	8	9	11	…	…	…
CIHR	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**317**	**411**	**476**
R&D[1]	…	…	…	…	…	…	…	304	403	458
RSA	…	…	…	…	…	…	…	12	7	18
SSHRC	**103**	**102**	**103**	**101**	**93**	**96**	**104**	**127**	**152**	**183**
R&D[1]	69	68	69	70	64	65	68	92	110	133
RSA	34	34	34	31	29	31	36	35	42	50
By performer						percent				
Intramural	4	4	4	4	5	5	5	5	6	6
Business enterprises	1	1	2	2	2	2	1	1	1	1
Higher Education	89	89	89	89	90	89	89	88	88	88
Other Canadian[3]	3	3	1	1	1	1	2	3	3	3
Foreign	3	3	3	3	3	3	3	1	1	1
S&T personnel						person-years				
Total	**354**	**355**	**356**	**359**	**357**	**374**	**392**	**444**	**520**	**595**
CIHR	…	…	…	…	…	…	…	91	134	177
NSERC	183	183	184	183	183	197	200	230	250	264
MRC	65	66	72	77	78	80	85	…	…	…
SSHRC	106	106	100	99	96	97	107	123	136	154

[1] *Includes current and capital expenditures.*
[2] *Can include any or all of : special services and studies, education support, museum services, administration of extramural programs, and capital expenditures.*
[3] *Includes provincial and municipal governments, private non-profit organizations and other Canadian performers.*
[4] *Includes executives.*
[5] *Includes administration and foreign service, operations and military personnel.*
[6] *1999-2000 Estimates, Part III Expenditure Plan*

4. Extramural Expenditures

4. Extramural Expenditures

This section focuses on Federal Government expenditures for S&T performed extramurally, that is for S&T performed outside of its own laboratories. Aggregate payments to industries, universities, private non-profit organizations and to foreign and other performers are presented. It was estimated that in 2001-2002 the Government will spend $3.3 billion or 44% of its total S&T expenditures extramurally. The major recipients of these funds will be business enterprises ($1,159 million), and universities ($1,598 million). In addition, private non-profit organizations will receive $232 million, foreign performers $214 million and others, including individuals and provincial and municipal governments, $81 million.

Extramural payments take the form of a contract, a grant or a contribution. Contracts, normally awarded as a result of competitive bidding, provide a service or perform an activity required by a federal department or agency. Almost all of these contracts are awarded to business enterprises. Payments for university and industry support programs are normally in the form of a grant or contribution.

Business Enterprises

- Total federal S&T payments to the business enterprise sector were estimated to be $1,159 million in 2001-2002, a 5% increase over 2000-2001 forecasted expenditures of $1,104 million.

- R&D payments in 2001-2002 were to amount to $924 million, an 8% increase from 2000-2001 forecasted expenditures of $854 million.

- R&D contracts totaled $377 million in 2001-2002, a slight decrease of 1% from 2000-2001.

- R&D grants and contributions totaled $534 million in 2001-2002, an increase of 16% from 2000-2001.

- In 2001-2002, payments for R&D contracts from the Canadian Space Agency ($214 million) accounted for 57%, while the Department of National Defence ($115 million) accounted for 31%.

- Industry Canada payments for R&D grants were to total $369 million or 69% of the total grants, while the National Research Council Canada was to account for 16% or $83 million.

Higher Education

- Universities were to receive funding of $1,426 million for R&D and $172 million for RSA in 2001-2002. The three research councils, the Canadian Institutes of Health Research, the Natural Sciences and Engineering Research Council, and the Social Sciences and Humanities Research Council, and also the Canada Foundation for Innovation are the major Federal Government funders of R&D performed in the higher education sector.

- R&D grants and contributions represent 96% of the total R&D payments to the higher education sector.

- The 2001-2002 estimated combined budget for the granting councils is $1,271 million.

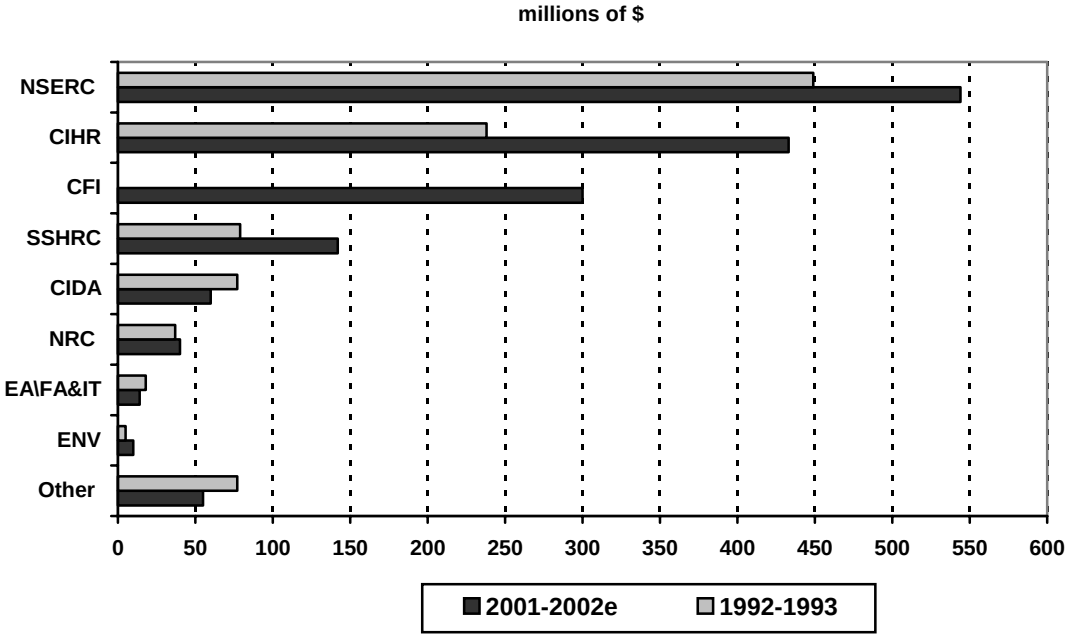
- Of the three granting councils, the Natural Sciences and Engineering Research Council is the largest funder of university research. Its estimated R&D expenditures to universities was $482 million in 2001-2002, an 11% increase.

- The Canadian Institutes of Health Research planned to spend an estimated $433 million to support S&T activities in universities. This represents a 40% increase in funding over 2000-2001.

- The Social Sciences and Humanities Research Council planned to spend an estimated $142 million to support S&T activities in universities.

Chart 4.1

Federal S&T Expenditures in the Higher Education Sector, by Department or Agency, 1992-93 and 2001-2002[e]



***Source**: Table 4.4*

Foreign

- Total federal S&T payments to the foreign sector were estimated to be $214 million in 2001-2002.

- Payments to organizations in foreign countries are dominated by those of CIDA ($76 million) and IDRC ($26 million) which account for 48% of total foreign S&T expenditures of $214 million.

TABLE 4.1 Federal Extramural Expenditures for S&T, by Type of Payment and Sector of Performance, 2001-2002[e]

Payment	Canadian business enterprises	Higher education	Canadian non-profit institutions	Other Canadian performers	Foreign performers	Total
			in millions of dollars			
R&D contracts	377	23	6	12	13	431
R&D grants and contributions	534	1,363	170	34	74	2,175
Research fellowships	12	40	9	11	15	87
RSA	235	172	46	24	113	590
Total	**1,159**	**1,598**	**232**	**81**	**214**	**3,283**

TABLE 4.2 Federal Extramural Expenditures for S&T by Sector of Performance, 1992-93 to 2001-2002[e]

Sector of performance	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Canadian business enterprises	952	954	930	885	801	927	952	926	1,104	1,159
Higher education	980	973	983	933	894	860	989	1,173	1,354	1,598
Canadian non-profit institutions	99	116	127	103	112	110	122	181	136	232
Provincial and municipal governments	23	44	44	47	32	12	14	18	17	15
Other Canadian	89	94	46	39	33	27	37	66	65	66
Foreign	288	313	297	259	247	222	233	229	228	214
TOTAL	**2,431**	**2,494**	**2,427**	**2,266**	**2,119**	**2,158**	**2,347**	**2,594**	**2,904**	**3,283**
						percent				
Canadian business enterprises	39	38	38	39	38	43	40	36	38	35
Higher education	40	39	41	41	42	40	42	45	46	49
Canadian non-profit institutions	4	5	5	5	5	5	5	7	5	7
Provincial and municipal governments	1	2	2	2	2	1	1	1	1	--
Other Canadian	4	4	2	2	2	1	2	2	2	2
Foreign	12	12	12	11	11	10	10	9	8	7
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

TABLE 4.3 Federal Extramural Expenditures for R&D, by Sector of Performance, 1992-93 to 2001-2002[e]

Sector of performance	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					in millions of dollars					
Canadian business enterprises	768	773	756	665	573	721	749	713	854	924
Higher education	820	814	835	797	761	725	842	1,010	1,200	1,426
Canadian non-profit institutions	50	66	74	59	75	71	82	130	88	186
Provincial and municipal governments	12	35	33	38	27	6	9	13	14	12
Other Canadian	53	55	29	27	23	16	29	46	43	45
Foreign	168	178	177	151	141	120	124	118	104	101
TOTAL	**1,870**	**1,921**	**1,903**	**1,737**	**1,600**	**1,659**	**1,835**	**2,031**	**2,302**	**2,693**
					percent					
Canadian business enterprises	41	40	40	38	36	43	41	35	37	34
Higher education	44	42	44	46	47	44	46	50	52	53
Canadian non-profit institutions	3	4	4	3	5	4	4	6	4	7
Provincial and municipal governments	1	2	2	2	2	1	--	1	1	--
Other Canadian	2	3	1	2	1	1	2	2	2	2
Foreign	9	9	9	9	9	7	7	6	4	4
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

TABLE 4.4 Federal Extramural Expenditures for S&T, by Department or Agency and Sector of Performance, 2001-2002[e]

Department or Agency	Canadian business enterprises	Higher education	Canadian non-profit institutions	Other Canadian performers	Foreign performers	Total
			in millions of dollars			
CIDA	175	60	9	7	76	327
CFI	-	300	-	-	-	300
CIHR	-	433	8	3	8	453
CSA	243	6	-	-	23	273
ENV	36	10	58	5	5	113
FA&IT	-	14	-	-	24	38
GC	-	-	47	-	-	47
HC	3	4	1	8	1	17
HRDC	4	2	33	3	-	41
IDRC	--	3	2	--	26	31
IND	369	-	3	-	7	379
NDEF	127	4	1	--	15	146
NRC	85	40	-	2	7	134
NRCan	51	4	14	4	2	75
NSERC	14	544	2	10	12	581
SSHRC	--	142	3	17	4	167
WEDO	10	21	11	1	-	43
Other	42	11	40	21	4	118
Total	**1,159**	**1,598**	**232**	**81**	**214**	**3,283**

Chart 4.2 Federal Extramural Expenditures for S&T, by Sector of Performance, 2001-2002[e]

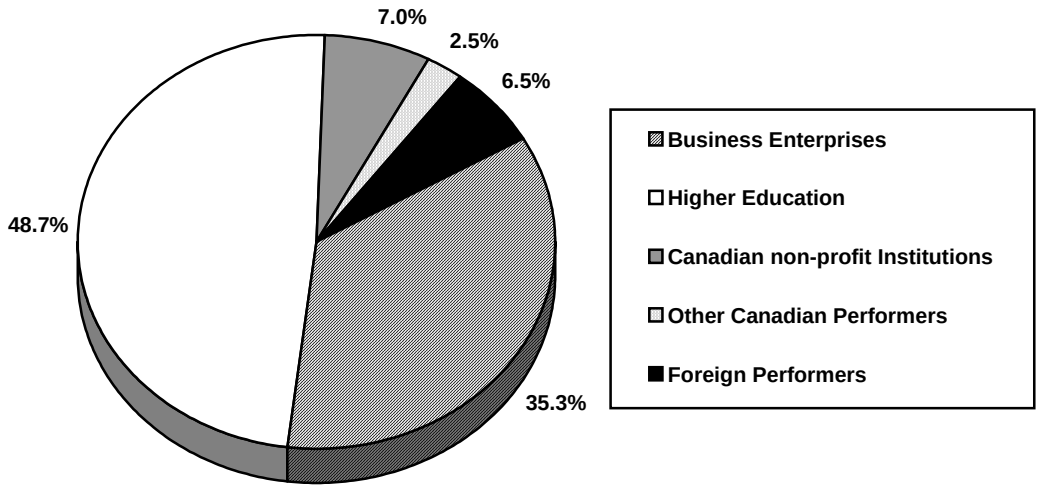


TABLE 4.5 Federal Extramural Expenditures for R&D, by Department or Agency and Sector of Performance, 2001-2002[e]

Department or Agency	Canadian business enterprises	Higher education	Canadian non-profit institutions	Other Canadian performers	Foreign performers	Total
			in millions of dollars			
ACOA	4	1	1	7	-	14
AECL	15	--	-	-	1	16
CED(Qué)	2	--	3	-	-	5
CFI	-	300	-	-	-	300
CIHR	-	418	7	3	8	435
CIDA	--	19	1	6	10	37
CSA	243	6	-	-	23	273
ENV	10	8	52	1	1	72
GC	-	-	47	-	-	47
HRDC	-	2	23	--	-	25
IDRC	--	3	2	--	26	31
IND	369	-	3	-	7	379
NDEF	115	4	1	1	5	126
NRC	85	40	-	2	7	134
NRCan	45	3	12	4	2	67
NSERC	11	482	2	9	8	511
SSHRC	-	112	--	11	1	124
WEDO	10	21	11	1	-	42
Other	15	7	21	12	2	56
Total	**924**	**1,426**	**186**	**57**	**101**	**2,693**

Chart 4.3 Federal Extramural Expenditures for R&D, by Sector of Performance, 2001-2002[e]

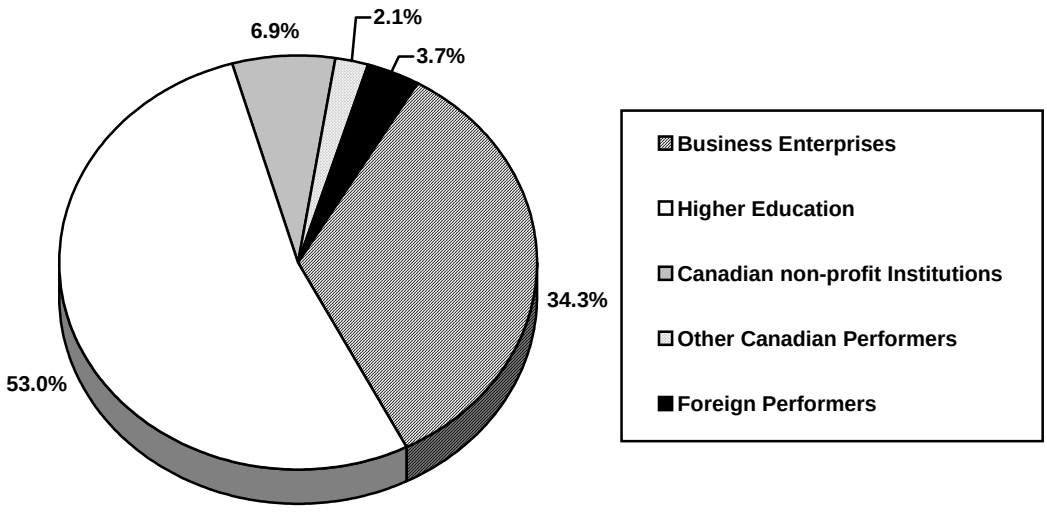


TABLE 4.6 Federal S&T Expenditures in the Business Enterprise Sector, by Type of Payment and Department or Agency, 1992-93 to 2001-2002[e]

Payment and department	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
						in millions of dollars				
Total S&T payments	**952**	**954**	**930**	**885**	**801**	**927**	**952**	**926**	**1,104**	**1,159**
R&D payments (total)	**768**	**773**	**756**	**665**	**573**	**721**	**749**	**713**	**854**	**924**
R&D contracts (total)	**406**	**409**	**367**	**341**	**267**	**295**	**381**	**362**	**380**	**377**
AECL	15	14	20	15	17	14	16	7	8	15
CSA	254	266	217	185	142	143	223	213	226	214
EMR*	14	17	...	...	...	...	...	...	...	...
ENV	5	4	8	12	9	8	10	8	10	10
F&O	6	2	2	8	1	1	1	--	--	--
NDEF	84	81	88	88	73	105	107	110	113	115
NRC	1	--	--	--	--	-	-	--	--	--
NRCan	...	...	15	12	10	11	12	10	10	10
TPT	11	11	12	11	8	7	8	7	8	8
Other	16	14	5	10	7	6	4	7	5	5
R&D grants and contributions (total)	**360**	**361**	**382**	**321**	**300**	**422**	**363**	**340**	**462**	**534**
ACOA	15	15	14	11	5	7	11	8	7	4
CED (Qué)	19	23	19	15	9	8	4	5	4	2
CSA	-	-	-	--	-	-	1	1	13	29
COMM	5	...	...	...	...	...	...	...	...	...
EMR*	12	11	...	...	...	...	...	...	...	...
FOR*	8	9	...	...	...	...	...	...	...	...
IND	...	208	223	173	177	298	223	191	298	369
ISTC	206	...	...	...	...	...	...	...	...	...
NDEF	11	9	-	-	-	-	-	-	-	-
NRC	60	65	73	76	78	82	97	87	95	83
NRCan	...	...	20	16	13	10	15	29	28	28
NSERC	-	-	15	13	7	12	7	6	7	8
WEDO	15	13	11	12	6	4	2	11	10	10
Other	9	8	7	5	4	1	3	2	-	1
Research Fellowships	**2**	**3**	**6**	**3**	**7**	**4**	**5**	**12**	**12**	**12**
Other S&T payments (total)	**184**	**181**	**174**	**221**	**228**	**206**	**203**	**212**	**250**	**235**
CIDA	120	113	104	160	162	140	143	157	191	175
E&I	5	...	...	...	...	...	...	...	...	...
EMR*	9	7	...	...	...	...	...	...	...	...
ENV	13	14	18	16	22	17	24	22	25	26
F&O	9	7	3	11	5	4	5	1	1	1
HRDC	...	8	7	4	2	3	3	4	4	4
NDEF	--	--	--	--	12	15	11	11	11	11
NRCan	...	...	6	4	6	7	7	6	6	6
TPT	3	3	5	1	1	2	1	1	1	1
Other	25	29	31	25	18	18	9	10	11	11

** Natural Resources from 1994-95.*

TABLE 4.7 Federal S&T Expenditures in the Higher Education Sector, by Type of Payment and Department or Agency, 1992-93 to 2001-2002[e]

Payment and department	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000[r]	2000-2001[p]	2001-2002[e]
					in millions of dollars					
Total S&T payments	**980**	**973**	**982**	**933**	**894**	**860**	**989**	**1,173**	**1,354**	**1,598**
R&D payments (total)	**820**	**814**	**835**	**797**	**761**	**725**	**842**	**1,010**	**1,200**	**1,426**
R&D grants (total)	**734**	**736**	**761**	**724**	**702**	**671**	**789**	**958**	**1,141**	**1,363**
FORD / CED(Qué)	5	3	10	5	8	3	5	--	--	--
CFI	...	...	...	...	...	...	27	114	182	300
CIHR	…	…	…	…	…	…	…	266	349	379
ENV	3	8	14	12	5	8	6	7	7	6
HC	7	5	10	9	10	7	4	4	3	1
IDRC	4	5	4	3	4	2	3	3	3	3
MRC	221	224	231	220	208	204	233	…	…	…
NRC	37	31	35	35	33	36	39	39	39	40
NSERC	386	379	385	368	372	351	394	426	437	474
SSHRC	57	56	56	58	53	54	55	77	90	111
Other	14	25	16	14	9	6	23	22	31	49
R&D contracts (total)	**38**	**33**	**29**	**30**	**26**	**25**	**23**	**21**	**22**	**23**
CIDA	11	10	9	9	9	8	8	8	8	9
CSA	6	5	6	6	5	7	7	6	5	6
EMR*	4	5	...	...	...	...	…	…	…	…
NDEF	7	6	6	6	5	5	3	2	2	2
NRCan	...	...	4	2	1	1	1	1	1	1
Other	10	7	4	7	6	4	4	4	6	5
Research fellowships (total)	**47**	**45**	**45**	**43**	**32**	**29**	**30**	**31**	**37**	**40**
Education support (total)	**138**	**135**	**125**	**110**	**109**	**113**	**123**	**136**	**127**	**147**
CIDA	44	41	37	35	36	33	33	35	31	34
CIHR	…	…	…	…	…	…	…	8	4	12
EA (FA&IT)	18	16	16	14	14	18	14	16	13	14
MRC	7	7	7	6	6	7	9	…	…	…
NSERC	47	49	46	38	36	37	48	60	57	62
SSHRC	16	18	17	16	14	17	19	17	20	25
Other	6	4	2	1	3	1	-	-	2	-
Other S&T payments (total)	**23**	**24**	**22**	**25**	**25**	**22**	**24**	**27**	**27**	**25**

** Natural Resources from 1994-95.*

TABLE 4.8 Federal S&T Expenditures in the Canadian Non-Profit Institutions Sector, by Funding Department or Agency, 1992-93 to 2001-2002[e]

Department or Agency	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000[r]	2000-2001[p]	2001-2002[e]
					in millions of dollars					
AGR	3	3	4	1	1	1	1	15	14	14
FORD / CED(Qué)	...	...	2	3	9	9	12	5	4	3
CIHR	…	…	…	…	…	…	…	5	6	8
CIDA	12	11	10	10	9	8	9	8	8	9
E&I	14	...	...	...	...	...	…	…	…	…
EMR *	2	7	...	...	...	...	…	…	…	…
ENV	13	12	8	8	4	4	5	67	7	58
GC	…	…	…	…	…	…	…	...	…	47
HC	15	13	12	14	15	12	8	4	3	1
HRDC	...	28	30	22	20	25	40	25	33	33
IND (ISTC)	7	9	8	7	9	9	4	4	3	3
MRC	1	1	2	3	5	5	7	…	…	…
NRCan	...	...	28	21	16	14	12	14	14	14
SSHRC	6	5	5	2	2	3	2	2	3	3
WEDO	6	11	2	2	5	2	2	3	11	11
Other	20	16	16	10	16	18	20	33	30	28
Total	**99**	**116**	**127**	**103**	**111**	**110**	**122**	**181**	**136**	**232**

** Natural Resources from 1994-95.*

TABLE 4.9 Federal S&T Expenditures in the Foreign Sector, by Department or Agency, 1992-93 to 2001-2002[e]

Department or Agency	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99[r]	1999-2000[r]	2001-2002[p]	2000-2001[e]
					in millions of dollars					
CIHR	…	…	…	…	…	…	…	5	7	8
CIDA	114	121	110	80	83	74	83	86	96	76
CSA	23	29	37	35	40	25	26	27	21	23
EA (FA&IT)	24	25	28	32	31	27	25	27	22	24
IDRC	68	75	62	52	40	32	31	28	28	26
MRC	9	8	8	7	6	5	5	…	…	…
NDEF	7	8	7	8	5	18	17	15	15	15
NRC	10	11	15	9	11	9	9	9	7	7
NRCan	3	3	2	2	2	2	3	2	2	2
NSERC	9	10	10	9	8	8	10	11	11	12
SSHRC	8	7	8	8	7	7	8	3	3	4
Other	13	16	11	16	14	15	16	16	16	17
Total	**288**	**313**	**298**	**258**	**247**	**222**	**233**	**229**	**228**	**214**

5. Federal Scientific Activities by Province and Territories

5. Federal Scientific Activities by Province and Territories

This section presents the geographic distribution of Federal Government resources on S&T. Departments and agencies of the Federal Government were asked to identify staff and expenditures of their scientific establishments by province and territory.

Since no attempt is made to forecast or estimate provincial expenditures, only actual expenditures after the close of the fiscal year are obtained. Thus provincial data are available only to 1999-2000.

In 1999-2000, the Federal Government spent a total of $6,252 million on S&T. Of this amount, $3,703 million, or 59%, is assigned to provinces and territories. The rest consists of categories of expenditures which are not distributed geographically. They are the following:

- All federal expenditures in the National Capital Region (NCR) for the performance of S&T in federal institutions (intramural S&T). These expenditures were $1,937 million.

- All payments abroad for S&T. These were $229 million.

- Various other categories of federal expenditures which could not be assigned geographically. These amounted to $383 million.

Expenditures and personnel for S&T performed by the Federal Government in the NCR are excluded from the provincial totals and are reported separately. The NCR is, in effect, treated as a separate entity. However, these data distributed geographically, are presented in Tables 5.8, 5.9 and 5.13.

Estimates of S&T activities by region may be easily misunderstood. For example, the financial data are identified with the region of the physical location of an S&T unit. It would be wrong to assume all of the expenditures of a unit are spent in the region of location. Supplies and equipment can be purchased from other regions or countries. Furthermore, in cases such as the NRC, labour moves freely between Ontario and Québec so that even wages and salaries paid by a unit are partly spent outside the area of location.

Of the total federal funding for science and technology in 1999-2000 and available for distribution regionally, 36% was allocated to Ontario and 23% to Québec. These figures exclude funding for science and technology performed by the Federal Government in its own departments and agencies within the NRC, which has been stable over the past few years.

In 1999-2000, 42% of the total value of Federal Government R&D grants and contracts awarded to industry in the natural sciences was allocated to Ontario, compared with 24% to Québec, and 22% to British Columbia.

Of the total value of federal R&D grants 37% was awarded to industry in Québec, followed by Ontario with 35% and 13% to British Columbia. Industries in Ontario received the largest proportion (50%) of the federal R&D contracts, while those in Québec and British Columbia received 9% and 33% respectively.

TABLE 5.1 Federal Expenditures on Science and Technology, by Province and Territories, 1990-91 to 1999-2000

Province and territories	Year							
	1990-91	1992-93	1994-95	1995-96	1996-97	1997-98	1998-99[r]	1999-2000
	millions of dollars							
Newfoundland	92	87	93	87	75	67	86	87
Prince Edward Island	16	15	21	16	15	12	17	20
Nova Scotia	215	201	191	188	186	163	200	197
New Brunswick	74	82	79	76	62	60	75	71
Québec	795	836	808	764	789	755	788	837
Ontario	1,094	1,107	1,122	1,034	1,036	1,098	1,143	1,350
Manitoba	176	173	172	166	166	136	136	161
Saskatchewan	96	98	99	100	87	110	122	131
Alberta	258	263	230	237	230	230	254	300
British Columbia	381	390	402	366	332	354	446	529
Yukon, N.W.T and Nvt.	22	24	22	13	16	15	15	20
Canada (Excluding NCR*)	**3,219**	**3,276**	**3,239**	**3,047**	**2,994**	**3,000**	**3,282**	**3,703**
National Capital Region*	1,630	1,599	1,722	1,759	1,796	1,658	1,942	1,937
Canada (including NCR)	**4,849**	**4,875**	**4,961**	**4,806**	**4,790**	**4,658**	**5,224**	**5,640**

* *Federal intramural expenditures only.*

Chart 5.1

Federal Expenditures on Science and Technology, by Province and Territories, 1999-2000

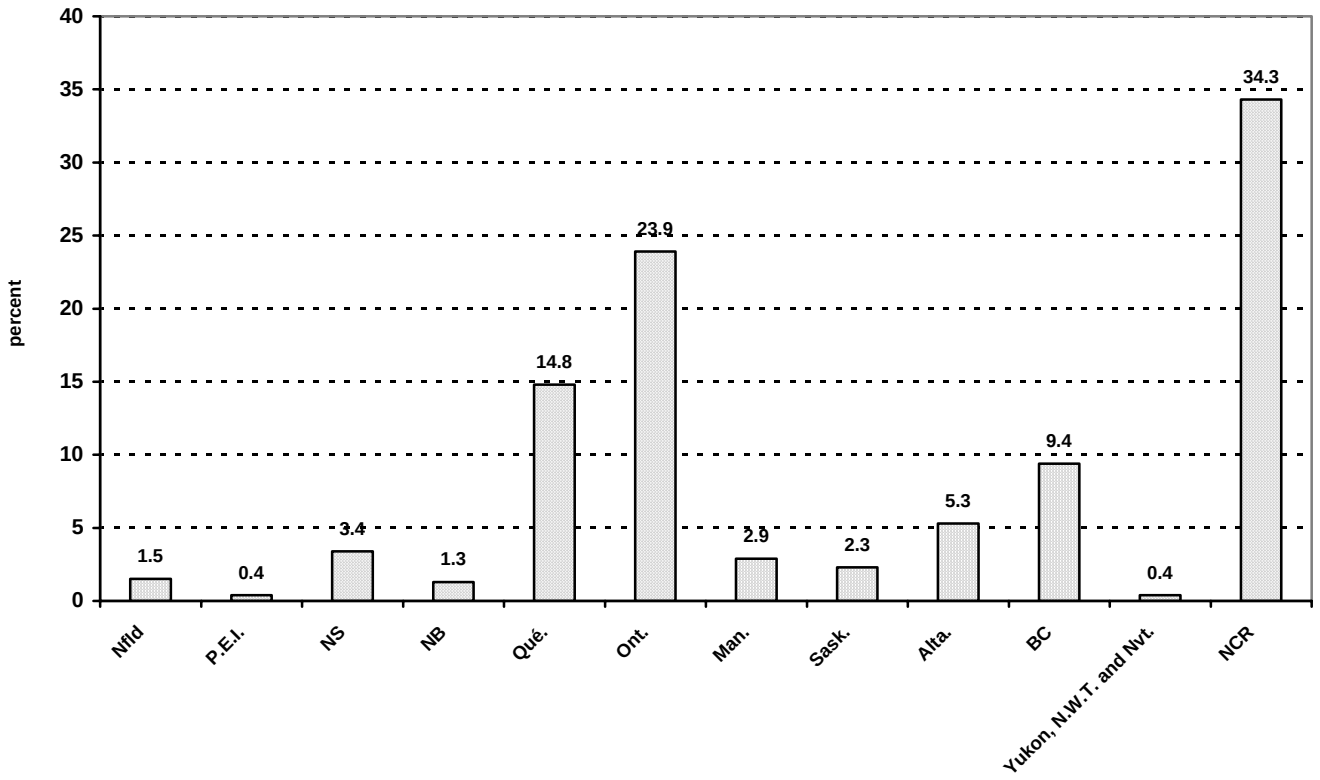


TABLE 5.2 Federal Expenditures on Science and Technology, by Science, by Province and Territories and Sector of Performance, 1999-2000

Province and Territories	Federal government	Canadian business enterprises	Higher education	Other[1] Canadian performers	Total	Total extramural[2]
			millions of dollars			
Total Science and Technology						
Newfoundland	56	10	17	4	87	31
Prince Edward Island	15	2	2	1	20	5
Nova Scotia	142	10	40	5	197	55
New Brunswick	48	8	11	4	71	23
Québec	376	164	279	18	837	461
Ontario	523	285	408	134	1,350	827
Manitoba	110	14	31	6	161	51
Saskatchewan	82	11	29	9	131	49
Alberta	142	26	114	18	300	158
British Columbia	210	146	166	7	529	319
Yukon, N.W.T. and Nvt	17	1	--	2	20	3
Canada (Excluding NCR*)	**1,721**	**677**	**1,097**	**208**	**3,703**	**1,982**
National Capital Region*	1,937	...	...	...	1,937	...
Canada (Including NCR)	**3,658**	**677**	**1,097**	**208**	**5,640**	**1,982**
Natural Science						
Newfoundland	53	10	15	3	81	28
Prince Edward Island	14	2	2	1	19	5
Nova Scotia	123	10	36	3	172	49
New Brunswick	47	8	10	3	68	21
Québec	356	163	245	11	775	419
Ontario	509	280	354	97	1,240	731
Manitoba	103	13	28	3	147	44
Saskatchewan	79	11	28	7	125	46
Alberta	137	26	105	16	284	147
British Columbia	200	145	148	2	495	295
Yukon, N.W.T. and Nvt	13	1	--	1	15	2
Canada (Excluding NCR*)	**1,634**	**669**	**971**	**147**	**3,421**	**1,787**
National Capital Region*	1,014	...	...	...	1,014	...
Canada (Including NCR)	**2,648**	**669**	**971**	**147**	**4,435**	**1,787**
Social Science						
Newfoundland	3	--	2	1	6	3
Prince Edward Island	1	--	--	--	1	--
Nova Scotia	19	--	4	2	25	6
New Brunswick	1	--	1	1	3	2
Québec	20	1	34	7	62	42
Ontario	14	5	54	37	110	96
Manitoba	7	1	3	3	14	7
Saskatchewan	3	--	1	2	6	3
Alberta	5	--	9	2	16	11
British Columbia	10	1	18	5	34	24
Yukon, N.W.T. and Nvt	4	--	--	1	5	1
Canada (Excluding NCR*)	**87**	**8**	**126**	**61**	**282**	**195**
National Capital Region*	923	...	...	...	923	...
Canada (Including NCR)	**1,010**	**8**	**126**	**61**	**1,205**	**195**

[1] *Includes Canadian non-profit institutions, provincial and municipal governments and other Canadian performers.*
[2] *Includes Canadian business enterprises, higher education and all other Canadian performers*
* *Federal intramural expenditures only.*

TABLE 5.3 Intramural Expenditures of Federal Scientific Establishments, by Department or Agency, Activity and by Province and Territories, 1999-2000

Department or Agency	Nfld	P.E.I.	N.S.	N.B.	Qué.*	Ont.*	Man	Sask	Alta	B.C.	Sub Total[1]	NCR Ont	NCR Qué	Total Canada
							millions of dollars							
S&T														
AGR	3	10	6	12	60	49	37	41	47	27	292	74	-	366
AECL	-	-	-	-	-	112	9	-	-	-	121	2	-	123
CSA	-	-	-	-	42	-	-	-	-	-	42	13	-	55
ENV	3	--	14	5	73	149	24	19	20	40	353	27	40	420
F&O	36	3	55	17	31	20	18	-	-	74	256	21	-	277
HC	--	-	1	--	7	91	2	--	--	5	107	102	-	209
IND	-	-	-	-	-	-	-	-	-	-	-	56	44	100
NDEF	-	-	23	-	49	33	-	-	24	1	130	61	2	193
NRC	8	--	12	--	52	13	11	14	1	22	134	321	-	455
NRCan	2	-	12	12	32	40	--	1	35	27	164	179	-	343
PCA	2	1	13	1	10	4	6	3	4	4	52	-	13	65
STCAN	-	-	5	-	5	8	1	--	4	4	28	433	-	461
Other	2	--	1	1	12	4	2	4	7	6	39	406	145	591
TOTAL	**56**	**15**	**142**	**48**	**373**	**523**	**110**	**82**	**142**	**210**	**1,718**	**1,696**	**244**	**3,658**
R&D														
AGR	3	10	6	12	60	49	30	41	47	27	285	66	-	351
AECL	-	-	-	-	-	112	9	-	-	-	121	2	-	123
CSA	-	-	-	-	42	-	-	-	-	-	42	9	-	51
ENV	--	--	2	1	16	57	3	5	2	8	94	-	19	113
F&O	14	1	22	6	12	8	7	-	-	29	100	8	-	108
NDEF	-	-	23	-	48	33	-	-	24	-	128	42	2	172
NRC	6	-	9	-	39	8	8	12	-	16	98	291	-	389
NRCan	2	-	10	12	25	32	--	--	34	26	147	160	-	307
Other	-	1	--	1	7	23	1	2	1	--	36	196	13	245
TOTAL	**25**	**12**	**72**	**32**	**249**	**322**	**58**	**60**	**108**	**106**	**1,051**	**774**	**34**	**1,859**

** Excluding the NCR.*
[1] Includes Territories.

TABLE 5.4 Intramural Expenditures of Federal Scientific Establishments, by Activity and by Province and Territories, 1990-91 to 1999-2000

Province and Territories	Year									
	1990-91	1991-92[r]	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000
	millions of dollars									
S&T										
Newfoundland	69	71	58	60	58	52	51	44	57	56
Prince Edward Island	10	11	10	13	13	10	9	9	11	15
Nova Scotia	151	149	142	149	139	137	140	122	152	142
New Brunswick	48	50	49	46	36	46	44	41	50	58
Québec	268	303	311	323	308	296	314	296	350	375
Ontario	376	392	384	361	359	348	434	402	398	523
Manitoba	125	121	117	121	119	116	120	94	92	110
Saskatchewan	60	61	59	68	59	65	55	82	84	82
Alberta	127	147	145	137	117	126	123	119	129	142
British Columbia	154	162	159	163	138	160	146	152	176	210
Yukon, N.W.T. and Nvt	19	17	19	19	19	10	14	13	14	17
Sub-Total	**1,407**	**1,484**	**1,453**	**1,459**	**1,365**	**1,365**	**1,449**	**1,374**	**1,513**	**1,721**
NCR - Ontario	1,477	1,546	1,448	1,518	1,475	1,524	1,559	1,444	1,694	1,693
NCR - Québec	153	145	151	192	247	235	237	214	248	244
Canada (including NCR)	**3,037**	**3,175**	**3,052**	**3,169**	**3,087**	**3,124**	**3,246**	**3,032**	**3,455**	**3,658**
R&D										
Newfoundland	30	30	30	31	31	26	24	21	26	25
Prince Edward Island	8	9	8	10	10	8	8	8	10	12
Nova Scotia	86	86	77	80	79	71	73	64	77	72
New Brunswick	29	32	32	29	26	27	29	26	31	32
Québec	158	191	207	224	212	203	207	193	226	249
Ontario	207	217	236	242	238	241	328	280	276	322
Manitoba	87	83	70	73	75	68	69	53	49	58
Saskatchewan	43	44	49	48	44	47	42	66	54	60
Alberta	80	85	84	82	86	90	84	85	94	108
British Columbia	89	93	84	89	98	75	71	76	85	106
Yukon, N.W.T and Nvt.	1	--	1	2	7	1	5	4	4	7
Sub-Total	**818**	**871**	**878**	**910**	**906**	**857**	**939**	**878**	**932**	**1,051**
NCR - Ontario	712	694	698	734	705	727	696	693	781	774
NCR - Québec	14	14	15	13	38	26	18	17	30	34
Canada (including NCR)	**1,544**	**1,579**	**1,590**	**1,657**	**1,648**	**1,610**	**1,653**	**1,588**	**1,743**	**1,859**

The reason for the change from 1997 and previous year (refer to Table 5.5), was an increase of over $76* million to the Canada Network for the Advancement of Research, Industry and Education (CANARIE), all shown as an Ontario allocation (see http://www.canarie.ca).

Through CANARIE, Industry Canada has overseen the start up of more than 150 innovative, technology driven projects involving companies across Canada.

TABLE 5.5 Federal Government Grants and Contracts to Industry for R&D in the Natural Sciences, by Province and Territories, 1990-91 to 1999-2000

Province and Territories	Year							
	1990-91	1992-93	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
	millions of dollars							
Newfoundland	6	13	8	7	6	6	9	9
Prince Edward Island	2	3	3	2	2	2	4	2
Nova Scotia	13	16	17	15	15	16	10	10
New Brunswick	7	19	27	14	3	8	9	8
Québec	173	263	229	211	209	226	176	158
Ontario	257	314	340	282	213	327	311	267
Manitoba	11	20	16	17	11	11	10	12
Saskatchewan	8	10	9	12	6	6	8	8
Alberta	20	22	18	23	20	24	21	25
British Columbia	57	60	59	47	48	58	117	142
Yukon, N.W.T. and Nvt.	--	--	--	--	--	--	--	--
Canada	**554**	**740**	**726**	**631**	**533**	**684**	**675**	**641**

1997-98 Public Accounts of Canada Transfer Payments - Industry Canada (p.44)

TABLE 5.6 Federal Government Grants and Contracts to Industry for R&D in the Natural Sciences, by Province and Territories, 1999-2000

Department/ Program	Nfld.	P.E.I.	N.S.	N.B.	Qué.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon, N.W.T., Nvt	**Canada**
	millions of dollars											
A. Grants - Subventions												
CED(QUÉ)	-	-	-	-	5.2	-	-	-	-	-	-	5.2
IND:												
DESA	-	-	-	-	--	-	-	-	-	-	-	--
DIPP	-	-	-	-	-	-	-	-	-	-	--	--
TOP	-	-	-	-	0.5	0.5	-	-	-	-	-	1.0
TPC	0.5	-	-	0.2	86.8	52.3	-	-	2.7	20.7	-	163.2
Other	-	-	-	-	--	26.3	--	--	-	-	-	26.5
Total	**0.5**	**-**	**-**	**0.2**	**87.3**	**79.3**	**-**	**-**	**2.7**	**20.7**	**-**	**190.7**
NRC:												
IRAP	2.4	1.5	3.2	3.8	19.5	28.5	3.3	2.8	9.9	13.5	0.4	88.8
Total	**2.4**	**1.5**	**3.2**	**3.8**	**19.5**	**28.5**	**3.3**	**2.8**	**9.9**	**13.5**	**0.4**	**88.8**
WEDO	-	-	-	-	-	-	1.3	1.0	4.9	3.3	-	10.5
Other	6.4	0.1	3.0	3.7	20.6	16.7	0.1	0.2	1.7	10.6	-	63.1
Total	**9.3**	**1.6**	**6.2**	**7.7**	**132.6**	**124.5**	**4.7**	**4.0**	**19.2**	**48.1**	**0.4**	**358.3**
% of Grants	**2.6**	**0.5**	**1.7**	**2.2**	**37.0**	**34.7**	**1.3**	**1.1**	**5.4**	**13.4**	**0.1**	**100.0**
B. Contracts												
CSA	-	-	-	0.1	12.4	99.4	5.7	4.0	0.7	87.1	-	209.4
NDEF	0.1	-	3.4	-	7.6	27.5	1.3	0.1	4.0	3.0	-	47.0
NRCan	--	0.4	-	0.1	1.2	5.2	0.3	-	0.4	3.2	-	10.8
Other	0.2	0.1	0.1	0.1	4.0	10.0	0.6	0.1	0.3	0.4	--	15.9
Total	**0.3**	**0.5**	**3.5**	**0.3**	**25.2**	**142.1**	**7.9**	**4.2**	**5.4**	**93.7**	**--**	**283.1**
% of Contracts	**0.1**	**0.2**	**1.2**	**0.1**	**8.9**	**50.2**	**2.8**	**1.5**	**1.9**	**33.1**	**-**	**100.0**
Total, Grants and Contracts	**9.6**	**2.1**	**9.7**	**8.0**	**157.8**	**266.6**	**12.6**	**8.2**	**24.6**	**141.8**	**0.4**	**641.4**
% of Total	**1.5**	**0.3**	**1.5**	**1.2**	**24.6**	**41.6**	**2.0**	**1.3**	**3.8**	**22.1**	**0.1**	**100.0**

TABLE 5.7 Federal Government Grants and Contracts to Universities for R&D, by Province and Territories, 1990-91 to 1999-2000

Province and Territories	Year							
	1990-91	1992-93	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
	millions of dollars							
Newfoundland	11	11	9	9	8	9	10	15
Prince Edward Island	1	1	1	1	1	1	1	2
Nova Scotia	30	34	24	23	20	20	23	36
New Brunswick	8	9	8	8	7	7	11	10
Québec	198	211	225	206	205	185	209	252
Ontario	278	285	292	276	257	246	292	360
Manitoba	24	23	25	23	21	20	23	28
Saskatchewan	19	18	20	17	19	14	22	27
Alberta	70	71	74	73	74	73	85	104
British Columbia	126	137	137	131	120	120	131	149
Yukon, N.W.T. and Nvt.	--	--	--	--	--	--	--	--
Canada	**765**	**800**	**815**	**768**	**733**	**695**	**807**	**983**

TABLE 5.8 Federal Intramural Expenditures on Science and Technology for the National Capital Region, 1990-91 to 1999-2000

Activity and Science	Year									
	1990-91	1991-92[r]	1992-93[r]	1993-94[r]	1994-95[r]	1995-96[r]	1996-97[r]	1997-98[r]	1998-99[r]	1999-2000
	millions of dollars									
TOTAL NATIONAL CAPITAL REGION										
(TOTAL) - Research and Development										
SSH	59	66	54	56	54	53	64	65	76	85
NSE	667	642	659	691	688	700	650	645	735	723
Total	**726**	**708**	**713**	**747**	**742**	**753**	**714**	**710**	**811**	**808**
Related Scientific Activities										
SSH	614	726	636	641	654	696	799	697	821	839
NSE	290	257	250	322	326	310	283	251	310	290
Total	**904**	**983**	**886**	**963**	**980**	**1,006**	**1,082**	**948**	**1,131**	**1,129**
Total Science and Technology										
SSH	673	792	690	697	708	749	863	762	897	924
NSE	957	899	909	1,013	1,014	1,010	933	896	1,045	1,013
Total	**1,630**	**1,691**	**1,599**	**1,710**	**1,722**	**1,759**	**1,796**	**1,658**	**1,942**	**1,937**
NATIONAL CAPITAL REGION (ONTARIO)										
(TOTAL) - Research and Development										
SSH	51	61	47	51	48	47	58	60	70	78
NSE	661	633	651	683	657	680	638	633	711	696
Total	**712**	**694**	**698**	**734**	**705**	**727**	**696**	**693**	**781**	**774**
Related Scientific Activities										
SSH	505	621	530	539	524	555	670	581	700	723
NSE	260	231	220	245	246	242	193	170	213	196
Total	**765**	**852**	**750**	**784**	**770**	**797**	**863**	**751**	**913**	**919**
Total Science and Technology										
SSH	556	682	577	590	572	602	728	641	770	801
NSE	921	864	871	928	903	922	831	803	924	892
Total	**1,477**	**1,546**	**1,448**	**1,518**	**1,475**	**1,524**	**1,559**	**1,444**	**1,694**	**1,693**
NATIONAL CAPITAL REGION (QUÉBEC)										
Research and Development										
SSH	8	5	7	5	6	6	6	5	6	7
NSE	6	9	8	8	31	20	12	12	24	27
Total	**14**	**14**	**15**	**13**	**37**	**26**	**18**	**17**	**30**	**34**
Related Scientific Activities										
SSH	110	105	106	102	130	141	129	116	121	116
NSE	29	26	30	77	80	68	90	81	97	94
Total	**139**	**131**	**136**	**179**	**210**	**209**	**219**	**197**	**218**	**210**
Total Science and Technology										
SSH	118	110	113	107	136	147	135	121	127	123
NSE	35	35	38	85	111	88	102	93	121	121
Total	**153**	**145**	**151**	**192**	**247**	**235**	**237**	**214**	**248**	**244**

TABLE 5.9 Federal Expenditures on Science and Technology for the National Capital Region, 1999-2000

Activity and Science	Federal Government	Canadian business enterprises	Higher education	Other[1] Canadian performers	Total
			millions of dollars		
NATIONAL CAPITAL REGION (ONTARIO)					
Research and Development					
SSH	78	--	6	11	95
NSE	696	89	38	69	892
Total	**774**	**89**	**44**	**80**	**987**
Related Scientific Activities					
SSH	723	3	12	9	747
NSE	196	6	3	2	207
Total	**919**	**9**	**15**	**11**	**954**
Total Science and Technology					
SSH	801	3	18	20	842
NSE	892	95	41	71	1,099
Total	**1,693**	**98**	**59**	**91**	**1,941**
NATIONAL CAPITAL REGION (QUÉBEC)					
Research and Development					
SSH	7	-	--	-	7
NSE	27	2	--	--	29
Total	**34**	**2**	**--**	**--**	**36**
Related Scientific Activities					
SSH	116	--	-	--	116
NSE	94	1	--	-	95
Total	**210**	**1**	**--**	**--**	**211**
Total Science and Technology					
SSH	123	--	--	--	123
NSE	121	3	--	--	124
Total	**244**	**3**	**--**	**--**	**247**

[1] *Includes Canadian non-profit institutions, provincial and municipal governments and other Canadian performers*

TABLE 5.10 Personnel of Federal Establishments Performing S&T Activities, by Department or Agency and by Province and Territories, 1999-2000

Department or Agency	Nfld.	P.E.I..	N.S.	N.B.	Qué.*	Ont.*	Man.	Sask.	Alta.	B.C.	Yukon N.W.T., Nvt	Sub-Total	NCR	Total
							person years[1]							
AGR	23	68	38	79	408	336	265	294	323	192	-	2,026	520	2,546
ACOA	-	-	-	8	-	-	-	-	-	-	-	8	-	8
AECL	-	-	-	-	-	1,090	70	-	-	-	-	1,160	10	1,170
BC	-	-	-	-	6	9	-	-	-	-	-	15	191	206
CCRA	2	-	-	-	9	6	9	-	-	4	-	30	102	132
CED(QUÉ)	-	-	-	-	18	-	-	-	-	-	-	18	-	18
CMHC	-	-	4	--	10	14	-	--	7	10	-	45	76	121
CFIA	14	12	30	10	46	15	8	59	41	31	-	267	139	406
CIHR	-	-	-	-	-	-	-	-	-	-	-	-	91	91
CIDA	-	-	-	-	-	-	-	-	-	-	-	-	211	211
CMC	-	-	-	-	-	-	-	-	-	-	-	-	437	437
CMN	-	-	-	-	-	-	-	-	-	-	-	-	154	154
CNSC	-	-	-	-	-	-	-	-	-	-	-	-	8	8
CSA	-	-	-	-	327	-	-	-	-	-	-	327	50	377
COL	-	-	-	-	-	-	-	-	-	-	-	-	8	8
ENV	36	3	166	65	459	944	168	135	159	349	53	2,537	464	3,001
FIN	-	-	-	-	-	-	-	-	-	-	-	-	267	267
F&O	305	27	446	138	250	162	140	-	-	588	21	2,077	180	2,257
FA&IT	-	-	-	-	-	-	-	-	-	-	-	-	74	74
HC	1	-	26	2	125	765	38	2	1	82	-	1,042	869	1,911
HRDC	-	-	-	-	-	-	-	-	-	-	-	-	428	428
IND	-	-	-	-	-	-	-	-	-	-	-	-	987	987
IDRC	-	-	-	-	-	-	-	-	-	-	-	-	177	177
JUS	-	-	-	-	-	-	-	-	-	-	-	-	37	37
NA	-	-	-	-	-	-	-	-	-	-	-	-	380	380
NDEF	-	-	240	-	372	226	-	-	152	3	-	993	567	1,560
NEB	-	-	-	-	-	-	-	-	12	-	-	12	-	12
NGC	-	-	-	-	-	-	-	-	-	-	-	-	250	250
NL	-	-	-	-	-	-	-	-	-	-	-	-	431	431
NMST	-	-	-	-	-	-	-	-	-	-	-	-	244	244
NRC	78	1	89	3	440	70	101	144	20	163	-	1,109	2,201	3,310
NRCan	22	-	87	109	283	317	-	3	255	206	4	1,286	1,521	2,807
NSERC	-	-	-	-	-	-	-	-	-	-	-	-	230	230
PCA	22	8	108	11	81	34	49	25	54	45	39	477	109	586
PW&GS	-	-	-	-	-	-	-	-	-	-	-	-	40	40
SSHRC	-	-	-	-	-	-	-	-	-	-	-	-	123	123
SGEN	-	-	-	-	-	-	-	-	-	-	-	-	35	35
STCAN	-	-	57	-	60	85	15	4	50	49	-	320	4,776	5,096
TPT	-	-	-	-	18	-	-	-	-	-	-	18	27	45
TB	-	-	-	-	-	-	-	-	-	-	-	-	375	375
WEDO	-	-	-	-	-	-	2	1	2	1	-	6	-	6
Other	-	1	-	-	2	-	-	-	-	-	-	3	146	149
TOTAL	**503**	**119**	**1,291**	**425**	**2,914**	**4,073**	**865**	**668**	**1,077**	**1,724**	**117**	**13,776**	**16,935**	**30,711**

* *Excluding the National Capital Region.*

[1] *Including Administration of Extramural Programs Personnel.*

TABLE 5.11 Scientific and Professional Personnel of Federal Establishments Performing S&T Activities, by Department or Agency and by Province and Territories, 1999-2000

Department or Agency	Nfld.	P.E.I.	N.S.	N.B.	Qué. *	Ont. *	Man.	Sask.	Alta.	B.C	Yukon, N.W.T., Nvt	Sub-Total	NCR	Total
							person years[1]							
AGR	7	20	11	23	120	99	82	89	95	56	-	602	178	780
AECL	-	-	-	-	-	542	30	-	-	-	-	572	4	576
CCRA	2	-	-	-	9	6	9	-	-	4	-	30	102	132
CMHC	-	-	2	--	7	10	-	--	5	7	-	31	56	87
CMC	-	-	-	-	-	-	-	-	-	-	-	-	80	80
CMN	-	-	-	-	-	-	-	-	-	-	-	-	93	93
CSA	-	-	-	-	153	-	-	-	-	-	-	153	22	175
ENV	28	2	128	49	204	421	82	66	78	143	26	1,227	238	1,465
F&O	113	9	171	52	95	62	54	-	-	227	8	791	80	871
FIN	-	-	-	-	-	-	-	-	-	-	-	-	207	207
HC	1	-	16	2	84	469	24	2	1	52	-	651	472	1,123
HRDC	-	-	-	-	-	-	-	-	-	-	-	-	316	316
IND	-	-	-	-	-	-	-	-	-	-	-	-	345	345
NA	-	-	-	-	-	-	-	-	-	-	-	-	103	103
NDEF	-	-	103	-	151	112	-	-	60	-	-	426	345	771
NGC	-	-	-	-	-	-	-	-	-	-	-	-	39	39
NL	-	-	-	-	-	-	-	-	-	-	-	-	177	177
NMST	-	-	-	-	-	-	-	-	-	-	-	-	9	9
NRC	44	1	30	3	188	29	50	50	20	71	-	486	762	1,248
NRCan	16	-	48	49	163	172	-	1	138	130	1	718	748	1,466
PCA	8	4	24	5	20	11	12	7	31	19	10	151	26	177
STCAN	-	-	-	-	-	-	-	-	-	-	-	-	1,234	1,234
Other	3	3	15	3	37	10	3	16	23	17	-	129	539	668
TOTAL	**222**	**39**	**548**	**186**	**1,231**	**1,943**	**346**	**231**	**451**	**725**	**45**	**5,967**	**6,175**	**12,142**

* *Excluding the National Capital Region.*

[1] *Including Administration of Extramural Programs Personnel.*

TABLE 5.12 Personnel of Federal Establishments Performing R&D Activities, by Department or Agency and by Province and Territories, 1999-2000

Department or Agency	Nfld..	P.E.I.	N.S.	N.B.	Qué. *	Ont. *	Man.	Sask.	Alta.	B.C.	Yukon, N.W.T., Nvt	Sub-Total	NCR	Total
							person years[1]							
AGR	23	68	38	79	406	334	214	288	322	191	-	1,963	447	2,410
AECL	-	-	-	-	-	1,090	70	-	-	-	-	1,160	10	1,170
CSA	-	-	-	-	321	-	-	-	-	-	-	321	17	338
ENV	2	-	10	4	152	381	16	49	14	71	-	699	131	830
F&O	111	9	170	51	94	64	55	-	-	229	9	792	61	853
HC	-	-	-	-	3	299	-	-	-	5	-	307	208	515
IND	-	-	-	-	-	-	-	-	-	-	-	-	401	401
NDEF	-	-	240	-	361	226	-	-	151	-	-	978	313	1,291
NRC	57	-	63	-	335	30	75	123	-	111	-	794	2,014	2,808
NRCan	22	-	87	109	211	219	-	1	239	185	4	1,077	1,229	2,306
NSERC	-	-	-	-	-	-	-	-	-	-	-	-	207	207
STCAN	-	-	-	-	-	-	-	-	-	-	-	-	158	158
Other	-	12	1	8	41	-	6	27	5	5	-	105	688	793
TOTAL	**215**	**89**	**609**	**251**	**1,924**	**2,643**	**436**	**488**	**731**	**797**	**13**	**8,196**	**5,884**	**14,080**

* *Excluding the National Capital Region.*
[1] *Including Administration of Extramural R&D Programs Personnel.*

TABLE 5.13 Personnel of Federal Establishments Performing S&T Activities, by Department or Agency in the National Capital Region, 1999-2000

Department or Agency	NCR - Ontario			NCR - Québec			NCR - Total		
	R&D	RSA	Total	R&D	RSA	Total	R&D	RSA	Total S&T
					person-years[1]				
AGR	447	73	520	-	-	-	447	73	520
BC	64	127	191	-	-	-	64	127	191
CFIA	44	95	139	-	-	-	44	95	139
CIHR	88	2	91	-	-	-	88	3	91
CIDA	-	-	-	24	187	211	24	187	211
CMC	1	36	37	52	348	400	53	384	437
CMN	1	30	31	25	98	123	26	128	154
ENV	11	144	155	120	189	309	131	333	464
FIN	-	267	267	-	-	-	-	267	267
F&O	61	119	180	-	-	-	61	119	180
HC	208	661	869	-	-	-	208	661	869
HRDC	-	11	11	7	410	417	7	421	428
IND	401	174	575	-	412	412	401	586	987
IDRC	144	33	177	-	-	-	144	33	177
NA	-	282	282	-	98	98	-	380	380
NDEF	302	255	557	11	-	11	313	255	567
NGC	47	203	250	-	-	-	47	203	250
NL	-	173	173	-	258	258	-	431	431
NMST	-	244	244	-	-	-	-	244	244
NRC	2,014	187	2,201	-	-	-	2,014	187	2,201
NRCan	1,229	292	1,521	-	-	-	1,229	292	1,521
NSERC	207	23	230	-	-	-	207	23	230
PCA	-	-	-	-	109	109	-	109	109
STCAN	158	4,618	4,776	-	-	-	158	4,618	4,776
TB	-	375	375	-	-	-	-	375	375
Other	150	291	441	68	227	295	218	518	736
TOTAL	**5,577**	**8,715**	**14,292**	**307**	**2,336**	**2,643**	**5,884**	**11,051**	**16,935**

[1] *Including Administration of Extramural R&D Programs Personnel.*

TABLE 5.14 Scientific and Professional Personnel of Federal Establishments Performing R&D Activities, by Department or Agency and by Province and Territories, 1999-2000

Department or Agency	Nfld.	P.E.I.	N.S.	N.B.	Qué. *	Ont. *	Man.	Sask.	Alta.	B.C.	Yukon, N.W.T., Nvt	Sub-Total	NCR	Total
							person years[1]							
AGR	7	20	11	23	120	99	65	89	95	56	-	585	130	**715**
AECL	-	-	-	-	-	542	30	-	-	-	-	572	4	**576**
CSA	-	-	-	-	135	-	-	-	-	-	-	135	17	**152**
ENV	2	-	10	4	82	220	16	36	13	33	-	416	83	**499**
F&O	42	3	65	19	36	24	21	-	-	88	3	301	24	**325**
HC	-	-	-	-	2	139	-	-	-	3	-	144	90	**234**
IND	-	-	-	-	-	-	-	-	-	-	-	-	162	**162**
NDEF	-	-	103	-	151	112	-	-	60	-	-	426	192	**618**
NRC	24	-	22	-	156	-	40	44	-	51	-	337	687	**1,024**
NRCan	16	-	48	49	134	120	-	1	134	123	1	626	658	**1,284**
Other	-	3	1	-	21	-	2	10	3	2	-	42	387	**429**
TOTAL	**91**	**26**	**260**	**95**	**837**	**1,256**	**174**	**180**	**305**	**356**	**4**	**3,584**	**2,434**	**6,018**

* *Excluding the National Capital Region.*

[1] *Including Administration of Extramural R&D Programs Personnel.*

6. Expenditures on S&T by Socio-Economic Objectives

Federal Government Expenditures on S&T by Socio-Economic Objectives

Socio-economic objectives allow departments to classify their S&T resource allocations according to the purpose for which the expenditure is intended. The objectives are listed at the highest level of aggregation. In many cases, projects have multiple objectives and a department assigned its expenditures consistent with the stated objectives of the department.

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

The objectives of government funding of R&D have long been of interest to policy makers. Eurostat for many years had a sub-committee on R&D statistics which compiled data on government funding of R&D. The system of classification used was the NABS which was developed in 1969 and first revised in 1975.

Data by socio-economic objectives were previously collected as part of the main estimates science addendum excercise using OECD classifications.

Exploration and Exploitation of the Earth

Scientific activities with objectives related to the exploration of the Earth's crust and mantle, seas, oceans and atmosphere, and scientific activities on their exploitation. It also includes climatic and meteorological research, polar exploration and hydrology.

Infrastructure and General Planning of Land-Use

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

Pollution, Protection and Conservation of the Environment

Scientific activities into the control of pollution, aimed at the identification and analysis of the sources of pollution and their causes, and all pollutants, including their dispersal in the environment and the effects on man, species (fauna, flora, microorganisms) and biosphere. Development of monitoring facilities for the measurement of all kinds of pollution is included. The same is valid for the elimination and prevention of all forms of pollution in all types of environment.

Public Health

Scientific activities aimed at protecting, promoting and restoring human health - broadly interpreted to include health aspects of nutrition and food hygiene. It ranges from preventative medicine, including all aspects of medical and surgical treatment, both for individuals and groups, and the provision of hospital and home care, to social medicine and pediatric and geriatric research.

Production, Distribution and Rational Utilization of Energy

Scientific activities into the production, storage, transportation, distribution and rational use of all forms of energy. It also includes scientific activities on processes designed to increase the efficiency of energy production and distribution, and the study of energy conservation.

Agricultural Production and Technology

Scientific activities on the promotion of agriculture, forestry, fisheries and foodstuff production. It includes: scientific activities on chemical fertilizers, biocides, biological pest control and the mechanization of agriculture; research on the impact of agricultural forestry activities on the environment; and scientific activities in the field of developing food productivity and technology.

Industrial Production and Technology

Scientific activities on the improvement of industrial production and technology. It includes scientific activities on industrial products and their manufacturing processes except where they form an integral part of the pursuit of other objectives (e.g. defence, space, energy, agriculture).

Social Structures and Relationships

Scientific activities on social objectives, as analyzed in particular by social and human sciences, which have no obvious connection with other objectives. This analysis includes quantitative, qualitative, organizational and forecasting aspects of social problems.

Exploration and Exploitation of Space

All civil space scientific activities, although civil space research is not, in general, concerned with particular objectives, it frequently has a specific goal, such as the increase of general knowledge (e.g. astronomy), or relates to particular applications (e.g. telecommunications satellites).

Non-Oriented Research

Basic activities motivated by scientific curiosity with the objective of increasing scientific knowledge. It also includes funding used to support postgraduate studies and fellowships.

Other Civil Research

Civil scientific activities which cannot (yet) be classified to a particular objective.

Defence

Scientific activities and development for military purposes. It also includes basic research and nuclear and space research financed by Ministry of Defence. Civil scientific activities financed by Ministry of Defence, for example, in the fields of meteorology, telecommunications and health, should be classified in the relevant objectives.

TABLE 6.1 S&T Expenditures by Socio-Economic Objectives, 1997-98 to 1999-2000

Socio-Economic Objectives	1997-98[r]		1998-99[r]		1999-2000	
	Intramural[1]	Extramural	Intramural[1]	Extramural	Intramural[1]	Extramural
	in millions of dollars					
1. Exploration and Exploitation of the Earth	345	39	362	45	384	128
2. Infrastructure and General Planning of Land Use :						
2.1 Transport	39	38	49	32	53	24
2.2 Telecommunication	37	22	35	36	26	44
2.3 Other	141	19	146	22	121	23
3. Pollution, Protection and Conservation of the Environment	246	103	250	118	288	117
4. Public Health	191	308	215	347	249	435
5. Production, Distribution and Rational Utilization of Energy	221	60	173	68	173	68
6. Agricultural Production and Technology						
6.1 Agriculture	348	43	352	49	381	73
6.2 Fishing	81	10	110	13	112	16
6.3 Forestry	79	25	83	27	85	45
7. Industrial Production and Technology	139	437	170	417	165	406
8. Social Structures and Relationships	803	100	826	167	762	178
9. Exploration and Exploitation of Space	65	191	99	270	76	270
10. Non-Oriented Research	59	296	65	271	206	295
11. Other Civil Research	33	3	20	3	22	2
12. Defence	149	147	156	141	187	141
13. Other	57	317	62	320	57	329
Total S&T Expenditures	**3,033**	**2,158**	**3,173**	**2,346**	**3,347**	**2,594**
			percent			
Percent	**58**	**42**	**57**	**43**	**56**	**44**

[1] Non-program (indirect costs) are excluded

TABLE 6.2 R&D Expenditures by Socio-Economic Objectives, 1997-98 to 1999-2000

Socio-Economic Objectives	1997-98[r]		1998-99[r]		1999-2000	
	Intramural[1]	Extramural	Intramural[1]	Extramural	Intramural[1]	Extramural
	in millions of dollars					
1. Exploration and Exploitation of the Earth	178	25	179	29	186	99
2. Infrastructure and General Planning of Land Use						
2.1 Transport	34	32	38	28	42	23
2.2 Telecommunication	32	22	32	35	24	34
2.3 Other	54	13	51	15	42	16
3. Pollution, Protection and Conservation of the Environment	97	73	98	83	122	88
4. Public Health	80	282	87	318	103	390
5. Production, Distribution and Rational Utilization of Energy	209	57	170	65	171	68
6. Agricultural Production and Technology:						
6.1 Agriculture	317	37	308	44	334	67
6.2 Fishing	30	8	42	10	43	13
6.3 Forestry	73	24	74	24	77	43
7. Industrial Production and Technology	119	429	123	406	137	398
8. Social Structures and Relationships	110	31	125	90	50	87
9. Exploration and Exploitation of Space	59	190	92	270	68	269
10. Non-Oriented Research	51	237	54	229	150	256
11. Other Civil Research	15	1	14	2	14	1
12. Defence	127	124	136	120	167	121
13. Other	3	74	4	68	4	58
Total R&D Expenditures	**1,588**	**1,659**	**1,627**	**1,836**	**1,734**	**2,031**
			percent			
Percent	**49**	**51**	**47**	**53**	**46**	**54**

[1] *Non-program (indirect costs) are excluded*

TABLE 6.3 S&T Expenditures by Socio-Economic Objectives and Activity, 1999-2000

Socio-Economic Objectives	Intramural[1]			Extramural			Total		
	R&D	RSA	S&T	R&D	RSA	S&T	R&D	RSA	S&T
	in millions of dollars								
1. Exploration and Exploitation of the Earth	186	198	384	99	29	128	285	227	512
2. Infrastructure and General Planning of Land Use									
2.1 Transport	42	11	53	23	1	24	65	12	77
2.2 Telecommunication	24	2	26	34	10	44	58	12	70
2.3 Other	42	79	121	16	7	23	58	86	144
3. Pollution, Protection and Conservation of the Environment	122	166	288	88	29	117	210	195	405
4. Public Health	103	146	249	390	45	435	493	191	684
5. Production, Distribution and Rational Utilization of Energy	171	2	173	68	--	68	239	2	241
6. Agricultural Production and Technology									
6.1 Agriculture	334	47	381	67	6	73	401	53	454
6.2 Fishing	43	69	112	13	3	16	56	72	128
6.3 Forestry	77	8	85	43	2	45	120	10	130
7. Industrial Production and Technology	137	28	165	398	8	406	535	36	571
8. Social Structures and Relationships	50	712	762	87	91	178	137	803	940
9. Exploration and Exploitation of Space	68	8	76	269	1	270	337	9	346
10. Non-Oriented Research	150	56	206	256	39	295	406	95	501
11. Other Civil Research	14	8	22	1	1	2	15	9	24
12. Defence	167	20	187	121	20	141	288	40	328
13. Other	4	53	57	58	271	329	62	324	386
Total R&D Expenditures	**1,734**	**1,613**	**3,347**	**2,031**	**563**	**2,594**	**3,765**	**2,176**	**5,941**
					percent				
Percent of Activity	**52**	**48**	**100**	**78**	**22**	**100**	**63**	**37**	**100**
Percent of total	**29**	**27**	**56**	**34**	**10**	**44**	**63**	**37**	**100**

[1] *Non-program (indirect costs) are excluded*

Chart 6.1

S&T and R&D Expenditure Percentages by Socio-Economic Objectives, 1999-2000

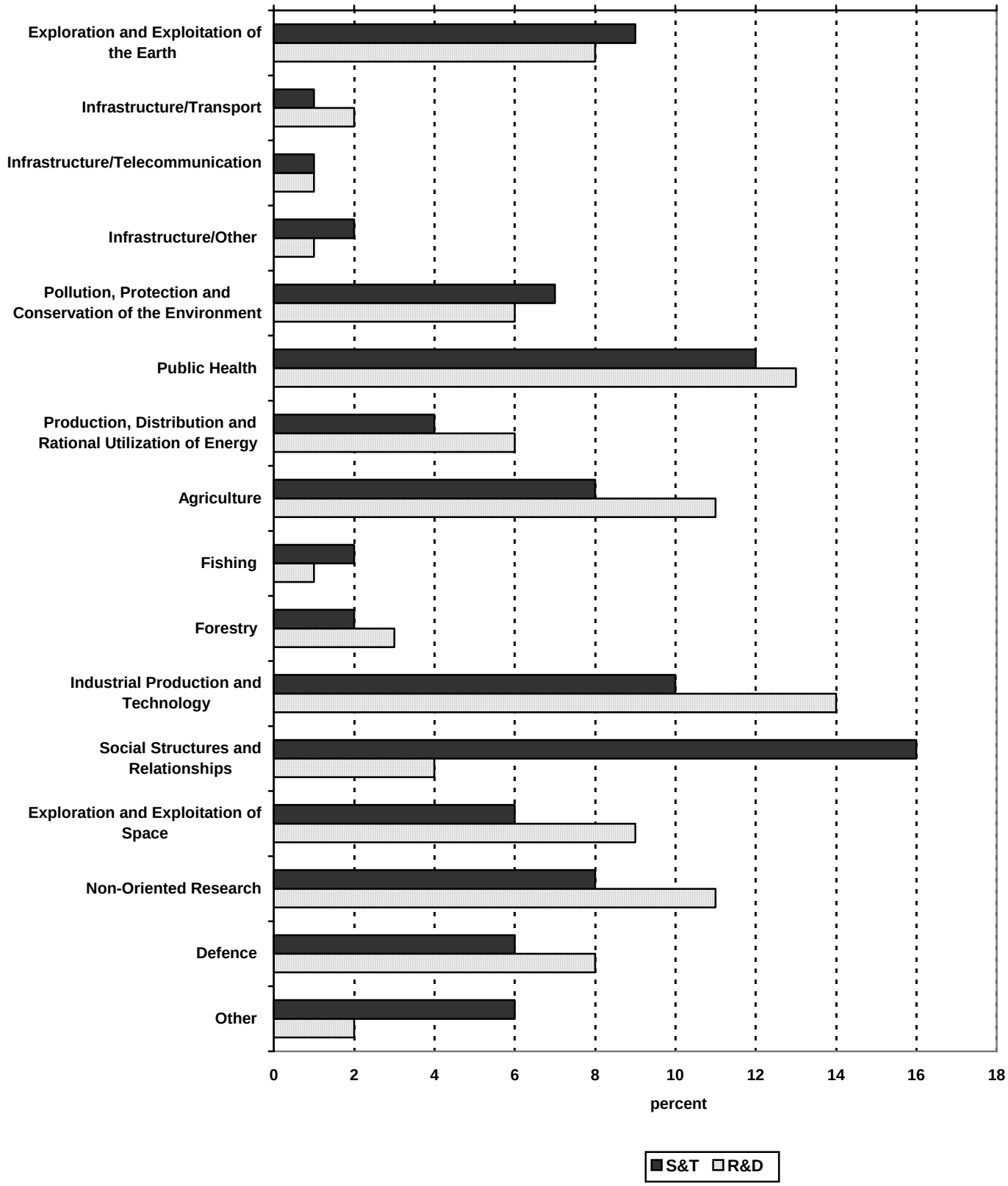


TABLE 6.4 S&T Expenditure Percentages by Socio-Economic Objectives and Activity, 1999-2000

Socio-Economic Objectives	R&D			RSA			S&T		
	Intramural[1]	Extramural	Total	Intramural[1]	Extramural	Total	Intramural[1]	Extramural	Total
					percent				
1. Exploration and Exploitation of the Earth	11	5	8	12	5	10	11	5	9
2. Infrastructure and General Planning of Land:									
2.1 Transport	2	1	2	1	--	1	2	1	1
2.2 Telecommunication	1	2	1	--	2	1	1	2	1
2.3 Other	2	1	1	5	1	4	4	1	2
3. Pollution, Protection and Conservation of the Environment	7	4	6	10	5	9	9	4	7
4. Public Health	6	19	13	9	8	9	7	17	12
5. Production, Distribution and Rational Utilization of Energy	10	3	6	--	--	--	5	3	4
6. Agricultural Production and Technology:									
6.1 Agriculture	19	3	11	3	1	2	11	3	8
6.2 Fishing	3	1	1	4	1	3	3	--	2
6.3 Forestry	4	2	3	1	--	1	2	2	2
7. Industrial Production and Technology	8	20	14	2	2	2	5	16	10
8. Social Structures and Relationships	3	4	4	44	16	37	23	7	16
9. Exploration and Exploitation of Space	4	13	9	1	--	--	2	10	6
10. Non-Oriented Research	9	13	11	3	7	4	6	11	8
11. Other Civil Research	1	--	--	1	--	--	1	--	--
12. Defence	10	6	8	1	4	2	6	5	6
13. Other	--	3	2	3	48	15	2	13	6
Total Percent	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
					in millions of dollars				
Total Expenditures	**1,734**	**2,031**	**3,765**	**1,613**	**563**	**2,176**	**3,347**	**2,594**	**5,941**
					percent				
Percent of Activity	**46**	**54**	**100**	**74**	**26**	**100**	**56**	**44**	**100**
Percent of Total	**29**	**34**	**63**	**27**	**10**	**37**	**56**	**44**	**100**

[1] *Non-program (indirect costs) are excluded*

TABLE 6.5 S&T Expenditures by Socio-Economic Objectives and Major Department and Agency, 1999-2000

Socio-Economic Objectives	AGR	CIDA	CIHR	ENV	NDEF	NRC	NRCan	NSERC	STCAN	Others	Total	%
						in millions of dollars						
1. Exploration and Exploitation of the Earth	-	-	-	233	-	3	122	30	-	124	512	9
2. Infrastructure and General Planning of Land Use:												
2.1 Transport	-	-	-	-	-	47	--	11	5	14	77	2
2.2 Telecommunication	-	-	-	-	-	18	--	31	-	21	70	1
2.3 Other	-	-	-	-	-	33	29	15	-	67	144	2
3. Pollution, Protection and Conservation of the Environment	--	-	-	242	-	39	6	55	-	63	405	7
4. Public Health	-	-	316	--	-	63	-	45	9	251	684	11
5. Production, Distribution and Rational Utilization of Energy	-	-	-	-	-	4	76	21	-	140	241	4
6. Agricultural Production and Technology												
6.1 Agriculture	333	-	-	-	-	28	--	31	11	51	454	8
6.2 Fishing	-	-	-	-	-	2	--	6	-	120	128	2
6.3 Forestry	-	-	-	-	-	6	109	5	-	10	130	2
7. Industrial Production and Technology	-	-	-	2	-	134	47	81	-	307	571	10
8. Social Structures and Relationships	-	-	-	-	-	-	--	1	399	540	940	16
9. Exploration and Exploitation of Space	-	-	-	-	-	30	-	8	-	308	346	6
10. Non-Oriented Research	-	-	-	-	-	168	--	207	-	126	501	8
11. Other Civil Research	-	-	-	-	-	13	10	-	-	1	24	--
12. Defence	-	-	-	-	328	-	-	-	-	-	328	6
13. Other	-	333	-	-	-	-	-	-	-	53	386	6
Total S&T Expenditures[1]	**333**	**333**	**316**	**477**	**328**	**588**	**399**	**547**	**424**	**2,196**	**5,941**	
							percent					
Percent	**6**	**6**	**5**	**8**	**5**	**10**	**7**	**9**	**7**	**37**	**100**	**100**

[1] *Non-program (indirect costs) are excluded*

TABLE 6.6 S&T Intramural Expenditures by Socio-Economic Objectives and Major Department and Agency, 1999-2000

Socio-Economic Objectives	AECL	AGR	ENV	F&O	HC	NDEF	NRC	NRCan	STCAN	Others	Total	%
						in millions of dollars						
1. Exploration and Exploitation of the Earth	-	-	154	110	-	-	3	116	-	1	384	11
2. Infrastructure and General Planning of Land:												
2.1 Transport	-	-	-	--	-	-	43	--	4	6	53	2
2.2 Telecommunication	-	-	-	-	-	-	8	--	-	18	26	1
2.3 Other	-	-	-	-	-	-	33	26	-	62	121	4
3. Pollution, Protection and Conservation of the Environment	-	--	203	41	1	-	33	6	-	4	288	9
4. Public Health	-	-	--	-	158	-	56	-	9	26	249	7
5. Production, Distribution and Rational Utilization of Energy	122	-	-	-	-	-	1	44	-	6	173	5
6. Agricultural Production and Technology:												
6.1 Agriculture	-	313	-	-	-	-	22	--	11	35	381	11
6.2 Fishing	-	-	-	111	-	-	-	--	-	1	112	3
6.3 Forestry	-	-	-	-	-	-	6	76	-	3	85	2
7. Industrial Production and Technology	-	-	1	-	-	-	80	45	-	39	165	5
8. Social Structures and Relationships	-	-	-	--	-	-	-	--	399	363	762	23
9. Exploration and Exploitation of Space	-	-	-	-	-	-	21	-	-	55	76	2
10. Non-Oriented Research	-	-	-	-	-	-	128	--	-	78	206	6
11. Other Civil Research	-	-	-	-	-	-	13	9	-	-	22	1
12. Defence	-	-	-	-	-	187	-	-	-	-	187	6
13. Other	-	-	-	-	-	-	-	-	-	57	57	2
Total S&T Expenditures[1]	**122**	**313**	**358**	**262**	**159**	**187**	**447**	**322**	**423**	**754**	**3,347**	
						percent						
Percent	**4**	**9**	**11**	**8**	**5**	**5**	**13**	**10**	**13**	**22**	**100**	**100**

[1] *Non-program (indirect costs) are excluded*

TABLE 6.7 S&T Extramural Expenditures by Socio-Economic Objectives and Major Department and Agency, 1999-2000

Socio-Economic Objectives	CIDA	CIHR	CSA	IND	NDEF	NRC	NSERC	SSHRC	Others	Total	%
						in millions of dollars					
1. Exploration and Exploitation of the Earth	-	-	-	-	-	-	30	-	98	128	5
2. Infrastructure and General Planning of Land Use:											
2.1 Transport	-	-	-	-	-	4	11	--	9	24	1
2.2 Telecommunication	-	-	-	-	-	10	31	-	3	44	2
2.3 Other	-	-	-	-	-	-	15	-	8	23	1
3. Pollution, Protection and Conservation of the Environment	-	-	-	-	-	6	55	4	52	117	4
4. Public Health	-	302	-	-	-	7	45	9	72	435	17
5. Production, Distribution and Rational Utilization of Energy	-	-	-	-	-	2	21	-	45	68	3
6. Agricultural Production and Technology:											
6.1 Agriculture	-	-	-	-	-	6	31	--	36	73	3
6.2 Fishing	-	-	-	-	-	2	6	1	7	16	1
6.3 Forestry	-	-	-	-	-	1	5	2	37	45	2
7. Industrial Production and Technology	-	-	-	200	-	53	81	7	65	406	16
8. Social Structures and Relationships	-	-	-	-	-	-	1	75	102	178	7
9. Exploration and Exploitation of Space	-	-	249	-	-	9	8	-	4	270	10
10. Non-Oriented Research	-	-	-	-	-	40	184	17	54	295	11
11. Other Civil Research	-	-	-	-	-	1	-	-	1	2	--
12. Defence	-	-	-	-	141	-	-	-	-	141	5
13. Other	319	-	-	-	-	-	-	-	10	329	12
Total S&T Expenditures	**319**	**302**	**249**	**200**	**141**	**141**	**524**	**115**	**603**	**2,594**	
						percent					
Percent	**12**	**12**	**10**	**8**	**5**	**5**	**20**	**5**	**23**	**100**	**100**

TABLE 6.8 R&D Expenditures by Socio-Economic Objectives and Major Department and Agency, 1999-2000

Socio-Economic Objectives	AGR	CIHR	CSA	ENV	IND	NDEF	NRC	NRCan	NSERC	Others	Total	%
						in millions of dollars						
1. Exploration and Exploitation of the Earth	-	-	-	99	-	-	2	110	20	54	285	7
2. Infrastructure and General Planning of Land Use:												
2.1 Transport	-	-	-	-	-	-	40	--	11	14	65	2
2.2 Telecommunication	-	-	-	-	17	-	17	--	22	2	58	2
2.3 Other	-	-	-	-	-	-	29	14	13	2	58	2
3. Pollution, Protection and Conservation of the Environment	--	-	-	81	-	-	34	6	54	35	210	5
4. Public Health	-	304	-	-	-	-	55	-	29	105	493	13
5. Production, Distribution and Rational Utilization of Energy	-	-	-	-	-	-	4	76	21	138	239	6
6. Agricultural Production and Technology:												
6.1 Agriculture	319	-	-	-	-	-	25	--	26	31	401	11
6.2 Fishing	-	-	-	-	-	-	2	--	6	48	56	1
6.3 Forestry	-	-	-	-	-	-	6	101	5	8	120	3
7. Industrial Production and Technology	-	-	-	1	218	-	122	47	75	72	535	14
8. Social Structures and Relationships	-	-	-	-	-	-	-	--	1	136	137	4
9. Exploration and Exploitation of Space	-	-	298	-	-	-	27	-	7	5	337	9
10. Non-Oriented Research	-	-	-	-	-	-	149	--	189	68	406	11
11. Other Civil Research	-	-	-	-	-	-	11	4	-	-	15	--
12. Defence	-	-	-	-	-	288	-	-	-	-	288	8
13. Other	-	-	-	-	-	-	-	-	-	62	62	2
Total S&T Expenditures[1]	**319**	**304**	**298**	**181**	**235**	**288**	**523**	**358**	**479**	**780**	**3,765**	
						percent						
Percent	**8**	**8**	**8**	**5**	**6**	**8**	**14**	**9**	**13**	**21**	**100**	**100**

[1] *Non-program (indirect costs) are excluded*

TABLE 6.9 R&D Intramural Expenditures by Socio-Economic Objectives and Major Department and Agency, 1999-2000

Socio-Economic Objectives	AECL	AGR	CSA	ENV	F&O	NDEF	NRC	NRCan	Others	Total	%
						in millions of dollars					
1. Exploration and Exploitation of the Earth	-	-	-	32	44	-	2	106	2	186	11
2. Infrastructure and General Planning of Land Use:											
2.1 Transport	-	-	-	-	-	-	37	--	5	42	2
2.2 Telecommunication	-	-	-	-	-	-	7	--	17	24	2
2.3 Other	-	-	-	-	-	-	28	14	-	42	2
3. Pollution, Protection and Conservation of the Environment	-	--	-	67	16	-	28	6	5	122	7
4. Public Health	-	-	-	-	-	-	48	-	55	103	6
5. Production, Distribution and Rational Utilization of Energy	122	-	-	-	-	-	1	44	4	171	10
6. Agricultural Production and Technology:											
6.1 Agriculture	-	300	-	-	-	-	19	--	15	334	19
6.2 Fishing	-	-	-	-	42	-	-	--	1	43	2
6.3 Forestry	-	-	-	-	-	-	5	70	2	77	4
7. Industrial Production and Technology	-	-	-	--	-	-	69	45	23	137	8
8. Social Structures and Relationships	-	-	-	-	-	-	-	--	50	50	3
9. Exploration and Exploitation of Space	-	-	49	-	-	-	18	-	1	68	4
10. Non-Oriented Research	-	-	-	-	-	-	109	--	41	150	9
11. Other Civil Research	-	-	-	-	-	-	11	3	-	14	1
12. Defence	-	-	-	-	-	167	-	-	-	167	10
13. Other	-	-	-	-	-	-	-	-	4	4	--
Total S&T Expenditures[1]	**122**	**300**	**49**	**99**	**102**	**167**	**382**	**288**	**225**	**1,734**	
						percent					
Percent	**7**	**17**	**3**	**6**	**6**	**10**	**22**	**16**	**13**	**100**	**100**

TABLE 6.10 R&D Extramural Expenditures by Socio-Economic Objectives and Major Department and Agency, 1999-2000

Socio-Economic Objectives	CFI	CIHR	CSA	IND	NDEF	NRC	NSERC	SSHRC	Others	Total	%
						in millions of dollars					
1. Exploration and Exploitation of the Earth	5	-	-	-	-	-	20	-	74	99	5
2. Infrastructure and General Planning of Land Use:											
2.1 Transport	--	-	-	-	-	4	11	--	8	23	1
2.2 Telecommunication	2	-	-	-	-	10	22	-	-	34	2
2.3 Other	2	-	-	-	-	-	13	-	1	16	1
3. Pollution, Protection and Conservation of the Environment	6	-	-	-	-	6	54	3	19	88	4
4. Public Health	35	290	-	-	-	7	29	8	21	390	19
5. Production, Distribution and Rational Utilization of Energy	2	-	-	-	-	2	21	-	43	68	3
6. Agricultural Production and Technology :											
6.1 Agriculture	9	-	-	-	-	6	27	-	25	67	3
6.2 Fishing	2	-	-	-	-	2	6	1	2	13	1
6.3 Forestry	2	-	-	-	-	1	5	2	33	43	2
7. Industrial Production and Technology	24	-	-	200	-	53	75	5	41	398	20
8. Social Structures and Relationships	1	-	-	-	-	-	1	55	30	87	4
9. Exploration and Exploitation of Space	2	-	249	-	-	9	7	-	2	269	13
10. Non-Oriented Research	22	-	-	-	-	40	168	12	14	256	13
11. Other Civil Research	-	-	-	-	-	1	-	-	-	1	--
12. Defence	-	-	-	-	121	-	-	-	-	121	6
13. Other	-	-	-	-	-	-	-		58	58	3
Total S&T Expenditures	**114**	**290**	**249**	**200**	**121**	**141**	**459**	**86**	**371**	**2,031**	
						percent					
Percent	**6**	**14**	**12**	**10**	**6**	**7**	**23**	**4**	**18**	**100**	**100**

Abbreviations

Departments and Agencies

AGR	Agriculture and Agri-Food Canada
ACOA	Atlantic Canada Opportunities Agency
AECB	Atomic Energy Control Board
AECL	Atomic Energy of Canada Limited
BC	Bank of Canada
CCRA	Canada Customs and Revenue Agency
CED(Qué)	Canada Economic Development (Québec Regions)
CFI	Canada Foundation for Innovation
CMHC	Canada Mortgage and Housing Corporation
CBC	Canadian Broadcasting Corporation
CCMD	Canadian Centre for Management Development
CFIA	Canadian Food Inspection Agency
CH	Canadian Heritage
CHRC	Canadian Human Rights Commission
CIHR	Canadian Institutes of Health Research
CIDA	Canadian International Development Agency
CITT	Canadian International Trade Tribunal
CMC	Canadian Museum of Civilization
CMN	Canadian Museum of Nature
CNSC	Canadian Nuclear Safety Commission
CSA	Canadian Space Agency
C&I	Citizenship and Immigration
COL	Commissioner of Official Languages
COMM	Communications
CCA	Consumer and Corporate Affairs
ECC	Economic Council of Canada
EPC	Emergency Preparedness Canada
E&I	Employment and Immigration
EMR	Energy, Mines and Resources
ENV	Environment
EA	External Affairs
FORD	Federal Office of Regional Development Québec
FIN	Finance
F&O	Fisheries and Oceans
FA&IT	Foreign Affairs and International Trade Canada
FOR	Forestry
GC	Genome Canada
GTA	Grain Transportation Agency
HC	Health Canada
HRDC	Human Resources Development Canada
IAND	Indian Affairs and Northern Development
IND	Industry Canada
ISTC	Industry, Science and Technology Canada
IDRC	International Development Research Centre
IJC	International Joint Commission
IC	Investment Canada
JUS	Justice
LAB	Labour
M&C	Multiculturalism and Citizenship Canada
MRC	Medical Research Council
NA	National Archives
NCC	National Capital Commission
NDEF	National Defence
NEB	National Energy Board
NFB	National Film Board
NGC	National Gallery of Canada

Departments and Agencies – Concluded

NHW	National Health and Welfare
NL	National Library
NMST	National Museum of Science and Technology
NRCan	Natural Resources Canada
NRC	National Research Council
NSERC	Natural Sciences and Engineering Research Council
NTA	National Transportation Agency of Canada
PCA	Parks Canada Agency
PC	Privy Council Office
PSC	Public Service Commission
PSSRB	Public Service Staff Relations Board
PW	Public Works
PW&GS	Public Works and Government Services Canada
NREV	Revenue Canada
RIE	Regional Industrial Expansion
RCMP	Royal Canadian Mounted Police
S&T	Science and Technology
SC	Science Council of Canada
SECS	Secretary of State
SSHRC	Social Sciences and Humanities Research Council
SGEN	Solicitor General
STCAN	Statistics Canada
SWC	Status of Women Canada
SS	Supply and Services
TPT	Transport
TSBC	Transportation Safety Board of Canada
TB	Treasury Board
URC's	University Research Councils
WEDO	Western Economic Diversification Office

Technical Notes and Definitions

Scope and Limitations of the Data

The expenditures data for scientific activities controlled by federal departments and agencies provided in this document correspond to the budgetary expenditures by program presented in Main Estimates for the approval of Parliament. The following kinds of non-budgetary costs or expenditures are not included:

loans or advances to and investments in Crown Corporations; loans or advances for specific purposes to other governments and international organizations or persons or corporations in the private sector.

Reliability of the Data

All the possible sources of error were examined. Definitions have been taken from **A Compendium of Methods of Error Evaluation in Censuses and Surveys**, Statistics Canada, Catalogue No. 13-564.

- A complete enumeration is carried out of all federal departments and agencies involved in scientific activities.
- Being a census, coverage and non response are very minor causes of error.
- No imputation, coding, or sampling is done by Statistics Canada for this exercise.

Data Capture

"The data capture operation in a census or survey consists of converting the data received on questionnaires (e.g., respondent answers) or coding forms to a machine readable format."

All data capture for science statistics is through manual intervention, at a computer terminal.

Significant uncorrected data capture errors are unlikely because of the examination of numerous tables and listings prepared for data analysis before publication tables are created. Mistakes in expenditures due to coding error are believed to be less than 1%.

Edit

"The edit procedures usually consists of: (i) checking each field of every record to ascertain whether it contains a valid code or entry; (ii) checking codes or entries in certain predetermined combinations of fields to ascertain whether codes or entries are consistent with one another."

Although there are a number of edits, all cases of failed edit checks are corrected after consideration by editors.

Definitions for the Natural Sciences and Engineering

The natural sciences and engineering (NSE) 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.

Scientific research and experimental development (R&D)

Creative work undertaken on a systematic basis in order to increase the stock of scientific and technical knowledge and to use this knowledge in new applications.

The central characteristic of R&D is an appreciable element of novelty and of uncertainty. **New** knowledge, products or processes are sought. The work is normally performed by, or under the supervision of, persons with postgraduate degrees in the natural sciences or engineering.

An R&D project generally has three characteristics:

- a substantial element of uncertainty, novelty and innovation;
- a well-defined project design;
- a report on the procedures and results of the projects.

Related scientific activities (RSA)

Those activities which complement and extend R&D by contributing to the generation, dissemination and application of scientific and technological knowledge. The kinds of related scientific activities for the natural sciences are:

(i) **Scientific data collection.**
The gathering, processing, collating and analyzing of data on natural phenomena. These data are normally the results of surveys, routine laboratory analyses or compilations of operating records. Data collected as part of an existing or proposed R&D project are charged to research. Similarly, the costs of analyzing existing data as part of a research project are R&D costs, even when the data were originally collected for some other purpose. The development of new techniques for data collection is also to be considered to be a research activity. Examples of scientific data collection are routine geological, hydrographic, oceanographic and topographic surveys; routine astronomical observations; maintenance of meteorological records; and wildlife and fisheries surveys.

(ii) **Information services.**
All work directed to recording, classifying, translating and disseminating scientific and technological information as well as museum services. Included are the operations of scientific and technical libraries, S&T consulting and advisory services, the Patent Office, the publication of scientific journals and monographs, and the organizing of scientific conferences. Grants for the publication of scholarly works are also included.

General purpose information services or information services directed primarily towards the general public are excluded, as are general departmental and public libraries. When individual budgets exist, the costs of libraries which belong to institutions otherwise entirely classified to another activity, such as R&D, should be assigned to information services. The costs of printing and distributing reports from another activity, such as R&D, are normally attributable to that activity.

Sub categories under Information Services include:

Museum services - The collecting, cataloguing, and displaying of specimens of the natural world or of representations of natural phenomena. The activity involves a systematic attempt to preserve and display items from the natural world; in some ways it could be considered an extension of information services. The scientific activities of natural history museums, zoological and botanical gardens, aquaria, planetaria and nature reserves are included. Parks which are not primarily restricted reserves for certain fauna or flora are excluded. In all cases the costs of providing entertainment and recreation to visitors should be excluded (e.g. restaurants, children's gardens and museums).

When a museum also covers not only natural history but also aspects of human cultural activities, the museum's resources should be appropriated between the natural and social sciences. However, museums of science and technology, war, etc., which display synthetic or artifical objects and may also illustrate the operations of certain technologies, should be considered as engaged in museum services in social sciences.

(iii) **Special Services and studies**.
Work directed towards the establishment of national and provincial standards for materials, devices, products and processes; the calibration of secondary standards; non-routine quality testing; feasibility studies and demonstration projects.

Examples of special studies: a study of the viability of petrochemical complex in a certain region of Canada; the Royal Commission of Poverty; the MacKenzie Valley Pipeline Inquiry; the Manitoba Guaranteed Income Experiment; and social impact studies resulting from development of the Hibernia Oil Fields (net costs).

Sub categories under Special Services and Studies include:

Testing and standardization - Work directed towards the establishment of national and international standards for materials, devices, products and processes, the calibration of secondary standards and non-routine quality testing. The development of new measures for standards, or of new methods of measuring or testing, is R&D and should be reported as such. Exclude routine testing such as monitoring radioactivity levels or soil tests before construction.

Feasibility studies - Technical investigations of proposed engineering projects to provide additional information required to reach decisions on implementation. Besides feasibility studies per se, the related activity of demonstration projects are to be included. Demonstration projects involve the operation of scaled-up versions of a facility or process, or data on factors such as costs, operational characteristics, market demand and public acceptance. Projects called 'demonstration projects' but which conform to the definition of R&D should be considered R&D. Once a facility or process is operated primarily to provide a service or to gain revenue, rather than as a demonstration, it should no longer be included with feasibility studies. In all demonstration projects, only the net costs should be considered. Examples of demonstration projects are the Spry Point Ark, the Geothermal Heating Project, Regina, and the Fluidized Bed Combustion System, P.E.I..

(iv) **Education support.**

Grants to individuals or institutions on behalf of individuals which are intended to support the post-secondary education of students in technology and the natural sciences. General operating or capital grants are excluded. The activity includes the support of foreign students in their studies of the natural sciences at Canadian or foreign institutions. Grants intended primarily to support the research of individuals at universities are either R&D grants or research fellowships:

Definitions for the Social Sciences and Humanities

The social sciences and humanities (SSH) 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.

Research and experimental development (R&D)

Creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humans, culture and society and the use of this stock of knowledge to devise new applications.

R&D requires the acquisition of knowledge and not just information. **New** knowledge involves the integration of newly acquired information into existing hypotheses, the formulation and testing of new hypotheses or the re-evaluation of existing observations.

An R&D project generally has three characteristics:
- a substantial element of uncertainty, novelty and innovation;
- a well-defined project design;
- a report on the procedures and results of the project.

Related scientific activities (RSA)

Those activities which complement and extend R&D by contributing to the generation, dissemination and application of scientific and technological knowledge. The kinds of related scientific activities for the social sciences and humanities are:

(i) **General purpose data collection.**

The routine gathering, processing, collating, analysis and publication of information on human phenomena using surveys, regular and special investigations and compilations of existing records. It excludes data collected primarily for internal administrative purposes (e.g., departmental personnel statistics) as well as the collection of data as part of an R&D project. Data collected as part of an existing or proposed research project are costed against research. Similarly the costs of analyzing existing data as part of a research project are R&D costs, even when the data were originally collected for some other purpose. The development of new techniques for data collection is also considered a research activity. The institutions involved are generally the statistical bureaux of Canadian governments and the statistical sections of departments and agencies. If there are units whose principal activity is R&D, their costs and personnel should be assigned to R&D; specialized libraries with separate budgets should be assigned to information services.

(ii) **Information services.**

All work related to recording, classifying, translating and disseminating scientific and technological information as well as museum services. Included are the operations of scientific and technical libraries S&T consulting and advisory services, the Patent Office, the publication of scientific journals and monographs, and the organizing of scientific conferences. Grants for the publication of scholarly works are also included.

General purpose information services or information services directed primarily towards the general public are excluded, as are general departmental and public libraries. When individual budgets exist, the costs of libraries which belong to institutions otherwise entirely classified to another activity, such as R&D, should be assigned to information services. The costs of printing and distributing reports from another activity, such as R&D, are normally attributable to that activity.

Sub categories under Information Services include:

Museum services - The collecting, cataloguing, and displaying of specimens and representations relating to human history, social organization and creations. The activity involves a systematic attempt to preserve and display the works of human beings and to provide information on their works, history, and nature. The scientific activities of historical museums, archeological displays, and art galleries are included. In all cases, the costs of providing entertainment and recreation to visitors should be excluded (e.g. restaurants, children's gardens and museums).

When a museum also covers not only natural history but also aspects of human cultural activities, the museum's resources should be appropriated between the natural and social sciences. However, museums of science and technologies, war, etc., which display synthetic or artificial objects and may also illustrate the operations of certain technologies, should be considered as engaged in museum services in social sciences.

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(iii) **Special Services and studies**.
Systematic investigations carried out in order to provide information needed for planning or policy formulation. Demonstration projects are also included.

The work is usually carried out by specialized units in some government departments, by consultants, by royal commissions, and by task forces. The activity is similar to R&D since it may require innovative analyses and a high degree of scientific ability. However, such studies are not intended to acquire new knowledge but to provide specific answers to specific problems (generally immediate, localized and perhaps temporary). The day-to-day operations of units concerned with departmental planning, organization or management are not normally included (i.e. administrative records kept by Departments of Education) but special projects may be relevant.

Examples of special studies: a study of the viability of petrochemical complex in a certain region of Canada; the Royal Commission of Poverty; the MacKenzie Valley Pipeline Inquiry; the Manitoba Guaranteed Income Experiment; and social impact studies resulting from development of the Hibernia Oil Fields (net costs).

Sub categories under Special Services and Studies include:

Economic and feasibility studies - Investigations of the socio-economic characteristics and implications of specific situations. Such studies are generally limited to a specific problem and involve the application of established social science techniques and methodologies. Examples are a study of the viability of an iron foundry in a foreign country, and a cost-benefit study of a proposed paper manufacturing centre in Manitoba.

Operations and policy studies - The analysis and assessment of departmental programs, policies and operations, the activities of units concerned with the continuing analysis and monitoring of external phenomena (e.g., foreign economic statistics, defence and security information) as well as studies to provide an information base for policy development. The work is carried out by specialized units in some government departments, by consultants, by royal commissions and by task forces.

(iv) **Education support.**
Grants to individuals or institutions on behalf of individuals which are intended to support the post-secondary education of students in technology and the social sciences. General purpose grants to educational institutions are excluded. The activity includes the support of foreign students in their studies of the social sciences at Canadian or foreign institutions. Grants intended primarily to support the research of individuals at universities are either R&D grants or research fellowships.

Definitions Related to Both Science Fields

Administration of extramural programs

The costs of identifiable units engaged in the administration of contracts and grants and contributions for scientific activities that are to be performed outside the Federal Government. These expenditures are broken down by the type of scientific activity supported, i.e., R&D or RSA.

Intramural Performance

Where the S&T activities are managed and carried out primarily by federal government employees they are classified as intramural S&T. Even where major components of the project are provided by outside agencies, such as computer services, laboratory construction, testing of prototype equipment, if the planning, supervision, reporting, and key operating functions are performed by federal personnel, then the activity is considered to be intramural. This also applies to S&T activities carried out by a department or agency on behalf of another federal department or agency on a cost recovery basis.

The intramural expenditures reported for scientific activities are those direct costs, including salaries, associated with scientific programs. These costs include that portion of a program's contribution to employee benefit plans (e.g. superannuation) which is applicable to the scientific personnel within the program. Non-program ("in-direct") costs, such as the value of services provided by other departments without charge and accommodation provided by the reporting program are also included.

Extramural Performance

The management and conduct of an S&T activity is entrusted to a non-federal organization. The six extramural performance sectors used in surveying S&T expenditures by the Federal Government are:

(i) **Canadian business enterprises.** This sector is composed of business and government enterprises, including public utilities and government-owned firms and frequently referred to as the industry sector. Incorporated consultants providing scientific and engineering services are also included. Industrial research institutes located at Canadian universities are considered to be in the university sector.

(ii) **Higher education.** This sector is made up of all Canadian universities, including affiliated institutes owned, administered or staffed by universities.

(iii) **Canadian private non-profit institutions.** Charitable foundations, voluntary health organizations, scientific and professional societies, and other organizations not established to earn profits comprise this sector. Private non-profit institutions primarily serving or controlled by another sector should be included in that sector (e.g., the Pulp and Paper Research Institute is in Canadian business enterprises).

(iv) **Canadian provincial and municipal governments.** Departments and agencies of these governments form this sector. Government enterprises, such as provincial utilities are included in the Canadian business enterprises sector, and hospitals in the Canadian non-profit institutions or university sector.

(v) **Other Canadian performers.** This sector includes all individuals or organizations not belonging to any of the above sectors. In particular, it includes provincial research councils and foundations.

(vi) **Foreign performers.** All foreign governments, foreign companies (including foreign subsidiaries of Canadian firms), international organizations, non-resident foreign nationals and Canadians studying or teaching abroad, are included in this sector.

Type of Payment

(i) **Contracts.** These are payments to organizations or individuals outside the federal government for the conduct of S&T by the recipient or to provide support for the federal government's in-house S&T programs.

(ii) **Grants and contributions.** Awards to organizations or individuals for the conduct of S&T and intended to benefit the recipients rather than provide the program with goods, services or information.

(iii) **Research fellowships.** Awards to individuals for advanced research training and experience. Such payments are included as expenditures for R&D activities. Awards intended primarily to support the education of the recipients are reported as education support.

Personnel

Intramural expenditure data should be supported by data on the personnel devoted to scientific activities by all the employees engaged in these activities.

Scientific and professional - people in jobs that require at least one academic degree or nationally recognized professional qualification (e.g., Professional Engineer P.Eng.), as well as those with equivalent experience.

Technical - people in jobs that require specialized vocational or technical training beyond the secondary level (e.g., community colleges and technical institutes) as well as those with experience equivalent to this training.

Other - clerical, secretarial, administrative, operational and other support personnel.

In regard to personnel resources there are two caveats:

(i) where the S&T activities are a part of the program being reported only the auxiliary staff relevant to the S&T activities are reported on a prorated basis;

(ii) whenever financial and administrative support is provided from another program, that support is allocated to the S&T resources for the program being reported.

Full-time equivalent (FTE) - a measure of the time actually devoted to the conduct of scientific activities. An employee who is engaged in scientific activities for a half a year has a full-time equivalence of 0.5. Personnel data reported should be consistent with expenditure data.

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