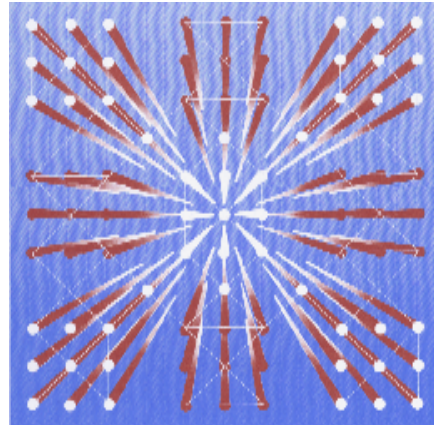




Catalogue no. 88-204-XIE

# Federal scientific activities

## 2002-2003



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Statistics Canada  
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# Federal scientific activities

2002-2003

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May 2003

Catalogue no. 88-204-XIE

Frequency: Annual

ISSN 1480-8684

Ottawa

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## **Symbols**

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- .. figures not available.
- ... figures not appropriate or not applicable.
- 0 amount too small to be expressed, nil or zero.
- p preliminary figures.
- r revised figures.
- x confidential to meet secrecy requirements of the Statistics Act.

## **Note**

Due to rounding, components may not add to totals.

## 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 2002-2003", but may not reflect changes to 2002-2003 spending plans resulting from supplementary estimates or other departmental planning decisions.

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 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-XIE.

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.

This publication was prepared by **Yvonne Tremblay**, Statistical Officer, with the assistance of the staff of Science and Innovation Surveys Section, Science, Innovation and Electronic Information Division and under the direction of **Lloyd Lizotte**, Subject Matter Manager. Ginette McConnell and Manon Rivest provided key assistance in the production of this document.

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## Highlights

- The Federal Government's budgetary Science & Technology (S&T) estimates for 2002-2003 were \$7.7 billion, an increase of 3.0% over 2001-2002. The preliminary expenditures for 2001-2002 were \$7.4 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 2002-2003.
- The total \$7.7 billion in federal S&T expenditures do not include federal R&D tax credits
- The central activity of S&T is scientific research and experimental development (R&D). In 2002-2003, the Federal Government was expected to spend \$5.1 billion on R&D, an increase of 8% from 2001-2002. 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 2002-2003, the R&D performed by the Federal Government represented 44% of total R&D Expenditures. Seventy-eight percent was applicable to the RSA expenditures while 55% of the total S&T expenditures was performed by the Federal Government.
- In 2002-2003, 32,335 person-years were involved in federal S&T activities, a 1.1% decrease from 2001-2002. Fifty-three percent, or 17,048 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 12% and the higher education sectors received 24% of total federal S&T expenditures in 2002-2003.
- R&D planned payments in 2002-2003 to business enterprises amounted to \$659 million.
- Higher education received funding of \$1,782 million for R&D and \$169 million for RSA in 2002-2003. 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 1993-94 to 2002-2003.

The Federal Government planned to spend \$7.7 billion on scientific and technological (S&T) activities for the estimate year 2002-2003, an increase of 3.0% over forecasted expenditures on S&T for 2001-2002.

The central activity of S&T is scientific research and experimental development (R&D). In 2002-2003, the Federal Government is expected to spend \$5.1 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 (78% in 2002-2003), most of which (79%) is for research and development (R&D).

Most of the monies (80%) 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 37% of these expenditures.

In 2002-2003, most of the federal S&T expenditures (55%) were for activities to be performed within its own scientific establishments as has been the case in the preceding years. In 2002-2003, the Federal Government will perform 44% of its own R&D and 78% of its own RSA.

The departments and agencies with the largest estimated expenditures on natural science activities in 2002-2003 are the National Research Council (\$738 million), the Natural Sciences and Engineering Research Council (\$681 million), Environment Canada (\$543 million) and the Canadian Institutes of Health Research (\$592 million). In 2002-2003 they accounted for 33% of the Government's total S&T expenditures.

Statistics Canada is the government's major spender of social science funds, \$511 million in 2002-2003.

## 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. 2002-2003; forecast expenditures for the current fiscal year, e.g. 2001-2002, and actual expenditures for the past fiscal year, e.g. 2000-2001 (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.

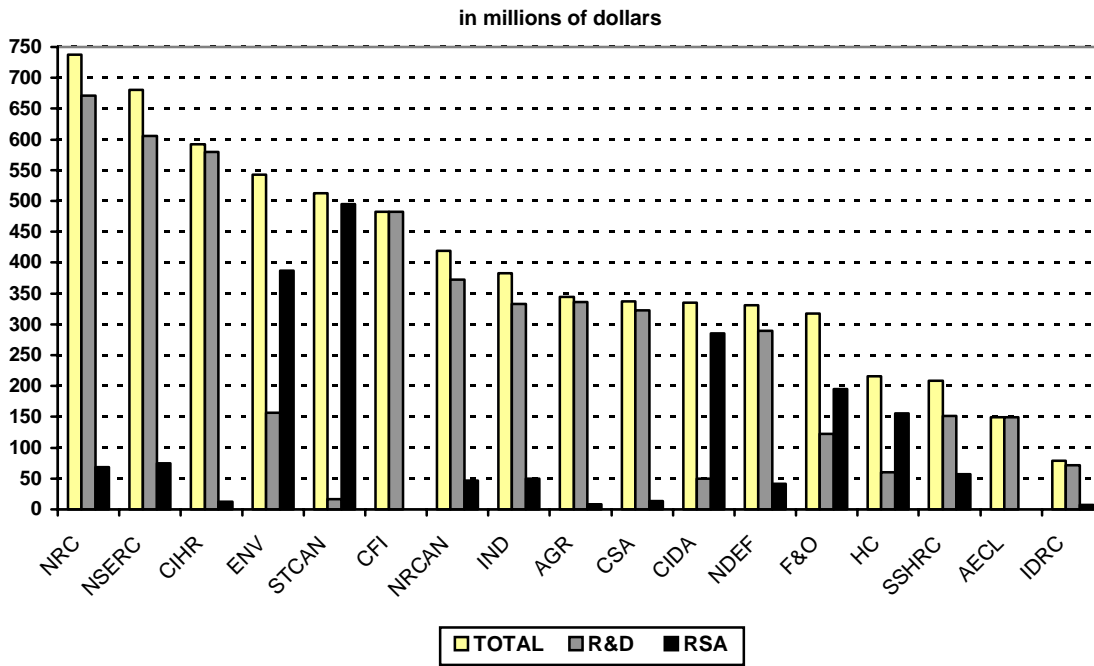
#### ➤ **Other S&T Costs:**

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

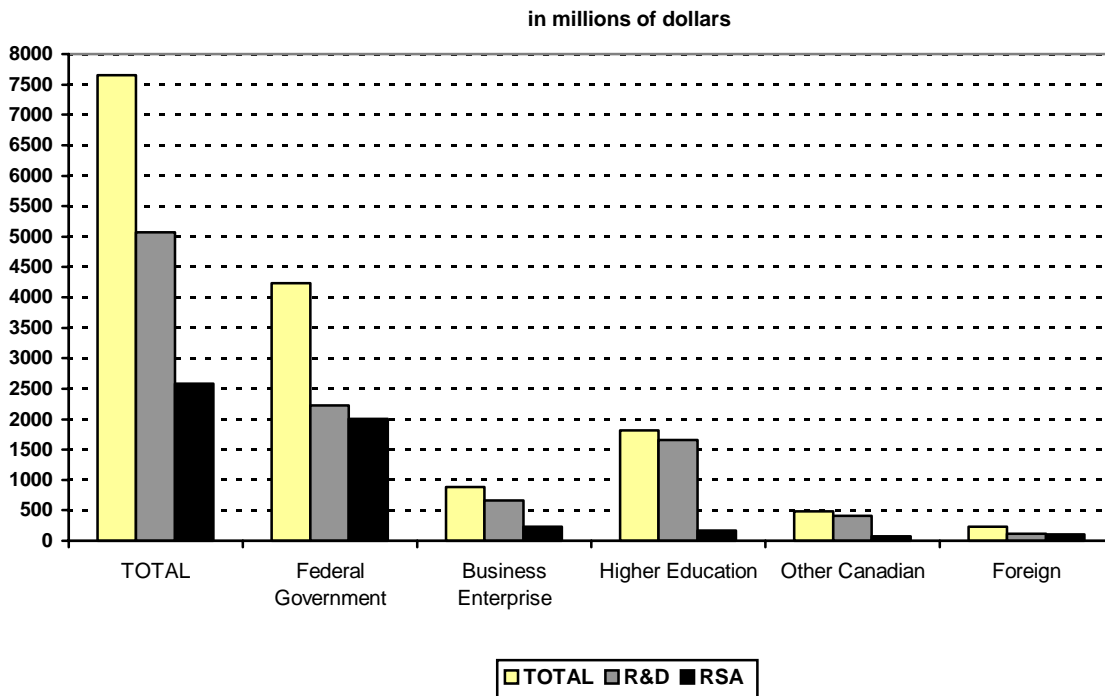
Federal Expenditures on Science and Technology, by Major Department or Agency, 2002-2003<sup>P</sup>



Source: Chapter 3

Chart 1.2

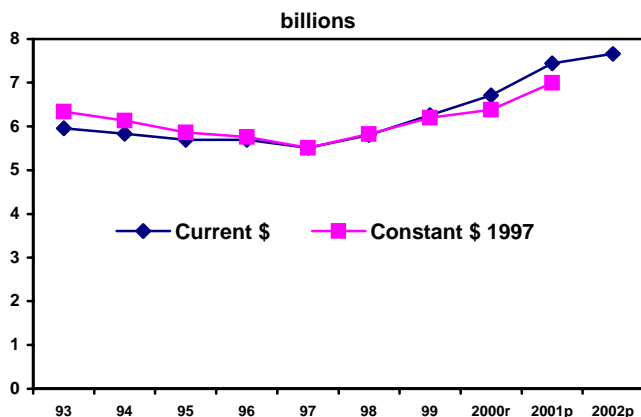
Distribution of Federal Expenditures on Science and Technology, by Sector, 2002-2003<sup>P</sup>



Source: Table 1.19

Chart 1.3

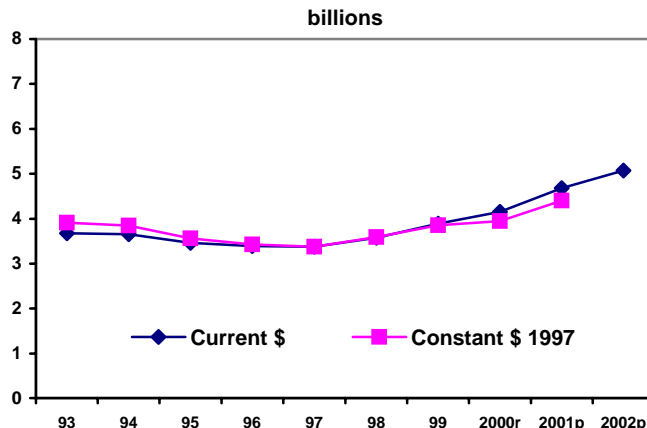
Federal Expenditures on Science and Technology, 1993 to 2002<sup>P</sup>



Source: Table 1.8

Chart 1.4

Federal Expenditures on Research and Development, 1993 to 2002<sup>P</sup>

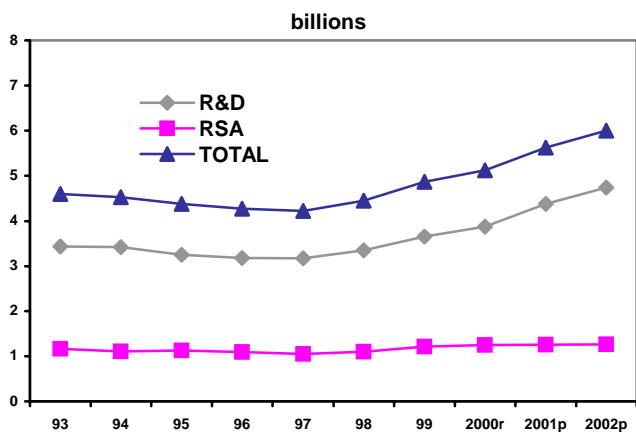


Source: Table 1.9

Science and Technology Expenditures by Field of Science, 1993 to 2002<sup>P</sup>

Chart 1.5

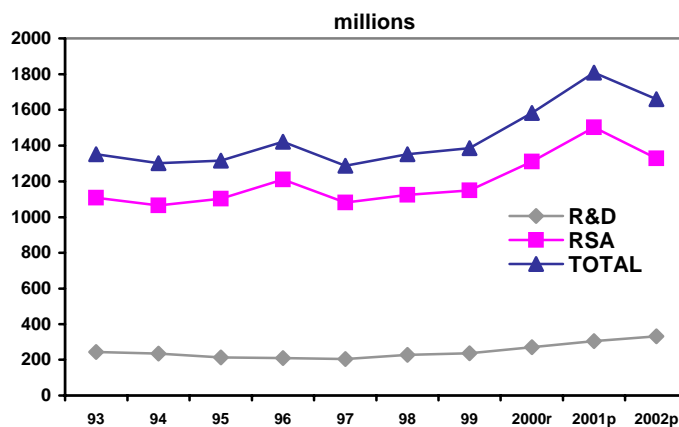
Natural Sciences and Engineering



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, 1993 to 2002<sup>P</sup>**

Year	Current Dollars					GDP Implicit Price Index <sup>2</sup>	Constant 1997 Dollars		
	Budgetary Main Estimates <sup>1</sup>	S&T	%	R&D	%		Budgetary Main Estimates <sup>1</sup>	S&T	R&D
	in millions of dollars						in millions of dollars		
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	156,985	5,694	3.6	3,391	2.2	98.9	158,731	5,757	3,429
1997	149,555	5,509	3.7	3,379	2.3	100.0	149,555	5,509	3,379
1998	145,457	5,802	4.0	3,578	2.5	99.6	146,041	5,825	3,592
1999	151,559	6,252	4.1	3,890	2.6	100.9	150,207	6,196	3,855
2000 <sup>T</sup>	156,157	6,707	4.3	4,150	2.7	105.2	148,438	6,375	3,945
2001 <sup>P</sup>	165,234	7,435	4.5	4,680	2.8	106.3	155,441	6,994	4,403
2002 <sup>P</sup>	170,367	7,658	4.5	5,071	3.0	..	..	..	..

Source 1: Part 1, Government Expenditures Plan, Estimates.

Source 2: Canadian Economic Observer, Catalogue No. 11-010-XPB, Monthly, September 2002.

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 26 No. 7 of Statistics Canada Catalogue No. 88-001-XIB.

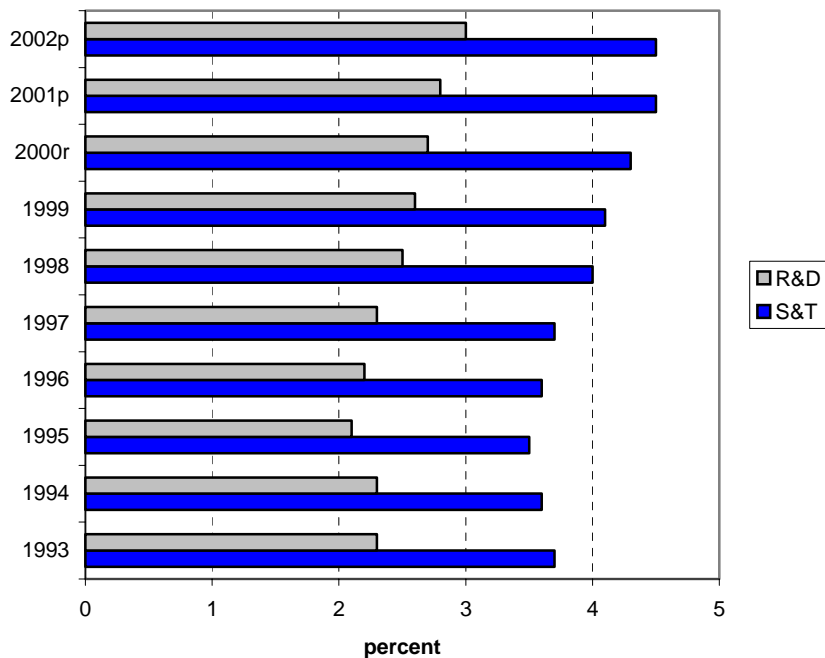
**TABLE 1.2 Gross Domestic Expenditures on R&D (GERD) by Performing and Funding Sector, 2002<sup>P</sup>**

Funding sector	Performing Sector						Total
	Federal government	Provincial government	Provincial Research Organizations	Business Enterprises	Higher Education	Private non-profit	
	in millions of dollars						
Federal Government	2,166	0	2	232	1,564	7	3,971
Provincial Government	4	199	36	42	710	21	1,012
Provincial Research Organizations	0	0	0	0	0	0	0
Business Enterprises	57	0	18	7,541	669	12	8,297
Higher Education	0	0	0	0	3,433	0	3,433
Private non-profit	0	0	0	0	506	30	536
Foreign	0	0	6	3,429	60	1	3,496
<b>Total</b>	<b>2,227</b>	<b>199</b>	<b>62</b>	<b>11,244</b>	<b>6,942</b>	<b>71</b>	<b>20,745</b>



Chart 1.7

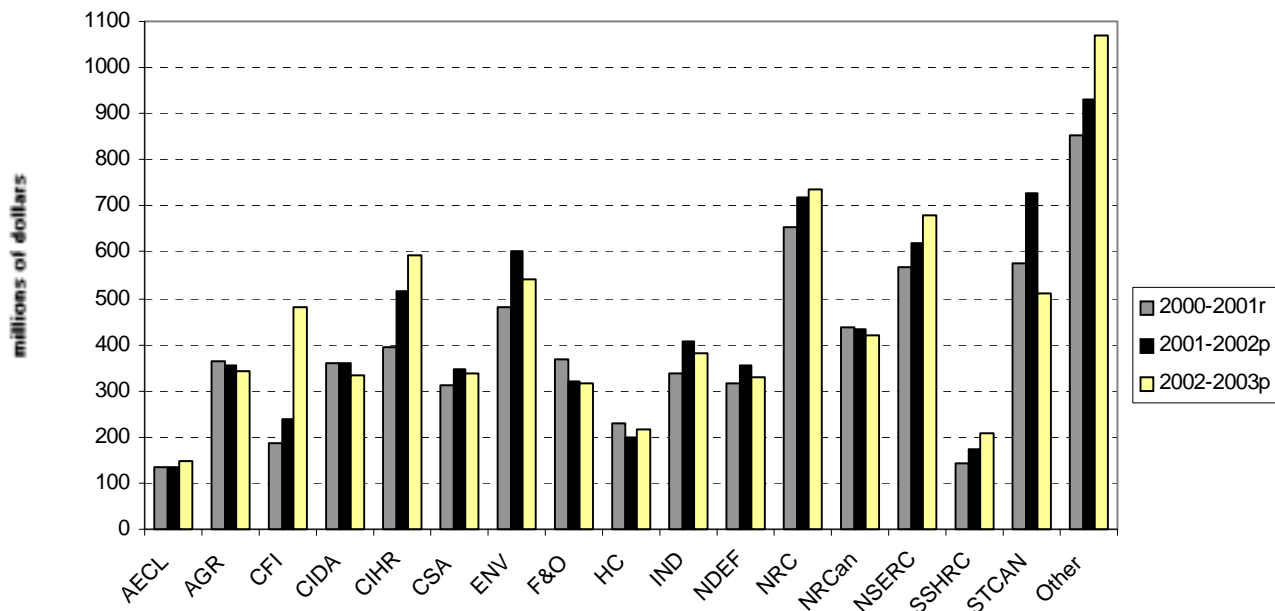
Federal Expenditures on R&D and S&T as a Percentage of Federal Budgetary Main Estimates, 1993 to 2002<sup>p</sup>



Source: Table 1.1

Chart 1.8

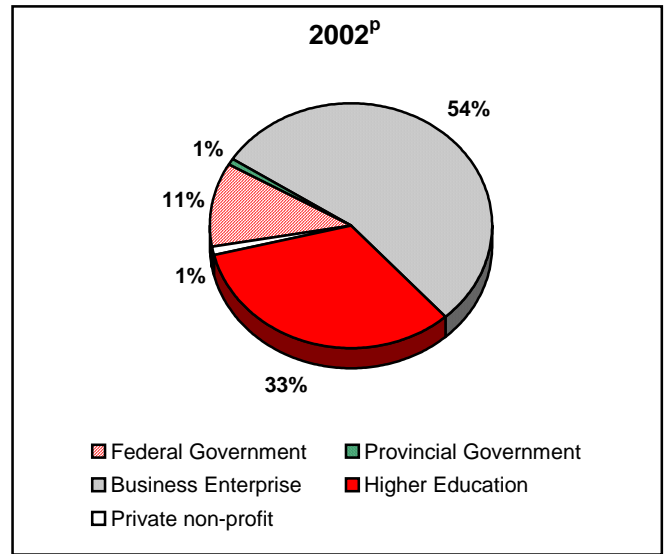
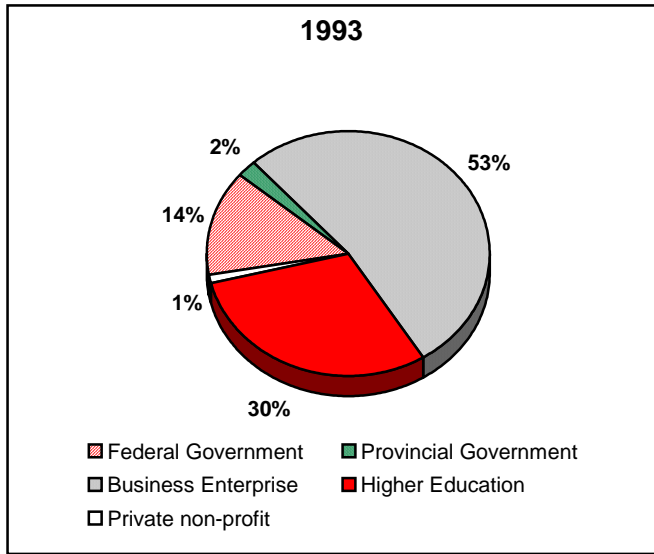
Federal Expenditures on Science and Technology, by Major Department or Agency, 2000-2001<sup>r</sup>, 2001-2002<sup>p</sup> and 2002-2003<sup>p</sup>



Source: Table 1.10

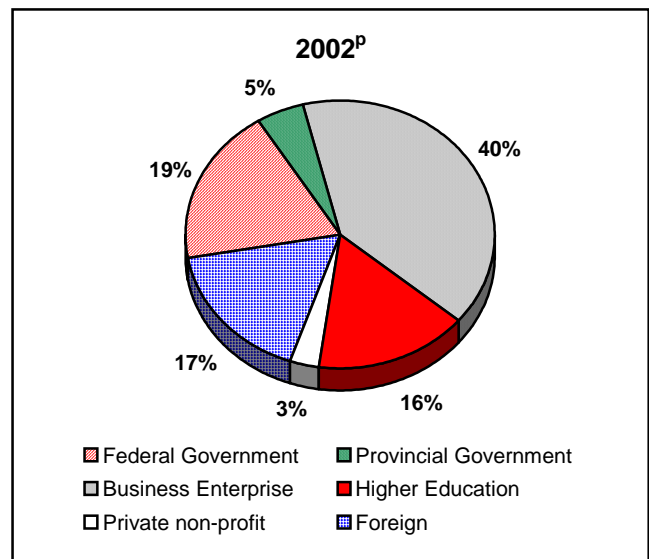
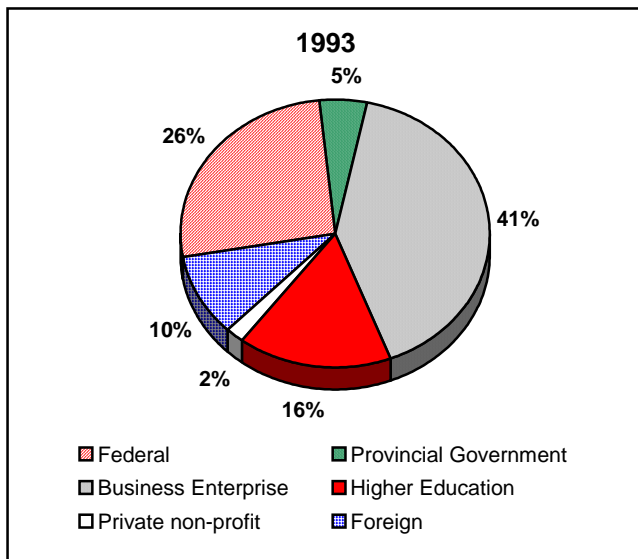
**Chart 1.9**

**Trends in GERD by Performing Sector, in Current Dollars, (1993 and 2002<sup>P</sup>)**



**Chart 1.10**

**Trends in GERD by Funding Sector, in Current Dollars, (1993 and 2002<sup>P</sup>)**



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

Countries	1992	1993	1994	1995	1996 <sup>f</sup>	1997 <sup>f</sup>	1998 <sup>f</sup>	1999 <sup>f</sup>	2000	2001
Australia	28.1	..	26.5	..	23.6	..	23.2	..	..	..
Austria	..	8.9	..	..	..	..	6.4	..	..	..
Belgium	..	6.2	3.5	3.4	3.3	3.3	3.4	3.3	..	..
<b>Canada</b>	<b>18.8</b>	<b>17.3</b>	<b>15.0</b>	<b>14.2</b>	<b>14.6</b>	<b>13.0</b>	<b>12.1</b>	<b>12.1</b>	<b>11.3</b>	<b>10.6</b>
Denmark	17.8	17.8	..	17.0	16.3	15.4	14.3	15.2	..	..
Finland	20.6	20.5	18.9	16.6	15.8	13.6	12.6	11.4	10.6	..
France	20.9	21.1	20.6	21.0	20.3	18.7	18.6	18.1	17.8	..
Germany	14.1	15.0	15.1	15.4	15.2	14.6	14.7	13.8	13.3	13.1
Italy	22.0	21.4	21.3	21.1	20.0	19.4	20.2	19.2	..	..
Japan	8.3	9.3	9.0	9.6	9.4	8.8	9.2	9.9	9.9	..
Netherlands	18.4	18.1	18.6	18.1	17.7	17.1	17.7	16.5	..	..
Sweden	..	4.1	..	3.7	..	3.5	..	3.4	..	..
United Kingdom	14.6	14.2	14.6	14.4	14.3	13.8	13.4	12.2	12.2	..
United States	9.9	10.2	10.0	9.6	8.6	8.2	7.8	7.7	7.5	..

Source: Main Science and Technology Indicators, OECD, 2002

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

Countries	1992	1993	1994	1995	1996 <sup>f</sup>	1997 <sup>f</sup>	1998 <sup>f</sup>	1999 <sup>f</sup>	2000	2001
Australia	50.2	..	47.4	..	45.8	..	47.4	..	..	..
Austria	47.4	48.0	49.4	47.3	43.7	41.5	39.6	39.7	38.8	40.3
Belgium	..	32.5	26.4	26.3	23.0	22.2	23.5	23.2	..	..
<b>Canada *</b>	<b>..</b>	<b>40.7</b>	<b>38.1</b>	<b>35.9</b>	<b>33.7</b>	<b>32.0</b>	<b>30.5</b>	<b>32.3</b>	<b>31.8</b>	<b>32.1</b>
Denmark	38.6	37.7	..	39.6	35.7	36.1	..	32.6	..	..
Finland	..	39.8	..	35.1	..	30.9	30.0	29.2	26.2	..
France	43.5	43.5	41.6	41.9	41.5	38.8	37.3	36.9	..	..
Germany	35.9	36.5	36.5	36.8	36.9	35.9	34.9	32.5	31.4	30.7
Italy	48.5	51.3	50.2	53.0	50.8	..	..	..	..	..
Japan	19.4	21.6	21.5	22.8	18.7	18.2	19.3	19.6	19.6	..
Netherlands	48.9	48.5	43.8	42.2	41.5	39.1	37.9	35.7	..	..
Sweden	..	33.0	..	28.8	..	25.8	..	24.5	..	..
United Kingdom	33.4	32.5	33.2	33.2	31.5	30.7	30.6	29.2	28.9	..
United States	37.9	37.7	37.2	35.6	33.2	31.6	30.5	28.8	27.3	..

Source: Main Science and Technology Indicators, OECD, 2002

\* The OECD has included general university funds.

Chart 1.11

Percentage of GERD performed by the Government Sector for Selected OECD Countries, 2000

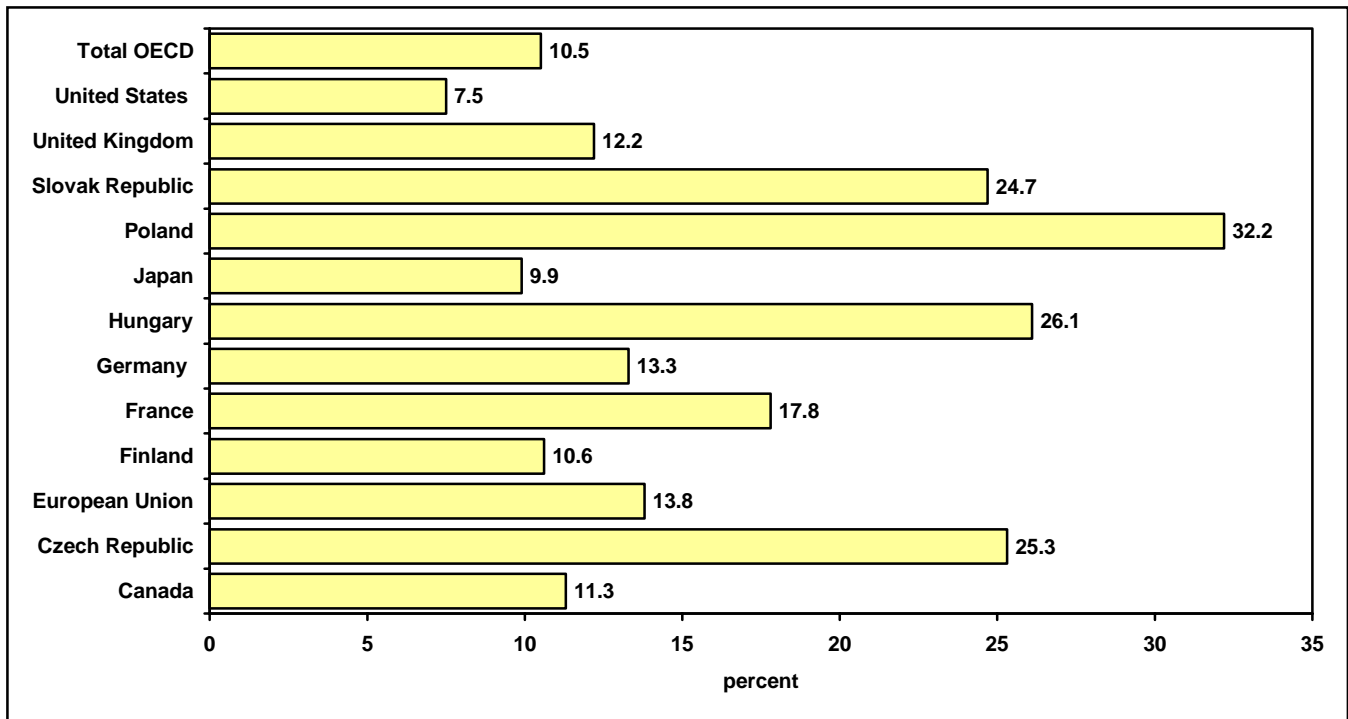
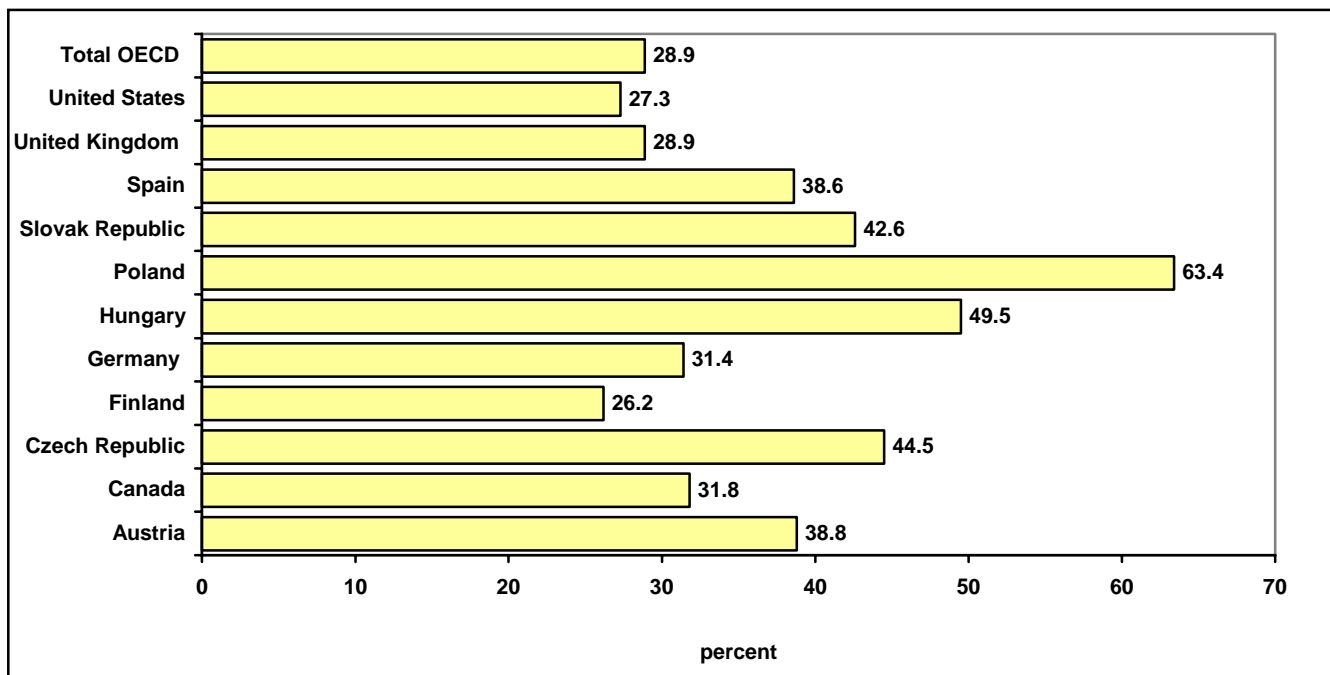


Chart 1.12

Percentage of GERD financed by the Government Sector for Selected OECD Countries, 2000



**TABLE 1.5 Major Federal S&T Performers, 1993-94 to 2002-2003<sup>P</sup>**

Department or Agency	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Major S&amp;T Performers</b>	<b>5,604</b>	<b>5,494</b>	<b>5,401</b>	<b>5,397</b>	<b>5,231</b>	<b>5,492</b>	<b>5,928</b>	<b>6,379</b>	<b>7,107</b>	<b>7,261</b>
AECL	161	169	168	240	174	135	132	136	136	149
AGR	366	356	358	368	359	351	387	363	355	344
BC	39	36	35	39	41	45	41	42	48	56
CFI	...	...	...	...	2	31	118	188	239	482
CH <sup>1</sup>	8	84	82	82	78	1	1	1	11	1
CIDA	333	308	334	339	303	314	335	358	359	335
CIHR	...	...	...	...	...	...	317	392	516	592
CMC	46	56	53	56	55	54	55	58	65	87
CSA	387	320	299	253	230	343	305	310	348	337
EMR	352	...	...	...	...	...	...	...	...	...
ENV <sup>1</sup>	663	549	529	456	453	427	538	479	602	543
FA&IT	52	60	58	59	58	49	54	45	48	52
FOR	115	...	...	...	...	...	...	...	...	...
F&O	239	237	244	246	204	281	287	367	319	317
GC	...	...	...	...	...	...	...	...	34	90
HC	191	180	201	214	210	204	236	229	199	216
HRDC	62	66	60	60	65	74	60	69	69	74
IDRC	115	102	88	88	78	85	82	84	76	79
IND <sup>2</sup>	374	388	324	291	407	343	301	336	406	383
MRC	259	265	252	242	238	277	...	...	...	...
NA	43	62	65	46	36	35	35	41	50	56
NDEF	256	252	233	253	311	304	335	315	354	331
NL	58	49	49	43	42	40	42	48	51	51
NRC	503	505	481	479	524	554	597	655	719	738
NRCan	...	464	475	430	396	386	421	437	432	419
NSERC	496	494	471	453	436	499	549	568	618	681
PCA	...	...	...	...	...	82	68	90	91	91
SSHRC	102	103	101	93	96	104	127	145	175	208
STCAN	347	353	406	535	400	437	461	576	728	512
TB	37	36	35	32	35	37	44	47	59	37
<b>Minor S&amp;T Performers*</b>	<b>347</b>	<b>333</b>	<b>292</b>	<b>297</b>	<b>278</b>	<b>310</b>	<b>324</b>	<b>328</b>	<b>328</b>	<b>397</b>
<b>TOTAL</b>	<b>5,951</b>	<b>5,827</b>	<b>5,693</b>	<b>5,694</b>	<b>5,509</b>	<b>5,802</b>	<b>6,252</b>	<b>6,707</b>	<b>7,435</b>	<b>7,658</b>

\* See Table 1.20

See notes at end of section.

**TABLE 1.6 Federal Expenditures on R&D, by Major Department or Agency, 1993-94 to 2002-2003<sup>P</sup>**

Department or Agency	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	in millions of dollars									
AECL	155	163	163	240	174	135	132	136	136	149
AGR	328	323	328	350	340	335	370	354	347	336
CED (Qué)	30	35	24	28	22	23	12	10	17	22
CFI	...	...	...	...	2	31	118	188	239	482
CIDA	61	62	51	52	48	49	50	57	53	50
CIHR	...	...	...	...	...	...	304	384	505	580
CSA	379	314	291	245	224	337	300	298	338	323
EMR	271	...	...	...	...	...	...	...	...	...
ENV <sup>1</sup>	135	174	163	135	127	116	196	144	214	157
F&O	114	114	99	95	78	109	110	130	123	122
FOR	106	...	...	...	...	...	...	...	...	...
HC	53	58	63	74	65	54	55	65	59	60
IDRC	103	89	78	76	64	67	71	76	69	72
IND <sup>2</sup>	317	322	268	230	345	274	239	288	357	333
MRC	249	257	244	234	229	266	...	...	...	...
NDEF	251	248	229	223	264	263	293	274	313	289
NRC	441	449	419	429	470	499	530	591	648	671
NRCan	...	374	403	372	350	345	376	388	383	372
NSERC	439	440	425	410	393	443	481	500	551	606
SSHRC	68	69	70	64	65	68	92	105	127	151
STCAN	10	10	10	9	11	12	13	13	16	17
Other	167	156	137	125	108	152	148	149	185	279
<b>TOTAL</b>	<b>3,677</b>	<b>3,657</b>	<b>3,465</b>	<b>3,391</b>	<b>3,379</b>	<b>3,578</b>	<b>3,890</b>	<b>4,150</b>	<b>4,680</b>	<b>5,071</b>

See notes at end of section.

**TABLE 1.7 Federal Science Expenditures by Activity, by Major Department or Agency in Constant 1997 Dollars, 1993-94 to 2002-2003<sup>P</sup>**

Department or Agency	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Science and Technology</b>										
GDP Implicit Price Index	94.0	95.1	97.2	98.9	100.0	99.6	100.9	105.2	106.3	..
AECL	171	178	173	243	174	136	131	129	128	..
AGR	389	374	368	372	359	352	384	345	334	..
CFI	...	...	...	...	2	31	117	179	225	..
CIDA	354	324	344	343	303	315	332	340	338	..
CIHR	...	...	...	...	...	...	314	373	485	..
CSA	412	336	308	256	230	344	302	295	327	..
EMR	374	...	...	...	...	...	...	...	...	...
ENV <sup>1</sup>	705	577	544	461	453	429	533	455	566	..
F&O	254	249	251	249	204	282	284	349	300	..
FOR	122	...	...	...	...	...	...	...	...	...
HC	203	189	207	216	210	205	234	218	187	..
IND <sup>2</sup>	398	408	333	294	407	344	298	319	382	..
IDRC	122	107	91	89	78	85	81	80	72	..
MRC	276	279	259	245	238	278	...	...	...	...
NDEF	272	265	240	256	311	305	332	299	333	..
NRC	535	531	495	484	524	556	592	623	676	..
NRCan	...	488	489	435	396	388	417	415	406	..
NSERC	528	519	485	458	436	501	544	540	581	..
SSHRC	109	108	104	94	96	104	126	138	165	..
STCAN	369	371	418	541	400	439	457	548	685	..
Other	736	822	750	722	688	730	717	730	804	..
<b>Total</b>	<b>6,331</b>	<b>6,127</b>	<b>5,857</b>	<b>5,757</b>	<b>5,509</b>	<b>5,825</b>	<b>6,196</b>	<b>6,375</b>	<b>6,994</b>	<b>..</b>
<b>Research and Development</b>										
GDP Implicit Price Index	94.0	95.1	97.2	98.9	100.0	99.6	100.9	105.2	106.3	..
AECL	165	171	168	243	174	136	131	129	128	..
AGR	349	340	337	354	340	336	367	337	326	..
CFI	...	...	...	...	2	31	117	179	225	..
CIHR	...	...	...	...	...	...	301	365	475	..
CIDA	65	65	52	53	48	49	50	54	50	..
CSA	403	330	299	248	224	338	297	283	318	..
EMR	288	...	...	...	...	...	...	...	...	...
ENV <sup>1</sup>	144	183	168	137	127	116	194	137	201	..
F&O	121	120	102	96	78	109	109	124	116	..
FOR	113	...	...	...	...	...	...	...	...	...
HC	56	61	65	75	65	54	55	62	56	..
IND <sup>2</sup>	337	339	276	233	345	275	237	274	336	..
IDRC	110	94	80	77	64	67	70	72	65	..
MRC	265	270	251	237	229	267	...	...	...	...
NDEF	267	261	236	225	264	264	290	261	294	..
NRC	469	472	431	434	470	501	525	562	610	..
NRCan	...	393	415	376	350	346	373	369	361	..
NSERC	467	463	437	415	393	445	477	475	518	..
SSHRC	72	73	72	65	65	68	91	100	120	..
Other	220	211	176	164	141	188	171	162	204	..
<b>Total</b>	<b>3,912</b>	<b>3,845</b>	<b>3,565</b>	<b>3,429</b>	<b>3,379</b>	<b>3,592</b>	<b>3,855</b>	<b>3,945</b>	<b>4,403</b>	<b>..</b>

See notes at end of section.

**TABLE 1.8 Federal Expenditures on S&T in Current Dollars, Constant 1997 Dollars, and by Performing Sector<sup>3</sup>, 1993-94 to 2002-2003<sup>P</sup>**

Sector of performance	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Current Dollars</b>										
Intramural	3,457	3,399	3,427	3,575	3,351	3,455	3,658	4,043	4,391	4,235
Canadian business enterprises	954	930	885	801	927	952	926	847	934	886
Canadian higher education	973	983	933	894	860	989	1,173	1,320	1,551	1,951
Canadian non-profit institutions	116	127	103	112	110	122	181	154	237	242
Other Canadian performers <sup>4</sup>	138	91	86	65	39	51	85	93	89	117
Foreign	313	297	259	247	222	233	229	250	232	228
<b>TOTAL</b>	<b>5,951</b>	<b>5,827</b>	<b>5,693</b>	<b>5,694</b>	<b>5,509</b>	<b>5,802</b>	<b>6,252</b>	<b>6,707</b>	<b>7,435</b>	<b>7,658</b>
<b>Constant 1997 Dollars</b>										
<b>GDP Implicit Price Index</b>	<b>94.0</b>	<b>95.1</b>	<b>97.2</b>	<b>98.9</b>	<b>100.0</b>	<b>99.6</b>	<b>100.9</b>	<b>105.2</b>	<b>106.3</b>	<b>..</b>
Intramural	3,678	3,574	3,526	3,615	3,351	3,469	3,625	3,843	4,131	..
Canadian business enterprises	1,015	978	910	810	927	956	918	805	879	..
Canadian higher education	1,035	1,034	960	904	860	993	1,163	1,255	1,459	..
Canadian non-profit institutions	123	134	106	113	110	122	179	146	223	..
Other Canadian performers <sup>4</sup>	147	96	88	66	39	50	83	88	84	..
Foreign	333	312	266	250	222	234	227	238	218	..
<b>TOTAL</b>	<b>6,331</b>	<b>6,127</b>	<b>5,857</b>	<b>5,757</b>	<b>5,509</b>	<b>5,825</b>	<b>6,196</b>	<b>6,375</b>	<b>6,994</b>	<b>..</b>
<b>Percent – Constant 1997 Dollars</b>										
Percent										
Intramural	58	58	60	63	61	60	58	60	59	..
Canadian business enterprises	16	16	16	14	17	16	15	13	13	..
Canadian higher education	17	17	16	16	15	17	19	20	21	..
Canadian non-profit institutions	2	2	2	2	2	2	3	2	3	..
Other Canadian performers <sup>4</sup>	2	2	1	1	1	1	1	1	1	..
Foreign	5	5	5	4	4	4	4	4	3	..
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>..</b>

See notes at end of section.



Chart 1.13

Federal Expenditures on S&T, 1993 to 2002<sup>p</sup>, in Current Dollars

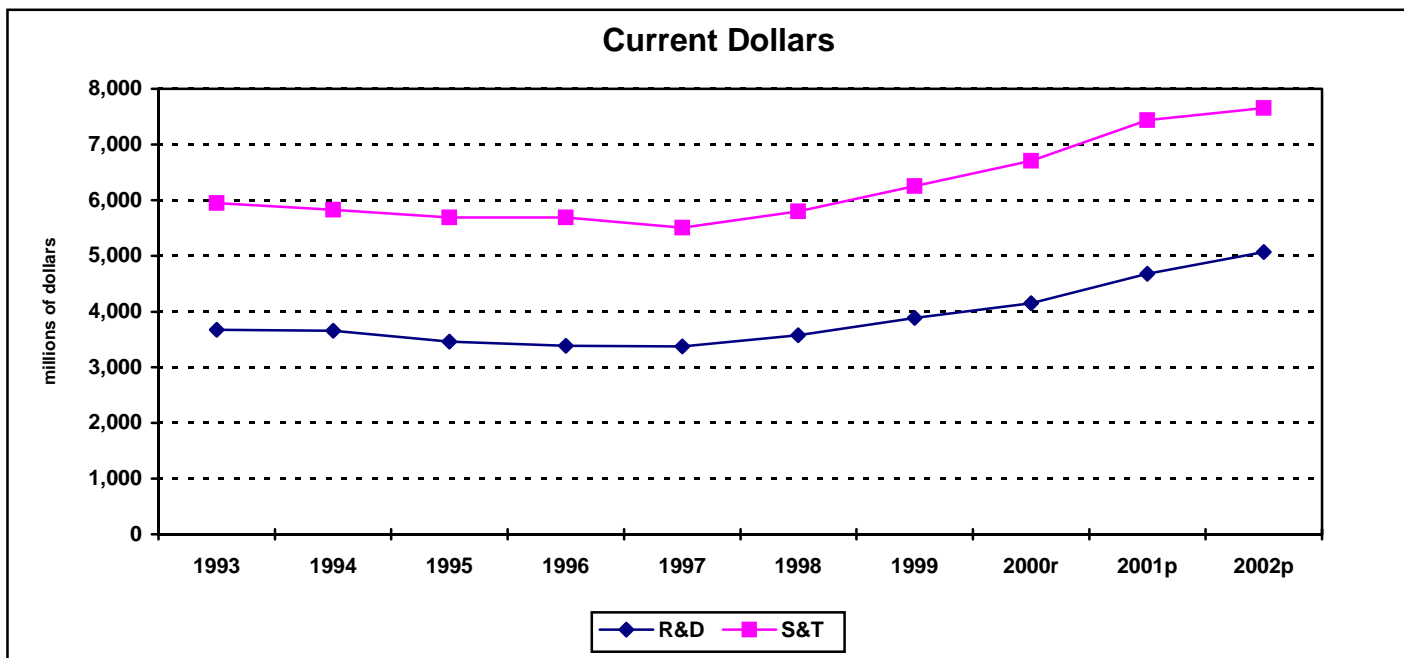
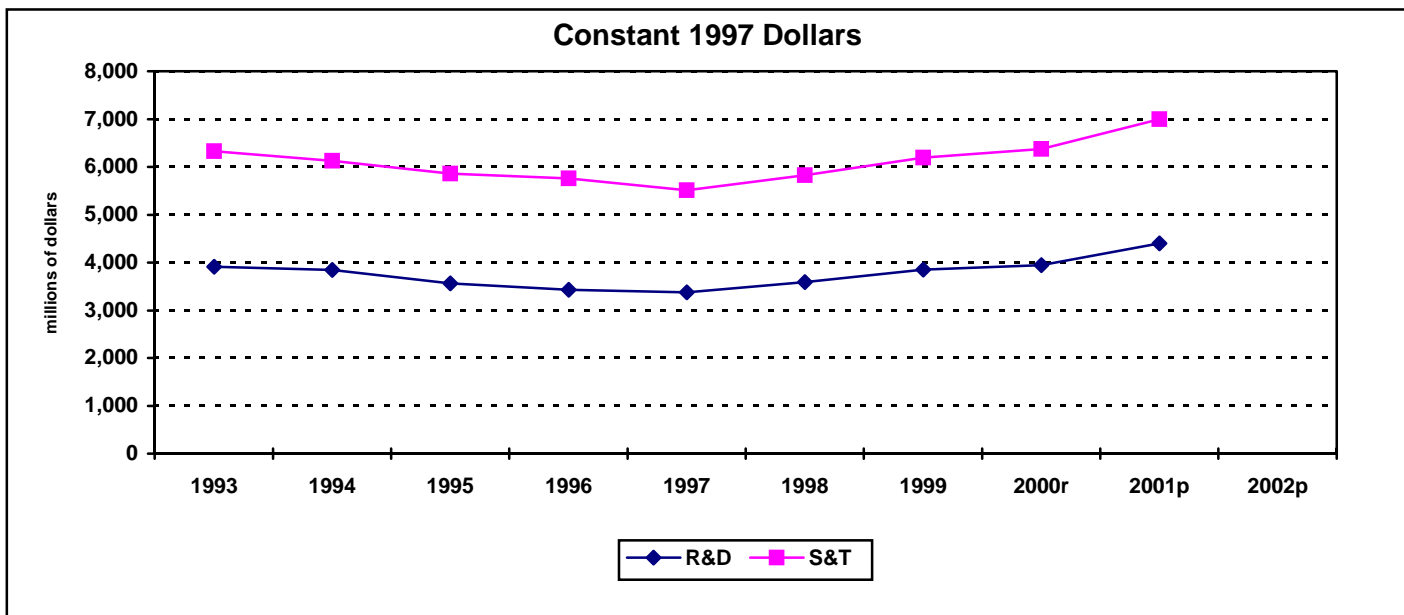


Chart 1.14

Federal Expenditures on S&T, 1993 to 2002<sup>p</sup>, in Constant 1997 Dollars



Source: Tables 1.8 and 1.9

**TABLE 1.9 Federal Expenditures on R&D in Current Dollars, Constant 1997 Dollars, and by Performing Sector<sup>3</sup>, 1993-94 to 2002-2003<sup>P</sup>**

Sector of performance	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Current Dollars</b>										
Intramural	1,757	1,754	1,727	1,792	1,720	1,743	1,859	2,080	2,216	2,227
Canadian business enterprises	773	756	665	573	721	749	713	624	692	659
Canadian higher education	814	835	797	761	725	842	1,010	1,170	1,391	1,782
Canadian non-profit institutions	66	74	59	75	71	82	130	76	185	199
Other Canadian performers <sup>4</sup>	90	62	65	50	22	38	59	69	68	85
Foreign	178	177	151	141	120	124	118	131	128	119
<b>TOTAL</b>	<b>3,677</b>	<b>3,657</b>	<b>3,465</b>	<b>3,391</b>	<b>3,379</b>	<b>3,578</b>	<b>3,890</b>	<b>4,150</b>	<b>4,680</b>	<b>5,071</b>
<b>Constant 1997 Dollars</b>										
<b>GDP Implicit Price Index</b>	<b>94.0</b>	<b>95.1</b>	<b>97.2</b>	<b>98.9</b>	<b>100.0</b>	<b>99.6</b>	<b>100.9</b>	<b>105.2</b>	<b>106.3</b>	<b>..</b>
Intramural	1,869	1,844	1,777	1,812	1,720	1,750	1,842	1,977	2,085	..
Canadian business enterprises	822	795	684	579	721	752	707	593	651	..
Canadian higher education	866	878	820	769	725	845	1,001	1,112	1,309	..
Canadian non-profit institutions	70	78	61	76	71	82	129	72	174	..
Other Canadian performers <sup>4</sup>	96	65	67	51	22	38	58	66	64	..
Foreign	189	186	155	143	120	124	117	125	120	..
<b>TOTAL</b>	<b>3,912</b>	<b>3,845</b>	<b>3,565</b>	<b>3,429</b>	<b>3,379</b>	<b>3,592</b>	<b>3,855</b>	<b>3,945</b>	<b>4,403</b>	<b>..</b>
<b>Percent – Constant 1997 Dollars</b>										
Percent										
Intramural	48	48	50	53	51	49	48	50	47	..
Canadian business enterprises	21	20	19	17	21	21	18	15	15	..
Canadian higher education	22	23	23	22	21	24	26	28	30	..
Canadian non-profit institutions	2	2	2	2	2	2	3	2	4.	..
Other Canadian performers <sup>4</sup>	2	2	2	2	1	1	2	2	1.	..
Foreign	5	5	4	4	4	3	3	3	3.	..
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>..</b>

See notes at end of section.

**TABLE 1.10 Federal Expenditures on RSA in Current Dollars, Constant 1997 Dollars, and by Performing Sector<sup>3</sup>, 1993-94 to 2002-2003<sup>p</sup>**

Sector of performance	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>p</sup>	2002-2003 <sup>p</sup>
	in millions of dollars									
<b>Current Dollars</b>										
Intramural	1,700	1,646	1,699	1,783	1,631	1,712	1,799	1,963	2,175	2,007
Canadian business	181	174	221	228	206	203	212	223	242	227
Canadian higher education	159	147	135	133	135	147	164	150	161	169
Canadian non-profit institutions	50	53	45	37	40	40	51	77	52	43
Other Canadian performers <sup>4</sup>	49	28	21	17	17	14	25	24	21	31
Foreign	134	121	107	105	101	109	111	119	104	109
<b>TOTAL</b>	<b>2,274</b>	<b>2,170</b>	<b>2,228</b>	<b>2,303</b>	<b>2,130</b>	<b>2,224</b>	<b>2,362</b>	<b>2,557</b>	<b>2,755</b>	<b>2,587</b>
<b>Constant 1997 Dollars</b>										
<b>GDP Implicit Price Index</b>	<b>94.0</b>	<b>95.1</b>	<b>97.2</b>	<b>98.9</b>	<b>100.0</b>	<b>99.6</b>	<b>100.9</b>	<b>105.2</b>	<b>106.3</b>	..
Intramural	1,809	1,731	1,748	1,803	1,631	1,719	1,783	1,866	2,046	..
Canadian business enterprises	193	183	227	231	206	204	210	212	228	..
Canadian higher education	169	155	139	134	135	148	163	143	151	..
Canadian non-profit	54	56	46	37	40	40	51	73	49	..
Other Canadian performers <sup>4</sup>	52	29	22	17	17	14	25	23	20	..
Foreign	143	127	110	106	101	109	110	113	98	..
<b>TOTAL</b>	<b>2,419</b>	<b>2,282</b>	<b>2,292</b>	<b>2,329</b>	<b>2,130</b>	<b>2,233</b>	<b>2,341</b>	<b>2,430</b>	<b>2,591</b>	..
<b>Percent – Constant 1997 Dollars</b>										
	percent									
Intramural	75	76	76	77	76	77	76	77	79	..
Canadian business enterprises	8	8	10	10	10	9	9	9	9	..
Canadian higher education	7	7	6	6	6	6	7	6	6	..
Canadian non-profit institutions	2	2	2	2	2	2	2	3	2	..
Other Canadian performers <sup>4</sup>	2	1	1	1	1	1	1	1	1	..
Foreign	6	6	5	4	5	5	5	4	3	..
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	..

See notes at end of section.

**TABLE 1.11 Federal Expenditures on S&T, by Major Department or Agency and Source of Funds, 2002-2003<sup>P</sup>**

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						
AGR	<b>344</b>	0	15	38	0	291
CSA	<b>337</b>	0	3	0	-2	336
ENV	<b>543</b>	54	37	32	27	393
F&O	<b>317</b>	9	20	0	14	274
HC	<b>216</b>	0	15	37	0	164
IND	<b>383</b>	27	13	0	-30	373
NDEF	<b>331</b>	6	9	0	-9	325
NRC	<b>738</b>	18	14	0	43	663
NRCan	<b>419</b>	0	24	0	0	395
NSERC	<b>681</b>	0	3	0	0	678
SSHRC <sup>r</sup>	<b>208</b>	0	2	0	0	206
STCAN	<b>511</b>	37	46	0	55	373

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

**TABLE 1.12 Federal S&T Expenditures, by Department or Agency and Performing Sector<sup>3</sup>, 2002-2003<sup>P</sup>**

Department or agency	Sector of performance					Total
	Intramural	Canadian business enterprises	Higher education	Other Canadian performers	Foreign	
	in millions of dollars					
AECL	129	16	0	0	4	149
AGR	327	0	1	16	0	344
BC	56	0	0	0	0	56
CFI	8	0	474	0	0	482
CIDA	19	164	56	14	82	335
CIHR	37	0	525	20	11	592
CSA	216	85	7	10	18	337
ENV	482	36	7	13	5	543
F&O	311	1	1	3	0	317
FA&IT	11	0	14	0	28	52
HC	183	3	7	22	1	216
HRD	32	3	2	37	0	74
IDRC	41	0	3	2	33	79
IND	92	280	0	4	7	383
NDEF	182	128	4	1	14	331
NL	51	0	0	0	0	51
NRC	605	83	41	3	7	738
NRCan	359	33	7	18	2	419
NSERC	36	7	608	17	12	681
PCA	88	1	1	1	0	91
SSHRC	19	0	166	19	3	208
STCAN	511	0	0	1	0	512
Other	440	46	27	158	1	668
<b>TOTAL</b>	<b>4,235</b>	<b>886</b>	<b>1,951</b>	<b>359</b>	<b>228</b>	<b>7,658</b>

See notes at end of section.

**TABLE 1.13 Federal Expenditures by Activity, 1993-94 to 2002-2003<sup>P</sup>**

Scientific activity	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>R&amp;D</b>										
Current expenditures	3,319	3,287	3,140	3,086	3,062	3,241	3,559	3,698	4,153	4,527
Administration of extramural programs	163	164	162	164	163	200	186	183	217	225
Capital expenditures	195	205	163	141	154	137	144	270	310	319
<b>Sub-total R&amp;D</b>	<b>3,677</b>	<b>3,657</b>	<b>3,465</b>	<b>3,391</b>	<b>3,379</b>	<b>3,578</b>	<b>3,890</b>	<b>4,150</b>	<b>4,680</b>	<b>5,071</b>
<b>RSA</b>										
Data collection	969	882	923	1,048	1,004	1,059	1,146	1,277	1,497	1,247
Information services	527	543	539	482	425	432	446	438	464	484
Special services and studies	406	369	447	463	436	452	485	531	502	526
Education support	176	170	139	139	142	157	168	163	173	186
Administration of extramural programs	32	36	34	33	32	35	40	46	49	51
Capital expenditures	164	171	147	139	91	89	77	102	70	93
<b>Sub-total RSA</b>	<b>2,274</b>	<b>2,170</b>	<b>2,228</b>	<b>2,303</b>	<b>2,130</b>	<b>2,224</b>	<b>2,362</b>	<b>2,557</b>	<b>2,755</b>	<b>2,587</b>
<b>TOTAL</b>	<b>5,951</b>	<b>5,827</b>	<b>5,693</b>	<b>5,694</b>	<b>5,509</b>	<b>5,802</b>	<b>6,252</b>	<b>6,707</b>	<b>7,435</b>	<b>7,658</b>

**TABLE 1.14 Federal Expenditures, by Type of Science and by Performer<sup>3</sup>, 1993-94 to 2002-2003<sup>P</sup>**

Sector of performance	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Total Science:</b>										
Intramural	3,457	3,399	3,427	3,575	3,351	3,455	3,658	4,043	4,391	4,235
Canadian business enterprises	954	930	885	801	927	952	926	847	934	886
Canadian higher education	973	983	933	894	860	989	1,173	1,320	1,551	1,951
Canadian non-profit institutions	116	127	103	112	110	122	181	154	237	242
Other Canadian performers <sup>4</sup>	138	91	86	65	39	51	85	93	89	117
Foreign	313	297	259	247	222	233	229	250	232	228
<b>TOTAL</b>	<b>5,951</b>	<b>5,827</b>	<b>5,693</b>	<b>5,694</b>	<b>5,509</b>	<b>5,802</b>	<b>6,252</b>	<b>6,707</b>	<b>7,435</b>	<b>7,658</b>
<b>Natural sciences and engineering:</b>										
Intramural	2,570	2,519	2,486	2,507	2,417	2,459	2,648	2,872	3,020	3,050
Canadian business enterprises	915	885	846	767	892	924	896	816	901	855
Canadian higher education	804	818	773	737	702	836	1,002	1,139	1,332	1,716
Canadian non-profit institutions	56	67	59	66	57	56	128	98	177	175
Other Canadian performers <sup>4</sup>	92	71	69	56	28	42	57	55	52	66
Foreign	162	166	144	140	126	134	134	144	145	136
<b>TOTAL</b>	<b>4,599</b>	<b>4,526</b>	<b>4,377</b>	<b>4,273</b>	<b>4,222</b>	<b>4,450</b>	<b>4,866</b>	<b>5,124</b>	<b>5,627</b>	<b>5,999</b>
<b>Social sciences and humanities:</b>										
Intramural	887	880	941	1,068	934	996	1,010	1,171	1,371	1,184
Canadian business enterprises	39	45	40	34	35	29	30	32	33	31
Canadian higher education	169	165	159	157	158	153	171	181	220	234
Canadian non-profit institutions	60	59	44	46	53	65	52	56	60	67
Other Canadian performers <sup>4</sup>	47	20	17	9	11	9	28	38	37	51
Foreign	150	132	115	107	96	99	95	105	87	92
<b>TOTAL</b>	<b>1,352</b>	<b>1,301</b>	<b>1,316</b>	<b>1,421</b>	<b>1,287</b>	<b>1,352</b>	<b>1,386</b>	<b>1,582</b>	<b>1,808</b>	<b>1,659</b>

See notes at end of section.

**TABLE 1.15 Federal Expenditures on R&D, by Type of Science and by Performer<sup>3</sup>, 1993-94 to 2002-2003<sup>P</sup>**

Sector of performance	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Total sciences:</b>										
Intramural	1,757	1,754	1,727	1,792	1,720	1,743	1,859	2,080	2,216	2,227
Canadian business enterprises	773	756	665	573	721	749	713	624	692	659
Canadian higher education	814	835	797	761	725	842	1,010	1,170	1,391	1,782
Canadian non-profit institutions	66	74	59	75	71	82	130	76	185	199
Provincial and municipal governments	35	33	38	27	6	9	13	34	29	32
Other Canadian performers	55	29	27	23	16	29	46	35	40	53
Foreign	178	177	151	141	120	124	118	131	128	119
<b>TOTAL</b>	<b>3,677</b>	<b>3,657</b>	<b>3,465</b>	<b>3,391</b>	<b>3,379</b>	<b>3,578</b>	<b>3,890</b>	<b>4,150</b>	<b>4,680</b>	<b>5,071</b>
<b>Natural sciences and engineering:</b>										
Intramural	1,694	1,694	1,669	1,724	1,651	1,667	1,774	1,995	2,128	2,135
Canadian business enterprises	770	750	662	570	720	747	711	622	691	658
Canadian higher education	729	749	713	680	644	762	913	1,063	1,254	1,633
Canadian non-profit institutions	33	43	34	52	47	43	109	48	154	159
Provincial and municipal governments	32	30	37	25	4	8	13	19	14	17
Other Canadian performers	49	25	23	21	15	27	37	27	30	42
Foreign	127	131	114	110	94	97	95	104	106	96
<b>TOTAL</b>	<b>3,434</b>	<b>3,422</b>	<b>3,252</b>	<b>3,181</b>	<b>3,174</b>	<b>3,350</b>	<b>3,653</b>	<b>3,879</b>	<b>4,376</b>	<b>4,740</b>
<b>Social sciences and humanities:</b>										
Intramural	63	60	58	68	69	76	85	85	88	92
Canadian business enterprises	2	5	3	3	2	3	2	2	1	1
Canadian higher education	85	86	85	81	80	80	97	107	137	148
Canadian non-profit institutions	33	30	24	24	24	39	21	28	32	40
Provincial and municipal governments	3	3	1	2	2	1	1	15	15	15
Other Canadian performers	6	4	4	2	1	2	9	8	9	11
Foreign	52	46	38	31	27	27	23	27	22	23
<b>TOTAL</b>	<b>244</b>	<b>235</b>	<b>213</b>	<b>210</b>	<b>205</b>	<b>228</b>	<b>237</b>	<b>271</b>	<b>304</b>	<b>331</b>

See notes at end of section.



**TABLE 1.16 Federal Expenditures on RSA, by Type of Science and by Performer<sup>3</sup>, 1993-94 to 2002-2003<sup>P</sup>**

Sector of performance	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Total sciences:</b>										
Intramural	1,700	1,646	1,699	1,783	1,631	1,712	1,799	1,963	2,175	2,007
Canadian business enterprises	181	174	221	228	206	203	212	223	242	227
Canadian higher education	159	147	135	133	135	147	164	150	161	169
Canadian non-profit institutions	51	53	45	37	40	40	51	77	52	43
Provincial and municipal governments	9	11	9	6	6	5	5	3	3	2
Other Canadian performers	40	17	12	11	11	9	20	21	18	29
Foreign	134	121	107	105	101	109	111	119	104	109
<b>TOTAL</b>	<b>2,274</b>	<b>2,170</b>	<b>2,228</b>	<b>2,303</b>	<b>2,130</b>	<b>2,224</b>	<b>2,362</b>	<b>2,557</b>	<b>2,755</b>	<b>2,587</b>
<b>Natural sciences and engineering:</b>										
Intramural	876	825	816	783	766	792	874	877	891	915
Canadian business enterprises	145	135	184	197	172	177	185	193	211	198
Canadian higher education	75	69	60	58	58	74	89	76	78	83
Canadian non-profit institutions	23	24	25	14	11	14	19	50	23	15
Provincial and municipal governments	5	10	6	5	4	3	3	2	3	2
Other Canadian performers	5	6	4	5	4	4	4	6	5	5
Foreign	36	35	30	30	33	37	39	41	39	41
<b>TOTAL</b>	<b>1,164</b>	<b>1,104</b>	<b>1,125</b>	<b>1,091</b>	<b>1,048</b>	<b>1,100</b>	<b>1,213</b>	<b>1,245</b>	<b>1,251</b>	<b>1,259</b>
<b>Social sciences and humanities:</b>										
Intramural	824	820	883	1,000	866	920	925	1,086	1,284	1,092
Canadian business enterprises	37	40	37	31	33	26	28	30	31	29
Canadian higher education	84	78	75	76	77	73	75	74	83	86
Canadian non-profit institutions	27	29	20	23	29	26	31	28	28	28
Provincial and municipal governments	3	1	3	1	2	2	2	1	0	0
Other Canadian performers	35	12	8	5	7	5	16	15	13	25
Foreign	98	86	77	75	69	72	72	78	65	68
<b>TOTAL</b>	<b>1,109</b>	<b>1,066</b>	<b>1,103</b>	<b>1,211</b>	<b>1,082</b>	<b>1,124</b>	<b>1,149</b>	<b>1,312</b>	<b>1,504</b>	<b>1,328</b>

See notes at end of section.

**TABLE 1.17 Federal Expenditures, by Activity and Performer, 2000-2001<sup>r</sup>**

Activity	Performer							Total
	Intramural	Business enterprises	Higher education	Canadian non-profit institutions	Provincial and municipal gvts	Foreign performers	Other	
in millions of dollars								
<b>R&amp;D</b>								
In-house R&D	1,493	...	...	...	...	...	...	1,493
R&D contracts	30	227	22	6	0	13	10	307
Supporting contracts	97	...	...	...	...	...	...	97
R&D grants and contributions	...	393	1,118	64	33	104	17	1,729
Research fellowships	9	4	30	6	0	14	8	73
Administration of extramural programs	183	...	...	...	...	...	...	183
Capital expenditures	269	...	...	...	...	...	...	269
<b>Sub-total R&amp;D</b>	<b>2,080</b>	<b>624</b>	<b>1,170</b>	<b>76</b>	<b>34</b>	<b>131</b>	<b>35</b>	<b>4,150</b>
<b>RSA</b>								
Data collection	1,198	45	8	13	3	5	5	1,277
Information services <sup>5</sup>	371	15	10	9	0	29	4	438
Special services and studies <sup>6</sup>	238	160	2	50	0	76	4	531
Education support	8	3	130	5	0	9	8	163
Administration of extramural programs	46	...	...	...	...	...	...	46
Capital expenditures	102	...	...	...	...	...	...	102
<b>Sub-total RSA</b>	<b>1,963</b>	<b>223</b>	<b>150</b>	<b>77</b>	<b>3</b>	<b>119</b>	<b>21</b>	<b>2,557</b>
<b>TOTAL</b>	<b>4,043</b>	<b>847</b>	<b>1,320</b>	<b>154</b>	<b>37</b>	<b>250</b>	<b>56</b>	<b>6,707</b>

See notes at end of section.

**TABLE 1.18 Federal Expenditures, by Activity and Performer, 2001-2002<sup>P</sup>**

Activity	Performer							Total
	Intramural	Business enterprises	Higher education	Canadian non-profit institutions	Provincial and municipal gvts	Foreign performers	Other	
in millions of dollars								
<b>R&amp;D</b>								
In-house R&D	1,554	...	...	...	...	...	...	1,554
R&D contracts	30	240	23	6	0	19	13	331
Supporting contracts	96	...	...	...	...	...	...	96
R&D grants and contributions	...	446	1,334	172	28	92	17	2,090
Research fellowships	10	5	33	7	0	16	10	83
Administration of extramural programs	217	...	...	...	...	...	...	217
Capital expenditures	310	...	...	...	...	...	...	310
<b>Sub-total R&amp;D</b>	<b>2,216</b>	<b>692</b>	<b>1,391</b>	<b>185</b>	<b>29</b>	<b>128</b>	<b>40</b>	<b>4,680</b>
<b>RSA</b>								
Data collection	1,414	48	7	13	3	8	4	1,497
Information services <sup>5</sup>	394	16	11	13	0	26	4	464
Special services and studies <sup>6</sup>	241	174	3	19	0	60	4	502
Education support	8	3	140	6	0	10	7	173
Administration of extramural programs	49	...	...	...	...	...	...	49
Capital expenditures	70	...	...	...	...	...	...	70
<b>Sub-total RSA</b>	<b>2,175</b>	<b>242</b>	<b>161</b>	<b>52</b>	<b>3</b>	<b>104</b>	<b>18</b>	<b>2,755</b>
<b>TOTAL</b>	<b>4,391</b>	<b>934</b>	<b>1,551</b>	<b>237</b>	<b>32</b>	<b>232</b>	<b>57</b>	<b>7,435</b>

See notes at end of section.

**TABLE 1.19 Federal Expenditures, by Activity and Performer, 2002-2003<sup>P</sup>**

Activity	Performer							Total
	Intramural	Business enterprises	Higher education	Canadian non-profit institutions	Provincial and municipal govts	Foreign performers	Other	
in millions of dollars								
<b>R&amp;D</b>								
In-house R&D	1,554	...	...	...	...	...	...	1,554
R&D contracts	29	234	21	6	1	13	17	321
Supporting contracts	91	...	...	...	...	...	...	91
R&D grants and contributions	...	419	1,725	185	30	88	25	2,471
Research fellowships	10	6	36	8	0	18	11	90
Administration of extramural programs	225	...	...	...	...	...	...	225
Capital expenditures	319	...	...	...	...	...	...	319
<b>Sub-total R&amp;D</b>	<b>2,227</b>	<b>659</b>	<b>1,782</b>	<b>199</b>	<b>32</b>	<b>119</b>	<b>53</b>	<b>5,071</b>
<b>RSA</b>								
Data collection	1,171	48	5	9	2	8	3	1,247
Information services <sup>5</sup>	416	16	12	12	0	25	3	484
Special services and studies <sup>6</sup>	268	159	2	16	0	66	15	526
Education support	8	4	150	6	0	11	8	186
Administration of extramural programs	51	...	...	...	...	...	...	51
Capital expenditures	93	...	...	...	...	...	...	93
<b>Sub-total RSA</b>	<b>2,007</b>	<b>227</b>	<b>169</b>	<b>43</b>	<b>2</b>	<b>109</b>	<b>29</b>	<b>2,587</b>
<b>TOTAL</b>	<b>4,235</b>	<b>886</b>	<b>1,951</b>	<b>242</b>	<b>35</b>	<b>228</b>	<b>82</b>	<b>7,658</b>

See notes at end of section.

**TABLE 1.20 Performers of Federal Expenditures on S&T, 1993-94 to 2002-2003<sup>P</sup>**

Department or Agency	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
ACOA	35	41	34	21	7	29	27	27	16	53
AECB	8	7	7	4	3	3	...	...	...	...
C&I	1	2	1	2	2	2	3	3	3	3
CBC	8	8	7	7	6	...	...	...	...	...
CCMD	1	2	2	2	1	2	1	2	1	1
CFIA	..	..	..	28	30	30	32	37	40	44
CHRC	0	1	1	0	1	1	1	0	0	0
CMHC	23	24	21	19	20	25	30	35	26	30
CMN	22	26	29	35	26	23	23	26	28	29
CNSC	...	...	...	...	...	...	3	4	4	4
COL	5	4	3	4	1	1	1	1	1	2
CSTM	18	24	24	25	24	23	24	26	26	29
EPC	0	1	1	0	0	...	...	...	...	...
FIN	24	22	20	19	20	22	26	25	27	28
FORD - / CED(Qué)	31	35	25	29	22	23	13	10	17	22
IAND	16	13	8	5	4	2	4	4	4	4
JUS	7	7	6	6	6	9	14	14	16	16
NEB	5	5	4	3	2	1	1	1	1	1
NFB	1	1	1	1	1	1	1	1	1	1
NGC	30	34	37	33	46	49	42	44	45	46
NREV / CCRA	7	8	7	6	7	9	9	9	8	8
NTA	1	1	...	...	...	...	...	...	...	...
PC	28	4	2	0	0	0	5	5	5	17
PSC	1	1	1	2	7	6	7	7	7	7
PW&GS	7	6	6	6	5	6	6	8	8	8
RCMP	1	1	0	1	1	1	1	1	1	1
SGEN	7	6	6	6	5	5	5	6	6	6
SWC	0	0	1	1	2	4	3	3	4	4
TPT	30	30	21	17	20	20	17	18	19	20
WEDO	30	18	16	14	9	13	24	17	14	14
<b>Minor S&amp;T Performers</b>	<b>347</b>	<b>333</b>	<b>292</b>	<b>297</b>	<b>278</b>	<b>310</b>	<b>324</b>	<b>328</b>	<b>328</b>	<b>397</b>
<b>Major S&amp;T Performers*</b>	<b>5,604</b>	<b>5,494</b>	<b>5,401</b>	<b>5,397</b>	<b>5,231</b>	<b>5,492</b>	<b>5,928</b>	<b>6,379</b>	<b>7,107</b>	<b>7,261</b>
<b>Total</b>	<b>5,951</b>	<b>5,827</b>	<b>5,693</b>	<b>5,694</b>	<b>5,509</b>	<b>5,802</b>	<b>6,252</b>	<b>6,707</b>	<b>7,435</b>	<b>7,658</b>

\* See Table 1.5

**TABLE 1.21 Federal Expenditures on Intramural R&D, by Department or Agency, 1993-94 to 2002-2003<sup>P</sup>**

Department or Agency	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>T</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
AGR	313	306	317	346	338	333	351	339	327	319
AECL	136	140	143	219	154	114	123	128	126	129
CFIA	...	...	...	12	13	11	10	13	14	16
CSA	79	54	63	57	49	81	51	166	219	205
EMR	223	...	...	...	...	...	...	...	...	...
ENV <sup>1</sup>	120	146	131	113	106	93	115	125	142	137
F & O	110	111	89	92	75	105	108	128	121	120
FOR	80	...	...	...	...	...	...	...	...	...
HC	34	29	33	41	40	39	43	41	38	36
IDRC	21	21	20	28	27	28	38	36	33	34
IND <sup>2</sup>	77	85	82	43	38	39	39	42	41	42
NDEF	145	146	127	136	140	142	173	154	168	162
NRCan	...	305	342	320	309	303	307	334	330	321
NRC	326	321	294	300	340	349	389	442	498	537
NSERC	17	17	17	17	17	20	22	25	31	32
Other	76	73	69	68	74	86	133	107	128	137
<b>Total</b>	<b>1,757</b>	<b>1,754</b>	<b>1,727</b>	<b>1,792</b>	<b>1,720</b>	<b>1,743</b>	<b>1,859</b>	<b>2,080</b>	<b>2,216</b>	<b>2,227</b>

<sup>1</sup> The large increase in transfer payment expenditures in 2001-2002 is due to one-time grant payment made to the Foundation for Sustainable Development Technology in Canada (\$50M).

<sup>2</sup> 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.

<sup>3</sup> As reported by the funder, the federal government, not by the performers.

<sup>4</sup> Other Canadian performers include provincial and municipal governments.

<sup>5</sup> Includes information services and museum services.

<sup>6</sup> 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 2002-2003 were based on the plans of departments and agencies at the beginning of the fiscal year.

In 2002-2003, 32,335 federal government person-years were devoted to S&T activities, of which 53% 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	1993	1994	1995	1996	1997	1998	1999	2000
	full-time equivalent							
Australia	..	19,309	..	19,388	..	18,946	..	..
Austria	2,107	..	..	..	..	2,104	..	..
Belgium	2,019	2,026	2,019	2,072	2,144	2,071	2,229	..
<b>Canada*</b>	<b>19,820</b>	<b>19,246</b>	<b>17,743</b>	<b>16,613</b>	<b>15,645</b>	<b>15,296</b>	<b>15,698</b>	<b>16,548</b>
Denmark	4,916	..	5,439	5,506	5,675	..	6,236	..
Finland	6,655	6,849	6,430	..	6,826	7,498	7,454	7,314
France	67,958	68,082	68,539	69,184	52,693	52,082	53,452	..
Germany	71,363	72,825	75,148	74,725	73,495	73,369	72,251	72,000
Italy	33,164	32,768	33,039	32,225	31,292	31,999	30,835	..
Japan	56,015	55,633	55,990	56,176	56,554	58,762	59,025	59,254
Netherlands	15,190	15,970	16,020	16,030	16,160	16,451	16,565	..
Spain	17,266	17,546	17,153	17,866	19,189	20,170	22,283	22,400
Sweden	3,289	..	3,518	..	3,334	..	3,195	..
United Kingdom	34,000	32,000	28,919	27,486	25,897	29,197	29,752	29,561
United States	..	..	..	..	..	..	..	..

\* Including Provincial Government personnel.

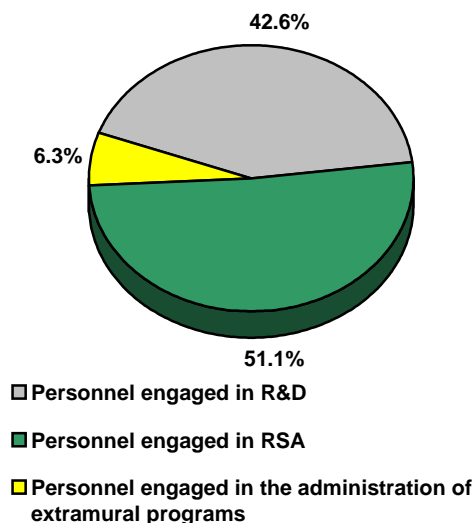
Source: OECD, *Main Science and Technology Indicators 2002*.



Chart 2.1

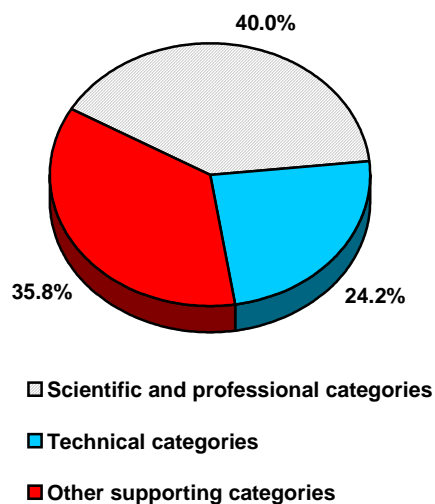
Federal Personnel Engaged in S&T Activities, 2002-2003<sup>p</sup>

## By Activity



Source: Table 2.2.

## By Category



Source: Table 2.5.

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. A decrease is estimated for 2002-2003 of 1.1% or 366 person years.

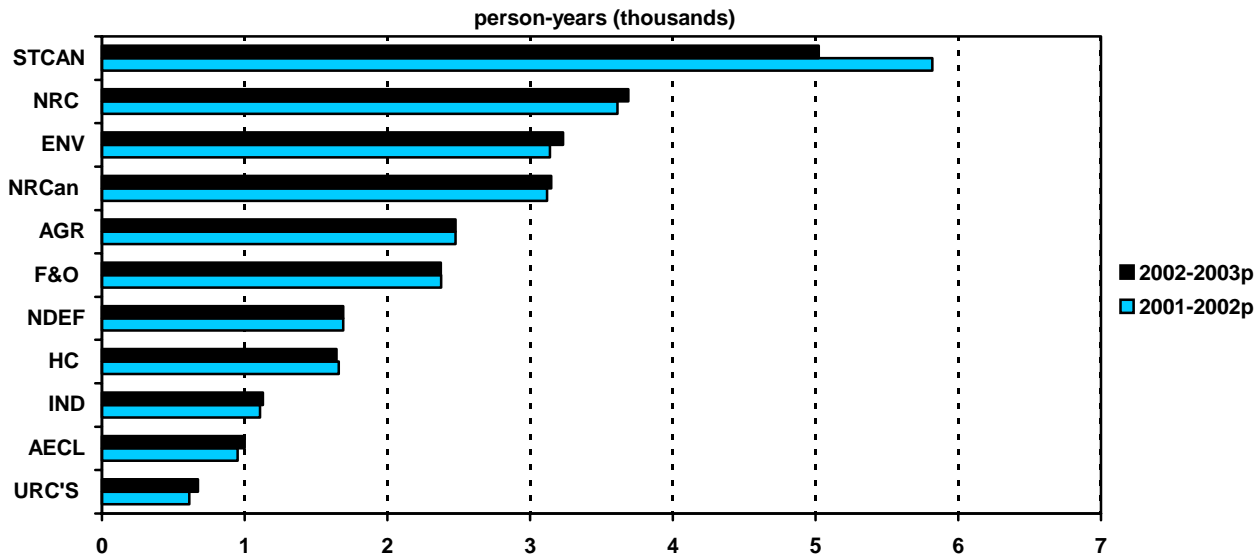
For 2002-2003, 68% of the estimated total personnel were in Natural Sciences and Engineering, of which 67% were engaged in Research and Development (R&D). In contrast, personnel in Social Sciences and Humanities will account for 32%, of which only 5% will be engaged in R&D.

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-four percent of total S&T personnel are in two categories: Scientific and Professional (40%) and Technical (24%).

Chart 2.2

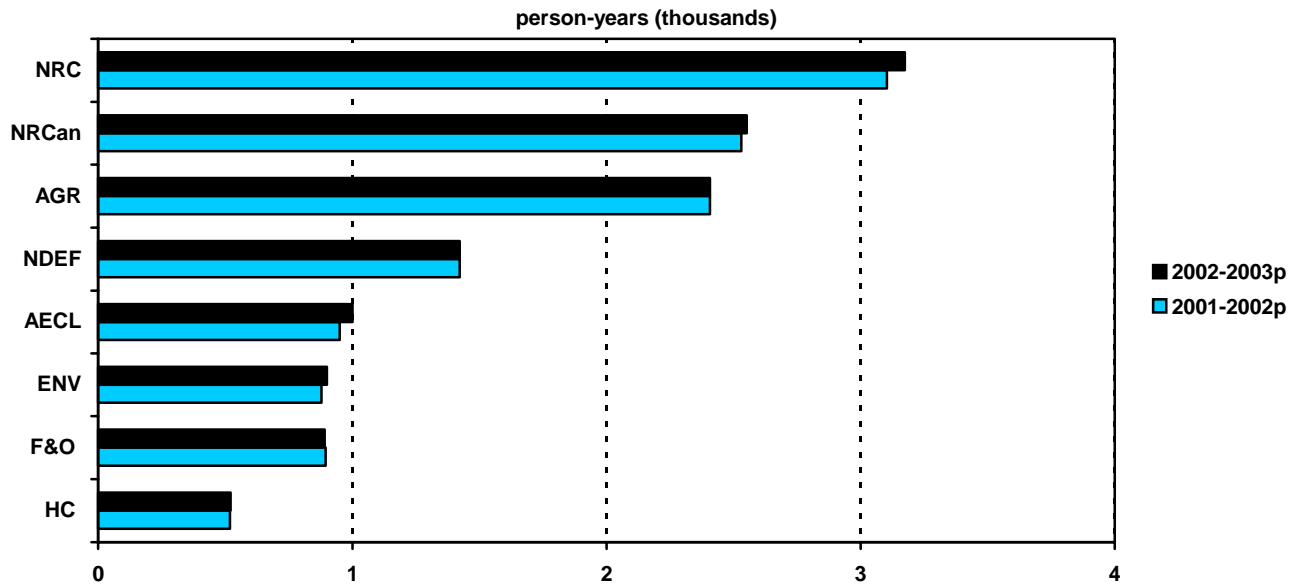
Federal Personnel Engaged in S&T Activities, by Department or Agency, 2001-2002<sup>P</sup> and 2002-2003<sup>P</sup>



Source: Table 2.3

Chart 2.3

Federal Personnel Engaged in R&D Activities, by Department or Agency, 2001-2002<sup>P</sup> and 2002-2003<sup>P</sup>



Source: Table 2.4

**TABLE 2.2 Federal Personnel Engaged in S&T Activities, 1993-94 to 2002-2003<sup>P</sup>**

Activity	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	person-years									
<b>Total S&amp;T</b>										
Research and development	15,818	15,369	14,312	13,645	12,798	12,533	12,765	13,449	13,529	13,758
Related scientific activities	16,473	16,189	16,021	15,329	15,437	15,372	16,189	16,945	17,248	16,527
Administration of extramural R&D programs	1,419	1,363	1,243	1,191	1,155	1,196	1,315	1,263	1,412	1,529
Administration of extramural RSA programs	435	429	430	429	398	384	441	482	512	521
<b>Total</b>	<b>34,145</b>	<b>33,349</b>	<b>32,005</b>	<b>30,594</b>	<b>29,787</b>	<b>29,485</b>	<b>30,711</b>	<b>32,139</b>	<b>32,701</b>	<b>32,335</b>
<b>Natural Sciences and Engineering:</b>										
Research and development	15,405	14,966	13,926	13,235	12,429	12,179	12,353	13,034	13,134	13,362
Related scientific activities	7,434	7,155	7,129	6,487	6,656	6,457	7,035	6,957	7,040	7,103
Administration of extramural R&D programs	1,195	1,148	1,045	1,025	998	1,039	1,144	1,086	1,221	1,337
Administration of extramural RSA programs	266	247	255	259	230	217	241	273	280	287
<b>Total</b>	<b>24,300</b>	<b>23,516</b>	<b>22,355</b>	<b>21,006</b>	<b>20,313</b>	<b>19,891</b>	<b>20,773</b>	<b>21,349</b>	<b>21,674</b>	<b>22,089</b>
<b>Social Sciences and Humanities:</b>										
Research and development	413	403	385	410	369	355	412	415	395	396
Related scientific activities	9,039	9,034	8,892	8,842	8,781	8,915	9,154	9,988	10,208	9,425
Administration of extramural R&D programs	224	215	198	166	157	157	171	178	191	192
Administration of extramural RSA programs	169	181	175	170	168	167	200	209	232	234
<b>Total</b>	<b>9,845</b>	<b>9,833</b>	<b>9,650</b>	<b>9,588</b>	<b>9,475</b>	<b>9,594</b>	<b>9,938</b>	<b>10,790</b>	<b>11,026</b>	<b>10,246</b>

**TABLE 2.3 Federal Personnel Engaged in S&T Activities, by Major Department or Agency, 1993-94 to 2002-2003<sup>P</sup>**

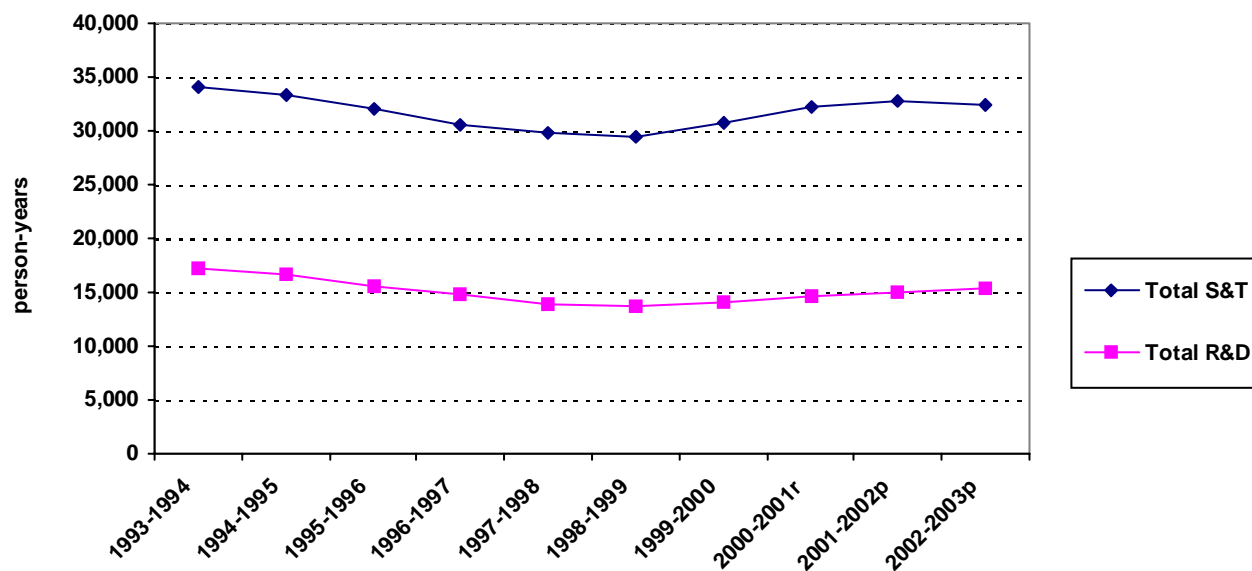
Department or Agency	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>†</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	person-years									
AECL	2,572	2,568	2,560	1,700	1,460	1,195	1,170	886	950	1,000
AGR	3,726	3,635	3,365	2,981	2,593	2,569	2,546	2,869	2,477	2,477
CH	...	708	628	565	537	...	...	...	...	...
EMR	2,607	...	...	...	...	...	...	...	...	...
ENV <sup>1</sup>	4,662	3,523	3,417	2,967	2,901	2,844	3,001	2,992	3,138	3,230
F&O	2,182	2,101	2,318	2,319	2,124	2,059	2,257	2,400	2,375	2,373
FOR	993	...	...	...	...	...	...	...	...	...
HC	1,359	1,412	1,334	1,622	1,872	1,807	1,911	1,842	1,658	1,644
IND	1,064	878	880	901	931	1,001	987	1,072	1,107	1,128
NDEF	1,819	1,664	1,248	1,428	1,424	1,567	1,560	1,617	1,691	1,691
NRC	3,325	3,307	3,099	3,097	3,202	3,266	3,310	3,426	3,610	3,688
NRCan	...	3,562	3,265	3,052	2,848	2,698	2,807	2,870	3,117	3,146
STCAN	4,489	4,607	4,894	5,004	4,959	5,042	5,096	5,811	5,818	5,023
Other	5,347	5,384	4,997	4,958	4,936	5,437	6,066	6,354	6,760	6,935
<b>Total</b>	<b>34,145</b>	<b>33,349</b>	<b>32,005</b>	<b>30,594</b>	<b>29,787</b>	<b>29,485</b>	<b>30,711</b>	<b>32,139</b>	<b>32,701</b>	<b>32,335</b>

<sup>†</sup> 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, 1993-94 to 2002-2003<sup>p</sup>**

Department or Agency	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>1</sup>	2001-2002 <sup>p</sup>	2002-2003 <sup>p</sup>
	person-years									
AECL	2,147	2,024	2,015	1,700	1,460	1,195	1,170	886	950	1,000
AGR	3,327	3,244	3,011	2,820	2,427	2,426	2,410	2,800	2,408	2,408
EMR	2,179	...	...	...	...	...	...	...	...	...
ENV	784	815	976	832	771	736	830	840	879	900
F&O	1,042	1,004	902	877	798	772	853	902	895	891
FOR	833	...	...	...	...	...	...	...	...	...
HC	322	327	353	477	539	517	515	524	519	521
IND <sup>1</sup>	519	428	411	360	350	395	401	449	481	501
NDEF	1,742	1,602	1,179	1,236	1,169	1,298	1,291	1,348	1,422	1,422
NRC	2,926	2,897	2,692	2,651	2,729	2,777	2,808	2,934	3,104	3,174
NRCan	...	2,976	2,646	2,536	2,371	2,284	2,306	2,345	2,531	2,553
STCAN	118	118	127	125	144	141	158	167	151	151
Other	1,298	1,297	1,243	1,222	1,195	1,188	1,338	1,517	1,601	1,766
<b>Total</b>	<b>17,237</b>	<b>16,732</b>	<b>15,555</b>	<b>14,836</b>	<b>13,953</b>	<b>13,729</b>	<b>14,080</b>	<b>14,712</b>	<b>14,941</b>	<b>15,287</b>

<sup>1</sup> 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, 1993-94 to 2002-2003<sup>p</sup>**

Source: Tables 2.3 and 2.4

**TABLE 2.5 Federal Personnel Engaged in S&T Activities, by Category and Activity, 1993-94 to 2002-2003<sup>P</sup>**

Category	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
person-years										
<b>S&amp;T Personnel</b>										
Executive	713	682	653	...	...	...	...	...	...	...
Scientific and professional <sup>1</sup>	11,536	11,917	11,327	11,770	11,544	11,732	12,142	12,540	12,896	12,923
Administrative and foreign service	4,510	4,458	4,590	...	...	...	...	...	...	...
Technical <sup>1</sup>	8,526	8,196	7,846	7,773	7,653	7,426	7,775	7,854	7,939	7,835
Administrative support <sup>1</sup>	5,674	5,001	4,786	11,051	10,590	10,327	10,794	11,745	11,865	11,577
Operational	2,992	2,906	2,726	...	...	...	...	...	...	...
Military personnel	195	188	76	...	...	...	...	...	...	...
<b>Total S&amp;T personnel<sup>2</sup></b>	<b>34,145</b>	<b>33,349</b>	<b>32,005</b>	<b>30,594</b>	<b>29,787</b>	<b>29,485</b>	<b>30,711</b>	<b>32,139</b>	<b>32,701</b>	<b>32,335</b>
<b>R&amp;D Personnel</b>										
Executive	253	232	229	...	...	...	...	...	...	...
Scientific and professional <sup>1</sup>	6,389	6,341	5,999	6,312	5,848	5,852	6,018	6,130	6,349	6,457
Administrative and foreign service	1,603	1,550	1,560	...	...	...	...	...	...	...
Technical <sup>1</sup>	4,523	4,689	4,296	4,098	3,906	3,824	3,870	3,818	3,813	3,862
Administrative support <sup>1</sup>	2,272	1,863	1,727	4,426	4,198	4,053	4,192	4,764	4,779	4,967
Operational	2,019	1,883	1,677	...	...	...	...	...	...	...
Military personnel	179	173	67	...	...	...	...	...	...	...
<b>Total R&amp;D personnel<sup>2</sup></b>	<b>17,237</b>	<b>16,732</b>	<b>15,555</b>	<b>14,836</b>	<b>13,953</b>	<b>13,729</b>	<b>14,080</b>	<b>14,712</b>	<b>14,941</b>	<b>15,287</b>

<sup>1</sup> 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).

<sup>2</sup> Including Administration of Extramural Programs Personnel.

**TABLE 2.6 Federal Personnel Engaged in S&T, by Category and by Major Department or Agency, 2002-2003<sup>p</sup>**

Department or Agency	R&D Personnel <sup>1</sup>				S&T Personnel <sup>1</sup>			
	Scientific and Professional <sup>2</sup>	Technical	Other <sup>3</sup>	Total	Scientific and Professional <sup>2</sup>	Technical	Other <sup>3</sup>	Total
	person-years							
AECL	515	350	135	1,000	515	350	135	1,000
AGR	619	824	965	2,408	665	834	978	2,477
ENV	545	231	124	900	1,575	976	679	3,230
F&O	340	346	205	891	927	887	559	2,373
HC	308	165	48	521	1,179	243	222	1,644
IND	224	34	243	501	512	40	576	1,128
NDEF	693	285	444	1,422	846	354	492	1,691
NRC	1,192	881	1,101	3,174	1,385	1,024	1,279	3,688
NRCan	1,294	583	676	2,553	1,502	829	815	3,146
STCAN	97	12	42	151	1,099	1,213	2,711	5,023
Other	630	151	984	1,765	2,717	1,085	3,131	6,934
<b>Total</b>	<b>6,457</b>	<b>3,862</b>	<b>4,967</b>	<b>15,286</b>	<b>12,923</b>	<b>7,835</b>	<b>11,577</b>	<b>32,335</b>

<sup>1</sup> Including Administration of Extramural Programs Personnel<sup>2</sup> Including executives<sup>3</sup> 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, 1993-94 to 2002-2003<sup>P</sup>**

Category	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	person-years									
<b>S&amp;T Personnel</b>										
Executive	370	342	329	...	...	...	...	...	...	...
Scientific and professional <sup>1</sup>	8,839	9,158	8,709	8,937	8,655	8,681	9,005	9,158	9,470	9,595
Administrative and foreign service	2,301	2,217	2,231	...	...	...	...	...	...	...
Technical <sup>1</sup>	6,782	6,474	6,131	6,020	5,816	5,553	5,833	5,742	5,813	5,893
Administrative support <sup>1</sup>	3,333	2,707	2,591	6,049	5,842	5,657	5,935	6,449	6,392	6,600
Operational	2,507	2,453	2,308	...	...	...	...	...	...	...
Military personnel	168	166	54	...	...	...	...	...	...	...
<b>Total S&amp;T personnel<sup>2</sup></b>	<b>24,300</b>	<b>23,516</b>	<b>22,355</b>	<b>21,006</b>	<b>20,313</b>	<b>19,891</b>	<b>20,773</b>	<b>21,349</b>	<b>21,674</b>	<b>22,089</b>
<b>R&amp;D Personnel</b>										
Executive	229	208	204	...	...	...	...	...	...	...
Scientific and professional <sup>1</sup>	6,156	6,107	5,783	6,032	5,609	5,617	5,749	5,838	6,064	6,172
Administrative and foreign service	1,490	1,448	1,461	...	...	...	...	...	...	...
Technical <sup>1</sup>	4,448	4,620	4,231	4,039	3,837	3,761	3,795	3,750	3,750	3,798
Administrative support <sup>1</sup>	2,108	1,697	1,570	4,188	3,981	3,839	3,953	4,532	4,540	4,728
Operational	2,007	1,874	1,668	...	...	...	...	...	...	...
Military personnel	162	160	54	...	...	...	...	...	...	...
<b>Total R&amp;D Personnel<sup>2</sup></b>	<b>16,600</b>	<b>16,114</b>	<b>14,971</b>	<b>14,260</b>	<b>13,427</b>	<b>13,217</b>	<b>13,497</b>	<b>14,120</b>	<b>14,354</b>	<b>14,699</b>

<sup>1</sup> 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).

<sup>2</sup> 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, 1993-94 to 2002-2003<sup>P</sup>**

Category	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
person-years										
<b>S&amp;T Personnel</b>										
Executive	343	341	324	...	...	...	...	...	...	...
Scientific and professional <sup>1</sup>	2,697	2,759	2,618	2,833	2,889	3,051	3,137	3,382	3,427	3,327
Administrative and foreign service	2,209	2,242	2,359	...	...	...	...	...	...	...
Technical <sup>1</sup>	1,744	1,723	1,715	1,752	1,837	1,873	1,942	2,112	2,127	1,942
Administrative support <sup>1</sup>	2,341	2,295	2,195	5,003	4,748	4,670	4,859	5,296	5,473	4,977
Operational	485	453	417	...	...	...	...	...	...	...
Military personnel	27	22	22	...	...	...	...	...	...	...
<b>Total S&amp;T personnel<sup>2</sup></b>	<b>9,845</b>	<b>9,833</b>	<b>9,650</b>	<b>9,588</b>	<b>9,475</b>	<b>9,594</b>	<b>9,938</b>	<b>10,790</b>	<b>11,026</b>	<b>10,246</b>
<b>R&amp;D Personnel</b>										
Executive	24	24	25	...	...	...	...	...	...	...
Scientific and professional <sup>1</sup>	233	234	217	279	240	236	269	292	285	285
Administrative and foreign service	113	103	98	...	...	...	...	...	...	...
Technical <sup>1</sup>	75	69	65	58	69	63	75	68	63	64
Administrative support <sup>1</sup>	164	166	157	238	217	213	239	232	239	239
Operational	12	9	9	...	...	...	...	...	...	...
Military personnel	17	13	13	...	...	...	...	...	...	...
<b>Total R&amp;D personnel<sup>2</sup></b>	<b>638</b>	<b>618</b>	<b>584</b>	<b>576</b>	<b>526</b>	<b>512</b>	<b>583</b>	<b>592</b>	<b>586</b>	<b>588</b>

<sup>1</sup> 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).

<sup>2</sup> Including Administration of Extramural Programs Personnel.

### **3. Departmental or Agency Highlights**

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

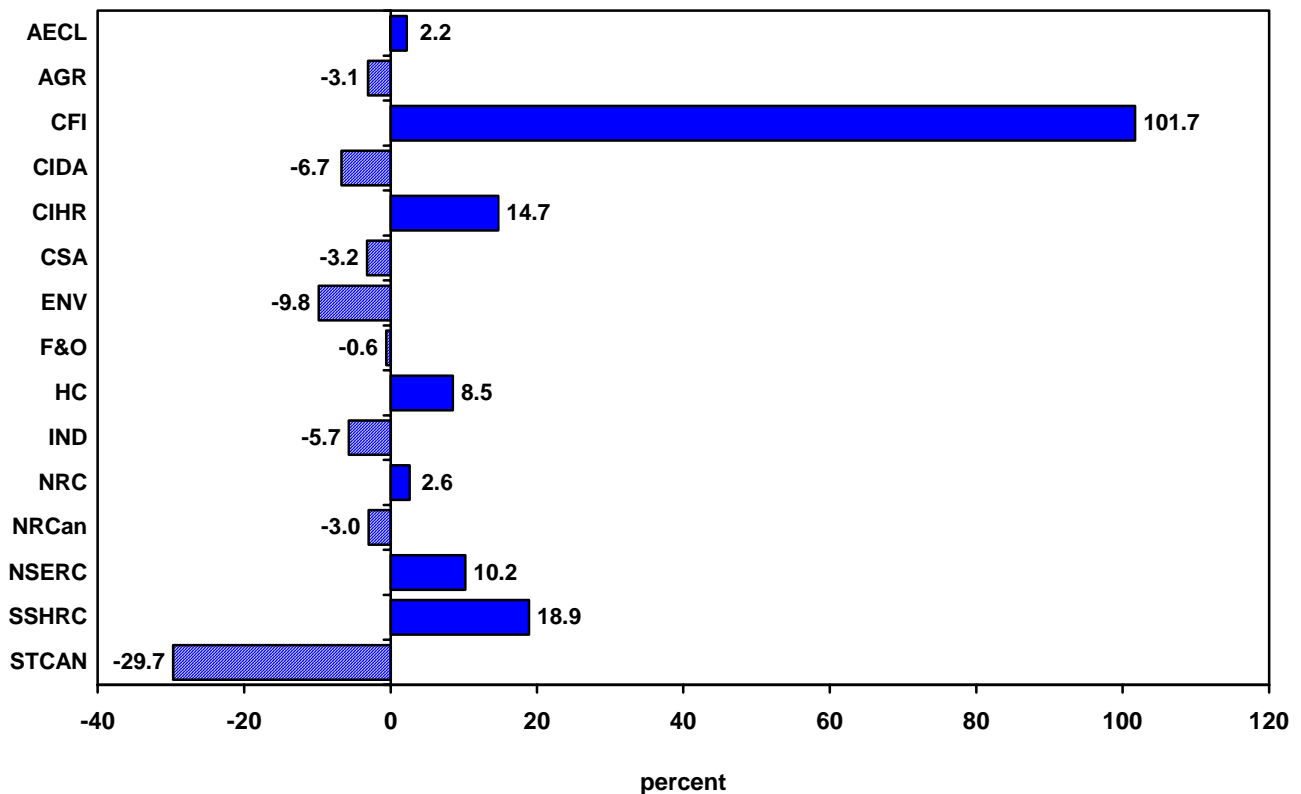
This section provides information on the scientific programs and activities carried out by departments in support of their mandates. Departments and agencies that are major performers or funders are reviewed separately. For comparison purposes the three university research councils are grouped together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

The departments with the largest estimated expenditures on science activities in 2002-2003 were Environment Canada, the National Research Council, the Natural Sciences and Engineering Research Council, the Canadian Institutes of Health Research and Statistics Canada. In 2002-2003 they accounted for 40% 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, as well as the Canada Foundation for Innovation funded 90% 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 61% of the total intramural activity.

Chart 3.1

Federal S&T Expenditures by Department or Agency, 2002-2003<sup>p</sup> (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, 2002-2003<sup>P</sup>**

Department or Agency	Budgetary Main estimates <sup>1</sup>	S&T		R&D	
	\$000,000	\$000,000	% <sup>2</sup>	\$000,000	% <sup>2</sup>
AGR	1,828	344	18.8	336	18.4
AECL	136	149	109.6	149	109.6
CIDA	1,896	335	17.7	50	2.6
CIHR	465	592	127.3	580	124.7
CSA	336	337	100.3	323	96.1
ENV	722	543	75.2	157	21.7
F&O	1,438	317	22.0	122	8.5
HC	2,537	216	8.5	60	2.4
IND	1,480	383	25.9	333	22.5
NDEF	11,834	331	2.8	289	2.4
NRC	600	738	123.0	671	111.8
NRCan	726	419	57.7	372	51.2
NSERC	642	681	106.1	606	94.4
SSHRC	196	208	106.1	151	77.0
STCAN	373	512	137.3	17	4.6
Other	145,158	1,553	1.1	855	0.6
<b>Total</b>	<b>170,367</b>	<b>7,658</b>		<b>5,071</b>	

<sup>1</sup> Part 1, Government Expenditures Plan, Estimates.<sup>2</sup> 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"<sup>6</sup>. The Department of Agriculture and Agri-Food Canada, plans to spend \$344 million on S&T in 2002-2003, with 98% 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, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	in millions of dollars									
<b>Total S&amp;T expenditures</b>	<b>366</b>	<b>356</b>	<b>358</b>	<b>368</b>	<b>359</b>	<b>351</b>	<b>387</b>	<b>363</b>	<b>355</b>	<b>344</b>
<b>NSE</b>	<b>354</b>	<b>347</b>	<b>348</b>	<b>359</b>	<b>350</b>	<b>344</b>	<b>380</b>	<b>356</b>	<b>348</b>	<b>337</b>
R&D <sup>1</sup>	328	321	327	350	340	335	370	354	347	336
RSA	26	26	21	9	10	9	10	2	1	1
<b>SSH</b>	<b>12</b>	<b>9</b>	<b>10</b>	<b>9</b>	<b>9</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>
R&D <sup>1</sup>	0	2	0	0	0	0	0	0	0	0
RSA	12	7	10	9	9	7	7	7	7	7
<b>Total capital expenditures</b>	<b>22</b>	<b>24</b>	<b>23</b>	<b>35</b>	<b>34</b>	<b>32</b>	<b>26</b>	<b>34</b>	<b>32</b>	<b>31</b>
<b>By performer</b>	percent									
Intramural	95	94	96	98	99	99	95	96	95	95
Business enterprises	2	2	1	1	0	0	0	0	0	0
Higher Education	1	1	1	0	0	0	0	0	0	0
Other Canadian <sup>3</sup>	2	3	2	0	0	0	5	4	5	5
Foreign	0	0	0	1	1	0	0	0	0	0
<b>S&amp;T personnel</b>	person-years									
<b>Total</b>	<b>3,726</b>	<b>3,635</b>	<b>3,365</b>	<b>2,981</b>	<b>2,593</b>	<b>2,569</b>	<b>2,546</b>	<b>2,869</b>	<b>2,477</b>	<b>2,477</b>
Scientific and professional <sup>4</sup>	1,039	1,044	1,014	866	748	789	780	765	665	665
Technical	1,228	1,190	1,119	947	836	812	810	968	834	834
Other <sup>5</sup>	1,459	1,401	1,232	1,168	1,009	968	956	1,136	978	978

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 2002-2003, Atomic Energy of Canada Limited plans to spend \$149 million on natural sciences and engineering research and development. Eighty-six percent 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 in the transition process leading to eventual closure and decommissioning.

**TABLE 3.3 Atomic Energy of Canada: Resources on S&T, by Activity and Performer, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	in millions of dollars									
<b>Total S&amp;T expenditures</b>	<b>161</b>	<b>169</b>	<b>168</b>	<b>240</b>	<b>174</b>	<b>135</b>	<b>132</b>	<b>136</b>	<b>136</b>	<b>149</b>
<b>NSE</b>	<b>161</b>	<b>169</b>	<b>168</b>	<b>240</b>	<b>174</b>	<b>135</b>	<b>132</b>	<b>136</b>	<b>136</b>	<b>149</b>
R&D <sup>1</sup>	155	163	163	240	174	135	132	136	136	149
RSA	6	6	5	0	0	0	0	0	0	0
<b>Total capital expenditures</b>	<b>5</b>	<b>8</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>1</b>
	percent									
<b>By performer</b>										
Intramural	88	86	88	91	89	84	93	94	93	86
Business enterprises	9	12	9	7	8	12	5	4	4	11
Higher Education	1	1	1	0	0	1	0	0	0	0
Other Canadian <sup>3</sup>	0	0	0	0	0	0	0	0	1	0
Foreign	2	1	2	2	3	3	2	2	2	3
	person-years									
<b>S&amp;T personnel</b>										
<b>Total</b>	<b>2,572</b>	<b>2,568</b>	<b>2,560</b>	<b>1,700</b>	<b>1,460</b>	<b>1,195</b>	<b>1,170</b>	<b>886</b>	<b>950</b>	<b>1,000</b>
Scientific and professional <sup>4</sup>	870	891	897	780	670	578	576	464	499	515
Technical	674	754	745	550	470	392	391	314	333	350
Other <sup>5</sup>	1,028	923	918	370	320	225	203	108	118	135

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, 1998-99 to 2002-2003<sup>P</sup>**

Resources on S&T	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars					
<b>Total S&amp;T expenditure</b>	<b>31</b>	<b>118</b>	<b>188</b>	<b>239</b>	<b>482</b>
<b>NSE &amp; SSH</b>	<b>31</b>	<b>118</b>	<b>188</b>	<b>239</b>	<b>482</b>
R&D <sup>1</sup>	31	118	188	239	482
RSA	0	0	0	0	0
By performer					
percent					
Intramural	13	3	3	3	2
Higher Education	87	97	97	97	98
S&T Personnel					
person-years					
<b>Total</b>	<b>16</b>	<b>19</b>	<b>23</b>	<b>30</b>	<b>40</b>
Scientific and Professional <sup>4</sup>	8	10	10	13	16
Technical	4	5	8	12	15
Other <sup>5</sup>	4	4	5	5	9

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 2002-2003, this will include investments of \$223 million in natural sciences and engineering, representing 67% of CIDA's science expenditures; and \$112 million on social sciences and humanities, representing 33% of expenditures.

CIDA derives its 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, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>p</sup>	2002-2003 <sup>p</sup>
	in millions of dollars									
<b>Total S&amp;T expenditures</b>	<b>333</b>	<b>308</b>	<b>334</b>	<b>339</b>	<b>303</b>	<b>314</b>	<b>335</b>	<b>358</b>	<b>359</b>	<b>335</b>
<b>NSE</b>	<b>186</b>	<b>177</b>	<b>218</b>	<b>222</b>	<b>194</b>	<b>200</b>	<b>216</b>	<b>231</b>	<b>239</b>	<b>223</b>
R&D <sup>1</sup>	45	45	37	37	34	35	35	41	38	37
RSA	141	132	181	185	160	165	181	190	201	186
Data collection and Information services	27	24	33	34	27	28	30	33	34	32
Special services and studies	98	94	133	134	117	121	132	141	148	136
Other <sup>2</sup>	16	14	15	17	16	16	20	16	19	18
<b>SSH</b>	<b>147</b>	<b>131</b>	<b>116</b>	<b>117</b>	<b>109</b>	<b>114</b>	<b>119</b>	<b>127</b>	<b>120</b>	<b>112</b>
R&D	16	17	15	15	14	15	15	16	15	14
RSA	131	114	101	102	95	99	104	111	105	98
Data collection and Information services	52	31	26	26	25	25	25	28	26	24
Special services and studies	38	44	38	38	34	39	41	50	40	40
Other <sup>2</sup>	41	39	37	38	36	35	37	33	39	34
<b>By performer</b>	percent									
Intramural	3	4	4	4	5	5	5	5	5	5
Business enterprises	34	34	48	48	46	46	47	46	50	49
Higher Education	21	21	19	19	19	18	18	15	17	17
Other Canadian	6	6	5	5	5	5	4	4	5	4
Foreign	36	35	24	24	25	26	26	30	23	25
<b>S&amp;T personnel</b>	person-years									
<b>Total</b>	<b>142</b>	<b>155</b>	<b>188</b>	<b>194</b>	<b>194</b>	<b>196</b>	<b>210</b>	<b>210</b>	<b>221</b>	<b>221</b>
Scientific and professional <sup>4</sup>	29	32	36	34	32	33	32	35	37	37
Technical	3	3	3	3	3	3	3	1	0	0
Other <sup>5</sup>	110	120	149	157	159	160	175	175	184	184

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"<sup>6</sup>. 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 2002-2003, the CSA funded more than 31% of the \$234 million in R&D contracts awarded to industry by government. The CSA's total S&T expenditures has decreased to \$337 in 2002-2003 from \$387 million in 1993-94. 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, 1993-94 to 2002-2003<sup>p</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>p</sup>	2002-2003 <sup>p</sup>
	in millions of dollars									
<b>Total S&amp;T expenditures</b>	<b>387</b>	<b>320</b>	<b>299</b>	<b>253</b>	<b>230</b>	<b>343</b>	<b>305</b>	<b>310</b>	<b>348</b>	<b>337</b>
<b>NSE</b>	<b>387</b>	<b>320</b>	<b>299</b>	<b>253</b>	<b>230</b>	<b>343</b>	<b>305</b>	<b>310</b>	<b>348</b>	<b>337</b>
R&D <sup>1</sup>	379	314	291	245	224	337	300	298	338	323
RSA	8	6	8	8	6	5	5	12	10	14
<b>Total capital expenditures</b>	<b>33</b>	<b>7</b>	<b>7</b>	<b>5</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>106</b>	<b>138</b>	<b>130</b>
	percent									
<b>By performer</b>										
Intramural	22	19	24	25	24	25	18	56	64	64
Business enterprises	69	68	62	56	62	65	70	33	26	25
Higher Education	1	2	2	3	3	2	2	3	2	2
Other Canadian <sup>3</sup>	0	0	0	0	0	0	0	1	2	3
Foreign	8	11	12	16	11	8	9	7	6	6
	person-years									
<b>S&amp;T personnel</b>										
<b>Total</b>	<b>355</b>	<b>355</b>	<b>370</b>	<b>392</b>	<b>344</b>	<b>324</b>	<b>377</b>	<b>419</b>	<b>470</b>	<b>544</b>
Scientific and professional <sup>4</sup>	193	195	212	180	164	148	175	186	211	244
Technical	23	23	26	28	25	22	24	22	26	30
Other <sup>5</sup>	139	137	132	184	155	154	178	211	233	270

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 75% of the Department's expenditures are on S&T activities and almost half of its employees are classified in S&T.

Environment Canada supports primarily the natural sciences and engineering. With a 2002-2003 S&T budget of \$543 million. A major part of the Department budget (89%) is spent in its own laboratories, with 71% devoted to RSA and 29% 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, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	in millions of dollars									
<b>Total S&amp;T expenditures</b>	<b>663</b>	<b>549</b>	<b>529</b>	<b>456</b>	<b>453</b>	<b>427</b>	<b>538</b>	<b>479</b>	<b>602</b>	<b>543</b>
<b>NSE</b>	<b>574</b>	<b>544</b>	<b>525</b>	<b>452</b>	<b>450</b>	<b>423</b>	<b>534</b>	<b>475</b>	<b>597</b>	<b>539</b>
R&D <sup>1</sup>	132	173	163	134	127	115	196	144	213	156
RSA	442	371	362	318	323	308	338	331	384	382
Data Collection and Information services	396	323	317	283	300	290	320	313	363	362
Other <sup>2</sup>	46		45	35	23	18	18	18	21	20
<b>SSH</b>	<b>89</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>5</b>
R&D <sup>1</sup>	3	1	1	0	0	0	0	0	1	1
RSA	86	4	3	4	3	4	4	4	4	4
<b>Total capital expenditures</b>	<b>63</b>	<b>51</b>	<b>38</b>	<b>26</b>	<b>29</b>	<b>23</b>	<b>25</b>	<b>28</b>	<b>40</b>	<b>35</b>
	percent									
<b>By performer</b>										
Intramural	93	87	88	88	89	86	78	89	81	89
Business enterprises	3	5	5	7	6	8	6	6	6	7
Higher Education	1	3	3	2	2	2	2	2	1	1
Other Canadian <sup>3</sup>	2	4	3	2	2	3	14	2	11	2
Foreign	1	1	1	1	1	1	1	1	1	1
	person-years									
<b>S&amp;T personnel</b>										
<b>Total</b>	<b>4,662</b>	<b>3,523</b>	<b>3,417</b>	<b>2,967</b>	<b>2,901</b>	<b>2,844</b>	<b>3,001</b>	<b>2,992</b>	<b>3,138</b>	<b>3,230</b>
Scientific and professional <sup>4</sup>	1,476	1,607	1,646	1,408	1,384	1,351	1,465	1,460	1,532	1,572
Technical	1,493	1,065	1,036	972	927	882	903	895	939	976
Other <sup>5</sup>	1,693	851	735	587	590	611	633	637	667	679

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 \$317 million on S&T activities in 2002-2003, about 1% less than in 2001-2002. 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, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Total S&amp;T expenditures</b>	<b>239</b>	<b>237</b>	<b>244</b>	<b>246</b>	<b>204</b>	<b>281</b>	<b>287</b>	<b>367</b>	<b>319</b>	<b>317</b>
<b>NSE</b>	<b>233</b>	<b>231</b>	<b>238</b>	<b>237</b>	<b>194</b>	<b>271</b>	<b>279</b>	<b>358</b>	308	305
R&D <sup>1</sup>	114	114	99	95	78	109	110	130	123	122
RSA	119	116	139	142	116	162	169	228	184	183
Data collection and Information services	100	102	115	119	97	136	142	165	153	154
Other <sup>2</sup>	19	14	24	23	19	26	27	63	31	29
<b>SSH</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>9</b>	<b>10</b>	<b>10</b>	<b>8</b>	<b>9</b>	<b>11</b>	<b>12</b>
R&D <sup>1</sup>	0	0	0	0	0	0	0	0	0	0
RSA	6	6	6	9	10	10	8	9	11	12
<b>Total capital expenditures</b>	<b>29</b>	<b>27</b>	<b>12</b>	<b>7</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>2</b>
<b>By performer</b>	percent									
Intramural	95	97	95	97	96	96	97	89	97	98
Business enterprises	4	2	4	2	3	3	0	1	0	0
Higher Education	0	0	0	0	0	0	1	0	1	1
Other Canadian <sup>3</sup>	1	1	1	1	1	1	2	10	2	1
Foreign	0	0	0	0	0	0	0	0	0	0
<b>S&amp;T personnel</b>	person-years									
<b>Total</b>	<b>2,182</b>	<b>2,101</b>	<b>2,318</b>	<b>2,319</b>	<b>2,124</b>	<b>2,059</b>	<b>2,257</b>	<b>2,400</b>	<b>2,375</b>	<b>2,373</b>
Scientific and professional <sup>4</sup>	831	821	892	887	814	789	871	935	923	927
Technical	830	789	882	889	810	786	856	909	891	887
Other <sup>5</sup>	521	491	544	543	500	484	530	556	561	559

See notes at end of section.

\* Includes Canadian Coast Guard (CCG)

## 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 2002-2003 the department plans to spend \$52 million on S&T activities, with 53% going into financing operations and policy studies by foreign performers, 26% 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 Foreign Affairs and International Trade: Resources on S&T, by Activity and Performer, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>1</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Total S&amp;T expenditures</b>	<b>52</b>	<b>60</b>	<b>58</b>	<b>59</b>	<b>58</b>	<b>49</b>	<b>54</b>	<b>45</b>	<b>48</b>	<b>52</b>
<b>SSH</b>	<b>52</b>	<b>60</b>	<b>58</b>	<b>59</b>	<b>58</b>	<b>49</b>	<b>54</b>	<b>45</b>	<b>48</b>	<b>52</b>
R&D <sup>1</sup>	0	0	0	0	0	0	0	0	0	0
RSA	52	60	58	59	58	49	54	45	48	52
<b>Total capital expenditures</b>	0	0	0	0	0	0	0	0	0	0
percent										
<b>By performer</b>										
Intramural	20	17	19	19	20	20	20	22	22	21
Business enterprises	1	9	1	1	0	0	0	0	0	0
Higher Education	31	27	24	24	31	29	30	29	27	26
Other Canadian <sup>3</sup>	0	0	2	4	3	0	0	0	2	0
Foreign	48	47	54	52	46	51	50	49	49	53
person-years										
<b>S&amp;T personnel</b>										
<b>Total</b>	<b>111</b>	<b>106</b>	<b>75</b>	<b>75</b>	<b>80</b>	<b>74</b>	<b>74</b>	<b>74</b>	<b>57</b>	<b>60</b>
Scientific and professional <sup>4</sup>	29	27	24	24	34	28	29	29	34	34
Technical	0	2	1	1	1	1	2	2	1	1
Other <sup>5</sup>	82	77	50	50	45	45	43	43	22	25

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 2002-2003, it is expected that Health Canada will spend \$216 million on S&T activities, 9% more than in 2001-2002. Natural science activities account for 83% of these expenditures while 17% will be spent in the social sciences and humanities. Most S&T activities of HC are performed intramurally (85%).

**TABLE 3.10 Health Canada: Resources on S&T, by Activity and Performer, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Total S&amp;T expenditures</b>	<b>191</b>	<b>180</b>	<b>201</b>	<b>214</b>	<b>210</b>	<b>204</b>	<b>236</b>	<b>229</b>	<b>199</b>	<b>216</b>
<b>NSE</b>	<b>144</b>	<b>154</b>	<b>170</b>	<b>187</b>	<b>185</b>	<b>189</b>	<b>219</b>	<b>194</b>	<b>166</b>	<b>179</b>
R&D <sup>1</sup>	37	42	49	60	51	45	47	41	36	35
RSA	107	112	121	127	134	144	172	153	130	144
Data collection and Information services	71	76	89	87	95	99	125	97	90	84
Special services and studies	31	29	26	34	34	36	42	41	39	60
Other <sup>2</sup>	5	7	6	6	5	9	5	15	1	0
<b>SSH</b>	<b>47</b>	<b>26</b>	<b>31</b>	<b>27</b>	<b>25</b>	<b>15</b>	<b>16</b>	<b>35</b>	<b>33</b>	<b>37</b>
R&D <sup>1</sup>	17	16	14	15	14	9	9	23	22	25
RSA	30	10	17	12	11	6	7	12	10	12
<b>Total capital expenditures</b>	<b>7</b>	<b>9</b>	<b>7</b>	<b>6</b>	<b>4</b>	<b>11</b>	<b>5</b>	<b>24</b>	<b>1</b>	<b>2</b>
<b>By performer</b>	percent									
Intramural	75	76	74	76	80	85	89	84	84	85
Business enterprises	2	3	3	2	2	2	1	2	1	1
Higher Education	9	12	13	12	9	7	6	3	4	3
Other Canadian <sup>3</sup>	12	8	9	9	8	5	4	11	10	10
Foreign	2	1	1	1	1	1	0	0	1	1
<b>S&amp;T personnel</b>	person-years									
<b>Total</b>	<b>1,359</b>	<b>1,412</b>	<b>1,334</b>	<b>1,622</b>	<b>1,872</b>	<b>1,807</b>	<b>1,911</b>	<b>1,842</b>	<b>1,658</b>	<b>1,644</b>
Scientific and professional <sup>4</sup>	836	884	789	1,008	1,172	1,161	1,123	1,223	1,190	1,179
Technical	198	217	235	329	404	367	446	268	243	243
Other <sup>5</sup>	325	311	310	285	296	279	342	351	225	222

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 2002-2003 HRDC plans to spend \$74 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 2002-2003<sup>P</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Total S&amp;T expenditures</b>	<b>62</b>	<b>66</b>	<b>60</b>	<b>60</b>	<b>65</b>	<b>74</b>	<b>60</b>	<b>69</b>	<b>69</b>	<b>74</b>
<b>SSH</b>	<b>62</b>	<b>66</b>	<b>60</b>	<b>60</b>	<b>65</b>	<b>74</b>	<b>60</b>	<b>69</b>	<b>69</b>	<b>74</b>
R&D <sup>1</sup>	34	35	22	18	17	31	14	20	22	27
RSA	28	31	38	42	48	43	46	49	47	47
<b>Total capital expenditures</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
By performer										
percent										
Intramural	26	24	49	53	44	32	41	42	47	43
Business enterprises	13	13	8	5	5	4	6	6	4	4
Higher Education	8	7	4	4	6	5	5	4	4	3
Other Canadian <sup>3</sup>	52	55	39	37	44	59	48	48	45	50
Foreign	1	1	0	1	0	0	0	0	0	0
S&T personnel										
person-years										
Total	251	363	338	273	268	337	428	450	454	451
Scientific and professional <sup>4</sup>	183	280	254	184	179	248	316	332	336	334
Technical	25	32	32	21	24	24	31	34	35	34
Other <sup>5</sup>	43	51	52	68	65	65	81	84	83	83

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 2002-2003, Industry Canada plans to spend \$383 million on S&T compared to \$406 million in 2001-2002. The decrease 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, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	ISTC		IND							
	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	in millions of dollars									
<b>Total S&amp;T expenditures</b>	<b>374</b>	<b>388</b>	<b>324</b>	<b>291</b>	<b>407</b>	<b>343</b>	<b>301</b>	<b>336</b>	<b>406</b>	<b>383</b>
<b>NSE</b>	<b>357</b>	<b>376</b>	<b>309</b>	<b>277</b>	<b>392</b>	<b>326</b>	<b>283</b>	<b>317</b>	<b>386</b>	<b>362</b>
R&D <sup>1</sup>	317	322	268	230	345	274	239	287	355	331
RSA	40	54	41	47	47	52	45	30	31	31
<b>SSH – RSA</b>	<b>17</b>	<b>12</b>	<b>15</b>	<b>14</b>	<b>15</b>	<b>17</b>	<b>17</b>	<b>19</b>	<b>20</b>	<b>20</b>
R&D <sup>1</sup>	0	0	0	0	0	0	0	1	2	1
ASC	17	12	15	14	15	17	17	18	18	19
<b>Total capital expenditures</b>	<b>52</b>	<b>71</b>	<b>56</b>	<b>21</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>
<b>By performer</b>	percent									
Intramural	35	38	42	36	25	32	33	27	22	24
Business enterprises	58	58	54	61	73	65	64	71	75	73
Other Canadians <sup>3</sup>	6	3	3	3	2	1	1	1	1	1
Foreign	1	1	1	0	0	2	2	1	2	2
<b>S&amp;T personnel</b>	person-years									
<b>Total</b>	<b>1,064</b>	<b>878</b>	<b>880</b>	<b>901</b>	<b>931</b>	<b>1,001</b>	<b>987</b>	<b>1,072</b>	<b>1,107</b>	<b>1,128</b>
Scientific and professional <sup>4</sup>	357	320	332	333	346	361	345	477	495	512
Technical	137	40	32	34	32	34	27	31	40	40
Other <sup>5</sup>	570	518	516	534	553	606	615	564	572	576

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 2002-2003 expenditures on S&T will be \$79 million. Because of its mandate, IDRC spends 42% of its funds in the foreign sector.

**TABLE 3.13 International Development Research Centre: Resources on S&T, by Activity and Performer, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	in millions of dollars									
<b>Total S&amp;T expenditures</b>	<b>115</b>	<b>102</b>	<b>88</b>	<b>88</b>	<b>78</b>	<b>85</b>	<b>82</b>	<b>84</b>	<b>76</b>	<b>79</b>
<b>NSE</b>	<b>41</b>	<b>35</b>	<b>30</b>	<b>27</b>	<b>22</b>	<b>19</b>	<b>23</b>	<b>29</b>	<b>27</b>	<b>29</b>
R&D <sup>1</sup>	41	35	30	27	21	18	21	28	26	27
RSA	0	0	0	0	0	1	2	1	1	1
Data collection and information services	0	0	0	0	0	1	1	1	1	1
Other <sup>2</sup>	0	0	0	0	0	0	1	0	0	0
<b>SSH</b>	<b>73</b>	<b>67</b>	<b>58</b>	<b>61</b>	<b>56</b>	<b>66</b>	<b>59</b>	<b>55</b>	<b>49</b>	<b>50</b>
R&D <sup>1</sup>	62	54	49	49	43	50	50	48	43	44
RSA	11	13	9	12	14	16	9	7	6	6
Data collection and Information services	7	8	5	6	7	7	7	6	6	6
Special services and studies	0	0	0	0	0	0	0	0	0	0
Other <sup>2</sup>	4	4	3	5	6	9	2	1	0	0
<b>By performer</b>	percent									
Intramural	30	29	32	45	52	53	59	51	51	52
Business enterprises	0	0	0	1	0	0	0	0	0	0
Higher Education	4	4	3	4	3	3	4	4	4	4
Other Canadian <sup>3</sup>	1	6	5	4	5	7	3	4	3	2
Foreign	65	61	60	46	40	37	34	41	42	42
<b>S&amp;T personnel</b>	person-years									
<b>Total</b>	<b>225</b>	<b>229</b>	<b>208</b>	<b>168</b>	<b>161</b>	<b>161</b>	<b>177</b>	<b>148</b>	<b>157</b>	<b>157</b>
Scientific and professional <sup>4</sup>	88	90	82	66	62	67	80	92	105	106
Technical	36	37	33	27	29	22	21	2	0	0
Other <sup>5</sup>	101	102	93	75	70	72	76	54	52	51

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 2002-2003, \$117 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, 1993-94 to 2002-2003<sup>p</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>p</sup>	2002-2003 <sup>p</sup>
	in millions of dollars									
<b>Total S&amp;T expenditures</b>	<b>256</b>	<b>252</b>	<b>233</b>	<b>253</b>	<b>311</b>	<b>304</b>	<b>335</b>	<b>315</b>	<b>354</b>	<b>331</b>
<b>NSE</b>	<b>251</b>	<b>249</b>	<b>230</b>	<b>240</b>	<b>294</b>	<b>288</b>	<b>319</b>	<b>299</b>	<b>338</b>	<b>315</b>
R&D <sup>1</sup>	248	246	227	215	259	259	290	270	309	285
RSA	3	3	3	25	35	29	29	29	29	29
<b>SSH</b>	<b>5</b>	<b>3</b>	<b>3</b>	<b>13</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>
R&D <sup>1</sup>	3	2	2	8	4	4	4	4	4	4
RSA	2	1	1	5	12	12	12	12	12	12
<b>Total capital expenditures</b>	<b>15</b>	<b>20</b>	<b>12</b>	<b>14</b>	<b>17</b>	<b>12</b>	<b>35</b>	<b>10</b>	<b>11</b>	<b>11</b>
<b>By performer</b>	percent									
Intramural	58	59	56	60	53	54	58	56	53	55
Business enterprises	35	35	38	33	39	39	36	38	39	39
Higher Education	3	2	3	3	2	2	1	1	2	1
Other Canadian <sup>3</sup>	1	1	0	2	0	0	0	0	0	1
Foreign	3	3	3	2	6	5	4	5	6	4
<b>S&amp;T personnel</b>	person-years									
<b>Total</b>	<b>1,819</b>	<b>1,664</b>	<b>1,248</b>	<b>1,428</b>	<b>1,424</b>	<b>1,567</b>	<b>1,560</b>	<b>1,617</b>	<b>1,691</b>	<b>1,691</b>
Scientific and professional <sup>4</sup>	611	578	449	505	514	781	771	792	846	846
Technical	428	382	324	416	424	370	356	349	354	354
Other <sup>5</sup>	780	704	475	507	486	416	434	476	492	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 2002-2003 budget of \$738 million. Most of the NRC's budget (82%) will be spent intramurally, 11% 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, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>1</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	in millions of dollars									
<b>Total S&amp;T expenditures</b>	<b>503</b>	<b>505</b>	<b>481</b>	<b>479</b>	<b>524</b>	<b>554</b>	<b>597</b>	<b>655</b>	<b>719</b>	<b>738</b>
<b>NSE</b>	<b>503</b>	<b>505</b>	<b>481</b>	<b>479</b>	<b>524</b>	<b>554</b>	<b>597</b>	<b>655</b>	<b>719</b>	<b>738</b>
R&D <sup>1</sup>	441	449	419	429	470	499	530	591	648	671
RSA	62	56	62	50	54	55	66	64	71	68
Data collection and Information services	35	32	38	34	37	39	50	43	51	51
Other <sup>2</sup>	27	24	24	16	17	16	16	21	20	17
<b>Total capital expenditures</b>	<b>53</b>	<b>62</b>	<b>41</b>	<b>44</b>	<b>60</b>	<b>51</b>	<b>50</b>	<b>65</b>	<b>74</b>	<b>96</b>
<b>By performer</b>	percent									
Intramural	77	75	74	73	75	73	76	77	79	82
Business enterprises	13	14	16	17	16	18	15	13	13	11
Higher Education	6	7	7	7	7	7	6	7	6	6
Other Canadian <sup>3</sup>	2	1	1	1	1	1	1	1	0	0
Foreign	2	3	2	2	1	1	2	2	2	1
<b>S&amp;T personnel</b>	person-years									
<b>Total</b>	<b>3,325</b>	<b>3,307</b>	<b>3,099</b>	<b>3,097</b>	<b>3,202</b>	<b>3,266</b>	<b>3,310</b>	<b>3,426</b>	<b>3,610</b>	<b>3,688</b>
Scientific and professional <sup>4</sup>	1,425	1,424	1,328	1,322	1,272	1,258	1,248	1,271	1,356	1,385
Technical	864	856	812	814	875	900	906	940	1,000	1,024
Other <sup>5</sup>	1,036	1,027	959	961	1,055	1,108	1,156	1,215	1,254	1,279

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 58% 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 2002-2003 NRCan's total S&T budgetary allocation will decrease by 12% from \$475 million to \$419 million. During the same period, the Department's S&T staff complement will decrease by approximately 4%, or 119 full-time equivalents (FTEs).

**TABLE 3.16 Natural Resources Canada: Resources on S&T, by Activity and Performer, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	EMR		NRCan							
	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Total S&amp;T expenditures</b>	<b>352</b>	<b>464</b>	<b>475</b>	<b>430</b>	<b>396</b>	<b>386</b>	<b>421</b>	<b>437</b>	<b>432</b>	<b>419</b>
<b>NSE</b>	<b>352</b>	<b>464</b>	<b>475</b>	<b>430</b>	<b>396</b>	<b>386</b>	<b>421</b>	<b>437</b>	<b>432</b>	<b>419</b>
R&D <sup>1</sup>	271	373	403	372	351	345	376	388	383	372
RSA	81	91	72	58	45	41	45	49	48	47
Data collection and Information services	60	79	66	47	39	37	39	39	42	41
Other <sup>2</sup>	21	12	6	11	6	4	5	10	6	6
<b>Total capital expenditures</b>	<b>42</b>	<b>33</b>	<b>30</b>	<b>37</b>	<b>36</b>	<b>34</b>	<b>26</b>	<b>35</b>	<b>34</b>	<b>33</b>
By performer										
percent										
Intramural	84	82	85	86	88	86	82	85	86	86
Business enterprises	10	7	7	7	7	9	12	8	8	8
Higher Education	2	2	1	1	--		1	1	2	1
Other Canadian <sup>3</sup>	3	9	7	6	4	4	4	5	4	4
Foreign	1	--	--	--	1	1	1	1	0	1
S&T personnel										
person-years										
<b>Total</b>	<b>2,607</b>	<b>3,562</b>	<b>3,265</b>	<b>3,052</b>	<b>2,848</b>	<b>2,698</b>	<b>2,807</b>	<b>2,870</b>	<b>3,117</b>	<b>3,146</b>
Scientific and professional <sup>4</sup>	1,283	1,658	1,455	1,576	1,454	1,400	1,466	1,373	1,504	1,502
Technical	684	1,016	866	886	834	802	833	752	828	829
Other <sup>5</sup>	640	888	944	590	560	496	508	745	785	815

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 quinquennial 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 \$512 million in 2002-2003 compared to \$728 million in 2001-2002.

**TABLE 3.17 Statistics Canada: Resources on S&T, by Activity and Performer, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Total S&amp;T expenditures</b>	<b>347</b>	<b>353</b>	<b>406</b>	<b>535*</b>	<b>400</b>	<b>437</b>	<b>461</b>	<b>576</b>	<b>728*</b>	<b>512</b>
<b>SSH</b>	<b>347</b>	<b>353</b>	<b>406</b>	<b>535</b>	<b>400</b>	<b>437</b>	<b>461</b>	<b>576</b>	<b>728</b>	<b>512</b>
R&D <sup>1</sup>	10	10	10	10	11	12	13	13	16	17
RSA	337	343	396	525	389	425	448	563	712	495
Data collection and Information services	304	312	365	480	360	394	412	516	682	465
Special services and studies	19	20	17	17	18	20	20	19	27	27
Other <sup>2</sup>	14	11	14	28	11	11	15	28	3	3
<b>Total capital expenditures</b>	<b>13</b>	<b>11</b>	<b>15</b>	<b>29</b>	<b>11</b>	<b>12</b>	<b>15</b>	<b>27</b>	<b>3</b>	<b>3</b>
By performer										
percent										
Intramural	100	100	100	100	100	100	100	100	100	100
Business enterprises	0	0	0	0	0	0	0	0	0	0
Higher Education	0	0	0	0	0	0	0	0	0	0
Other Canadian <sup>3</sup>	0	0	0	0	0	0	0	0	0	0
Foreign	0	0	0	0	0	0	0	0	0	0
S&T personnel										
person-years										
<b>Total</b>	<b>4,489</b>	<b>4,607</b>	<b>4,894</b>	<b>5,004*</b>	<b>4,959</b>	<b>5,042</b>	<b>5,096</b>	<b>5,811</b>	<b>5,818*</b>	<b>5,023</b>
Scientific and professional <sup>4</sup>	1,077	1,105	1,129	1,090	1,195	1,210	1,234	1,334	1,273	1,099
Technical	1,002	1,054	1,104	1,108	1,193	1,242	1,281	1,445	1,405	1,213
Other <sup>5</sup>	2,410	2,448	2,661	2,806	2,571	2,590	2,581	3,032	3,140	2,711

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 \$1,481 million in 2002-2003.

In 2002-2003, NSERC will provide an estimated \$681 million in grants for natural sciences and engineering. About 89% of NSERC's budget goes to Canadian universities, 1% to industry, 2% to foreign research organizations and the remainder to cover administrative costs. The CIHR will provide another \$592 million for the health sciences. SSHRC will grant about \$208 million in 2002-2003 for social science research which includes scholarly publications and major editorial projects, career scholars and international scholar exchanges.

In 1999-2000, the Medical Research Council (MRC) was replaced by the Canadian Institutes of Health Research (CIHR).

**TABLE 3.18 University Research Councils: Resources on S&T, 1993-94 to 2002-2003<sup>P</sup>**

Resources on S&T	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
<b>Total S&amp;T expenditures</b>	<b>857</b>	<b>862</b>	<b>824</b>	<b>788</b>	<b>770</b>	<b>880</b>	<b>993</b>	<b>1,105</b>	<b>1,309</b>	<b>1,481</b>
<b>NSERC</b>	<b>496</b>	<b>494</b>	<b>471</b>	<b>453</b>	<b>436</b>	<b>499</b>	<b>549</b>	<b>568</b>	<b>618</b>	<b>681</b>
R&D <sup>1</sup>	439	440	425	410	393	443	481	500	551	606
RSA	57	54	46	43	43	56	68	68	67	75
<b>MRC</b>	<b>259</b>	<b>265</b>	<b>252</b>	<b>242</b>	<b>238</b>	<b>277</b>	...	...	...	...
R&D <sup>1</sup>	249	257	244	234	229	266	...	...	...	...
RSA	10	8	8	8	9	11	...	...	...	...
<b>CIHR</b>	...	...	...	...	...	...	<b>317</b>	<b>392</b>	<b>516</b>	<b>592</b>
R&D <sup>1</sup>	...	...	...	...	...	...	304	384	505	580
RSA	...	...	...	...	...	...	12	8	11	12
<b>SSHRC</b>	<b>102</b>	<b>103</b>	<b>101</b>	<b>93</b>	<b>96</b>	<b>104</b>	<b>127</b>	<b>145</b>	<b>175</b>	<b>208</b>
R&D <sup>1</sup>	68	69	70	64	65	68	92	105	127	151
RSA	34	34	31	29	31	36	35	40	48	57
<b>By performer</b>	percent									
Intramural	4	4	4	5	5	5	5	6	7	6
Business enterprises	1	2	2	2	2	1	1	1	0	0
Higher Education	89	89	89	90	89	89	88	88	87	88
Other Canadian <sup>3</sup>	3	1	1	1	1	2	3	3	4	4
Foreign	3	3	3	3	3	3	1	2	2	2
<b>S&amp;T personnel</b>	person-years									
<b>Total</b>	<b>355</b>	<b>356</b>	<b>359</b>	<b>357</b>	<b>374</b>	<b>392</b>	<b>444</b>	<b>518</b>	<b>611</b>	<b>672</b>
CIHR	...	...	...	...	...	...	91	140	197	252
NSERC	183	184	183	183	197	200	230	250	264	270
MRC	66	72	77	78	80	85	...	...	...	...
SSHRC	106	100	99	96	97	107	123	128	150	150

<sup>1</sup> Includes current and capital expenditures.

<sup>2</sup> Can include any or all of: special services and studies, education support, museum services, administration of extramural programs, and capital expenditures.

<sup>3</sup> Includes provincial and municipal governments, private non-profit organizations and other Canadian performers.

<sup>4</sup> Includes executives.

<sup>5</sup> Includes administration and foreign service, operations and military personnel.

<sup>6</sup> 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 2002-2003 the Government will spend \$3.4 billion or 44.7% of its total S&T expenditures extramurally. The major recipients of these funds will be business enterprises (\$886 million), and universities (\$1,951 million). In addition, private non-profit organizations will receive \$242 million, foreign performers \$228 million and others, including individuals and provincial and municipal governments, \$117 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

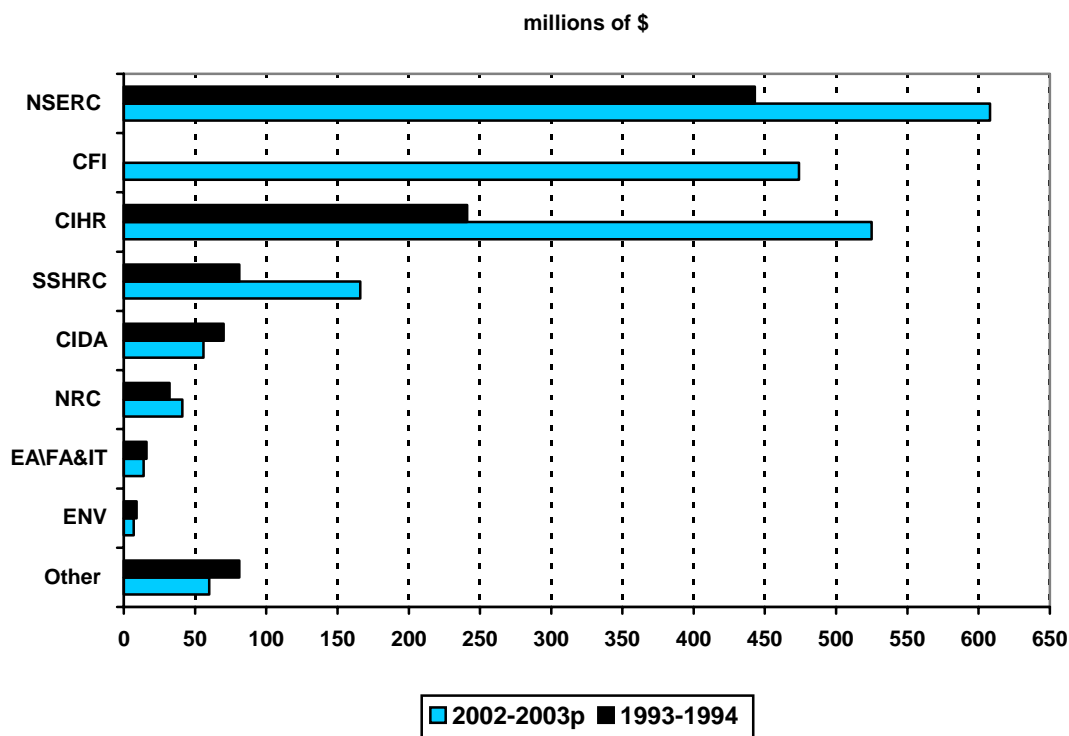
- Total federal S&T payments to the business enterprise sector were estimated to be \$886 million in 2002-2003, a 5% decrease over 2001-2002 forecasted expenditures of \$934 million.
- R&D payments in 2002-2003 were to amount to \$659 million, a 5% decrease from 2001-2002 forecasted expenditures of \$692 million.
- R&D contracts totalled \$234 million in 2002-2003, a slight decrease of 2.6% from 2001-2002.
- R&D grants and contributions totalled \$419 million in 2002-2003, a decrease of 6% from 2001-2002.
- In 2002-2003, payments for R&D contracts from the Department of National Defence (\$117 million) accounted for 50%, while the Canadian Space Agency (\$73 million) accounted for 31%.
- Industry Canada payments for R&D grants were to total \$280 million or 67% of the total grants, while the National Research Council Canada was to account for 20% or \$82 million.

### Higher Education

- Universities were to receive funding of \$1,782 million for R&D and \$169 million for RSA in 2002-2003. 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 97% of the total R&D payments to the higher education sector.
- The 2002-2003 estimated combined budget for the granting councils is \$1,390 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 \$547 million in 2002-2003, a 13% increase.
- The Canadian Institutes of Health Research planned to spend an estimated \$525 million to support S&T activities in universities.
- The Social Sciences and Humanities Research Council planned to spend an estimated \$166 million to support S&T activities in universities.

Chart 4.1

Federal S&T Expenditures in the Higher Education Sector, by Department or Agency, 1993-94 and 2002-2003<sup>p</sup>



Source: Table 4.4



**Foreign**

- Total federal S&T payments to the foreign sector were estimated to be \$228 million in 2002-2003.
- Payments to organizations in foreign countries are dominated by those of CIDA (\$82 million) and IDRC (\$33 million) which account for 50% of total foreign S&T expenditures of \$228 million.

**TABLE 4.1 Federal Extramural Expenditures for S&T, by Type of Payment and Sector of Performance, 2002-2003<sup>P</sup>**

Payment	Canadian business enterprises	Higher education	Canadian non-profit institutions	Other Canadian performers	Foreign performers	Total
in millions of dollars						
R&D contracts	234	21	6	18	13	292
R&D grants and contributions	419	1,725	185	55	87	2,471
Research fellowships	6	36	8	11	18	80
RSA	227	169	43	32	109	580
<b>Total</b>	<b>886</b>	<b>1,951</b>	<b>242</b>	<b>117</b>	<b>228</b>	<b>3,423</b>

**TABLE 4.2 Federal Extramural Expenditures for S&T by Sector of Performance, 1993-94 to 2002-2003<sup>P</sup>**

Sector of performance	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	in millions of dollars									
Canadian business enterprises	954	930	885	801	927	952	926	847	934	886
Higher education	973	983	933	894	860	989	1,173	1,320	1,551	1,951
Canadian non-profit institutions	116	127	103	112	111	122	181	154	237	242
Provincial and municipal governments	44	44	47	32	12	14	18	37	32	35
Other Canadian	94	46	39	33	27	37	66	56	57	82
Foreign	313	298	258	246	221	233	229	250	232	228
<b>TOTAL</b>	<b>2,494</b>	<b>2,427</b>	<b>2,266</b>	<b>2,119</b>	<b>2,158</b>	<b>2,347</b>	<b>2,594</b>	<b>2,664</b>	<b>3,044</b>	<b>3,423</b>
	percent									
Canadian business enterprises	38	38	39	38	43	40	36	32	31	26
Higher education	39	41	41	42	40	42	45	49	51	57
Canadian non-profit institutions	5	5	5	5	5	5	7	6	7	7
Provincial and municipal governments	2	2	2	2	1	1	1	2	1	1
Other Canadian	4	2	2	2	1	2	2	2	2	2
Foreign	12	12	11	11	10	10	9	9	8	7
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

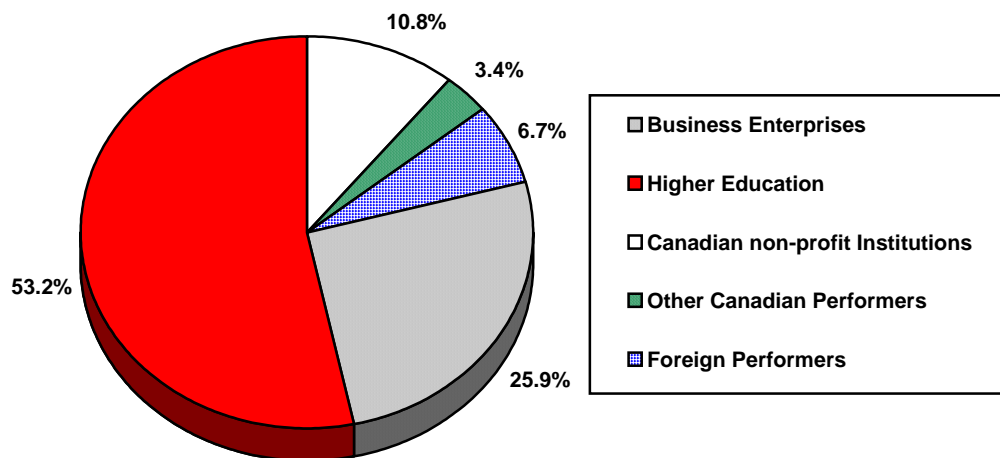
**TABLE 4.3 Federal Extramural Expenditures for R&D, by Sector of Performance, 1993-94 to 2002-2003<sup>P</sup>**

Sector of performance	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>p</sup>	2002-2003 <sup>p</sup>
	in millions of dollars									
Canadian business enterprises	773	756	665	573	721	749	713	624	692	659
Higher education	814	835	797	761	725	842	1,010	1,170	1,391	1,782
Canadian non-profit institutions	66	74	59	75	71	82	130	76	185	199
Provincial and municipal governments	35	33	38	27	6	9	13	34	29	32
Other Canadian	55	29	27	23	16	29	46	35	40	53
Foreign	178	177	151	141	120	124	118	131	128	119
<b>TOTAL</b>	<b>1,921</b>	<b>1,903</b>	<b>1,737</b>	<b>1,600</b>	<b>1,659</b>	<b>1,835</b>	<b>2,031</b>	<b>2,070</b>	<b>2,465</b>	<b>2,843</b>
	percent									
Canadian business enterprises	40	40	38	36	43	41	35	30	28	23
Higher education	42	44	46	47	44	46	50	56	56	63
Canadian non-profit institutions	4	4	3	5	4	4	6	4	8	7
Provincial and municipal governments	2	2	2	2	1	0	1	2	1	1
Other Canadian	3	1	2	1	1	2	2	2	2	2
Foreign	9	9	9	9	7	7	6	6	5	4
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

**TABLE 4.4 Federal Extramural Expenditures for S&T, by Department or Agency and Sector of Performance, 2002-2003<sup>P</sup>**

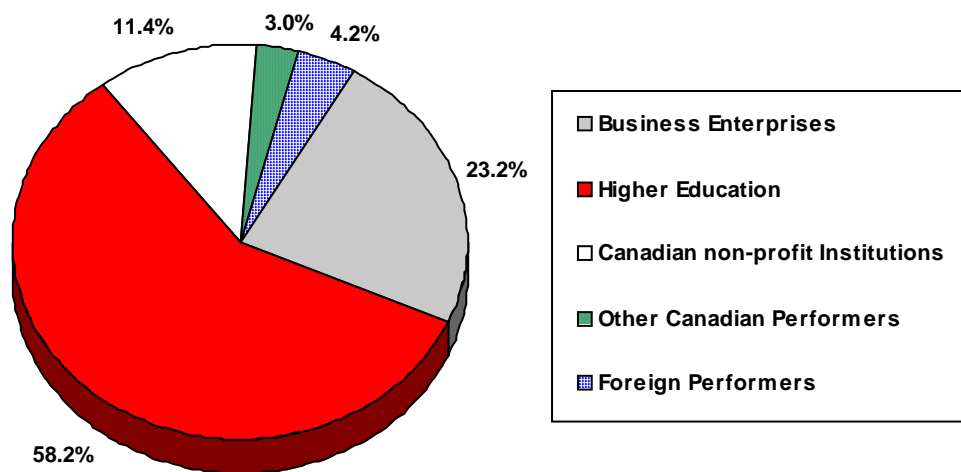
Department or Agency	Canadian business enterprises	Higher education	Canadian non-profit institutions	Other Canadian performers	Foreign performers	Total
in millions of dollars						
CFI	0	474	0	0	0	474
CIDA	164	56	8	7	82	316
CIHR	0	525	17	3	11	556
CSA	85	7	0	10	18	121
ENV	36	7	8	5	5	61
FA&IT	0	14	0	0	28	41
GC	0	0	89	0	0	89
HC	3	7	4	18	1	33
HRDC	3	2	34	3	0	43
IDRC	0	3	2	0	33	38
IND	280	0	4	0	7	291
NDEF	128	4	1	1	14	148
NRC	83	41	0	3	7	134
NRCan	33	7	15	3	2	60
NSERC	7	608	8	9	12	645
SSHRC	0	166	4	15	3	189
WEDO	4	1	9	0	0	13
Other	60	29	39	40	5	171
<b>Total</b>	<b>886</b>	<b>1,951</b>	<b>242</b>	<b>117</b>	<b>228</b>	<b>3,423</b>

**Chart 4.2 Federal Extramural Expenditures for S&T, by Sector of Performance, 2002-2003<sup>P</sup>**



**TABLE 4.5 Federal Extramural Expenditures for R&D, by Department or Agency and Sector of Performance, 2002-2003<sup>P</sup>**

Department or Agency	Canadian business enterprises	Higher education	Canadian non-profit institutions	Other Canadian performers	Foreign performers	Total
in millions of dollars						
ACOA	14	19	5	13	0	50
AECL	16	0	0	0	4	20
CED(Qué)	8	0	10	0	0	17
CFI	0	474	0	0	0	474
CIDA	0	18	1	5	24	48
CIHR	0	515	17	2	11	545
CSA	83	7	0	10	18	118
ENV	10	5	2	1	0	19
GC	0	0	89	0	0	89
HRDC	0	2	24	1	0	27
IDRC	0	3	2	0	32	38
IND	280	0	4	0	7	291
NDEF	117	4	1	1	5	128
NRC	83	41	0	3	7	134
NRCan	27	7	14	2	2	51
NSERC	5	547	6	9	7	574
SSHRC	0	129	1	10	1	141
WEDO	4	1	9	0	0	13
Other	12	10	14	28	1	66
<b>Total</b>	<b>659</b>	<b>1,782</b>	<b>199</b>	<b>85</b>	<b>119</b>	<b>2,843</b>

**Chart 4.3 Federal Extramural Expenditures for R&D, by Sector of Performance, 2002-2003<sup>P</sup>**

**TABLE 4.6 Federal S&T Expenditures in the Business Enterprise Sector, by Type of Payment and Department or Agency, 1993-94 to 2002-2003<sup>P</sup>**

Payment and department	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>r</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	in millions of dollars									
<b>Total S&amp;T payments</b>	<b>954</b>	<b>930</b>	<b>885</b>	<b>801</b>	<b>927</b>	<b>952</b>	<b>926</b>	<b>847</b>	<b>934</b>	<b>886</b>
<b>R&amp;D payments (total)</b>	<b>773</b>	<b>756</b>	<b>665</b>	<b>573</b>	<b>721</b>	<b>749</b>	<b>713</b>	<b>624</b>	<b>692</b>	<b>659</b>
<b>R&amp;D contracts (total)</b>	<b>409</b>	<b>367</b>	<b>341</b>	<b>267</b>	<b>295</b>	<b>381</b>	<b>362</b>	<b>227</b>	<b>240</b>	<b>234</b>
AECL	14	20	15	17	14	16	7	5	6	16
CSA	266	217	185	142	143	223	213	88	78	73
EMR*	17	...	...	...	...	...	...	...	...	...
ENV	4	8	12	9	8	10	8	8	11	10
F&O	2	2	8	1	1	1	0	0	0	0
NDEF	81	88	88	73	105	107	110	108	127	117
NRC	0	0	0	0	0	0	0	0	0	0
NRCan	...	15	12	10	11	12	10	6	6	6
TPT	11	12	11	8	7	8	7	7	8	8
Other	14	5	10	7	6	4	7	5	4	4
<b>R&amp;D grants and contributions (total)</b>	<b>361</b>	<b>382</b>	<b>321</b>	<b>300</b>	<b>422</b>	<b>363</b>	<b>340</b>	<b>393</b>	<b>446</b>	<b>419</b>
ACOA	15	14	11	5	7	11	8	15	6	14
CED (Qué)	23	19	15	9	8	4	5	4	6	8
CSA	0	0	0	0	0	1	1	12	11	10
EMR*	11	...	...	...	...	...	...	...	...	...
FOR*	9	...	...	...	...	...	...	...	...	...
IND	208	223	173	177	298	223	191	237	303	280
ISTC	...	...	...	...	...	...	...	...	...	...
NDEF	9	0	0	0	0	0	0	0	0	0
NRC	65	73	76	78	82	97	87	87	95	82
NRCan	...	20	16	13	10	15	29	22	22	21
NSERC	0	15	13	7	12	7	6	9	0	0
WEDO	13	11	12	6	4	2	11	6	4	4
Other	8	7	5	4	1	3	2	1	0	0
<b>Research Fellowships</b>	<b>3</b>	<b>6</b>	<b>3</b>	<b>7</b>	<b>4</b>	<b>5</b>	<b>12</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Other S&amp;T payments (total)</b>	<b>181</b>	<b>174</b>	<b>221</b>	<b>228</b>	<b>206</b>	<b>203</b>	<b>212</b>	<b>223</b>	<b>242</b>	<b>227</b>
CIDA	113	104	160	162	140	143	157	165	181	164
EMR*	7	...	...	...	...	...	...	...	...	...
ENV	14	18	16	22	17	24	22	21	24	26
F&O	7	3	11	5	4	5	1	1	1	0
HRDC	8	7	4	2	3	3	4	4	3	3
NDEF	0	0	0	12	15	11	11	11	11	11
NRCan	...	6	4	6	7	7	6	7	6	6
TPT	3	5	1	1	2	1	1	1	1	1
Other	29	31	25	18	18	9	10	13	15	16

\* 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, 1993-94 to 2002-2003<sup>P</sup>**

Payment and department	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
	in millions of dollars									
<b>Total S&amp;T payments</b>	<b>973</b>	<b>983</b>	<b>933</b>	<b>894</b>	<b>860</b>	<b>989</b>	<b>1,173</b>	<b>1,320</b>	<b>1,551</b>	<b>1,951</b>
<b>R&amp;D payments (total)</b>	<b>814</b>	<b>835</b>	<b>797</b>	<b>761</b>	<b>725</b>	<b>842</b>	<b>1,010</b>	<b>1,170</b>	<b>1,390</b>	<b>1,782</b>
<b>R&amp;D grants (total)</b>	<b>736</b>	<b>761</b>	<b>724</b>	<b>702</b>	<b>671</b>	<b>789</b>	<b>958</b>	<b>1,118</b>	<b>1,334</b>	<b>1,725</b>
FORD / CED(Qué)	3	10	5	8	3	5	0	0	0	0
CFI	...	...	...	...	...	27	114	183	231	474
CIHR	...	...	...	...	...	...	266	330	427	495
ENV	8	14	12	5	8	6	7	6	6	3
HC	5	10	9	10	7	4	4	2	5	5
IDRC	5	4	3	4	2	3	3	3	3	3
MRC	224	231	220	208	204	233	...	...	...	...
NRC	31	35	35	33	36	39	39	44	40	41
NSERC	379	385	368	372	351	394	426	442	487	541
SSHRC	56	56	58	53	54	55	77	88	107	129
Other	25	16	14	9	6	23	22	20	28	34
<b>R&amp;D contracts (total)</b>	<b>33</b>	<b>29</b>	<b>30</b>	<b>26</b>	<b>25</b>	<b>23</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>21</b>
CIDA	10	9	9	9	8	8	8	8	9	8
CSA	5	6	6	5	7	7	6	8	7	7
EMR*	5	...	...	...	...	...	...	...	...	...
NDEF	6	6	6	5	5	3	2	3	4	3
NRCan	...	4	2	1	1	1	1	0	0	0
Other	7	4	7	6	4	4	4	3	3	3
<b>Research fellowships (total)</b>	<b>45</b>	<b>45</b>	<b>43</b>	<b>32</b>	<b>29</b>	<b>30</b>	<b>31</b>	<b>30</b>	<b>33</b>	<b>36</b>
<b>Education support (total)</b>	<b>135</b>	<b>125</b>	<b>110</b>	<b>109</b>	<b>113</b>	<b>123</b>	<b>136</b>	<b>130</b>	<b>140</b>	<b>150</b>
CIDA	41	37	35	36	33	33	35	31	35	32
CIHR	...	...	...	...	...	...	8	7	9	10
EA (FA&IT)	16	16	14	14	18	14	16	13	14	14
MRC	7	7	6	6	7	9	...	...	...	...
NSERC	49	46	38	36	37	48	60	57	55	61
SSHRC	18	17	16	14	17	19	17	22	26	32
Other	4	2	1	3	1	0	0	0	1	1
<b>Other S&amp;T payments (total)</b>	<b>24</b>	<b>23</b>	<b>25</b>	<b>25</b>	<b>22</b>	<b>24</b>	<b>27</b>	<b>20</b>	<b>21</b>	<b>19</b>

\* Natural Resources from 1994-95.

**TABLE 4.8 Federal S&T Expenditures in the Canadian Non-Profit Institutions Sector, by Funding Department or Agency, 1993-94 to 2002-2003<sup>P</sup>**

Department or Agency	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
AGR	3	4	1	1	1	1	15	3	9	5
FORD / CED(Qué)	...	2	3	9	9	12	5	4	8	10
CIHR	...	...	...	...	...	...	5	11	14	17
CIDA	11	10	10	9	8	9	8	8	9	8
EMR *	7	...	...	...	...	...	...	...	...	...
ENV	12	8	8	4	4	5	67	7	61	6
GC	...	...	...	...	...	...	...	...	33	89
HC	13	12	14	15	12	8	4	4	4	4
HRDC	28	30	22	20	25	40	25	30	28	34
IND (ISTC)	9	8	7	9	9	4	4	4	6	4
MRC	1	2	3	5	5	7	...	...	...	...
NRCan	...	28	21	16	14	12	14	14	16	15
SSHRC	5	5	2	2	3	2	2	3	4	4
WEDO	11	2	2	5	2	2	3	10	9	9
Other	16	16	10	17	19	20	29	56	36	37
<b>Total</b>	<b>116</b>	<b>127</b>	<b>103</b>	<b>112</b>	<b>111</b>	<b>122</b>	<b>181</b>	<b>154</b>	<b>237</b>	<b>242</b>

\* Natural Resources from 1994-95.

**TABLE 4.9 Federal S&T Expenditures in the Foreign Sector, by Department or Agency, 1993-94 to 2002-2003<sup>P</sup>**

Department or Agency	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001 <sup>f</sup>	2001-2002 <sup>P</sup>	2002-2003 <sup>P</sup>
in millions of dollars										
CIHR	...	...	...	...	...	...	5	7	9	11
CIDA	121	110	80	83	74	83	86	109	81	82
CSA	29	37	35	40	25	26	27	22	19	18
EA (FA&IT)	25	28	32	31	27	25	27	23	24	28
IDRC	75	62	52	40	32	31	28	35	32	33
MRC	8	8	7	6	5	5	...	...	...	...
NDEF	8	7	8	5	18	17	15	15	20	14
NRC	11	15	9	11	9	9	9	12	12	7
NRCan	3	2	2	2	2	3	2	2	2	2
NSERC	10	10	9	8	8	10	11	11	12	12
SSHRC	7	8	8	7	7	8	3	2	3	3
Other	16	11	16	13	14	16	16	12	18	18
<b>Total</b>	<b>313</b>	<b>298</b>	<b>258</b>	<b>246</b>	<b>221</b>	<b>233</b>	<b>229</b>	<b>250</b>	<b>232</b>	<b>228</b>



## **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 2000-2001.

In 2000-2001, the Federal Government spent a total of \$6,707 million on S&T. Of this amount, \$3,958 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 \$2,126 million.
- All payments abroad for S&T. These were \$250 million.
- Various other categories of federal expenditures which could not be assigned geographically. These amounted to \$373 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 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 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 2000-2001 and available for distribution regionally, 34% was allocated to Ontario and 26% to Québec. These figures exclude funding for science and technology performed by the Federal Government in its own departments and agencies within the National Capital Region, which has been stable over the past few years.

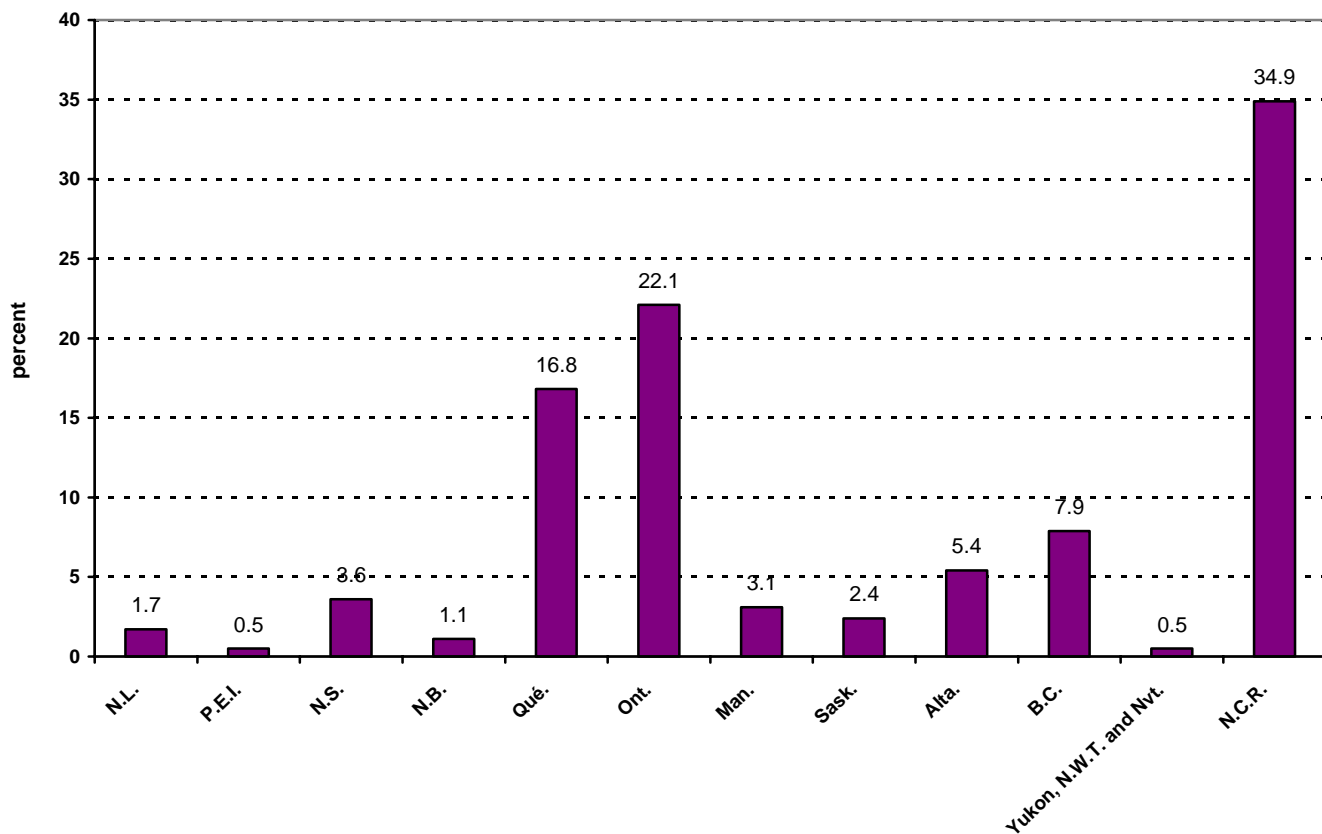
In 2000-2001, 43% of the total value of Federal Government R&D grants and contracts awarded to industry in the natural sciences was allocated to Ontario, compared with 34% to Québec, and 9% to British Columbia.

Of the total value of federal R&D grants 39% was awarded to industry in Québec, followed by Ontario with 37% and 11% to British Columbia. Industries in Ontario received the largest proportion (58%) of the federal R&D contracts, while those in Québec and British Columbia received 21% and 5% respectively.

**TABLE 5.1 Federal Expenditures on Science and Technology, by Province and Territories, 1994-95 to 2000-2001**

Province and territories	Year						
	1994-95 <sup>f</sup>	1995-96 <sup>f</sup>	1996-97 <sup>f</sup>	1997-98 <sup>f</sup>	1998-99	1999-2000 <sup>f</sup>	2000-2001
	in millions of dollars						
Newfoundland and Labrador	97	90	79	71	86	87	101
Prince Edward Island	22	17	17	14	17	20	29
Nova Scotia	203	199	199	175	200	197	220
New Brunswick	83	81	67	65	75	72	68
Québec	835	792	824	787	788	833	1,021
Ontario	1,157	1,071	1,077	1,141	1,143	1,309	1,347
Manitoba	183	176	184	149	136	161	190
Saskatchewan	106	108	93	120	122	131	148
Alberta	243	252	248	247	254	301	327
British Columbia	418	383	347	373	446	528	479
Yukon, N.W.T and Nvt.	24	14	17	16	15	20	28
<b>Canada (Excluding NCR*)</b>	<b>3,371</b>	<b>3,183</b>	<b>3,152</b>	<b>3,158</b>	<b>3,282</b>	<b>3,659</b>	<b>3,958</b>
National Capital Region*	1,873	1,926	1,967	1,819	1,942	1,981	2,126
<b>Canada (including NCR)</b>	<b>5,244</b>	<b>5,109</b>	<b>5,119</b>	<b>4,977</b>	<b>5,224</b>	<b>5,640</b>	<b>6,084</b>

\* Federal intramural expenditures only.

**Chart 5.1****Federal Expenditures on Science and Technology, by Province and Territories, 2000-2001**

**TABLE 5.2 Federal Expenditures on Science and Technology, by Science, by Province and Territories and Sector of Performance, 2000-2001**

Province and Territories	Federal government	Canadian business enterprises	Higher education	Other <sup>1</sup> Canadian performers	Total	Total extramural <sup>2</sup>
in millions of dollars						
<b>Total Science and Technology</b>						
Newfoundland and Labrador	63	11	19	8	101	38
Prince Edward Island	20	5	2	2	29	9
Nova Scotia	168	12	34	6	220	52
New Brunswick	42	5	12	9	68	26
Québec	492	193	315	21	1,021	529
Ontario	516	251	502	78	1,347	831
Manitoba	128	12	36	14	190	62
Saskatchewan	87	9	44	8	148	61
Alberta	160	26	124	17	327	167
British Columbia	218	53	165	43	479	261
Yukon, N.W.T. and Nvt	23	1	0	4	28	5
<b>Canada (Excluding NCR*)</b>	<b>1,917</b>	<b>579</b>	<b>1,253</b>	<b>210</b>	<b>3,958</b>	<b>2,041</b>
National Capital Region*	2,126	...	...	...	2,126	...
<b>Canada (Including NCR)</b>	<b>4,043</b>	<b>579</b>	<b>1,253</b>	<b>210</b>	<b>6,084</b>	<b>2,041</b>
<b>Natural Science</b>						
Newfoundland and Labrador	59	11	17	7	94	35
Prince Edward Island	19	5	2	1	27	8
Nova Scotia	140	12	30	3	185	45
New Brunswick	41	5	11	7	64	23
Québec	464	192	281	11	948	484
Ontario	492	245	441	32	1,210	718
Manitoba	118	12	33	9	172	54
Saskatchewan	83	9	42	6	140	57
Alberta	150	25	113	13	301	151
British Columbia	203	52	147	37	439	236
Yukon, N.W.T. and Nvt	18	1	0	2	21	3
<b>Canada (Excluding NCR*)</b>	<b>1,787</b>	<b>569</b>	<b>1,117</b>	<b>128</b>	<b>3,601</b>	<b>1,814</b>
National Capital Region*	1,085	...	...	...	1,085	...
<b>Canada (Including NCR)</b>	<b>2,872</b>	<b>569</b>	<b>1,117</b>	<b>128</b>	<b>4,686</b>	<b>1,814</b>
<b>Social Science</b>						
Newfoundland and Labrador	4	0	2	1	7	3
Prince Edward Island	1	0	0	1	2	1
Nova Scotia	28	0	4	3	35	7
New Brunswick	1	0	1	2	4	3
Québec	28	1	34	10	73	45
Ontario	24	6	61	46	137	113
Manitoba	10	0	3	5	18	8
Saskatchewan	4	0	2	2	8	4
Alberta	10	1	11	4	26	16
British Columbia	15	1	18	6	40	25
Yukon, N.W.T. and Nvt	5	0	0	2	7	2
<b>Canada (Excluding NCR*)</b>	<b>130</b>	<b>10</b>	<b>136</b>	<b>81</b>	<b>357</b>	<b>227</b>
National Capital Region*	1,041	...	...	...	1,041	...
<b>Canada (Including NCR)</b>	<b>1,171</b>	<b>10</b>	<b>136</b>	<b>81</b>	<b>1,398</b>	<b>227</b>

<sup>1</sup> Includes Canadian non-profit institutions, provincial and municipal governments and other Canadian performers.<sup>2</sup> 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, 2000-2001**

Department or Agency	N.L.	P.E.I.	N.S.	N.B.	Qué.*	Ont.*	Man.	Sask.	Alta.	B.C.	Sub Total <sup>1</sup>	NCR Ont.	NCR Qué.	Total Canada
In millions of dollars														
<b>S&amp;T</b>														
AECL	0	0	0	0	0	115	11	0	0	0	126	2	0	128
AGR	4	14	14	10	56	38	29	39	52	27	283	64	0	347
CSA	0	0	0	0	164	0	0	0	0	0	164	10	0	174
ENV	3	0	12	5	73	160	24	19	20	35	356	27	44	427
F&O	40	4	59	13	33	30	34	2	3	76	301	26	0	327
HC	0	0	1	0	11	61	4	0	0	8	85	106	2	193
IND	0	0	0	0	0	0	0	0	0	0	0	59	31	90
NDEF	0	0	23	0	40	30	0	0	24	0	117	56	2	175
NRC	10	0	18	0	51	14	15	17	1	22	148	358	0	506
NRCan	2	0	11	11	29	41	0	1	37	29	167	207	0	374
PCA	3	1	17	1	13	5	8	4	6	6	70	0	17	87
STCAN	0	0	8	0	10	16	3	1	8	9	55	520	0	575
Other	4	1	5	2	12	6	0	4	9	6	45	436	159	640
<b>TOTAL</b>	<b>63</b>	<b>20</b>	<b>168</b>	<b>42</b>	<b>492</b>	<b>516</b>	<b>128</b>	<b>87</b>	<b>160</b>	<b>218</b>	<b>1,917</b>	<b>1,871</b>	<b>255</b>	<b>4,043</b>
<b>R&amp;D</b>														
AECL	0	0	0	0	0	115	11	0	0	0	126	2	0	128
AGR	4	14	14	10	55	37	29	39	52	27	282	57	0	339
CSA	0	0	0	0	160	0	0	0	0	0	160	6	0	166
ENV	1	0	3	1	16	65	3	5	2	7	102	1	22	125
F&O	15	1	23	5	13	13	13	0	1	31	118	10	0	128
NDEF	0	0	23	0	40	30	0	0	24	0	117	35	2	154
NRC	7	0	14	0	40	11	12	14	0	17	115	327	0	442
NRCan	2	0	11	11	23	34	0	0	35	28	150	184	0	334
Other	1	1	0	0	7	9	0	4	2	1	25	224	15	264
<b>TOTAL</b>	<b>30</b>	<b>16</b>	<b>88</b>	<b>27</b>	<b>354</b>	<b>314</b>	<b>68</b>	<b>62</b>	<b>116</b>	<b>111</b>	<b>1,195</b>	<b>846</b>	<b>39</b>	<b>2,080</b>

\* Excluding the NCR.

<sup>1</sup> Includes Territories, Yukon and Nunavut.

**TABLE 5.4 Intramural Expenditures of Federal Scientific Establishments, by Activity and by Province and Territories, 1994-95 to 2000-2001**

Province and Territories	Year						
	1994-95 <sup>f</sup>	1995-96 <sup>f</sup>	1996-97 <sup>f</sup>	1997-98 <sup>f</sup>	1998-99	1999-2000 <sup>f</sup>	2000-2001
	in millions of dollars						
<b>S&amp;T</b>							
Newfoundland and Labrador	62	55	55	48	58	56	63
Prince Edward Island	14	11	11	11	11	15	20
Nova Scotia	151	149	154	134	152	142	168
New Brunswick	40	50	49	45	50	48	42
Québec	335	324	349	328	350	373	492
Ontario	394	385	474	445	398	482	516
Manitoba	130	127	138	107	92	110	128
Saskatchewan	66	72	61	92	84	82	87
Alberta	129	141	140	136	129	142	160
British Columbia	184	176	162	171	176	210	218
Yukon, N.W.T. and Nvt	21	11	15	15	14	17	23
<b>Sub-Total</b>	<b>1,526</b>	<b>1,501</b>	<b>1,608</b>	<b>1,532</b>	<b>1,513</b>	<b>1,677</b>	<b>1,917</b>
NCR - Ontario	1,599	1,666	1,710	1,585	1,694	1,737	1,871
NCR - Québec	273	260	257	234	248	244	255
<b>Canada (including NCR)</b>	<b>3,399</b>	<b>3,427</b>	<b>3,575</b>	<b>3,351</b>	<b>3,455</b>	<b>3,658</b>	<b>4,043</b>
<b>R&amp;D</b>							
Newfoundland and Labrador	33	27	25	23	26	25	30
Prince Edward Island	11	9	10	10	10	12	16
Nova Scotia	84	77	79	71	77	72	88
New Brunswick	28	29	32	29	31	32	27
Québec	225	218	226	211	226	250	354
Ontario	253	259	348	302	276	309	314
Manitoba	79	71	77	59	49	58	68
Saskatchewan	48	52	47	74	54	60	62
Alberta	93	98	94	96	94	108	116
British Columbia	104	81	77	83	85	106	111
Yukon, N.W.T and Nvt.	7	1	6	5	4	7	9
<b>Sub-Total</b>	<b>965</b>	<b>922</b>	<b>1,021</b>	<b>963</b>	<b>932</b>	<b>1,039</b>	<b>1,195</b>
NCR - Ontario	746	775	750	738	781	787	846
NCR - Québec	43	30	21	19	30	33	39
<b>Canada (including NCR)</b>	<b>1,754</b>	<b>1,727</b>	<b>1,792</b>	<b>1,720</b>	<b>1,743</b>	<b>1,859</b>	<b>2,080</b>

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, 1994-95 to 2000-2001**

Province and Territories	Year						
	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001
	in millions of dollars						
Newfoundland and Labrador	8	7	6	6	9	10	11
Prince Edward Island	3	2	2	2	4	2	5
Nova Scotia	17	15	15	16	10	10	12
New Brunswick	27	14	3	8	9	8	5
Québec	229	211	209	226	176	158	186
Ontario	340	282	213	327	312	267	235
Manitoba	16	17	11	11	10	12	11
Saskatchewan	9	12	6	6	8	8	8
Alberta	18	23	20	24	21	25	21
British Columbia	59	47	48	58	117	142	49
Yukon, N.W.T. and Nvt.	0	0	0	0	0	0	1
<b>Canada</b>	<b>726</b>	<b>631</b>	<b>533</b>	<b>684</b>	<b>676</b>	<b>642</b>	<b>544</b>

\* 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, 2000-2001**

Department/Program	N.L.	P.E.I.	N.S.	N.B.	Qué.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon, N.W.T., Nvt	Canada
in millions of dollars												
<b>A. Grants - Subventions</b>												
ACOA	7.3	2.8	2.9	2.0	0	0	0	0	0	0	0	15.0
CED(QUÉ)	0	0	0	0	3.4	0	0	0	0	0	0	3.4
IND:												
TPC <sup>1</sup>	0.8	0	0	0	126.0	76.8	0	0	3.6	21.2	0	228.4
Other	0	0	0	0	0.4	8.3	0	0	0	0	0	8.8
<b>Total</b>	<b>0.8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>126.4</b>	<b>85.1</b>	<b>0</b>	<b>0</b>	<b>3.6</b>	<b>21.2</b>	<b>0</b>	<b>237.2</b>
NRC:												
IRAP <sup>2</sup>	2.7	1.8	4.0	2.8	15.6	32.2	1.9	2.0	9.0	11.6	0.4	84.0
<b>Total</b>	<b>2.7</b>	<b>1.8</b>	<b>4.0</b>	<b>2.8</b>	<b>15.6</b>	<b>32.2</b>	<b>1.9</b>	<b>2.0</b>	<b>9.0</b>	<b>11.6</b>	<b>0.4</b>	<b>84.0</b>
WEDO	0	0	0	0	0	0	0.5	1.0	1.8	2.3	0	5.6
Other	0.3	0.1	1.0	0.1	9.1	29.7	0.1	0.1	1.9	6.1	0	48.4
<b>Total</b>	<b>11.1</b>	<b>4.6</b>	<b>7.9</b>	<b>4.9</b>	<b>154.5</b>	<b>147.1</b>	<b>2.5</b>	<b>3.1</b>	<b>16.3</b>	<b>41.2</b>	<b>0.4</b>	<b>393.6</b>
<b>% of Grants</b>	<b>2.8</b>	<b>1.2</b>	<b>2.0</b>	<b>1.2</b>	<b>39.3</b>	<b>37.4</b>	<b>0.6</b>	<b>0.8</b>	<b>4.1</b>	<b>10.5</b>	<b>0.1</b>	<b>100.0</b>
<b>B. Contracts</b>												
CSA	0	0	0.2	0.1	17.2	55.3	7.3	4.6	0.4	2.5	0	87.6
NDEF	0	0	3.6	0	8.5	20.1	0.8	0	3.5	4.2	0	40.7
NRCan	0.2	0	0.3	0.2	1.3	3.2	0	0	0.1	0.9	0	6.2
Other	0.1	0	0.2	0	4.9	8.8	0.6	0	0.5	0.4	0	15.7
<b>Total</b>	<b>0.3</b>	<b>0</b>	<b>4.3</b>	<b>0.3</b>	<b>31.9</b>	<b>87.4</b>	<b>8.7</b>	<b>4.6</b>	<b>4.5</b>	<b>8.0</b>	<b>0.1</b>	<b>150.2</b>
<b>% of Contracts</b>	<b>0.2</b>	<b>0</b>	<b>2.9</b>	<b>0.2</b>	<b>21.2</b>	<b>58.2</b>	<b>5.8</b>	<b>3.1</b>	<b>3.0</b>	<b>5.3</b>	<b>0.1</b>	<b>100.0</b>
<b>Total, Grants and Contracts</b>	<b>11.4</b>	<b>4.6</b>	<b>12.2</b>	<b>5.2</b>	<b>186.4</b>	<b>234.5</b>	<b>11.2</b>	<b>7.7</b>	<b>20.8</b>	<b>49.2</b>	<b>0.5</b>	<b>543.8</b>
<b>% of Total</b>	<b>2.1</b>	<b>0.8</b>	<b>2.2</b>	<b>1.0</b>	<b>34.3</b>	<b>43.1</b>	<b>2.1</b>	<b>1.4</b>	<b>3.8</b>	<b>9.1</b>	<b>0.1</b>	<b>100.0</b>

<sup>1</sup> Technology Partnerships Canada<sup>2</sup> Industrial Research Assistance Program



**TABLE 5.7 Federal Government Grants and Contracts to Universities for R&D, by Province and Territories, 1994-95 to 2000-2001**

Province and Territories	Year						
	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001
	in millions of dollars						
Newfoundland and Labrador	9	9	8	9	10	15	18
Prince Edward Island	1	1	1	1	1	2	2
Nova Scotia	24	23	20	20	23	36	31
New Brunswick	8	8	7	7	11	10	11
Québec	225	206	205	185	209	252	291
Ontario	292	276	257	246	292	360	456
Manitoba	25	23	21	20	23	28	34
Saskatchewan	20	17	19	14	22	27	41
Alberta	74	73	74	73	85	104	114
British Columbia	137	131	120	120	131	149	152
Yukon, N.W.T. and Nvt.	0	0	0	0	0	0	0
<b>Canada</b>	<b>815</b>	<b>768</b>	<b>733</b>	<b>695</b>	<b>807</b>	<b>983</b>	<b>1,150</b>

**TABLE 5.8 Federal Intramural Expenditures on Science and Technology for the National Capital Region, 1994-95 to 2000-2001**

Activity and Science	Year						
	1994-95 <sup>f</sup>	1995-96 <sup>f</sup>	1996-97 <sup>f</sup>	1997-98 <sup>f</sup>	1998-99	1999-2000 <sup>f</sup>	2000-2001
in millions of dollars							
<b>TOTAL NATIONAL CAPITAL REGION</b>							
<b>(TOTAL) - Research and Development</b>							
SSH	57	55	67	68	76	85	84
NSE	732	750	704	689	735	736	801
<b>Total</b>	<b>789</b>	<b>805</b>	<b>771</b>	<b>757</b>	<b>811</b>	<b>821</b>	<b>885</b>
<b>Related Scientific Activities</b>							
SSH	724	771	874	772	821	838	957
NSE	359	350	322	290	310	322	284
<b>Total</b>	<b>1,083</b>	<b>1,121</b>	<b>1,196</b>	<b>1,062</b>	<b>1,131</b>	<b>1,160</b>	<b>1,241</b>
<b>Total Science and Technology</b>							
SSH	781	826	941	840	897	923	1,041
NSE	1,091	1,100	1,026	979	1,045	1,058	1,085
<b>Total</b>	<b>1,872</b>	<b>1,926</b>	<b>1,967</b>	<b>1,819</b>	<b>1,942</b>	<b>1,981</b>	<b>2,126</b>
<b>NATIONAL CAPITAL REGION (ONTARIO)</b>							
<b>(TOTAL) - Research and Development</b>							
SSH	51	50	61	63	70	79	77
NSE	695	726	689	675	711	709	769
<b>Total</b>	<b>746</b>	<b>776</b>	<b>750</b>	<b>738</b>	<b>781</b>	<b>788</b>	<b>846</b>
<b>Related Scientific Activities</b>							
SSH	582	618	736	646	700	722	825
NSE	271	272	224	201	213	228	200
<b>Total</b>	<b>853</b>	<b>890</b>	<b>960</b>	<b>847</b>	<b>913</b>	<b>950</b>	<b>1,025</b>
<b>Total Science and Technology</b>							
SSH	633	668	797	709	770	801	902
NSE	966	998	913	876	924	937	969
<b>Total</b>	<b>1,599</b>	<b>1,666</b>	<b>1,710</b>	<b>1,585</b>	<b>1,694</b>	<b>1,737</b>	<b>1,871</b>
<b>NATIONAL CAPITAL REGION (QUÉBEC)</b>							
<b>Research and Development</b>							
SSH	6	6	6	5	6	6	7
NSE	37	24	15	14	24	27	32
<b>Total</b>	<b>43</b>	<b>30</b>	<b>21</b>	<b>19</b>	<b>30</b>	<b>33</b>	<b>39</b>
<b>Related Scientific Activities</b>							
SSH	142	152	138	126	121	116	132
NSE	88	78	98	89	97	94	84
<b>Total</b>	<b>230</b>	<b>230</b>	<b>236</b>	<b>215</b>	<b>218</b>	<b>210</b>	<b>216</b>
<b>Total Science and Technology</b>							
SSH	148	158	144	131	127	122	139
NSE	125	102	113	103	121	121	116
<b>Total</b>	<b>273</b>	<b>260</b>	<b>257</b>	<b>234</b>	<b>248</b>	<b>243</b>	<b>255</b>

**TABLE 5.9 Federal Expenditures on Science and Technology for the National Capital Region, 2000-2001**

Activity and Science	Federal Government	Canadian business enterprises	Higher education	Other <sup>1</sup> Canadian performers	Total
in millions of dollars					
<b>NATIONAL CAPITAL REGION (ONTARIO)</b>					
<b>Research and Development</b>					
SSH	77	0	6	14	97
NSE	769	65	59	8	901
<b>Total</b>	<b>846</b>	<b>65</b>	<b>65</b>	<b>22</b>	<b>998</b>
<b>Related Scientific Activities</b>					
SSH	825	3	11	10	849
NSE	200	6	3	3	212
<b>Total</b>	<b>1,025</b>	<b>9</b>	<b>14</b>	<b>13</b>	<b>1,061</b>
<b>Total Science and Technology</b>					
SSH	902	4	17	23	946
NSE	969	71	62	11	1,113
<b>Total</b>	<b>1,871</b>	<b>75</b>	<b>79</b>	<b>35</b>	<b>2,059</b>
<b>NATIONAL CAPITAL REGION (QUÉBEC)</b>					
<b>Research and Development</b>					
SSH	7	0	0	0	8
NSE	32	2	0	1	35
<b>Total</b>	<b>39</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>43</b>
<b>Related Scientific Activities</b>					
SSH	132	0	0	0	132
NSE	84	1	0	0	85
<b>Total</b>	<b>216</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>217</b>
<b>Total Science and Technology</b>					
SSH	139	0	0	1	140
NSE	116	3	0	1	120
<b>Total</b>	<b>255</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>260</b>

<sup>1</sup> 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, 2000-2001**

Department or Agency	N.L.	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 <sup>1</sup>													
ACOA	0	0	0	5	0	0	0	0	0	0	0	5	0	5
AECL	0	0	0	0	0	751	126	0	0	0	0	877	9	886
AGR	24	122	105	87	457	309	226	332	412	231	0	2,305	564	2,869
BC	0	0	3	0	3	6	0	0	2	2	0	16	203	219
CCRA	2	0	0	0	8	6	10	0	0	3	0	29	97	126
CED(QUÉ)	0	0	0	0	17	0	0	0	0	0	0	17	0	17
CFIA	0	10	31	10	50	16	8	44	44	35	0	248	156	404
CIDA	0	0	0	0	0	0	0	0	0	0	0	0	210	210
CIHR	0	0	0	0	0	0	0	0	0	0	0	0	140	140
CMC	0	0	0	0	0	0	0	0	0	0	0	0	421	421
CMHC	0	0	6	0	13	18	0	0	8	11	0	56	54	110
CMN	0	0	0	0	0	0	0	0	0	0	0	0	161	161
CNSC	0	0	0	0	0	0	0	0	0	0	0	0	8	8
COL	0	0	0	0	0	0	0	0	0	0	0	0	7	7
CSA	0	0	0	0	372	0	0	0	0	0	0	372	47	419
CSTM	0	0	0	0	0	0	0	0	0	0	0	0	244	244
ENV	26	2	121	46	481	1,005	168	141	159	288	52	2,489	503	2,992
F&O	300	31	429	103	243	217	240	11	23	555	45	2,197	203	2,400
FA&IT	0	0	0	0	0	0	0	0	0	0	0	0	74	74
FIN	0	0	0	0	0	0	0	0	0	0	0	0	289	289
HC	2	0	20	3	128	641	31	3	2	78	0	908	934	1,842
HRDC	0	0	0	0	0	0	0	0	0	0	0	0	450	450
IDRC	0	0	0	0	0	0	0	0	0	0	0	0	148	148
IND	0	0	0	0	0	0	0	0	0	0	0	0	1,072	1,072
JUS	0	0	0	0	0	0	0	0	0	0	0	0	37	37
NA	0	0	0	0	0	0	0	0	0	0	0	0	364	364
NDEF	0	0	239	0	343	255	0	0	171	0	0	1,008	609	1,617
NEB	0	0	0	0	0	0	0	0	9	0	0	9	0	9
NGC	0	0	0	0	0	0	0	0	0	0	0	0	225	225
NL	0	0	0	0	0	0	0	0	0	0	0	0	424	424
NRC	83	1	100	2	474	106	124	156	24	159	0	1,229	2,197	3,426
NRCan	22	0	88	109	262	319	0	3	278	209	10	1,300	1,570	2,870
NSERC	0	0	0	0	0	0	0	0	0	0	0	0	250	250
PCA	29	11	135	14	102	44	62	33	74	60	49	613	137	750
PW&GS	0	0	0	0	0	0	0	0	0	0	0	0	46	46
SGEN	0	0	0	0	0	0	0	0	0	0	0	0	35	35
SSHRC	0	0	0	0	0	0	0	0	0	0	0	0	128	128
STCAN	0	0	90	0	112	169	27	7	88	95	0	588	5,223	5,811
TB	0	0	0	0	0	0	0	0	0	0	0	0	411	411
TPT	0	0	0	0	19	0	0	0	0	0	0	19	31	50
WEDO	0	0	0	0	0	0	5	0	0	0	0	5	0	5
Other	1	0	0	0	2	0	0	0	0	0	1	4	164	168
<b>TOTAL</b>	<b>489</b>	<b>177</b>	<b>1,367</b>	<b>379</b>	<b>3,086</b>	<b>3,862</b>	<b>1,027</b>	<b>730</b>	<b>1,294</b>	<b>1,726</b>	<b>157</b>	<b>14,294</b>	<b>17,845</b>	<b>32,139</b>

\* Excluding the National Capital Region.

<sup>1</sup> 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, 2000-2001**

Department or Agency	N.L.	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 <sup>1</sup>													
AECL	0	0	0	0	0	395	68	0	0	0	0	463	1	464
AGR	6	32	27	22	118	80	58	85	106	59	0	593	172	765
CCRA	2	0	0	0	8	6	10	0	0	3	0	29	97	126
CFIA	0	3	12	3	19	8	3	17	12	14	0	91	54	145
CMC	0	0	0	0	0	0	0	0	0	0	0	0	77	77
CMHC	0	0	4	0	9	13	0	0	6	8	0	40	39	79
CMN	0	0	0	0	0	0	0	0	0	0	0	0	93	93
CSA	0	0	0	0	160	0	0	0	0	0	0	160	26	186
CSTM	0	0	0	0	0	0	0	0	0	0	0	0	9	9
ENV	20	1	95	35	215	457	82	70	78	122	25	1,200	260	1,460
F&O	112	12	166	40	99	83	91	4	9	213	17	846	89	935
FIN	0	0	0	0	0	0	0	0	0	0	0	0	227	227
HC	2	0	17	3	104	393	26	3	2	64	0	614	609	1,223
HRDC	0	0	0	0	0	0	0	0	0	0	0	0	332	332
IND	0	0	0	0	0	0	0	0	0	0	0	0	477	477
NA	0	0	0	0	0	0	0	0	0	0	0	0	109	109
NDEF	0	0	105	0	149	114	0	0	62	0	0	430	362	792
NGC	0	0	0	0	0	0	0	0	0	0	0	0	39	39
NL	0	0	0	0	0	0	0	0	0	0	0	0	181	181
NRC	31	1	29	2	187	47	56	51	24	79	0	507	764	1,271
NRCan	16	0	51	49	162	179	0	1	151	132	2	743	630	1,373
PCA	10	5	31	7	25	15	16	10	43	25	13	200	33	233
STCAN	0	0	0	0	0	0	0	0	0	0	0	0	1,334	1,334
Other	0	0	1	1	19	2	2	0	10	2	0	37	573	610
<b>TOTAL</b>	<b>199</b>	<b>54</b>	<b>538</b>	<b>162</b>	<b>1,274</b>	<b>1,792</b>	<b>412</b>	<b>241</b>	<b>503</b>	<b>721</b>	<b>57</b>	<b>5,953</b>	<b>6,587</b>	<b>12,540</b>

\* Excluding the National Capital Region.

<sup>1</sup> 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, 2000-2001**

Department or Agency	N.L.	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 <sup>1</sup>													
AECL	0	0	0	0	0	751	126	0	0	0	0	877	9	886
AGR	24	122	105	87	457	309	226	332	412	231	0	2,305	495	2,800
CSA	0	0	0	0	352	0	0	0	0	0	0	352	22	374
ENV	2	0	8	3	158	397	16	52	14	47	0	697	143	840
F&O	107	9	161	36	89	93	94	4	9	214	18	834	68	902
HC	0	0	4	0	18	185	3	0	0	20	0	230	294	524
IDRC	0	0	0	0	0	0	0	0	0	0	0	0	130	130
IND	0	0	0	0	0	0	0	0	0	0	0	0	449	449
NDEF	0	0	239	0	343	255	0	0	171	0	0	1,008	340	1,348
NRC	62	0	75	0	367	59	94	131	0	111	0	899	2,035	2,934
NRCan	22	0	88	109	213	247	0	1	260	189	10	1,139	1,296	2,435
NSERC	0	0	0	0	0	0	0	0	0	0	0	0	220	220
STCAN	0	0	0	0	0	0	0	0	0	0	0	0	167	167
Other	0	10	2	5	44	0	9	28	6	4	0	108	595	703
<b>TOTAL</b>	<b>217</b>	<b>141</b>	<b>682</b>	<b>240</b>	<b>2,041</b>	<b>2,296</b>	<b>568</b>	<b>548</b>	<b>872</b>	<b>816</b>	<b>28</b>	<b>8,449</b>	<b>6,263</b>	<b>14,712</b>

\* Excluding the National Capital Region.

<sup>1</sup> 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, 2000-2001**

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 <sup>1</sup>								
AGR	495	69	564	0	0	0	495	69	564
BC	59	144	203	0	0	0	59	144	203
CCRA	0	97	97	0	0	0	0	97	97
CFIA	39	117	156	0	0	0	39	117	156
CIDA	0	0	0	23	187	210	23	187	210
CIHR	135	5	140	0	0	0	135	5	140
CMC	1	29	30	51	340	391	52	369	421
CMN	0	32	32	22	107	129	22	139	161
CSTM	0	244	244	0	0	0	0	244	244
ENV	11	152	163	132	208	340	143	360	503
F&O	68	135	203	0	0	0	68	135	203
FIN	0	289	289	0	0	0	0	289	289
HC	287	636	923	7	4	11	294	640	934
HRDC	19	13	32	0	418	418	19	431	450
IDRC	130	18	148	0	0	0	130	18	148
IND	435	180	615	14	443	457	449	623	1,072
NA	0	296	296	0	68	68	0	364	364
NDEF	329	269	598	11	0	11	340	269	609
NGC	42	183	225	0	0	0	42	183	225
NL	0	162	162	0	262	262	0	424	424
NRC	2,035	162	2,197	0	0	0	2,035	162	2,197
NRCan	1,296	274	1,570	0	0	0	1,296	274	1,570
NSERC	220	30	250	0	0	0	220	30	250
PCA	0	0	0	0	137	137	0	137	137
SSHRC	66	62	128	0	0	0	66	62	128
STCAN	167	5,056	5,223	0	0	0	167	5,056	5,223
TB	0	411	411	0	0	0	0	411	411
Other	144	315	459	25	28	53	169	343	512
<b>TOTAL</b>	<b>5,978</b>	<b>9,380</b>	<b>15,358</b>	<b>285</b>	<b>2,202</b>	<b>2,487</b>	<b>6,263</b>	<b>11,582</b>	<b>17,845</b>

<sup>1</sup> 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, 2000-2001**

Department or Agency	N.L.	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 <sup>1</sup>													
AECL	0	0	0	0	0	395	68	0	0	0	0	463	1	464
AGR	6	32	27	22	118	80	58	85	106	59	0	593	126	719
CSA	0	0	0	0	159	0	0	0	0	0	0	159	17	176
ENV	2	0	8	3	85	231	16	37	13	24	0	419	90	509
F&O	41	3	61	14	34	40	35	2	3	81	7	321	26	347
HC	0	0	3	0	13	106	2	0	0	14	0	138	190	328
IND	0	0	0	0	0	0	0	0	0	0	0	0	190	190
NDEF	0	0	105	0	149	114	0	0	62	0	0	430	209	639
NRC	26	0	21	0	152	0	46	46	0	67	0	358	726	1,084
NRCan	16	0	51	49	134	126	0	1	146	125	2	650	564	1,214
NSERC	0	0	0	0	0	0	0	0	0	0	0	0	11	11
STCAN	0	0	0	0	0	0	0	0	0	0	0	0	107	107
Other	0	3	1	0	23	0	3	12	3	1	0	46	296	342
<b>TOTAL</b>	<b>91</b>	<b>38</b>	<b>277</b>	<b>88</b>	<b>867</b>	<b>1,092</b>	<b>228</b>	<b>183</b>	<b>333</b>	<b>371</b>	<b>9</b>	<b>3,577</b>	<b>2,553</b>	<b>6,130</b>

\* Excluding the National Capital Region.

<sup>1</sup> 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 Programs 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 exercise 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, micro-organisms) and biosphere. Development of monitoring facilities for the measurement of all kinds of pollution is included. The same is valid for the elimination and prevention of all forms of pollution in all types of environment.

### **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 paediatric 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, 1998-99 to 2000-2001**

Socio-Economic Objectives	1998-99		1999-2000		2000-2001	
	Intramural <sup>1</sup>	Extramural	Intramural <sup>1</sup>	Extramural	Intramural <sup>1</sup>	Extramural
in millions of dollars						
1. Exploration and Exploitation of the Earth	362	45	384	128	413	76
2. Infrastructure and General Planning of Land Use :						
2.1 Transport	49	32	53	24	46	21
2.2 Telecommunication	35	36	26	44	30	15
2.3 Other	146	22	121	23	148	27
3. Pollution, Protection and Conservation of the Environment	250	118	288	117	329	158
4. Public Health	215	347	249	435	241	549
5. Production, Distribution and Rational Utilization of Energy	173	68	173	68	189	67
6. Agricultural Production and Technology :						
6.1 Agriculture	352	49	381	73	378	76
6.2 Fishing	110	13	112	16	131	30
6.3 Forestry	83	27	85	45	91	30
7. Industrial Production and Technology	170	417	165	406	225	542
8. Social Structures and Relationships	826	167	762	178	897	189
9. Exploration and Exploitation of Space	99	270	75	270	198	159
10. Non-Oriented Research	65	271	206	295	203	216
11. Other Civil Research	20	3	22	2	24	19
12. Defence	156	141	187	141	169	140
13. Other	62	320	57	329	16	350
<b>Total S&amp;T Expenditures</b>	<b>3,173</b>	<b>2,347</b>	<b>3,347</b>	<b>2,594</b>	<b>3,728</b>	<b>2,664</b>
percent						
<b>Percent</b>	<b>57</b>	<b>43</b>	<b>56</b>	<b>44</b>	<b>58</b>	<b>42</b>

<sup>1</sup> Non-program (indirect costs) are excluded

**TABLE 6.2 R&D Expenditures by Socio-Economic Objectives, 1998-99 to 2000-2001**

Socio-Economic Objectives	1998-99		1999-2000		2000-2001	
	Intramural <sup>1</sup>	Extramural	Intramural <sup>1</sup>	Extramural	Intramural <sup>1</sup>	Extramural
	in millions of dollars					
1. Exploration and Exploitation of the Earth	179	29	186	99	207	46
2. Infrastructure and General Planning of Land Use						
2.1 Transport	38	28	42	23	37	20
2.2 Telecommunication	32	35	24	34	28	15
2.3 Other	50	15	42	16	48	20
3. Pollution, Protection and Conservation of the Environment	98	83	122	88	143	112
4. Public Health	87	318	103	390	116	519
5. Production, Distribution and Rational Utilization of Energy	170	65	171	68	187	64
6. Agricultural Production and Technology :						
6.1 Agriculture	308	44	334	67	333	70
6.2 Fishing	42	10	43	13	51	14
6.3 Forestry	74	24	77	43	83	27
7. Industrial Production and Technology	123	406	137	398	165	518
8. Social Structures and Relationships	125	90	50	87	53	106
9. Exploration and Exploitation of Space	92	270	68	269	187	154
10. Non-Oriented Research	54	229	150	256	150	188
11. Other Civil Research	13	2	14	1	16	17
12. Defence	136	120	167	121	150	119
13. Other	4	68	4	58	3	62
<b>Total R&amp;D Expenditures</b>	<b>1,627</b>	<b>1,835</b>	<b>1,734</b>	<b>2,031</b>	<b>1,957</b>	<b>2,070</b>
	percent					
<b>Percent</b>	<b>47</b>	<b>53</b>	<b>46</b>	<b>54</b>	<b>49</b>	<b>51</b>

<sup>1</sup> Non-program (indirect costs) are excluded

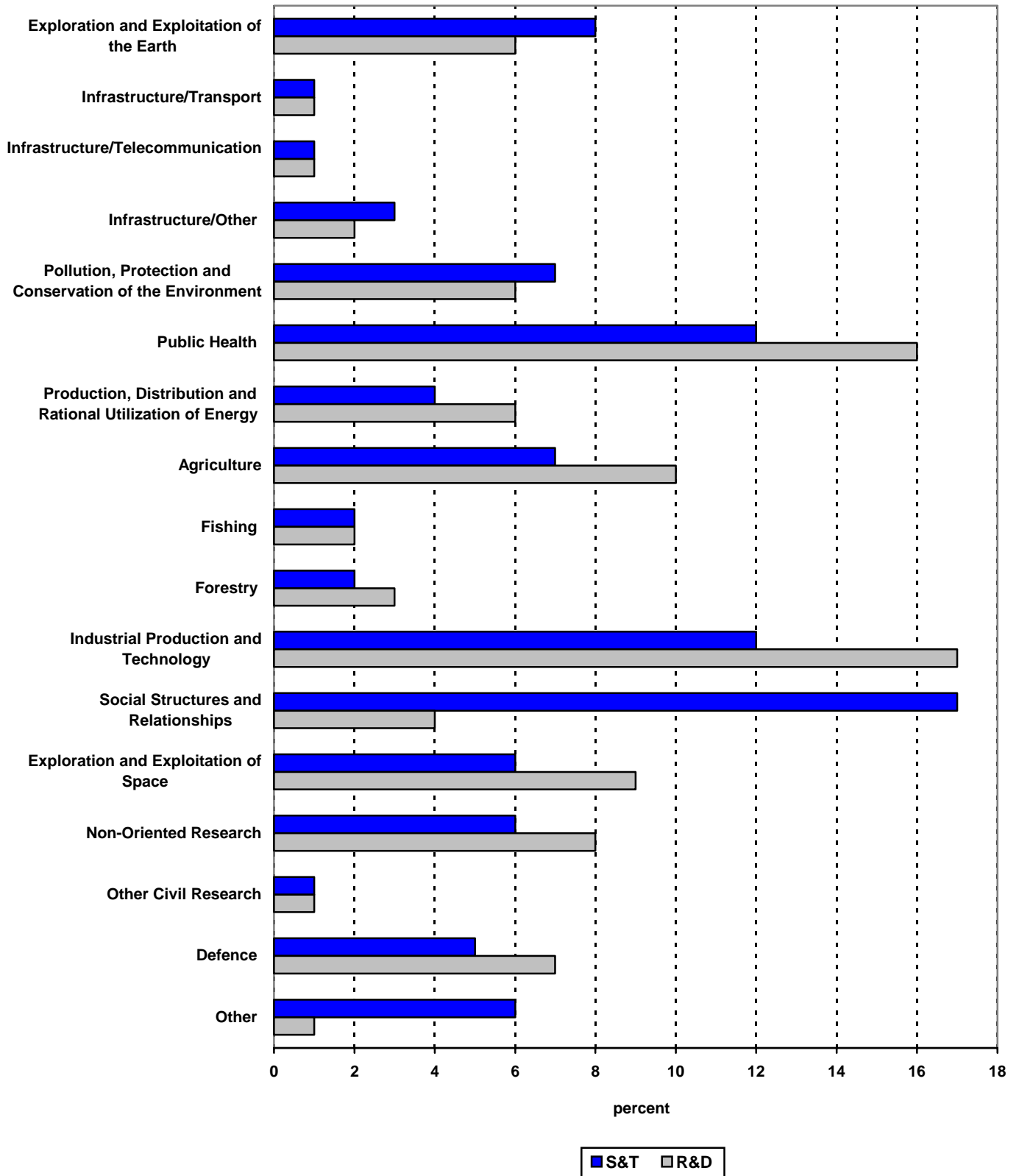
**TABLE 6.3 S&T Expenditures by Socio-Economic Objectives and Activity, 2000-2001**

Socio-Economic Objectives	Intramural <sup>1</sup>			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	207	206	413	46	30	76	253	236	489
2. Infrastructure and General Planning of Land Use :									
2.1 Transport	37	9	46	20	1	21	57	10	67
2.2 Telecommunication	28	2	30	15	0	15	43	2	45
2.3 Other	48	100	148	20	7	27	68	108	176
3. Pollution, Protection and Conservation of the Environment	143	186	329	112	46	158	255	232	487
4. Public Health	116	125	241	519	30	549	635	155	790
5. Production, Distribution and Rational Utilization of Energy	187	2	189	64	3	67	251	5	256
6. Agricultural Production and Technology :									
6.1 Agriculture	333	45	378	70	6	76	403	51	454
6.2 Fishing	51	80	131	14	16	30	65	96	161
6.3 Forestry	83	8	91	27	3	30	110	11	121
7. Industrial Production and Technology	165	60	225	518	24	542	683	84	767
8. Social Structures and Relationships	53	844	897	106	83	189	159	928	1,087
9. Exploration and Exploitation of Space	187	11	198	154	5	159	341	16	357
10. Non-Oriented Research	150	53	203	188	28	216	338	81	419
11. Other Civil Research	16	8	24	17	2	19	33	9	42
12. Defence	150	19	169	119	21	140	269	40	309
13. Other	3	13	16	62	288	350	65	300	365
<b>Total Expenditures</b>	<b>1,957</b>	<b>1,771</b>	<b>3,728</b>	<b>2,070</b>	<b>594</b>	<b>2,664</b>	<b>4,027</b>	<b>2,365</b>	<b>6,392</b>
percent									
<b>Percent of Activity</b>	<b>52</b>	<b>48</b>	<b>100</b>	<b>78</b>	<b>22</b>	<b>100</b>	<b>63</b>	<b>37</b>	<b>100</b>
<b>Percent of total</b>	<b>30</b>	<b>28</b>	<b>58</b>	<b>33</b>	<b>9</b>	<b>42</b>	<b>63</b>	<b>37</b>	<b>100</b>

<sup>1</sup> Non-program (indirect costs) are excluded

Chart 6.1

S&T and R&D Expenditure Percentages by Socio-Economic Objectives, 2000-2001



**TABLE 6.4 S&T Expenditure Percentages by Socio-Economic Objectives and Activity, 2000-2001**

Socio-Economic Objectives	R&D			RSA			S&T		
	Intramural <sup>1</sup>	Extramural	Total	Intramural <sup>1</sup>	Extramural	Total	Intramural <sup>1</sup>	Extramural	Total
	percent								
1. Exploration and Exploitation of the Earth	11	2	6	12	5	10	11	3	8
2. Infrastructure and General Planning of Land :									
2.1 Transport	2	1	1	1	0	0	1	1	1
2.2 Telecommunication	1	1	1	0	0	0	1	1	1
2.3 Other	2	1	2	6	1	5	4	1	3
3. Pollution, Protection and Conservation of the Environment	7	5	6	10	8	10	9	6	7
4. Public Health	6	25	16	7	5	7	6	21	12
5. Production, Distribution and Rational Utilization of Energy	9	3	6	0	0	0	5	2	4
6. Agricultural Production and Technology :									
6.1 Agriculture	17	3	10	2	1	2	10	3	7
6.2 Fishing	3	1	2	4	3	4	4	1	2
6.3 Forestry	4	1	3	0	1	0	2	1	2
7. Industrial Production and Technology	8	25	17	3	4	4	6	20	12
8. Social Structures and Relationships	3	5	4	48	14	39	24	7	17
9. Exploration and Exploitation of Space	10	8	9	1	1	1	5	6	6
10. Non-Oriented Research	8	9	8	3	5	3	5	8	6
11. Other Civil Research	1	1	1	1	0	0	1	1	1
12. Defence	8	6	7	1	3	2	5	5	5
13. Other	0	3	1	1	49	13	1	13	6
<b>Total Percent</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
	in millions of dollars								
<b>Total Expenditures</b>	<b>1,957</b>	<b>2,070</b>	<b>4,027</b>	<b>1,771</b>	<b>594</b>	<b>2,365</b>	<b>3,728</b>	<b>2,664</b>	<b>6,392</b>
	percent								
<b>Percent of Activity</b>	<b>49</b>	<b>51</b>	<b>100</b>	<b>75</b>	<b>25</b>	<b>100</b>	<b>58</b>	<b>42</b>	<b>100</b>
<b>Percent of Total</b>	<b>30</b>	<b>33</b>	<b>63</b>	<b>28</b>	<b>9</b>	<b>37</b>	<b>58</b>	<b>42</b>	<b>100</b>

<sup>1</sup> Non-program (indirect costs) are excluded

**TABLE 6.5 S&T Expenditures by Socio-Economic Objectives and Major Department and Agency, 2000-2001**

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	0	0	0	165	0	4	136	26	0	158	489	8
2. Infrastructure and General Planning of Land Use :												
2.1 Transport	0	0	0	0	0	40	0	8	4	15	67	1
2.2 Telecommunication	0	0	0	0	0	20	1	0	0	24	45	1
2.3 Other	0	0	0	0	0	33	31	16	0	96	176	3
3. Pollution, Protection and Conservation of the Environment	0	0	0	250	0	34	7	83	0	113	487	7
4. Public Health	0	0	391	0	0	69	0	69	9	252	790	12
5. Production, Distribution and Rational Utilization of Energy	0	0	0	0	0	4	83	26	0	143	256	4
6. Agricultural Production and Technology :												
6.1 Agriculture	316	0	0	0	0	30	0	40	12	56	454	7
6.2 Fishing	0	0	0	0	0	2	1	8	0	150	161	2
6.3 Forestry	0	0	0	0	0	3	104	8	0	6	121	2
7. Industrial Production and Technology	0	0	0	2	0	161	44	199	0	361	767	12
8. Social Structures and Relationships	0	0	0	0	0	0	0	5	505	577	1,087	17
9. Exploration and Exploitation of Space	0	0	0	0	0	36	0	11	0	310	357	6
10. Non-Oriented Research	0	0	0	0	0	194	0	66	0	159	419	6
11. Other Civil Research	0	0	0	0	0	11	11	0	0	20	42	1
12. Defence	0	0	0	0	309	0	0	0	0	0	309	5
13. Other	0	356	0	0	0	0	0	0	0	9	365	6
<b>Total S&amp;T Expenditures<sup>1</sup></b>	<b>316</b>	<b>356</b>	<b>391</b>	<b>417</b>	<b>309</b>	<b>641</b>	<b>418</b>	<b>565</b>	<b>530</b>	<b>2,449</b>	<b>6,392</b>	
percent												
<b>Percent</b>	<b>5</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>5</b>	<b>10</b>	<b>7</b>	<b>9</b>	<b>8</b>	<b>38</b>	<b>100</b>	<b>100</b>

<sup>1</sup> Non-program (indirect costs) are excluded



**TABLE 6.6 S&T Intramural Expenditures by Socio-Economic Objectives and Major Department and Agency, 2000-2001**

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	0	0	150	129	0	0	4	126	0	4	413	11
2. Infrastructure and General Planning of Land :												
2.1 Transport	0	0	0	0	0	0	36	1	4	5	46	1
2.2 Telecommunication	0	0	0	0	0	0	9	0	0	21	30	1
2.3 Other	0	0	0	0	0	0	33	28	0	87	148	4
3. Pollution, Protection and Conservation of the Environment	0	0	213	55	17	0	28	7	0	9	329	9
4. Public Health	0	0	0	0	132	0	62	0	9	38	241	6
5. Production, Distribution and Rational Utilization of Energy	128	0	0	0	0	0	2	54	0	5	189	5
6. Agricultural Production and Technology :												
6.1 Agriculture	0	299	0	0	2	0	23	0	12	42	378	10
6.2 Fishing	0	0	0	129	0	0	0	1	0	1	131	4
6.3 Forestry	0	0	0	0	0	0	3	87	0	1	91	2
7. Industrial Production and Technology	0	0	2	0	0	0	107	43	0	73	225	6
8. Social Structures and Relationships	0	0	0	0	0	0	0	0	504	393	897	24
9. Exploration and Exploitation of Space	0	0	0	0	0	0	25	0	0	173	198	5
10. Non-Oriented Research	0	0	0	0	0	0	150	0	0	53	203	5
11. Other Civil Research	0	0	0	0	0	0	11	9	0	4	24	1
12. Defence	0	0	0	0	0	169	0	0	0	0	169	5
13. Other	0	0	0	0	0	0	0	0	0	16	16	1
<b>Total S&amp;T Expenditures<sup>1</sup></b>	<b>128</b>	<b>299</b>	<b>365</b>	<b>313</b>	<b>151</b>	<b>169</b>	<b>493</b>	<b>356</b>	<b>529</b>	<b>925</b>	<b>3,728</b>	
percent												
<b>Percent</b>	<b>3</b>	<b>8</b>	<b>10</b>	<b>8</b>	<b>4</b>	<b>5</b>	<b>13</b>	<b>10</b>	<b>14</b>	<b>25</b>	<b>100</b>	<b>100</b>

<sup>1</sup> Non-program (indirect costs) are excluded

**TABLE 6.7 S&T Extramural Expenditures by Socio-Economic Objectives and Major Department and Agency, 2000-2001**

Socio-Economic Objectives	CIDA	CIHR	CSA	IND	NDEF	NRC	NSERC	SSHRC	Others	Total	%
in millions of dollars											
1. Exploration and Exploitation of the Earth	0	0	0	0	0	0	25	0	51	76	3
2. Infrastructure and General Planning of Land Use :											
2.1 Transport	0	0	0	0	0	4	8	2	7	21	1
2.2 Telecommunication	0	0	0	0	0	11	0	0	4	15	1
2.3 Other	0	0	0	0	0	0	16	0	11	27	1
3. Pollution, Protection and Conservation of the Environment	0	0	0	0	0	6	79	5	68	158	6
4. Public Health	0	370	0	0	0	7	65	11	96	549	21
5. Production, Distribution and Rational Utilization of Energy :	0	0	0	0	0	2	24	0	41	67	2
6. Agricultural Production and Technology :											
6.1 Agriculture	0	0	0	0	0	6	38	0	32	76	3
6.2 Fishing	0	0	0	0	0	2	8	1	19	30	1
6.3 Forestry	0	0	0	0	0	1	8	1	20	30	1
7. Industrial Production and Technology	0	0	0	246	0	54	190	7	45	542	20
8. Social Structures and Relationships	0	0	0	0	0	0	5	86	98	189	7
9. Exploration and Exploitation of Space	0	0	136	0	0	11	10	0	2	159	6
10. Non-Oriented Research	0	0	0	0	0	44	63	16	93	216	8
11. Other Civil Research	0	0	0	0	0	1	0	0	18	19	1
12. Defence	0	0	0	0	140	0	0	0	0	140	5
13. Other	342	0	0	0	0	0	0	0	8	350	13
<b>Total S&amp;T Expenditures</b>	<b>342</b>	<b>370</b>	<b>136</b>	<b>246</b>	<b>140</b>	<b>149</b>	<b>539</b>	<b>129</b>	<b>613</b>	<b>2,664</b>	
percent											
<b>Percent</b>	<b>13</b>	<b>14</b>	<b>5</b>	<b>9</b>	<b>5</b>	<b>6</b>	<b>20</b>	<b>5</b>	<b>23</b>	<b>100</b>	<b>100</b>

**TABLE 6.8 R&D Expenditures by Socio-Economic Objectives and Major Department and Agency, 2000-2001**

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	0	0	0	38	0	0	3	124	23	65	253	6
2. Infrastructure and General Planning of Land Use :												
2.1 Transport	0	0	0	0	0	0	35	0	7	14	56	1
2.2 Telecommunication	0	0	0	0	18	0	19	0	0	6	43	1
2.3 Other	0	0	0	0	0	0	29	15	15	9	68	2
3. Pollution, Protection and Conservation of the Environment	0	0	0	89	0	0	31	7	73	55	255	6
4. Public Health	0	383	0	0	0	0	62	0	60	130	635	16
5. Production, Distribution and Rational Utilization of Energy	0	0	0	0	0	0	4	83	23	141	251	6
6. Agricultural Production and Technology :												
6.1 Agriculture	308	0	0	0	0	0	27	0	35	33	403	10
6.2 Fishing	0	0	0	0	0	0	2	1	7	55	65	2
6.3 Forestry	0	0	0	0	0	0	3	94	7	6	110	3
7. Industrial Production and Technology	0	0	0	1	263	0	147	43	175	54	683	17
8. Social Structures and Relationships	0	0	0	0	1	0	0	0	5	153	159	4
9. Exploration and Exploitation of Space	0	0	296	0	0	0	33	0	9	3	341	9
10. Non-Oriented Research	0	0	0	0	0	0	175	0	58	105	338	8
11. Other Civil Research	0	0	0	0	0	0	10	5	0	18	33	1
12. Defence	0	0	0	0	0	269	0	0	0	0	269	7
13. Other	0	0	0	0	0	0	0	0	0	65	65	1
<b>Total R&amp;D Expenditures<sup>1</sup></b>	<b>308</b>	<b>383</b>	<b>296</b>	<b>128</b>	<b>282</b>	<b>269</b>	<b>580</b>	<b>372</b>	<b>497</b>	<b>912</b>	<b>4,027</b>	
percent												
<b>Percent</b>	<b>8</b>	<b>10</b>	<b>7</b>	<b>3</b>	<b>7</b>	<b>7</b>	<b>14</b>	<b>9</b>	<b>12</b>	<b>23</b>	<b>100</b>	<b>100</b>

<sup>1</sup> Non-program (indirect costs) are excluded

**TABLE 6.9 R&D Intramural Expenditures by Socio-Economic Objectives and Major Department and Agency, 2000-2001**

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	0	0	0	32	52	0	3	117	3	207	11
2. Infrastructure and General Planning of Land Use:											
2.1 Transport	0	0	0	0	0	0	32	1	4	37	2
2.2 Telecommunication	0	0	0	0	0	0	8	0	20	28	1
2.3 Other	0	0	0	0	0	0	29	15	4	48	2
3. Pollution, Protection and Conservation of the Environment	0	0	0	77	22	0	25	7	12	143	7
4. Public Health	0	0	0	0	0	0	55	0	61	116	6
5. Production, Distribution and Rational Utilization of Energy	128	0	0	0	0	0	1	54	4	187	9
6. Agricultural Production and Technology :											
6.1 Agriculture	0	292	0	0	0	0	20	0	21	333	17
6.2 Fishing	0	0	0	0	49	0	0	0	2	51	3
6.3 Forestry	0	0	0	0	0	0	2	79	2	83	4
7. Industrial Production and Technology	0	0	0	0	0	0	94	41	30	165	8
8. Social Structures and Relationships	0	0	0	0	0	0	0	0	53	53	3
9. Exploration and Exploitation of Space	0	0	164	0	0	0	22	0	1	187	10
10. Non-Oriented Research	0	0	0	0	0	0	131	0	19	150	8
11. Other Civil Research	0	0	0	0	0	0	9	4	3	16	1
12. Defence	0	0	0	0	0	150	0	0	0	150	8
13. Other	0	0	0	0	0	0	0	0	3	3	0
<b>Total R&amp;D Expenditures<sup>1</sup></b>	<b>128</b>	<b>292</b>	<b>164</b>	<b>109</b>	<b>123</b>	<b>150</b>	<b>431</b>	<b>318</b>	<b>242</b>	<b>1,957</b>	
percent											
<b>Percent</b>	<b>7</b>	<b>15</b>	<b>8</b>	<b>6</b>	<b>6</b>	<b>8</b>	<b>22</b>	<b>16</b>	<b>12</b>	<b>100</b>	<b>100</b>

<sup>1</sup> Non-program (indirect costs) are excluded

**TABLE 6.10 R&D Extramural Expenditures by Socio-Economic Objectives and Major Department and Agency, 2000-2001**

Socio-Economic Objectives	CFI	CIHR	CSA	IND	NDEF	NRC	NSERC	SSHRC	Others	Total	%
in millions of dollars											
1. Exploration and Exploitation of the Earth	6	0	0	0	0	0	22	0	18	46	2
2. Infrastructure and General Planning of Land Use :											
2.1 Transport	1	0	0	0	0	4	7	1	7	20	1
2.2 Telecommunication	4	0	0	0	0	11	0	0	0	15	1
2.3 Other	1	0	0	0	0	0	14	0	5	20	1
3. Pollution, Protection and Conservation of the Environment	13	0	0	0	0	6	70	4	19	112	5
4. Public Health	71	363	0	0	0	7	58	9	11	519	25
5. Production, Distribution and Rational Utilization of Energy	3	0	0	0	0	2	21	0	38	64	3
6. Agricultural Production and Technology :											
6.1 Agriculture	6	0	0	0	0	6	33	0	25	70	3
6.2 Fishing	1	0	0	0	0	2	7	1	3	14	1
6.3 Forestry	1	0	0	0	0	1	7	2	16	27	1
7. Industrial Production and Technology	36	0	0	246	0	54	167	6	9	518	25
8. Social Structures and Relationships	2	0	0	0	0	0	4	62	38	106	5
9. Exploration and Exploitation of Space	2	0	132	0	0	11	9	0	0	154	8
10. Non-Oriented Research	36	0	0	0	0	44	55	11	42	188	9
11. Other Civil Research	0	0	0	0	0	1	0	0	16	17	1
12. Defence	0	0	0	0	119	0	0	0	0	119	6
13. Other	0	0	0	0	0	0	0	0	62	62	3
<b>Total R&amp;D Expenditures</b>	<b>183</b>	<b>363</b>	<b>132</b>	<b>246</b>	<b>119</b>	<b>149</b>	<b>474</b>	<b>96</b>	<b>308</b>	<b>2,070</b>	
percent											
<b>Percent</b>	<b>9</b>	<b>17</b>	<b>6</b>	<b>12</b>	<b>6</b>	<b>7</b>	<b>23</b>	<b>5</b>	<b>15</b>	<b>100</b>	<b>100</b>

## Abbreviations

### Departments and Agencies

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

**Departments and Agencies – Concluded**

NSERC	Natural Sciences and Engineering Research Council
NTA	National Transportation Agency of Canada
PC	Privy Council Office
PCA	Parks Canada Agency
PSC	Public Service Commission
PSSRB	Public Service Staff Relations Board
PW	Public Works
PW&GS	Public Works and Government Services Canada
RCMP	Royal Canadian Mounted Police
RIE	Regional Industrial Expansion
SC	Science Council of Canada
SECS	Secretary of State
SGEN	Solicitor General
SS	Supply and Services
SSHRC	Social Sciences and Humanities Research Council
STCAN	Statistics Canada
SWC	Status of Women Canada
TB	Treasury Board
TPT	Transport
TSBC	Transportation Safety Board of Canada
URC	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 consist 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 artificial 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, archaeological 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.

(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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