Scientific Activities of the Government of Alberta 2010-11 Actual and 2011-12 Preliminary Survey Results

A report prepared by Alberta Enterprise and Advanced Education
Statistical tables compiled by the Science and Technology Surveys Section, Business Special Surveys and Technology Statistics Division, Statistics Canada
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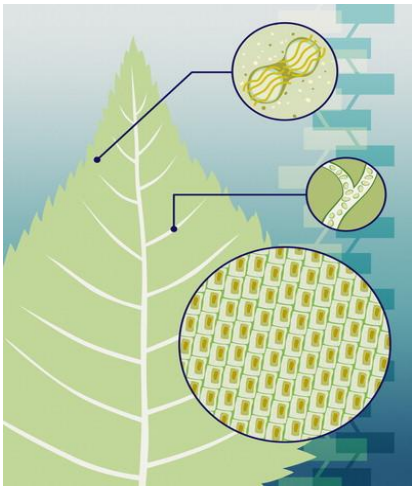
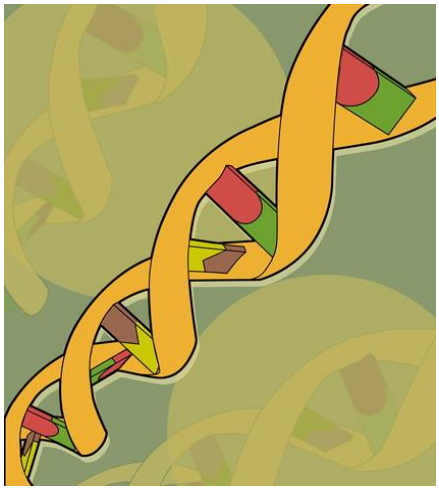

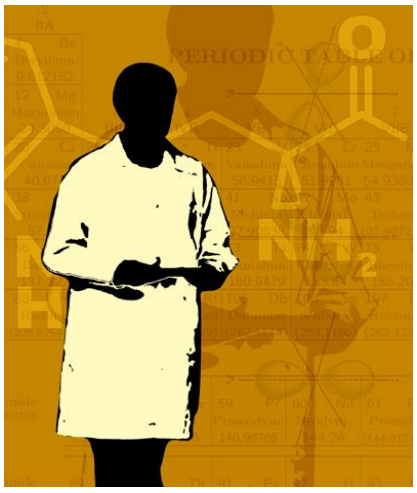
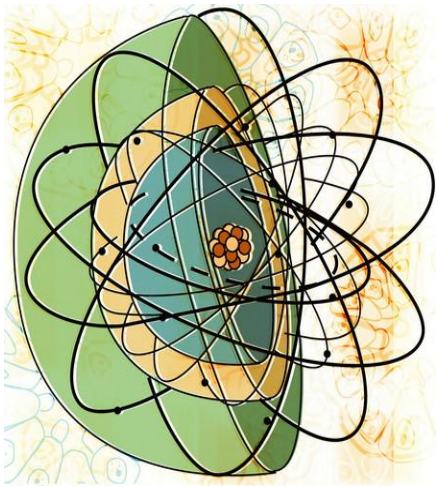
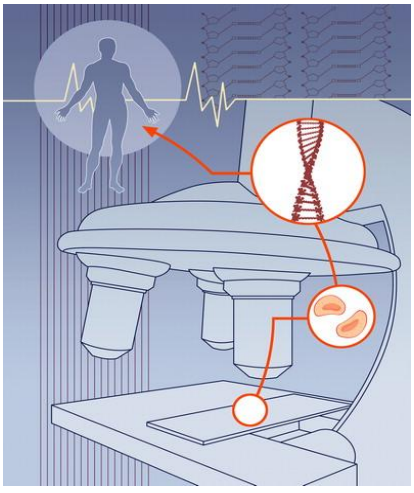

Alberta Government

Foreword

This report presents a summary of the results of the 2010-11 and 2011-12[p] annual survey of the Government of Alberta scientific activities. The survey was conducted jointly by Statistics Canada's Business Special Survey and Technology Statistics Division (BSSTSD) under the direction of Robert Schellings along with the sponsorship, co-operation and assistance of Alberta Enterprise and Advanced Education (formerly Advanced Education and Technology) under the direction of Dale Miles and Sheena Francisco.

The statistical data presented here provide a broad perspective of the Government of Alberta's involvement in scientific activities. These activities consist of **research and experimental development** (R&D) and a number of activities closely related to R&D and referred to as **related scientific activities** (RSA). The report contains indicators of science expenditures and personnel for various aspects such as: department or agency, type of activity, sector of performance, source of funds and science type.

Surveys of the scientific activities of provincial governments serve several purposes. They provide an essential database for analysis and the formulation of provincial science policy. They also provide data for the development of a national aggregate R&D series indicator called: Gross Domestic Expenditures on Research and Development (GERD). Statistics Canada makes available the annual report 88-221-XIE, **Gross domestic expenditures on research and development in Canada (GERD), and the provinces** which includes a five-year account of all research and development data available at the provincial level.

Science surveys, like many other surveys, are based on respondents' interpretations of definitions and methods of calculation. Recognizing the fact that the data are estimates, they are still a good representation of the current science expenditures and employment data for the province of Alberta. A continuing effort has been made in this year's survey to improve on the quality of reporting by Departments.

Significant changes for the 2010-11 reporting year:

There are no significant ministerial changes that occurred during the 2010-11 reporting year.

The results in this report do not reflect ministerial changes that occurred in late 2011 or Spring 2012. These changes will be reflected in future reporting.

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Summary and Analysis

This document presents a summary of findings from the Government of Alberta's (GoA) scientific activities survey for 2010/2011 conducted by Statistics Canada. Fifteen ministries participated in the survey as well as seven entities reporting under Alberta Advanced Education and Technology (AET). The results are broken down by ministry, by type of science (natural sciences or social science), by type of activity (research and development or related scientific activity), and by objective of the scientific activity.

Highlights:

- The Government of Alberta's total scientific activities expenditures amounted to $565.8 million in 2010-11, a 6.3% decrease from the previous year's $604.0 million.

- About 67.3% ($380.7 million) of the total scientific expenditure was dedicated to research and development while 32.7% ($185.2 million) was dedicated to related scientific activities. Historically, provincial R&D expenditures have been greater than RSA. Interestingly, the gap between the two has grown larger in the last five reporting years (from 2007/08 to 2011/12^{p} except for the year 2010/11) as R&D shows an increasing trend and RSA expenditure is declining.

- There was a net decline of $38.1 million (6.3%) in GoA's scientific activities expenditure from 2009/10 ($604.0 million) to 2010/11 reporting year ($565.8 million). Both R&D and RSA declined this reporting year by 7.9% and 6.3%, respectively.

- The objective of protection and improvement of human health drew the largest percentage of scientific expenditures capturing 23.0% ($130.2 million) of the total. This was followed by objectives relating to control and care of the environment (14.8%; $83.6 million), and production, distribution and rational utilization of energy (12.5%; $70.5 million).

- GoA personnel engaged in scientific activities slightly declined for 2010/11 by 4.7%. This was the result of declines in personnel in both R&D and RSA, and appears to be influenced by budget cuts and hiring freezes.

- In 2010/11, 88.6% or $501.6 million of the total scientific expenditure was spent for natural sciences research and 11.4% or $64.9 million for social sciences. Scientific expenditures in natural sciences have been historically greater than expenditures in social sciences.

- Preliminary 2011/12 result of the GoA's scientific expenditure is $638.7 million which would represent a net increase of $72.9 million from 2010-11. This increase is entirely attributed to two ministries that expected a rise in scientific expenditures for that fiscal year, Alberta Advanced Education and Technology and Alberta Energy. The rest of the ministries anticipate a decline or little to no difference.

Overall Results

In 2010/11, the Government of Alberta's expenditures on scientific activities amounted to $565.8 million, a 6.3% decrease from the previous year's $604.0 million. The decline in total amount spent for the current survey year was, in part, due to reduced funding within the participating entities. Additionally, some projects were delayed due to delayed arrival of funds. The preliminary scientific expenditure for 2011/12

is an estimated $638.7 million which represents the highest total investment in the last five years (see Figure 1).

Figure 1. Government of Alberta's scientific expenditure as a percentage of total government expenditure, 1999-2012[f]

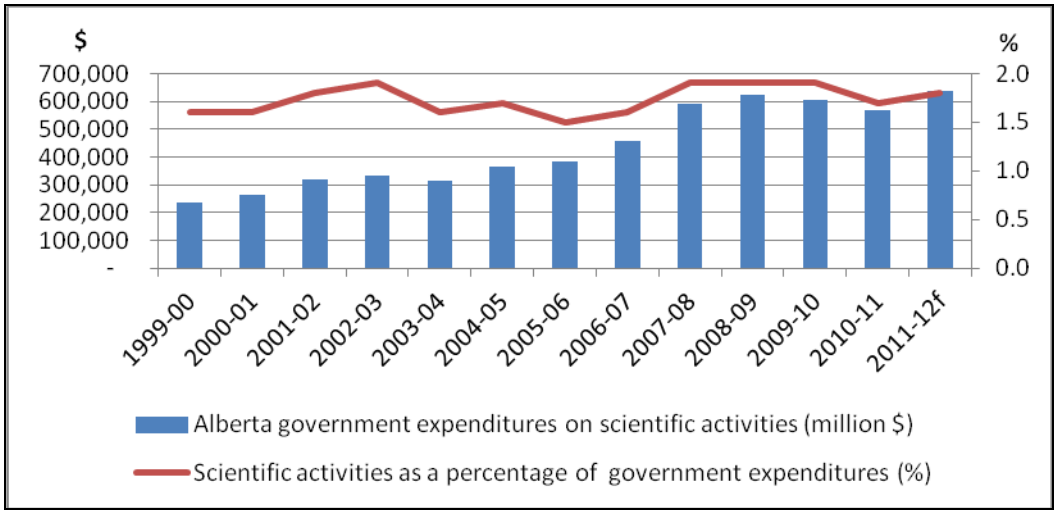


Table 1 presents the historical amounts allotted for Alberta expenditures on scientific activities and how they relate to a percentage of estimated government expenditures. Alberta government expenditures continue to increase every year but the share dedicated to scientific research activities remain in the range of 1.6-1.9% (Figure 1).

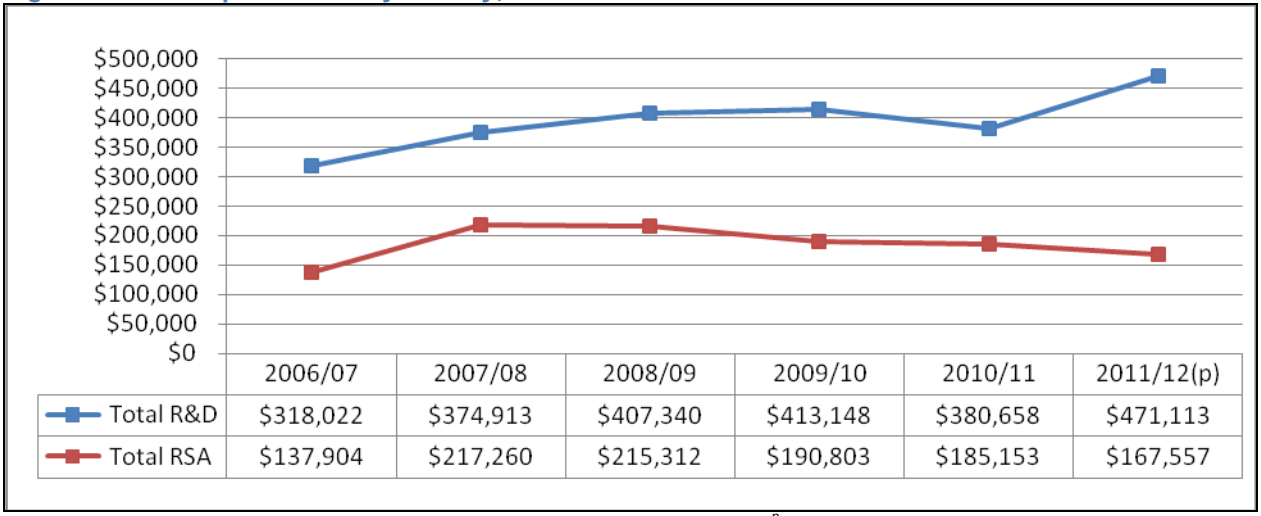
Table 1. Government expenditures on scientific activities

Year	Alberta government expenditures on scientific activities (Million $)	Alberta government expenditures (Million $)*	Scientific activities as a percentage of estimated government expenditures (%)
1999/00	234.5	14,527.3	1.6
2000/01	263.7	16,174.5	1.6
2001/02	317.7	17,982.8	1.8
2002/03	333.4	17,146.8	1.9
2003/04	313.5	19,200.1	1.6
2004/05	362.6	21,423.2	1.7
2005/06	381.7	25,547.7	1.5
2006/07	455.9	28,170.1	1.6
2007/08	592.1	31,749.6	1.9
2008/09	622.6	32,994.1	1.9
2009/10	603.9	31,694.3	1.9
2010/11	565.8	33,406.3	1.7
2011/12	638.6	34,815.2[f]	1.8

Source: Government and Legislative Assembly Estimates documents from Budget 2001 to Budget 2012. http://www.finance.alberta.ca/publications/budget/index.html. The amounts are actual values except for those marked with [f] for forecast and [e] for estimate. *(expense and equipment / inventory purchases)

Figure 2 shows the trend of the total scientific expenditures by the Government of Alberta's ministries, departments and agencies. There has been a slow decline since 2009/2010 up to the current survey year. However, preliminary estimates show that scientific expenditures are anticipated to increase in the 2011/12 fiscal year, the highest in the last five years and is a 40% rise since 2006/07.

Figure 2. Total expenditures by activity, Government of Alberta 2006-07 to 2011-12[p]



	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12(p)
Total R&D	$318,022	$374,913	$407,340	$413,148	$380,658	$471,113
Total RSA	$137,904	$217,260	$215,312	$190,803	$185,153	$167,557

Source: Scientific Activities of the Government of Alberta 2010/2011 & 2011/2012[p] Survey Results, Statistics Canada, Table 1

Expenditure in R&D has a greater decline than expenditure in RSA in 2010/11. However, in reporting year 2011/12 R&D spending is expected to rise by 23.8%. This will be somewhat offset by a 9.5% decline in RSA spending.

Estimates of the scientific activities expenditures in the year 2011/2012 pose a positive outlook as it is expected to rise by 12.9% to $638.7 million. The increase is primarily attributed to the increase in natural sciences R&D spending.

The highest expenditure on RSA (in actual amount and in percentage) was in 2007/08 at $217.3 million and it has been declining since. Preliminary results show that in 2011/12, it will be $167.6 million, a 22.9% decline since 2007/08. Conversely, total R&D in 2011/12 is the highest in the last 6 years.

Historically, research and development expenditure has remained higher than related scientific activities. However, the gap between the two has grown larger as R&D increased and RSA expenditures declined. (Figure 2)

Three-Year Trend of Scientific Activities in the GoA

Total expenditures in the report were broken down by GoA ministry and other entities.

In Table 2, the total expenditure shows a decline of $38.1 million or 6.3% from 2009/10 to 2010/11 which totaled $565.8 million. By 2011/12[p], it is expected that the total expenditures on scientific activities will increase by $72.9 million (12.9%) to $638.7 million.

Of the 21 respondents for 2010-2011 survey, only seven reported an increase from the previous year namely Alberta Innovates – Health Solutions, Post-Secondary Excellence Division, Research and Innovation Division (due to consolidation of reporting with Research Capacity Planning), Education, Health and Wellness, Justice and Attorney General, and Sustainable Resource Development. Collectively, they add $41.6 million in scientific activities expenditure.

Table 2. Total expenditures by department, ministry or agency, 2009/10, 2010/11, and 2011/12[p]

Department, ministry or agency	2009/2010	2010/2011	2011/2012[p]
		in thousands	
Advanced Education & Technology			
Alberta Innovates - Energy and Environment Solutions	26,888	20,859	28,060
Alberta Innovates - Health Solutions	77,886	79,802	91,832
Alberta Innovates- Bio Solutions	24,291	21,916	23,710
Alberta Innovates- Technology Futures	162,592	156,369	160,480
Advanced Technology Industries Division	17,641	14,383	18,600
Post-Secondary Excellence Division	313	382	382
Research and Innovation Division[1]	3,217	22,782	15,144
Research Capacity Planning	22,409	...	...
Total Advanced Education & Technology	**335,237**	**316,493**	**338,208**
Agriculture and Rural Development	35,916	31,427	31,427
Children and Youth Services	2,200	2,180	1,570
Culture and Community Spirit	3,932	3,932	3,929
Education	31,625	32,841	25,594
Employment and Immigration	2,295	2,099	1,323
Energy	26,793	14,977	99,024
Environment	61,465	57,430	53,795
Health and Wellness	28,287	36,768	33,988
Housing and Urban Affairs	887	721	259
Infrastructure	18,174	3,979	1,946
Justice and Attorney General	2,140	3,384	2,544
Sustainable Resource Development	40,141	49,232	36,298
Tourism, Parks and Recreation	1,101	1,069	1,050
Transportation	12,297	9,279	7,715
Total	**603,951[i]**	**565,811**	**638,670**

[i]Total do not add up due to deletion of the following ministries that did not report scientific activities spending in 2010/2011 and 2011/12: Municipal Affairs, Seniors and Community Supports, Solicitor General and Public Security, Tourism, Parks, Recreation and Culture.

These increases were offset by a larger amount of decline in expenditures from other respondents. There was a significant decline in scientific activities spending especially in AET, Energy, and Infrastructure. The total decline in scientific spending was $79.7 million and a total increase of $41.6 which resulted to a net decline of $38.1 million in GoA's total scientific activities expenditure.

Historically, Advanced Education and Technology and its agencies and corporations accounted for the largest amount in expenditures for scientific activities, averaging $330.0 million in the last three years. During the same three years, the top R&D and RSA spending ministries following AET were Energy, Environment and Sustainable Resource Development on average.

Preliminary report for 2011/2012 shows an increase from the current year and is the highest expenditure amount in the past 5 years, growing 40% since then ($455.9 million in 2006/07). Only two ministries anticipate increases in spending. First, Energy is expected to increase scientific expenditures by 561%

[1] Starting 2010/2011, the Research and Innovation Division includes spending from Research Capacity Planning which caused the rise in Research and Innovation Division expenditure report.

(from $14.9 million in 2010/11 to $99.0 million in 2011/12)[2]. Second, Advanced Education and Technology reports an expenditure increase of 6.9% ($21.7) as a result of new projects by the Alberta Innovates corporations.

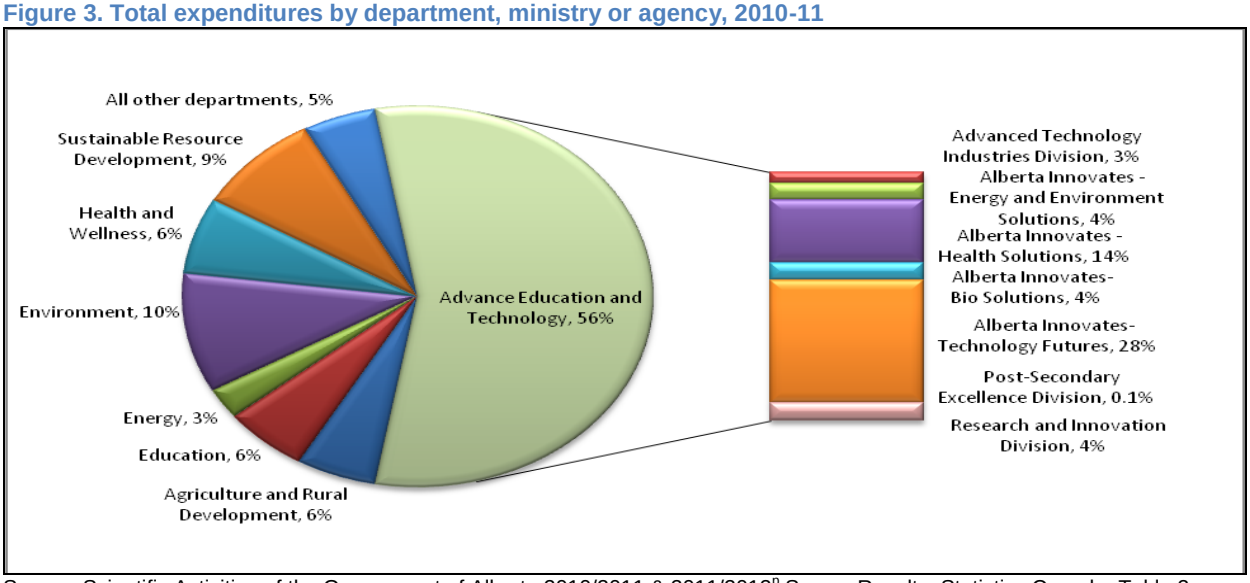
Scientific Activities Expenditure of the GoA 2010/11

The scientific activities survey 2010/11 is composed of fifteen ministries and seven agencies who responded to the survey.

Advanced Education and Technology accounts for the largest portion of scientific spending taking 56% of the total provincial scientific expenditure.

- Under AET, Alberta Innovates – Technology Futures ($156.4 million) captures 27.6% of the total GoA scientific expenditures and 49.4% of AET's. Alberta Innovates – Health Solutions ($79.8 million) accounts for 14% of the GoA's total and 25.2% of AET's while Alberta Innovates – Bio Solutions accounts for 3.9% of GoA or 6.9% of AET (Figure 3).

Figure 3. Total expenditures by department, ministry or agency, 2010-11



Source: Scientific Activities of the Government of Alberta 2010/2011 & 2011/2012[p] Survey Results, Statistics Canada, Table 2

Following AET is Environment accounting for 10.2% ($57.4 million) of the total GoA scientific expenditures. Sustainable Resource Development[3] has 8.7% of the provincial spending in scientific activities ($49.2 million), and Health and Wellness with 6.5% ($36.8 million).

All other departments includes Children and Youth Services (0.39%), Culture and Community Spirit (0.69), Employment and Immigration (0.37%), Housing and Urban Affairs (0.13%), Infrastructure (0.70%), Justice and Attorney General (0.60%), Tourism and Parks and Recreation (0.19%), and Transportation (2.0%). Together they make up 5.1% of the total Alberta scientific activities expenditure for 2010/11.

[2] Most were projects initially assigned for 2010/2011 but were postponed to the next fiscal year.

[3] Sustainable Resource Development reports a modest shift in priorities primarily to expenditures for technical surveys for wildlife management primarily in the occurrence of mountain pine beetle in the province.

Total expenditures by science type and activity

Table 3. Total expenditures 2006/07 to 2011/12[p] by science type						
Activity	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012[p]
	thousands of dollars					
Total scientific activities	**$ 455,926**	**$ 592,173**	**$ 622,652**	**$ 603,951**	**$ 565,811[4]**	**$ 638,670**
Natural Science	**424,710**	**508,739**	**553,266**	**540,052**	**501,572**	**587,086**
Total R&D	307,283	360,136	392,339	407,383	372,846	467,064
Total RSA	117,427	148,603	160,927	132,669	128,726	120,022
Social Sciences	**31,216**	**83,434**	**69,386**	**63,899**	**64,239**	**51,584**
Total R&D	10,739	14,777	15,001	5,765	7,812	4,049
Total RSA	20,477	68,657	54,385	58,134	56,427	47,535

In 2010/11, the natural science spending is $501.6 million and for social sciences $64.2 million, capturing 88.6% and 11.4% of the total scientific activities expenditure of the GoA. Natural science total scientific spending is anticipated to be the provincial largest recorded total in 2011/12[p]. However, in the social sciences, the highest is reported in 2007/2008 and it has been declining since.

Historically, spending in natural sciences has been larger than spending in social sciences. In Table 3, spending in natural sciences is 7.8 times larger than the spending in social sciences in 2010/11. From 2006/07 to 2011/12[p], the average distribution is 90% natural sciences and 10% social sciences.

Under the natural sciences, the majority of funding is dedicated towards R&D (about 74.3%) while 25.6% is spent on RSA. The opposite is true for social sciences where 87.8% is dedicated to RSA and only 12.2% is for R&D.

- The major contributors to activities in natural sciences in 2010/11 are: Advanced Education and Technology (62.7%; $314.3 million), Environment (10.8%; $54.0 million), Sustainable Resource Development (9.8%; $49.2 million), and Agriculture and Rural Development (6.3%; $31.4 million).

- The major contributors to activities in social sciences in 2010/11 are: Education (51.1%; $32.8 million) , Health and Wellness (23.4%; $15.0 million), and Environment (5.4%; $3.5 million).

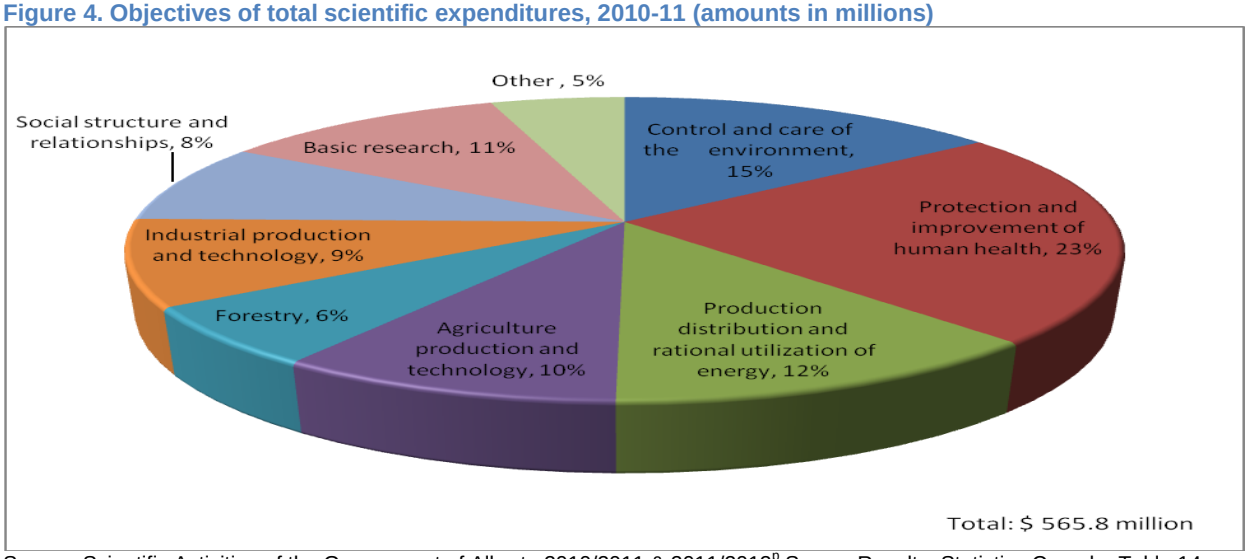
The year 2011/12[p] shows an increase in natural sciences (17.0%) to $587.1 million and a decline in social sciences (9.7%) to $51.6 million. The increase in natural sciences is focused on R&D while both RSA's in natural sciences and social sciences declined.

Total Expenditures by objectives

Much like 2009-10, the largest portion of the total scientific expenditures of GoA is dedicated to the protection and improvement of human health with $130.2 million (23.0% of the total spending). This is a 13% increase from last year's $ 114.9 million (19% of the total scientific spending). The second largest spending objective is control and care of the environment which acounts for $83.6 million or 14.8% of the total spending while the production, distribution and rational utilization of energy takes $70.5 million or 12.5% of the total spending, ranking third (see Figure 4). The only increases in percentage of total expenditures by objectives are observed in protection and improvement of human health, agriculture production and technology, and industrial production and technology.

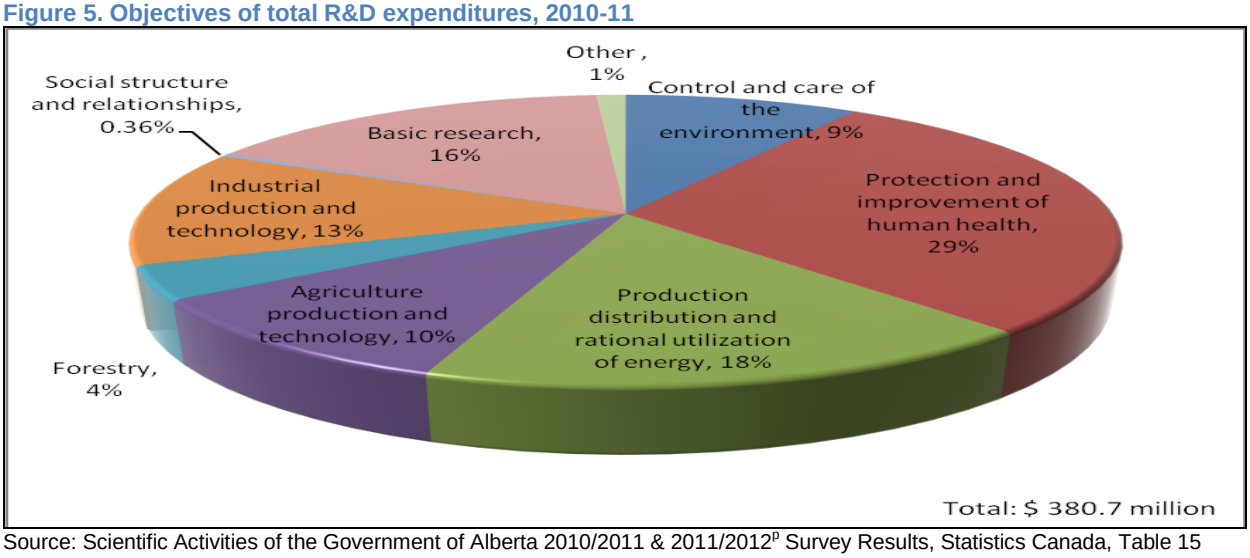
[4] The 6.3% decline in total scientific activities of the GoA is 2010/11 was mostly due to the decrease in natural sciences spending by 7.1% while social science spending rose 0.5%.

Figure 4. Objectives of total scientific expenditures, 2010-11 (amounts in millions)



Source: Scientific Activities of the Government of Alberta 2010/2011 & 2011/2012[p] Survey Results, Statistics Canada, Table 14

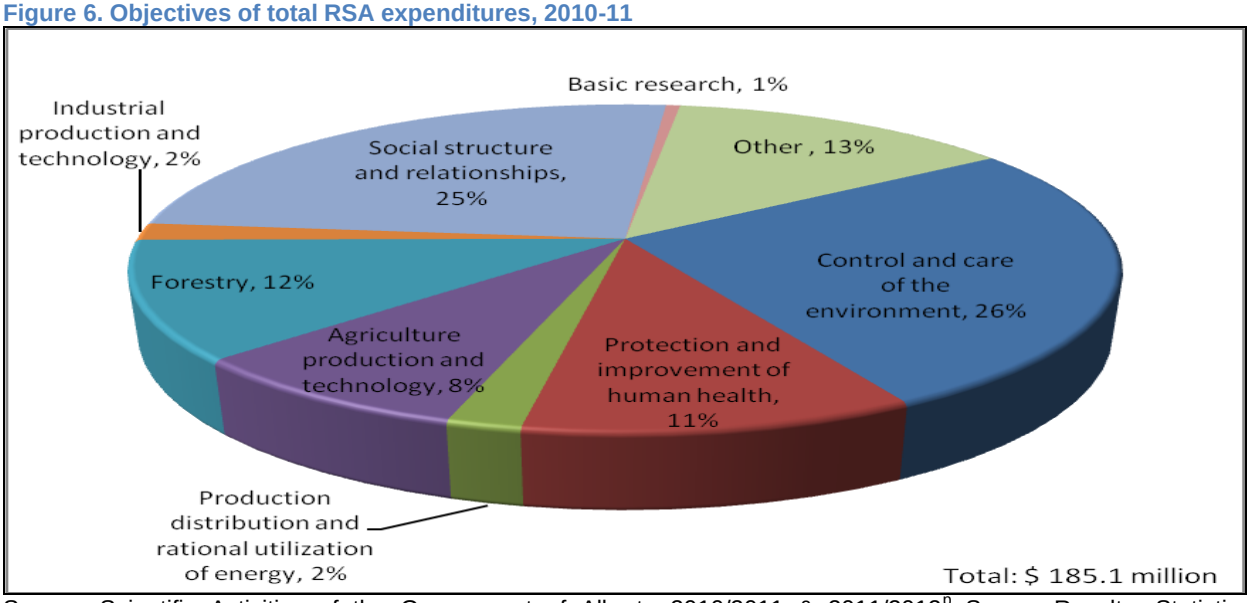
Figure 5. Objectives of total R&D expenditures, 2010-11



Source: Scientific Activities of the Government of Alberta 2010/2011 & 2011/2012[p] Survey Results, Statistics Canada, Table 15

When observing R&D expenditures only, funding amounts to $380.7 million for 2010/11, down 7.8% from the previous year ($413.1 million). The largest portion of 28.9% is dedicated to protection and improvement of human health which amounts to $109.9 million. About $66.7 million or 17.5% is spent on the production distribution and rational utilization of energy and $61.6 million or 16.2% is dedicated to basic research (Figure 5).

Figure 6. Objectives of total RSA expenditures, 2010-11



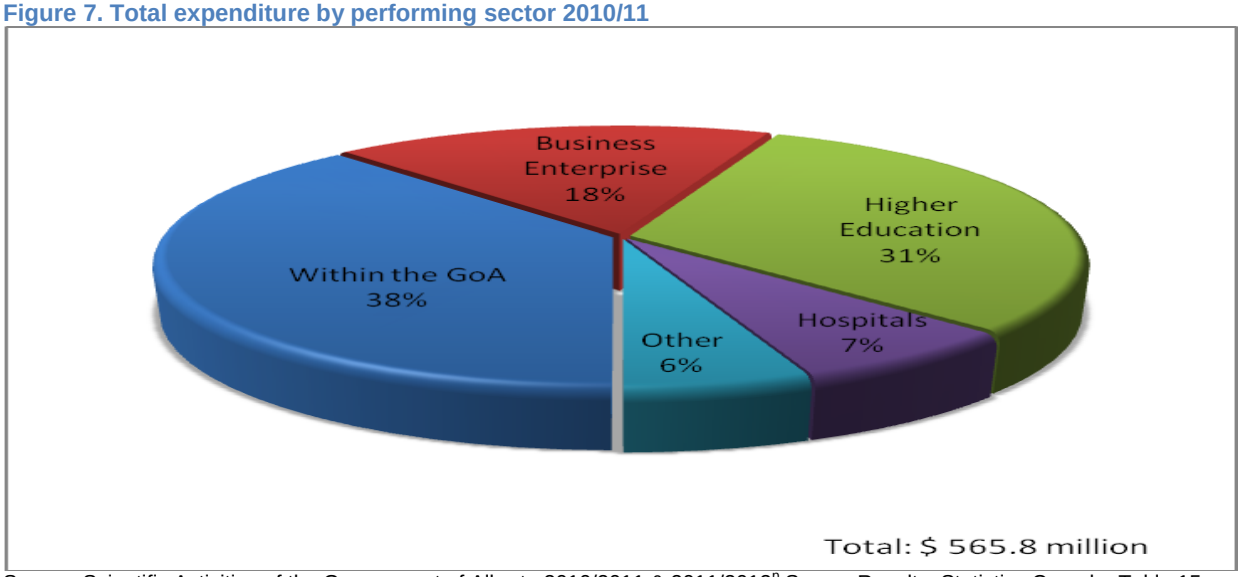
Source: Scientific Activities of the Government of Alberta 2010/2011 & 2011/2012[p] Survey Results, Statistics Canada, Table 15

Total RSA expenditures in the survey year 2010/11 amounts to $ 185.1 million, down 3% from last year's $190.8 million. The largest portion of RSA expenditures is dedicated to the control and care for the environment spending $48.8 million or 26% of the total RSA expenditures. Social structure and relationships is second with $46.3 million (25%) and other civil research is third with $24.9 million in spending (13%).See Figure 6.

Total expenditures by performer

In the 2010/11 survey, the GoA (internal expenditures) was the largest performer conducting 38% of the total GoA scientific expenditures ($215.1 million). This was a 9.1% decline from the previous year; however, it is expected to increase in 2011/12 to $222.3 million. (See Figure 7)

Figure 7. Total expenditure by performing sector 2010/11



Source: Scientific Activities of the Government of Alberta 2010/2011 & 2011/2012[p] Survey Results, Statistics Canada, Table 15

Higher education performed about 30.8% or $ 174.1 million of scientific activities. This was the same percentage of the total as the previous year but the actual funding amount declined from $189.4 million in 2009/10. Although R&D activities by higher education declined, RSA activities increased in the survey year.

Business enterprises performed 18.2% or $102.8 million of GoA's scientific activities expenditure. This was the result of the decline in both R&D and RSA activities of the business sector. This amount declined by 3.9% from $107.0 million in 2009/10 but it is expected to increase to $181.2 million in 2011/12.

Only funding to hospitals increased in 2010/11 from $24.9 million to $40.9 million which was a 64.3% rise. The increase was only observed in R&D activities and is expected to drop in 2012.

The largest portion of R&D and RSA expenditures were performed within the GoA ($123.6 or 32.5% of total R&D expenditure and $91.6 million or 49.4% of total RSA expenditures).

Table 4 summarizes the distribution of the expenditures by performing sector in the survey year 2010/11 by R&D and RSA. It shows that the department/ministry/agency performs most of the activities followed by higher education (30.7%) and business sector (18.2%).

Table 4. Total expenditures by performing sector, 2009/2010 to 2011/2012 preliminary

	Total			R&D			RSA		
Performing sector	2009/ 2010	2010/ 2011	2011/ 2012[p]	2009/ 2010	2010/ 2011	2011/ 2012[p]	2009/ 2010	2010/ 2011	2011/ 2012[p]
	in thousands of dollars								
Within the GoA	236,679	215,103	222,293	137,829	123,553	130,611	98,850	91,550	91,682
Business Enterprise	106,974	102,827	181,209	59,292	52,590	139,385	47,682	50,237	41,824
Higher Education	189,367	174,130	181,036	182,214	164,020	176,462	7,153	10,110	4,574
Hospitals	24,913	40,920	27,690	11,444	28,591	14,135	13,469	12,329	13,555
Other	46,018	32,831	26,442	22,369	11,904	10,520	23,649	20,927	15,922
Total	**603,951**	**565,811**	**638,670**	**413,148**	**380,658**	**471,113**	**190,803**	**185,153**	**167,557**

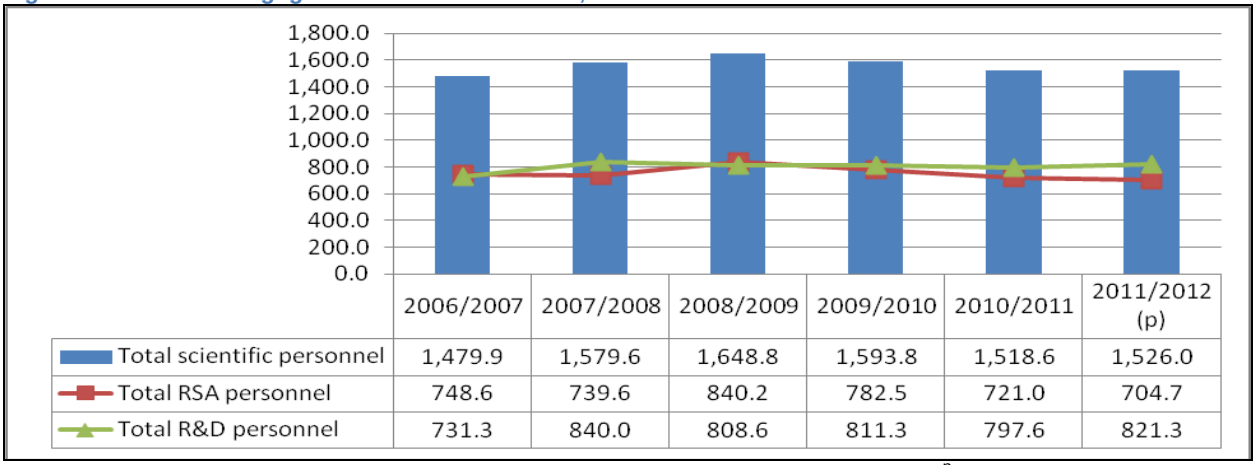
Source: Scientific Activities of the Government of Alberta 2010/11 & 2011/12[p] Survey Results, Statistics Canada, Tables 3 & 11.

Although the total scientific activities expenditure is expected to increase next year, this is not reflective of the case for all performers. Hospitals and other performers are expected to decline spending but these are countered by the rise in activities by the ministries, business enterprises and higher education.

Personnel engaged in scientific activities

Full-time equivalents (FTE) engaged in GoA's scientific activities are reported to be 1,518.6 in 2010/11, down by 75.2 FTE's from the previous reporting year. This is predicted to have resulted from vacant positions being kept vacant for certain ministries due to the hiring freeze. The number of personnel involved in R&D and RSA do not differ by a large amount but historically, there are more involved in R&D than in RSA. An increase in R&D personnel is expected in 2011/12 accompanied by a decline in RSA personnel.

Figure 8. Personnel engaged in scientific activities, 2006 to 2012[p]



	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012 (p)
Total scientific personnel	1,479.9	1,579.6	1,648.8	1,593.8	1,518.6	1,526.0
Total RSA personnel	748.6	739.6	840.2	782.5	721.0	704.7
Total R&D personnel	731.3	840.0	808.6	811.3	797.6	821.3

Source: Scientific Activities of the Government of Alberta 2010/2011 & 2011/2012[p] Survey Results, Statistics Canada, Table 6

The majority of GoA personnel working on scientific activities fall under the category of "Scientific and Professionals" (48.0%). "Technical" employees account for 29.3% and the remaining "Other" category account for 22.7%. There are about six natural science FTEs for every one social science FTE. In natural science, 52.3% is dedicated to R&D and 36.4% is in RSA. The distribution is flipped in social sciences where only 6.7% is involved in R&D while 71.7% are in RSA. Together, there are more personnel involved in R&D than in RSA as reflected in earlier data. About 45.8% is engaged in R&D, 41.4% in RSA and 12.7% in administration of extramural programs.

Table 5. Personnel engaged in scientific activities, by science type and activity, 2010/11

Science type and activity	Scientific and Professional	Technical	Other	Total
	full-time equivalent (FTEs)			
Total Sciences	**835.5**	**510.5**	**394.3**	**1,740.3**
Research and development	365.9	233.1	198.6	797.6
Related scientific activities	343.9	249.2	127.9	721.0
Administration of extramural programs	125.7	28.2	67.8	221.7
Total natural sciences	**672.6**	**497.1**	**322.4**	**1,492.1**
Research and development	353.0	233.1	194.9	781.0
Related scientific activities	240.7	236.3	66.1	543.1
Administration of extramural programs (R&D/RSA)	78.9	27.7	61.4	168.0
Total social sciences	**162.9**	**13.4**	**71.9**	**248.2**
Research and development	12.9	0.0	3.7	16.6
Related scientific activities	103.2	12.9	61.8	177.9
Administration of extramural programs	46.8	0.5	6.4	53.7

Source: Table 13, 35, and 57.

Provincial Comparisons

Total gross domestic expenditures on research and development in Canada amounted to $29.4 billion in 2009 down 1.6% from $29.9 billion in 2008. As shown in Table 4, Ontario received $13.4 billion or 45.5% of Canada's funding for research and development. Quebec accounted for 26.7% of the national gross expenditures on R&D followed by Alberta with 9.7%. Ontario received $375 million funding from the federal government which is the largest portion in the country (51.4%). This is followed by Quebec (21.0%), British Columbia (8.7%), and Alberta (6.3%).

Table 6. Gross domestic expenditures on research and development in Canada, by funding sector, 2009[i]

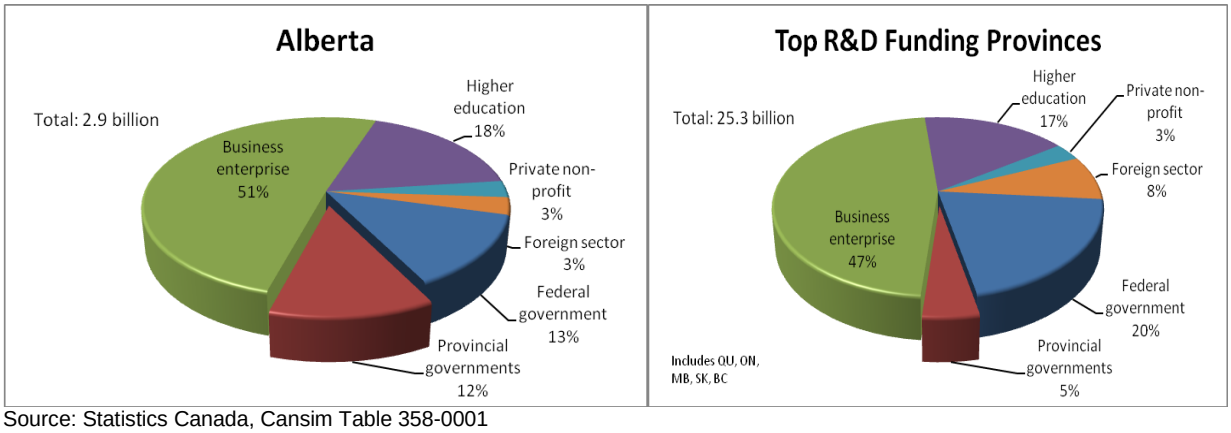
Province	Federal government	Provincial governments	Provincial research orgs.	Business enterprise	Higher education	Private non-profit	Foreign sector	**Total** [ii]
	in millions of dollars							
Canada	**5,915**	**1,586**	**5**	**13,694**	**5,121**	**954**	**2,156**	**29,430**
Newfoundland and Labrador	66	5	…	87	86	5	11	**259**
Prince Edward Island	30	1	…	9	24	1	0	**66**
Nova Scotia	164	10	…	109	186	22	9	**500**
New Brunswick	84	18	…	125	96	2	3	**327**
Quebec	1,240	423	…	4,147	1,277	239	531	**7,855**
Ontario	3,040	448	…	6,132	2,130	406	1,231	**13,386**
Manitoba	194	33	…	202	165	33	27	**653**
Saskatchewan	175	105	5	138	152	14	7	**596**
Alberta	375	344	…	1,449	508	86	89	**2,851**
British Columbia	514	154	…	1,288	498	105	240	**2,798**

[i] The latest available data is until 2009. The provincial scientific activities survey results are used as input to this calculation.

[ii] Total does not add due to rounding. Source: Statistics Canada, Cansim Table 358-0001, Catalogue no 88-211-X-http://publications.gc.ca/collections/collection_2010/statcan/88-221-X/88-221-x

Quebec, Ontario, Alberta, British Columbia, Saskatchewan, and Manitoba receive the highest provincial funding in the country. Comparing Alberta's provincial funding to the average of the other five, Alberta receives 12.1% ($344 million) of its 2.9 billion total gross domestic expenditures on research and development from the province while the rest on average received only 4.6% from their province. The largest source of funding for most provinces is the business sector except for Prince Edward Island, Nova Scotia and Saskatchewan which received the largest portion from the federal government.

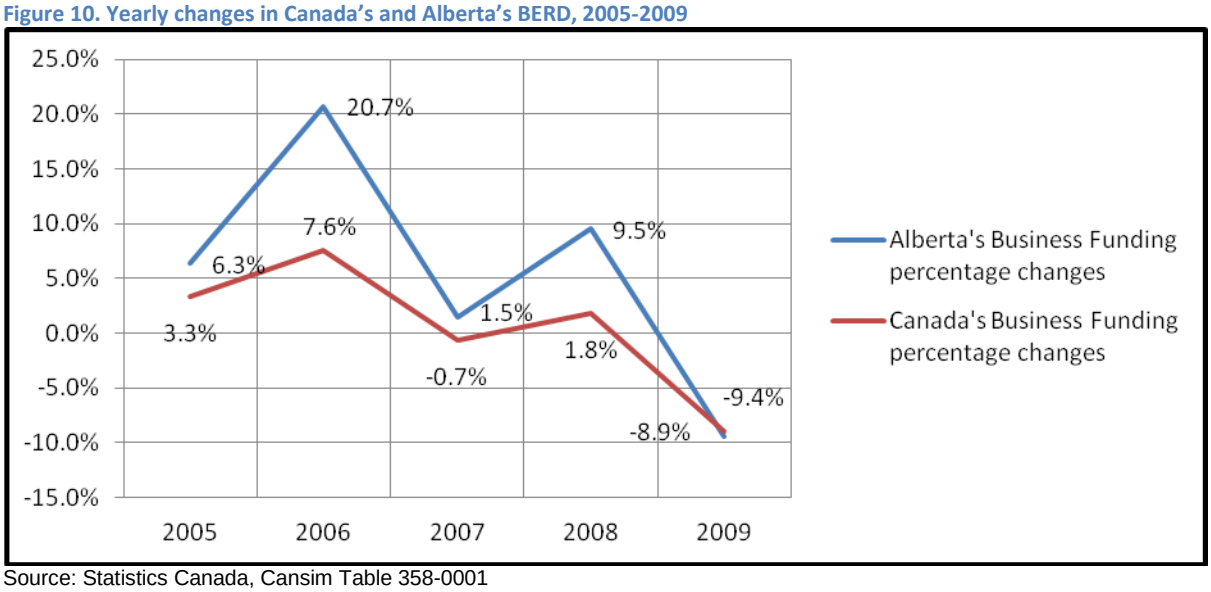
Figure 9 Gross domestic expenditures on research and development (GERD) by funding sector, 2009.



Source: Statistics Canada, Cansim Table 358-0001

From 2006 to 2009, Alberta's business expenditures on research and development (BERD) had been in the range of 9.7% to 10.6% of Canada's BERD. Although the Alberta and Canada BERD amounts increase and decrease simultaneously, the magnitude of change was different between the two and Alberta showed a more significant growth. As shown in Figure 9, Alberta experienced BERD increases from years 2005 to 2008 and reached its highest growth rate of 20.7% in 2006. By 2009, Alberta experienced the first decline in BERD in the last 10 years (-9.4%). On the other hand, Canada BERD had shown lesser growth. Canada BERD declined slightly in 2007 (-0.7%) and rose back in 2008 by 1.8% but significantly lower than Alberta's increase of 9.5%. Similar to Alberta, Canada BERD also declined in 2009 by 8.9%, the lowest in the past 10 years.

Figure 10. Yearly changes in Canada's and Alberta's BERD, 2005-2009



Source: Statistics Canada, Cansim Table 358-0001

Final Remarks

The Scientific Activities Survey 2010-11 and 2011-12^{p} report reflects the Government of Alberta's investments in scientific activities of the province. Although 2010-11 is marked by a decline in the amounts invested by the GoA in R&D and RSA, reporting year 2011-12 promises a recovery that is a much stronger investment and is anticipated to be the highest amount in the last 5 years.

The summary table below presents the breakdown of scientific expenditures by ministry, performer, and type of science. It includes the full list of fifteen ministries and seven entities reporting to the survey.

All 66 data tables from the Survey of Scientific Activities of the Government of Alberta provided by Statistics Canada will be made available on the Office of Statistics and Information (OSI) website.

Summary Table. Total expenditures on scientific activities, by science type, performer and ministry, 2010/11												
Department, ministry or agency	Total		Within the GoA		Business Enterprise		Higher Education		Hospitals and Health Orgs.		Other	
	NSE	SSH	NSE	SSH	NSE	SSH	NSE	SSH	NSE	SSH	NSE	SSH
Advanced Education & Technology	…	…	…	…	…	…	…	…	…	…	…	…
Advanced Technology Industries Division	14,383	…	600	…	5,917	…	6,516	…	350	…	1,000	…
Alberta Innovates - Energy and Environment Solutions	20,859	…	4,548	…	5,939	…	8,965	…	…	…	1,407	…
Alberta Innovates - Health Solutions	79,802	…	4,543	…	711	…	61,592	…	12956	…	…	…
Alberta Innovates- Bio Solutions	21,916	…	3,794		490	…	13,255	…	…	…	4,377	…
Alberta Innovates- Technology Futures	156,369	…	96,300	…	29,342	…	30,727	…	…	…	…	…
Post Secondary Excellence Division	…	382	…	23	…	359	…	…	…	…	…	…
Research and Innovation Division	20,999	1,783	773	32	…	65	17,834	…	…	…	2,392	1,686
Total Advanced Education & Technology	**314,328**	**2,165**	**110,558**	**55**	**42,399**	**424**	**138,889**	…	**13,306**	…	**9,176**	**1,686**
Agriculture and Rural Development	31,427	…	31,427	…	…	…	…	…	…	…	…	…
Children and Youth Services	…	2,180	…	180	…	…	…	…	…	…	…	2,000
Culture and Community Spirit	2,418	1,514	2,418	911	…	…	…	…	…	…	…	603
Education	…	32,841	…	19,191	…	532	…	4,878	…	…	…	…
Employment and Immigration	…	2,099	…	762	…	1337	…	…	…	…	…	8,240
Energy	14,977	…	2,200	…	12,777	…	…	…	…	…	…	…
Environment	53,962	3,468	21,565	2,563	9,333	771	20,407	30	…	…	2,657	104
Health and Wellness	21,757	15,011	81	2,299	…	…	3,900	2,874	17,776	9,838	…	…
Housing and Urban Affairs	…	721	…	530	…	191	…	…	…	…	…	…
Justice and Attorney General	…	3,384	…	1,761	…	45	…	845	…	…	…	733
Infrastructure	3,979	…	744	…	…	…	…	…	…	…	3,235	…
Sustainable Resource Development	49,232	…	15,948	…	27,002	…	2,055	…	…	…	4,227	…
Tourism, Parks and Recreation	213	856	18	309	…	492	180	…	…	…	15	55
Transportation	9,279	…	1,583	…	7,524	…	72	…	…	…	100	…
Total	**501,572**	**64,239**	**186542**	**28,561**	**99,035**	**3,792**	**165,503**	**8,627**	**31,082**	**9,838**	**19,410**	**13,421**