



The State of Science & Technology in Canada

Posted: Sept 14, 2006

The Council of Canadian Academies conducted a web-based survey as part of a study of Canada's strengths in S&T. The survey elicited 1,529 responses – making it a great success and the core of the Council's inaugural report, *The State of Science & Technology in Canada*.

The study's final report is now available publicly and may be accessed on the Council's website at www.scienceadvice.ca (English) or www.sciencepourlepublic.ca (French).

Should you have any questions or comments, please contact Katherine Levitt at 613-567-5000 or katherine.levitt@scienceadvice.ca.

Update- The new Governments' review of science policy and research investment

Posted: Sept 7, 2006

**By: Dr. Art Olson,
CFBS Executive Director**

The Council of Canadian Academies was asked to investigate and report on the scientific disciplines in which Canada excels in a global context, the technology applications where Canada excels in a global context, the S&T infrastructure that currently provides Canada with unique advantages; and the scientific disciplines and technological applications that have the potential to emerge as areas of prominent strength for Canada and generate significant economic or social benefits.

The Council delivered the results of their polling to Industry Canada on Friday September 1st. The overview of the study can be found at <http://www.scienceadvice.ca/study.html> . It's my understanding that the results of the study will be released via the Council's web page on September 12th. 1529 individuals responded to the study. It will become part of the analysis that Industry Canada is trying to finalize by late September for release as a discussion document for further discussion throughout the fall.

While the results of the analysis are expected to be one of many inputs to decision makers later this winter, the timeline and the nature of the final product are not at all clear. Among the other inputs expected to impact on whatever the final product will be are:

- Industry Minister Bernier's consultations with universities and industry (and one would expect that other Ministers are having similar discussions).
- the results from a number of contracts let by Industry Canada relating to management of science and the data they've accumulated
- the just completed review of CIHR (<http://www.cihr-irsc.gc.ca/e/31680.html>),
- the input requested from all of the granting councils and similar entities related to accountability, roles, internal governance and the metrics of making research decisions
- the Advisory Council on Science and Technology is understood to be preparing a draft framework for setting priorities (http://acst-ccst.gc.ca/home_e.html)
- studies carried out by essentially all federal agencies on their S&T programs. These apparently include trying to assess how best to deal with eroding research infrastructure within the federal system
- the House of Commons Standing Committee on Finance has invited input on budgetary implications this fall (we've had significant input to both the Partnership Group for Science and Engineering (PAGSE) and the Canadian Consortium for Research (CCR) briefs).
- the House of Commons Standing Committee on Industry is expected to hold hearings on science and technology this fall. As with the Finance Committee, we anticipate that the governance, accountability and how to support excellence will be key topics.

The result will be complex to put together – achieving consensus will be problematic thus it continues to be possible that the Spring 2007 Budget will be essentially status quo with any significant shifts waiting until the analysis is complete and the Government is satisfied that they've the information they need for decision. In the meantime, this is probably a good time to ensure that the results of our research efforts are visible and understood.

Science Under Review

Updated: July 4, 2006

**By: Dr. Art Olson,
CFBS Executive Director**

With the spring sitting of Parliament coming to a close, this Government has demonstrated that they have clearly established priorities and intend to implement their campaign commitments as rapidly as possible. Many policy areas, science and technology included, have moved into review mode as the Government assesses their next set of priorities.

The following overview is based on our contacts and a fairly extensive set of meetings including those set up for the Canadian Society of Zoologists over the past couple of weeks. These meetings included a number of government departments, NSERC, CFI, AUCC plus MP's Joe Fontana (Lib) and Paul Crete (BQ).

To summarize:

1. Ministers are extremely busy.
2. The Budget had some good news.
3. There certainly is lots of activity underway or planned.

4. Opposition MP's support an expanded research effort.
5. Our skill levels and our capabilities must continue to improve.
6. Confidence in our scientific base can be easily eroded.
7. Can the research community wait two years for decisions?
8. What needs to be done?

1. Ministers are extremely busy.

It would appear that the Government has decided to differentiate itself from the previous government by carefully studying each particular policy area, clearly defining a limited number of priorities using everything from focus groups to major consultations, finally making decisions and then acting on them before moving on to other issues. There is some indication that a fall "Budget" or equivalent will allow the Government to deal with these priorities. Such a methodical approach makes a lot of sense: however the downside is that many items will be in limbo until their time has come. While the Ministerial staffers we met with were bright and personable, they are very new which has put a great deal of work pressure on Government MP's. For that reason, it has been very difficult to get meetings with Ministers – and the only opportunity at present appears to be at the constituency level especially with summer recess almost upon us.

2. The Budget had some good news

- a.) The statement regarding R&D gave some re-assurance that research is somewhere on the agenda, but not necessarily in the next set of priorities.
- b.) Support for foundations was actually a bit of a surprise given this Government's comments in opposition.
- c.) The \$100 million for the granting agencies fulfilled their campaign promise. As we understand the split, NSERC gets \$17 M, CFI gets \$20 M, indirect costs get \$40 M and CIHR and SSHRC split the rest. The 40 % for indirect costs presages a policy position on the level of the support. Presumably the 3 year review that has just been completed on how indirect cost monies were used may impact on this.
- d.) The concepts of competitiveness and productivity provide a window for R&D especially when one factors in the development of highly qualified manpower. Linking in accountability confirms that our focus should be on what research has delivered rather than on success ratios in terms of grant applications.
- e.) Two reviews, both probably overdue from a balance point of view, were announced. One involves the commitment to an S&T policy review to be managed by Minister Bernier (Industry Canada (IC)) with Minister Flaherty (Finance) and the other to a value for money audit of the granting agencies at least recognizes their presence.
- f.) The allocation of funds for post secondary infrastructure although this appears to be a one-shot contribution related to the previous Government's commitments.
- g.) The various forms tax relief will be helpful.

3. There certainly is lots of activity underway or planned.

It is hard to tell the level of coordination or whether it will result in resources coming into place in a reasonable period of time. The process has a number of anomalies - for instance:

a.) Not all of the available “tools” appear to be mobilized. The implications of the recent move of Dr. Carty, the National Science Advisor, from the Privy Council Office to Industry Canada has yet to be clarified – we were given a number of versions of his reporting line and no understanding of future role. However, the Council of Canadian Academies, the umbrella organization for the Royal Societies has just been approached for an analysis of the strengths of Canada's science community. The Council operates from a fund provided by the previous government.

b.) In-house research. All of the government departments we've met with have attempted to rationalize the impact of the Government's budgetary decisions as being too early to call. The new buzzword within Departments appears to be “horizontal” which presumably means some sort of cooperative relationship between Departments. This isn't new because interdepartmental processes have worked well in problem identification. Unfortunately, the key part, problem resolution, has not been all that successful. In-house research has been starved by the previous government's position that government research exists to support industry (1996 S&T policy). The consequence of this approach plus program reviews is that all incremental dollars have gone to universities while in-house facilities and capabilities have suffered. The recent press regarding Natural Resource Canada's maintenance requirements for their laboratories makes that point clearly and probably applies across the government. This has implications for future funding allocations. All of the science departments are either doing a policy review of their research efforts or about to start one. As well as capital costs, balance between the scale of research will likely be considered.

c.) Value for money audit of the Granting Agencies. The criteria have not yet been defined. It's going to be rather difficult to establish value for money criteria for basic research. As well, we have been advised that the actual audit will be done by a private firm rather than the Office of the Auditor General (OAG) probably because of the OAG's current workload. The consequence of this will be further delay because one would expect a fairly long familiarization process, lots of to and fro kinds of activities, all with considerable danger of an unbalanced report. Apparently in the last audit, the granting agencies had some problems convincing the auditors that students were a primary deliverable of university research. The review could be helpful if it will encourage the granting agencies, foundations and departments to work together, to establish consistent policy frameworks. If the audit gets into how the actual funds have been spent across the country, the process could become very complex. One very clear message is that accountability is primary.

d.) Science Policy review. Minister's Bernier (IC) and Flaherty (Finance) haven't apparently met regarding the science policy review they're supposed to carry out. While one would expect that officials are beavering away, it would appear that there has been no consultation with external groups or with science departments thus far on the approach or data requirements. This suggests delay and given that departments are carrying on their own reviews, considerable debate prior to decision. One question that needs to be resolved is whether the review is intended to try a new way to pick winners and losers. One can certainly expect to see questions raised about how much Canada should invest in research and how to identify and further support our strengths. Balance and distribution of investment will likely be on the table as well. Through all of these kinds of questions, competitiveness, productivity and accountability will figure in the results.

e.) Consequences. All of the above tends to suggest that the audit, the review, the internal negotiations and presumably some form of more public consultation will take two years or more.

4. Opposition MP's support an expanded research effort.

Mr. Fontana (Liberal) clearly stated his understanding that we haven't yet reached the threshold necessary to generate a critical mass of scientific talent and noted that the competition is getting fiercer as China, India and others ramp up. He also mentioned that the pipeline of human resources needs to be filled. We also discussed government laboratory infrastructure needs and the implications of CFI not being continued. – he clearly understood the huge capital outlay required to maintain existing capabilities and to build for the future.

At our request, Mr. Crete (B.Q) walked us through why the pharmaceutical industry has flourished in Quebec, compliments of good working relationships between governments and their senior officials, as an example of one industry where we've now reached critical mass essential to growth.

Both Mr. Fontana and Mr. Crete stressed that the window for decision is at most 6 months. They anticipate that the House of Commons Industry Committee, once they've finished their work on manufacturing, will move to study science and technology, probably starting in early fall.

As a member of the Partnership Group for Science and Technology, we're planning to brief the Finance and Industry Committees this fall and this second opportunity will be useful. ***Both indicated that unless the science policy decisions are made by October, any change will miss out as the process of putting the Spring 2007 budget to bed gets underway.*** And given the potential for an election, this could derail all of the above. Both re-iterated the need to work through constituents to contact individual MP's to ensure that more of the members have a sense of science and technology as a priority.

5. Our skill levels and our capabilities must continue to improve.

Given the international competition and the nature of our demographics, Canada won't have the manpower base to continue to do resource extraction activities– hence we've no choice but to focus on raising our skill levels. If our research resources and hence our capability to train post graduate students is eroded away, we expect significant consequences. While we appreciate that Canada's investment in publicly funded research is currently number one in the G7 while at the same time having a relatively low level of industrial research, we also have some understanding of why industry, by and large, hasn't seen the resource commodity inherent in our science community as either large enough or perhaps credible enough to invest in research in Canada. One could go on about branch plant mentalities, industry's lack of time to go looking, the inward nature of the scientific community, the entitlement mentality, the size of Canada, the breadth of scientific endeavour and so on, all of which have made difficult the kind of critical mass essential to support industry in improving our competitiveness and productivity. Enough said.

6. Confidence in our scientific base can be easily eroded.

We've almost reached the stage where we've a critical mass of talent that can support private sector investment in Canada, we've re-built our scientific manpower base after the last turndown and are recognized as turning out excellent post-graduates. A break in the implied commitment that this resource was given could result in the kind of brain drain we saw in the late 80's and early 90's as government's pulled back on their commitment.

7. Our approach assumes that the research community can't wait two years for decisions.

Some have suggested that a cautious approach is preferable. Certainly, review makes sense, but not if it creates a hiatus that damages the research community. Our approach through direct contact and presentations will focus on three points:

- a.) Stress how science and technology enhances competitiveness, productivity and accountability. We need to clearly define successful deliverables (for instance, students, the knowledge base, creativity, concepts and technologies).
- b.) Outline the consequences of any delay in support to both granting council and in-house research. One view is to remind MP's that R&D is a resource, that is, another commodity, just like lumber, oil, minerals and so on. It's a means to an end, that is, a competitive and productive society. We need to ensure this resource is managed not eroded away, and when it's mature, "harvested" – and it's almost there now given the investments over the past decade or so. In this regard, we would hope that the value for money audit and the science policy review be completed as soon as possible.
- c.) Maintaining an R&D resource requires long term commitment, motivated people, training and infrastructure. Like a tree, it takes a long time and a lot of energy to become useful.

8. What needs to be done?

- a.) To be successful, we need input from you. Your advice on the approach and examples of successes would be most helpful.
- b.) We need to take every opportunity to put our case forward, including you encouraging your members to remind their member of Parliament that science and technology are essential to Canada's future. Please refer to **Contacting MPs** document for further information. CFBS can be a voice for you in Ottawa, but the most effective advocate for research is the research community itself.