



News Release

September 12, 2006

Council of Canadian Academies Releases First Study: Canada's S&T Strengths

OTTAWA – Overall, Canada is strong in research, generally well-equipped technologically, but lagging in translation of research strength to innovation strength, according to a new study released today by the Council of Canadian Academies.

The report entitled, *The State of Science & Technology in Canada*, and prepared at the request of the Government of Canada, explores Canada's strengths in science and technology (S&T) to help set the context for the government's consideration of S&T policy.

"This report presents a comprehensive picture of Canada's strengths in S&T," said Peter Nicholson, President and CEO of the Council of Canadian Academies. "The report does not recommend S&T priorities or specific policies. It describes what is and what is developing based on the best objective evidence in the time available."

The report highlights four principal clusters of prominent Canadian S&T strengths as judged against international standards of excellence:

- the natural resource sector
- information and communications technologies
- health and related life sciences and technologies
- environmental science and technology

The report, commissioned in June 2006, was 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
- 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 study was overseen by a 10-member expert Committee on the State of Science & Technology in Canada. Given the lack of a simple, one-dimensional measure of a country's S&T strength, the committee used four "lenses" to increase the confidence of its conclusions. These lenses were:

- Opinion Survey: A large-scale, online survey of the opinion of Canadian S&T experts. These informed opinions represent, collectively, a broad and integrated picture.
- Metrics: An analysis of bibliometric data (the quantity and quality of published research in scientific journals) and technometric data (patents granted). This gives a narrower, but more precise, internationally comparable perspective.
- View from Abroad: A summary of reports and comments obtained from foreign sources that complements the self-assessment of the opinion survey.
- Literature: A review of relevant publications, including internationally comparable indicators of important aspects of S&T strength at the national level.

"The results of the opinion survey, which received over 1,500 responses, are the views of a significant fraction of Canada's senior S&T community," said Elizabeth Dowdeswell, Chair of the committee responsible for the report. "We believe that one of the most useful aspects of our report is the foundation it provides to develop a much deeper, and more broadly shared, understanding of Canada's S&T system."

Other findings include:

The view of Canada's strength *overall* in science and technology is somewhat more pessimistic than the survey respondents' opinion of S&T strengths in *specific* areas of research, technology application, and infrastructure. Fewer than half of respondents to the opinion survey ranked Canada strong overall in S&T and roughly a quarter believe we are weak relative to the average of other economically-advanced countries. The perception of the overall trend is rather pessimistic – about 40% believe Canada is losing ground. Only 28% see Canada gaining while 32% believe we are holding steady.

Looking ahead, most authorities concur on where the main action in S&T will be in the coming years:

- information and communications technologies
- biosciences and technologies
- materials sciences and technologies
- "nano" technologies applied broadly

Survey respondents identified energy technologies – and particularly 'clean energy' – as the area where Canada was best positioned to develop prominent strength in the future. On the other hand, the survey also contained evidence that Canada is currently not particularly strong in many of the relevant clean energy technologies.

The survey also identified a set of healthcare technologies – including tissue engineering (e.g. use of stem cells), targeted drug delivery, and genetically customized healthcare – as having great potential for Canada over the next 10-15 years.

The report identifies infrastructure that supports “knowledge production” as a particular Canadian strength. Survey respondents gave high marks to the Canada Foundation for Innovation, the Canada Research Chairs program, research hospitals, universities and the research granting agencies of the federal government, particularly the Canadian Institutes for Health Research (CIHR) and the Natural Sciences and Engineering Research Council (NSERC).

Among elements of infrastructure to support the commercialization of research, the highest survey ratings went to the Industrial Research Assistance Program (IRAP), the Scientific Research and Experimental Development (SR&ED) tax credit, the Networks of Centres of Excellence program, and Genome Canada.

The committee notes that the S&T capacity of the government of Canada is a valuable national asset, since the government is often the only feasible provider of many important services such as standards setting, national statistical services, public goods such as the meteorological service and the geological survey, science in support of regulatory functions, and maintenance of long series of observational data (e.g., to support climate science). Survey respondents gave high ratings to three major federal institutions: the infectious diseases laboratories, National Research Council Institutes and other federal labs, and Statistics Canada.

The survey results pointed to some potential challenges such as the perceived shortcoming of the financial institution infrastructure to support S&T, the state of Canada’s capabilities related to transport technologies, perceived weaknesses in important components of the forest products industry and the pharmaceutical sector, and the guarded view of survey respondents concerning the S&T benefits, or otherwise, of Canada’s regulatory systems.

The Council of Canadian Academies is an arm’s length, not-for-profit organization registered under the *Canada Corporations Act*. The Council is a source of independent, expert assessment of the science underlying important matters of public interest. The Council, which began regular operations in February 2006, received a founding grant of \$30 million from the Government of Canada to support its basic operations for 10 years through 2015.

For the complete report please visit the Council’s website at www.scienceadvice.ca.

For further information: Stephen Heckbert, Thornley Fallis Communications
(613) 231-3355 ext. 225, Heckbert@thornleyfallis.com