



PARTNERSHIP GROUP FOR SCIENCE AND ENGINEERING (PAGSE)

Le Partenariat en faveur des sciences et de la technologie (PFST)

**Meeting in Room 210, Tabaret Hall, University of Ottawa,
at 6:00 p.m. on Monday, January 15, 2007**

Present: Simon Hanmer, (chair), Art Olson (rapporteur), Deryn Fogg, Ian Rutherford, Don McDiarmid, Peter Johnson, Dawn Conway, Fred Boyd, Walter Davidson, Michael Ball, Roland Andersson, Peter Nicholson, Chris Fennell, Linda Bonen, Denis St. Onge, Siva Sirathayalan, Dave Jaworski, Guy Gosselin, Mark Henderson, Howard Alper, Feyrouz Kurji, Carl Kropp

Telecon: Agnes Herzberg, Kerry Rowe, Graham Bell, Edward Johnson

Regrets: Michael Dence, Tom Beach, James Franklin, Juan Scaiano, Mattias Neufang, Jean Marion

Guest: Dr. Arthur Carty, National Science Advisor

Action Items:

1. **Mark Henderson** to make his article for Research Money on the House of Commons Standing Committee on Finance Report available to PAGSE via Hanmer.
2. **Simon Hanmer** to follow up with private sector PAGSE members regarding their participation in the renewal of the Committee to Advance Research (CAR).

6:00 pm: Simon Hanmer called meeting to order. He introduced Dr. Arthur Carty, National Science Advisor.

Dr. Carty noted that 2006 had been an “interesting year” with changes including a new government, reporting relationships and mandate. His current mandate is focussed on three issues:

1. International science community activities. For instance:

- a. He described the developing links with California with whom we share a strong university and entrepreneurial base, similar research areas and interests. Dr. Robert Dynes (President, University of California) has agreed to look at the potential for working together. The last meeting was held December 19th in Ottawa and the approach received a positive reception. Themes established thus far include:
 - i. Broadband connectivity – i.e. Canadian and California broadband systems are now connected.
 - ii. Cancer stem cells – Closer links with current Canadian and California teams are underway although the \$3 Billion set aside in California hasn't been accessed due to legal challenges.
 - iii. Nanotechnology – A February workshop is expected to lay out future work plans.
 - iv. Energy – University of Alberta and UC (Davis) are working together. This field involves a very broad and diverse range of activities and thus will require considerable focussing for effective relationships.
 - v. Infectious diseases – still under discussion. Dominique Jean has been identified as the coordinator. Mark Bisby (retired, CIHR) has been asked to develop a possible governance structure.

- b. International Science and Technology Program. \$20 million has been released thus far. The funds are meant to be used in partnerships with developing countries. Thus far the focus is on Israel, China and India. A proposal relating to South Africa is in progress. Workshops on biofuels, nanotechnology and others are planned. Canada's representatives include Dr. Carty, David Johnson (Waterloo), Steve West (MDS-Nordion) and others. The initiative will be managed at arm's length from government with individual programs managed through a RFP process.

- c. International Polar Year – NSERC and other Government decisions have not yet been announced although Canada has made the largest contribution to date. US funds from NSF are on hold due to Congress budgetary process.

- d. Carnegie/G-8 meetings of science advisors and science Ministers have focussed on science and technology for Africa. The approach is evolving from aid to partnerships and will be discussed at this summer's meeting of the G-8 in Germany. As well, the need for coordination of major infrastructure at a global level is under discussion. The example of the duplication inherent in the decisions to proceed with a 30 M telescope project while another group plans to move forward with a proposed 40 M telescope project was noted. An overall catalogue of all of the European infrastructure plans is complete (Dr. Carty distributed a report entitled "European Strategy Forum on Research Infrastructures (ESFRI) – European Roadmap for Research Infrastructures -2006") and a North

American plan is being started. A similar plan from Japan and Asia will be helpful.

2. Establishing how to promote a stronger science culture and closer working relationships with other governments:
There appears to be agreement around the world that a science and innovation culture is critical to future success and competitiveness. As well, both the public and parliamentarians need an adequate awareness and understanding of science to ensure that new initiatives receive an appropriate reception. “Bacon and Eggheads” is the only such effort focussed on parliamentarians. Overall, there is a large amount of effort but no clear plan or significant coordination of effort. Dr. Carty and Dr. Suzanne Fortier have chaired workshops to consider how to move forward.
3. Federal infrastructure:
The Economic and Fiscal Update proposal to transfer the management of non-regulatory laboratories to universities was noted as were the many different models for doing federal research, the rust-out problem facing federal laboratories, the changing needs of government and the options tried (clustering, partnerships (i.e. Carleton’s National Wildlife Research Centre, the McMaster/NRCan Materials Laboratory).

Discussion:

St. Onge: How to encourage industry to expand innovation and research activities? Dr. Carty responded by noting that the three-legged stool model can be viewed in a number of ways – i.e. university/government/industry or research/talent/innovation. He noted that university research has prospered over the past 7 or 8 years and that the Minister of Finance has indicated interest in maintaining Canada’s strong position compared to the G-8 or OECD countries.

Boyd: Questioned the level of focus on large science. He raised the rumours regarding the potential sale of the commercial side of AECL versus the current demands for energy, attempts to reduce global warming and maintaining the supply of medical radionuclides. Dr. Carty noted the need for a process for evaluation and funding of major science initiatives.

Rutherford: Referenced the need for a strategic plan (as per PAGSE briefs). Dr. Carty advised that his office did not have the lead, as the review leading to a science and technology strategy is being managed by Industry Canada and Finance Canada. He also reminded PAGSE that the Rotman and the Conference Board reports relating to commercialization are very helpful in clarify the nature of the challenge, thus the question has become one of how best to respond.

Jaworski (R.I.M): Asked how to manage the very complex framework inherent in encouraging a science culture. Dr. Carty indicated that good resources are available but

that linkages are limited. As well, he noted that Canada lacks a national image and thus a concert of voices appears essential to achieving this image. The example of Germany's science years was given as one possible approach.

Nicholson: Asked if approaches such as Germany's are working. Dr. Carty advised that Germany had reviewed their approach and expanded their effort with the result that they have recovered from a reduction in science involvement. Reference was made to the PISA study which demonstrated that Alberta's 15 year olds rank as high in science awareness as any other jurisdiction in the world. He suggested that Canada could benefit from harvesting best practises and noted that the remuneration of scientists may be part of the problem in encouraging youth to enter the field of science.

Other questions:

The issue of lack of investment in innovation and research resulting from foreign ownership was raised. Dr. Carty noted that this used to be an issue but foreign companies are now major contributors.

Impact of US security concerns on sharing of science. Dr. Carty noted that it is not clear what if any impact these concerns have had on Canadian involvement.

Hanmer: Referenced Preston Mannings advice on science to parliamentarians this past spring (Globe and Mail article) and asked how this government has responded. Dr. Carty noted that the current government is relatively inexperienced. He pointed out that the Economic and Fiscal Update was more positive than expected.

Hanmer: How has the statement that the budget timeline of the current government is limited to two years compatible with doing research? Dr. Carty noted that parliament tends to have an annual focus given the Budget process and the realities of elections, but that longer term initiatives have been successful even though they have much longer timeframes.

Gosselin: With regard to partnerships with California, has climate change been included in the themes? Dr Carty suggested that it has probably included in the energy theme along with issues such as biofuels, solar energy, etc.. He also noted that other themes were under consideration – i.e. intellectual property and venture capital, human resources and reducing barriers to such resource movement.

Johnson: If global science is the way forward, is there an appreciation of this given our lack of a science strategy? Dr. Carty responded by noting that some areas of interest are well organized (i.e. Canadian astronomers have a 12 year plan) and that most initiatives develop from grass roots and need to work nationally and internationally to achieve the necessary leverage of resources.

Olson: Are we really talking about a science and technology strategy or are we talking about an industry support policy? Dr. Carty responded by noting that you can't do one

without the other – for instance, need the universities to provide the highly qualified manpower to ensure industry is successful.

Simon Hanmer thanked Dr. Carty for his presentation and responses to questions.

Agenda:

1. Minutes were adopted with one minor correction – the addition of the word “regulatory” after “non-“ in item 5.
2. Action Items were updated.
3. PAGSE wishes to thank Sean Barry for his involvement as Secretary and Treasurer and noted that he will be continuing to work with the Bacon and Eggheads program.
4. Impact of the Accountability Act. It was noted that PAGSE was never set up as a lobby group – it’s purpose is to educate and inform on how government can meet its objectives. Given that the regulations relating to this legislation haven’t been implemented, there appeared to be agreement that it may be premature to consider the matter further.
5. The Council of Canadian Academies Report: Dr. Peter Nicholson
 - a. Hanmer noted that the scientists perceptions identified in the survey aren’t necessarily consistent with those reflected by other groups.
 - b. St. Onge: Asked for clarification of the difficulty of knowledge transfer from academia to industry. Dr. Nicholson noted that this was an observation and that the survey didn’t allow for a full understanding of the nature of the problem. He did note that governments and industry may not really be communicating on the issue using the example that industry tends to respond to government entreaties by asking for tax cuts.
 - c. St. Onge: How can one establish the return on the investment in science and technology? Dr. Nicholson said that it is hard to trace the benefit of available highly qualified manpower. He also noted that an understanding of the innovation roadblocks requires a sector-level perspective – for instance, foreign ownership isn’t always the problem (i.e. the IT industry, aerospace, etc.), although in some sectors (i.e. energy) it may be.
 - d. Alper: Compared the Chilean structure where Chilean funders require active involvement of foreign companies in research.
 - e. Rutherford: Noted that companies are establishing in Canada due to availability of highly qualified manpower. Others interceded by noting that we have lower costs, tax advantages and a more benign legal and regulatory environment.
 - f. Andersson: Noted that Canada is becoming more confident as it encourages foreign investment instead of taking a “made in Canada” approach.

- g. Dr. Nicholson noted that the entire survey dataset is available on the CCA website to allow further review and analysis. He advised that he has written to all VP's of Research at Canada's universities asking for advice on process and improvements that might be considered for the next survey. Industry Canada has asked that the survey be re-done every 4 or 5 years. He has also provided a copy to all MP's..
- h. Dr. Nicholson also discussed current studies and advised that CCA was looking for chairpersons to manage the studies.
 - i. Ground water resources – intent is to establish the state of ground water resources in Canada. While the area has been heavily studied it appears necessary to establish what should be done to ensure the resource is understood. The sponsor is NRCan.
 - ii. Gas Hydrates – Intent is to determine how best to establish quantity and potential for extraction. Sponsor is NRCan.
 - iii. Risks of nanotechnology – Intent is establish a better understanding of the risks and need for regulatory action. Many studies exist, however relatively little work has been done in Canada. Sponsor is Health Canada.

6. PAGSE symposium:

- a. Topics suggested thus far:
 - i. Economic aspects of green sciences
 - ii. Climate change
 - iii. Linkages between physical/natural and social sciences
- b. Additional suggestions:
 - i. Science culture
 - ii. Economics of climate
 - iii. Where does Canada stand on a global basis in terms of the impact of our science? The examples of argo floats, near space activities and polar advantages were given.
- c. Agreement was reached to pursue “social impact and economics of climate”. Potential contributors to the organizing committee include Conway, Gosselin, Andersson, Olson and Ball.

7. Other Business:

- a. Ball - suggested presentation regarding energy and sustainability to Mr. Prentice's committee. Hanmer to consider.
- b. Budget: Proposed for March 20th
- c. The Canadian Academy of Engineering has completed the first phase of their study on energy pathways. The terms of reference are available on their website (http://www.acad-eng-gen.ca/nouveau/nouv_an.html).

8. Next Meeting: February 7th with Pierre Coulombe

Other planned meetings:

April 4 – Chad Gaffield

April 25 – Alan Bernstein

May 24 – Suzanne Fortier
September – Elliot Phillipson,

Meeting adjourned at 8:45 PM