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“A Value Proposition for Public Science”

by

Cassie J. Doyle

Deputy Minister, Natural Resources Canada

to the

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*Panel Discussion: Building support for Public Science in Canada - How to build support and how it can be used to better protect Canadians*

I'd like to thank PIPSC (Gary Corbett) for organizing this important symposium.

*The discussion today raises a number of fundamental issues:*

- *What is the unique value of public or government science?*
- *Why is science important, including non-regulatory science, for Canadians?*

***Building Support for Public Science: Public Good —  
Only part of the Answer***

The answers to these questions are to actually both build understanding and support for public science and serve and protect Canadians. (Not the quality of our science or public good.)

- We need to articulate the “distinct” contribution public science makes to the country.

It is widely accepted that there is a need for collaboration among the three pillars of Canadian S&T, academia and government.

- It is also accepted that issues related to public interest are increasingly complex and require partnerships to address them.

We have some big, scary issues facing us:

- The impacts of climate change (the mountain pine beetle infestation of our western forests);  
and
- The quality and quantity of our freshwater resources, including both surface and groundwater sources.
- We need all hands on deck.
- There is a role for governments, the private sector and academia in working together to respond to these complex issues.

Canada's science is also critical to Canada's economic competitiveness, social development and environmental sustainability.

- It contributes to the nation's innovation and its ability to forecast opportunities and seize them.
- Such is the case with the development of environmental technologies — for example, alternative energy, air pollution control, and ecoforestry technologies — which not only provides economic opportunity but contributes to the sustainable use of our resources.

Public science is often referred to as either regulatory or non-regulatory. However the distinction is somewhat artificial. Public science in general can be:

- in direct support of a regulatory process, such as drug testing;
- . . . or, as the foundation for setting national or international standards;
- . . . or, it can be to develop new knowledge relevant to a public policy issue, for example in determining the baseline of what might be feasible from a technology perspective, as is the case for the collaborative development underway at Oil Sands Tailing Research Facility.

## **A Value Proposition for Public Science**

While the value of public science for the public good may appear self-evident, we still need to articulate the distinctive contribution public science makes to the country:

- What makes the difference? What makes government science unique? What makes it different from science found in universities or the market place?
- So, to answer these questions, I would like to consider a value proposition for public science.
- It is my suggestion that the unique value of public science is determined by two key characteristics:
- Knowledge and Institutional Capacity, and Governance and Accountability. Let me explain each in turn.

## **Knowledge and Institutional Capacity**

What do Canadians expect their governments to know?

- To be thoroughly knowledgeable, on issues relevant to protecting the public good and establishing public policy.

To meet this expectation, our national science and research institutions must have sufficient scope and scale to accommodate the variety and volume of knowledge that serves the public's interest.

- *Government science demonstrates a long-standing capacity and stability that many government science institutions, often as old as the nation itself, are — uniquely — able to draw upon, providing years of research continuity with well-established methodologies and a nation-wide body of long-term, time-series data to conduct large-scale research, focusing on monitoring, prediction and reporting.]*

- For example, the Geological Survey of Canada, an important part of NRCan, has been in existence for 165 years. Today, it is Canada's premier agency for geoscientific information and research; the nation's scientific authority for earthquake monitoring and detection. Its mandate includes the geological mapping of Canada.
  - Example: South Hampton Island in the Arctic was first mapped geologically almost 50 years ago via helicopter reconnaissance. The GSC is mapping the island again now in more detail by using personnel on the ground and through a joint federal-territorial initiative with Nunavut.
- So, too, are the national activities and innovation of NRCan's Mining and Energy sectors, which are celebrating 100 years of S&T. From the proper refinement of metals and fuels research in 1907 to the

development of pipelines and the oil sands today, our energy, mining and minerals research has played a major role in the lives of all Canadians.

- NRCan's Canadian Forest Service, another century-old science-based organization, conducts research in forest management, protection and renewal in collaboration with universities, research institutes, the provinces and territories, and the forest industry. CFS recently produced an innovative new formulation of a product to control the Emerald Ash Borer larvae that threatens Canada's ash trees.
- Other examples: Canadian Wildlife Service, Meteorological Service of Canada

## **Synthesis of S&T Information within a Canadian Context**

Public science plays a role neither universities nor the private sector are mandated, interested, or equipped to conduct reliably and without interruption.

- In some cases, the government has the equipment or facilities, in others the data collections and specialized expertise, people and scientists. They thus synthesize and apply a very broad spectrum of S&T information within a Canadian context, and do so from a national perspective and for national policy interests.

## **Advancement of Science as a Whole in Canada**

- The knowledge accumulated by these public institutions is critical to the country's prosperity and well-being. It provides the necessary database to advance science as a whole in Canada by making this S&T information available to researchers and accessible to the Canadian citizens through various means.
- The government provides easy access for example through Web sites featuring specialized portals and hubs with relevant and up-to-date information supplied by broad networks of collaborators.

This material includes:

- my department's review of research on Climate Change Impacts and Adaptation, as seen from a Canadian perspective;
- CO<sub>2</sub>Network.gc.ca, on greenhouse gas mitigation and pollution abatement technology; and,
- GeoConnections, which provides geospatial data and technologies for applications in public health, public safety and security, the environment and sustainable development.
- *These sites don't just simply provide lists of raw data. Rather, they are comprehensive and authoritative sources of scientific information that enable researchers to track scientific trends and to understand changes in their area of research.*

## **Public Science: Governance and Accountability**

The second part of the unique value proposition for government science relates to its governance and accountability.

## **The value of public science is in the result it achieves and the impact it has on Canadians – The Basis of Public Policy**

- Public science addresses what Canada, as a democratic country, and its citizens need to know in order to provide quality information for decision making. It supports a mandate to protect or serve and advance the public interest. Consequently, the value of public science lies directly in the benefits – the real, tangible, practical results – it brings to Canadians.

- Our public science is held to a very high level of accountability (through Ministers). Canadians expect their governments to protect them against risks (health, environment or economic) and to enhance their quality of life, to understand the broad changes influencing the world and to manage threats to public safety and security.
- Canadians depend upon public science to provide the necessary knowledge for good decision making and to inform and protect them. This expectation is another part of the uniqueness — and the value — of public science.

## **The Basis of Government Accountability – A Dependable, Practical Tool**

- That expectation also assumes public science, by its very nature, to be credible, unbiased and authoritative. It is able to meet these standards because of its long-standing institutional capacity as a knowledge centre as previously mentioned. Public science ensures the establishment of information that is credible to the public and the government is accountable for the policies that are based upon it.

## **Support for Public Science and the Government**

- In its new federal S&T strategy, the Government of Canada promises to promote excellence, target resources to priority areas in the national interest, create partnerships and work collaboratively with the provinces, and be accountable for delivering tangible results to Canadians.

## **Conclusion**

- A very strong case can be made for the unique value of government science. We need to demonstrate the link between our science and its results for Canadians.
- Align our science and strategic outcomes.
- In my department, we have integrated our science and policy functions to ensure better integration.

- Additionally, this knowledge and institutional capacity includes highly talented and dedicated individuals — many of them world leaders in their field — who carry out public science. To retain this capacity, the government needs to continue its efforts to attract, retain and nurture talented people to perform public science.
- In conclusion, it is this unique value of our public science that makes it vital in serving, and protecting, Canadians. We need to articulate and even protect those characteristics that give public science its uniqueness, its strengths,  
  
... and its value.
- Thank you.

## Annex follows: A Catalyst for Innovation

- *While public science draws on a vast knowledge and institutional capacity, it doesn't function in isolation. Rather, as an entity with a wide range of interests and specialized expertise, it is well equipped to work side by side with the science of academia and industry and to form mutually beneficial collaborations with them.*
- *The last few decades have seen a rapidly growing recognition of the value of collaboration among the three pillars of the innovation system. And there is little question that increased collaboration is the way of the future, not by choice but by necessity.*

- *A good example of this catalyzing function for fostering and facilitating these relationships, can be seen in the case of, Natural Resources' CANMET Materials Technology Laboratory.*

NRCan is in the process of moving the lab from Ottawa to Hamilton, where we'll be in the McMaster Innovation Park and within an hour's drive of 85 percent of Canada's metal manufacturing industries as well as in close proximity to a number of universities. This relocation is clearly a win-win proposition. It will create strong synergies among industrial and academic groups with interests in materials research.