

Science in the Public Interest

A New Direction for Science Policy in Canada

What we're seeing emerge in Canada is the dismantling of scientific institutions that have been in place for decades. These institutions have played important roles in ensuring the health, safety and welfare of the Canadian public. But who needs science when it can sometimes lead to inconvenient results?

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Science in Canada is under unprecedented pressure. While few deny the importance and the benefits of investments in public research, a waning federal commitment to basic research, government muzzling of public scientists, and attempts to steer funding toward politically targeted priority areas or to projects with possible commercial outcomes threatens to weaken our scientific progress.

Canadians need a new science policy that puts the public interest first and builds upon the proven strengths of government and higher education-based research. The three pillars underlying a new approach should be based on the following:

- renewing investments in basic research guided by priorities set by the scientific community;
- ensuring the integrity and independence of university and college research; and,
- increasing support for government science and scientists.

1. **Renewing investments in basic research**

Basic research refers to experimental and theoretical work undertaken with the primary aim of acquiring new knowledge, and not necessarily with any particular application or use in view. The objective of basic research is to gain more knowledge and understanding of the subject under study. Although basic research may not have specific applications as its goal, the most important scientific discoveries have typically come from basic research driven by a quest for knowledge.

Federal support for the conduct of basic research in Canada has stalled in recent years. The budgets of Canada's three granting councils – the Canadian Institutes for Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC), and the Social Sciences and Humanities Research Council (SSHRC) – have seen little growth in their base budgets. Adjusted for inflation, funding is below 2006 levels.

The result has been a marked decline in the number of promising research projects that can be funded. The success rate for NSERC's Discovery Grants has fallen from 71 per cent in 2008 to 64 per cent in 2013. The success rate for SSHRC's standard research grant, now called insight grant, has dropped from 40 per cent in 2006 to just 21 per cent in 2013. For CIHR, the percentage of successful applicants is 18 per cent in 2013, down from 31 per cent in 2009.

Canadians need a science policy that puts basic research first. **As a first step, this requires a commitment by the federal government to substantially increase the base funding of the three granting councils.**

2. Ensuring the integrity and independence of research

The problem facing public scientists and researchers today is not simply one of reduced funding. It is also about a change in how and what governments are funding.

The federal government has increasingly earmarked and targeted funding, either through the federal granting councils or by directing grants at specific institutes and projects. This has often been done with limited consultation with the scientific community.

The government has targeted a growing share of funding at projects that have commercial applications. However, a narrowing focus on commercialization can remove the creativity and unexpected discovery fundamental to basic research, and distort the focus of scientific investigation. In the area of medical research, for instance, the obsession with commercial outcomes has encouraged an emphasis on minor modifications to existing drugs and devices, rather than

fundamental explorations of illness and prevention.

The commercialization of research can also undermine the integrity of public research. Industrial partners, interested in preserving their commercial interests, have attempted to suppress or delay the publication of research results and to steer research away from inquiry that promises public benefit but little commercial profit.

The Conservative government has also changed the composition of the boards of the granting councils, appointing industry and political figures at the expense of scientific experts. Meanwhile, public agencies such as the National Research Council are seeing their mandate narrowed and explicitly tied to industrial interests.

When governments bind research too closely to industry needs or political preferences, clear dangers arise.

The history of scientific progress has shown that the economic and social benefits of research can only be fully realized if governments recognize that good research does not emerge from political diktats or narrow industrial demands. The value of scientific studies and projects is best assessed by impartial experts through peer review, not by politicians or special interests.

A new science policy must be based on the principle that research funding decisions should be free from political or industry influence.

This means the three federal granting councils must be made more arms-length from government and their governance bodies must be composed primarily of scientists.

Canadians and their elected representatives also need unbiased and non-partisan advice on science policy. The Office of the National Science Advisor had been designed to fill this role, however

imperfectly, until it was eliminated in 2008 by the Conservative government.

One potential new approach would be to create a Parliamentary Science Officer (PSO), an independent officer of the

solutions including those related to climate change, energy demand, public health, and drug safety. Government departments and agencies, such as Natural Resources Canada, Environment Canada, Fisheries and Oceans Canada, Health Canada,

Since Prime Minister Stephen Harper's Conservative Party won power in 2006, there has been a gradual tightening of media protocols for federal scientists and other government workers. Researchers who once would have felt comfortable responding freely and promptly to journalists are now required to direct inquiries to a media-relations office, which demands written questions in advance, and might not permit scientists to speak. Canadian journalists have documented several instances in which prominent researchers have been prevented from discussing published, peer-reviewed literature. Policy directives and e-mails obtained from the government through freedom of information reveal a confused and Byzantine approach to the press, prioritizing message control and showing little understanding of the importance of the free flow of scientific knowledge.

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Library of Parliament who would report to the Senate and the House of Commons. The PSO would provide independent advice and analysis to Parliament about the adequacy and effectiveness of the nation's scientific policies, priorities, and funding.

Agriculture and Agri-Food Canada, Statistics Canada and the National Research Council (NRC) have a vital role to play in confronting these challenges, but can only do so when they are adequately funded and free to pursue their work.

3. Supporting government science in the public interest

The federal government has placed unacceptable political controls on public science. It has muzzled scientists and politicized the research carried out by its departments and public agencies. To serve the public interest, government scientists must be free to speak publicly about their findings.

Canada's government has also changed legislation and severely cut scientific staff and programs at a time when sound science-based decision-making is needed more than ever. Canadians face major challenges that require sound scientific

The federal government must re-invest in its own research programs and free its scientists to provide the public with reliable and independent scientific knowledge and advice.