

PIPSC – Public Science in Canada

Building Stronger Science-Policy Links: Common Sense for Common Purpose.

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I chose the title “Common Sense for Common Purpose” because I don’t think that common sense is always or often applied when we start debates on the purpose or performance or management of science done in government labs. Before we start debating what we are doing and how we are doing it, we need to have a common understanding of WHY we are doing it. We also have to accept that notwithstanding the similarities in how science is performed by the performers (scientists), science in government is done for different reasons than in universities or in industry.

Scientists communicate with each other via scientific publications and presentation of findings at symposia and conferences. Scientific communication may be the most open and effective kind of human communication, transcending linguistic and political barriers (and that was before the internet). But scientists don’t always communicate well to non-scientists.

When scientists complete graduate studies, they are all made in the same mold. As they enter research positions in the various performing sectors they begin to differentiate. Let us briefly examine how and why science is done in the 3 major performing sectors (universities, government and industry). University professors do research to advance understanding of the natural world, to classify the knowledge so gained and to pass it along to the next generation. Some university research is so esoteric that its application or utility is hard to imagine, but there are many surprises; some is utilized as soon as the discovery is made. The research is characterized as self directed and is usually performed by individuals or small groups working independently and following their own bent. It is published in peer reviewed journals, and reputations are made on its originality.

Industrial scientists are trying to discover or improve products or processes in order to give their employer a competitive edge; to make a profit; to generate wealth. They may or may not publish. They will try to protect their ‘intellectual property’ through patents, whether products or processes. Their success is measured not by what they discover in terms of improving understanding of nature, but what the discovery is worth in the marketplace. They are not likely to make reputations as great scientists (yes, there are exceptions), but they may become wealthy.

Accept, by the way, that I am over-simplifying to make the point.

Now, what about science in government?

Government supports science in the other two sectors through grants, contracts and tax policy. Of particular note in Canada in the last decade or so is the tremendous increase in Federal support to University research, including the creation of at least one new Federal Agency (Canada Foundation for Innovation) to select “winners” and to distribute funds.

Among industrialized countries, Canada is a modest performer in Science and Technology, and is notably weak in the private sector. The GERD/GDP ratio in 2004 was 2.0; well behind the USA, for example, at 2.8 and Japan at 3 plus .

Why does Government perform science?

- (a) in support of a regulatory function
- (b) for military or national security reasons
- (c) to inform public policy
- (d) because of the cost and complexity of some research.
- (e) in support of economic activity where there is an underdeveloped private sector.

You can argue that government doesn't need to actually do the science in support of regulation. You can argue – but it's not an argument that I would accept intuitively. Theoretically, all things are possible. Practically, issues of timing, of communication, of sensitivity of information, of control and direction are all more difficult to handle at “arms length” than “at hand”.

There are a half dozen Departments – Health, Resources, Environment, Fisheries and Oceans, Agriculture, Industry – which could not deliver intelligent public policy unless closely and continuously informed by scientific discovery and advice. I would argue that much if not most of this advice should be internal, with a healthy external input. You do want to make sure you are not missing anything. You do want to know what the critics are saying and are going to say. But at the end of the day you want to be able to make judgments based on the interpretation of people who have a stake in policy issues. You want to get it “right” and you want to know that those who are advising you have similar motives and motivation.

There are some scientists who are unable (or unwilling) to accept that what science might dictate as enlightened public policy will not survive in the myriad of social/political/economic/behavioral mix of issues which go into the making of public policy. Scientists (or others) who want to make public policy or influence public policy should get into that game. An adviser gives advice; he/she does not then go ballistic if the advice is not taken. The adviser's responsibility ends when the advice is transmitted (I am not thinking here of large moral issues).

I was once asked by an MP what a scientist should do when he/she gave what they thought was good advice which was not acted upon. My answer was that if you felt strongly enough about it, and were not able to make appropriate impact “up the line”, you should consider going public, but only after you have resigned your government job. You can hardly advise the Minister one afternoon, and take to the airwaves the next morning, and consider it “normal business”. There is also a big difference between publishing conclusions in the scientific literature, and shopping those conclusions in the news media with a view to having them adopted.

Incidentally, the question was asked in the context of “whistle blowing,”, but scientific controversy is hardly whistle blowing. The scientist who is sure that he/she is right on any issue has a chance of being shown to be wrong as more information emerges.

Making input to public policy is one of the greatest challenges in our society. It is addictive. It is challenging. It is rewarding. For scientists who enjoy seeing their work put to use it is immensely rewarding. As someone who made the transition from scientist to scientific adviser to recipient of scientific advice, I would do it again.

But always remember that in using science to help formulate public policy you are giving advice. If you want to call the shots, there is another profession you can enter, though it carries a much higher risk of success. It’s called politics. Few scientists go there.

What a pity!

AWMay, Sept 7, 2007