

# Bringing Balance, Disclosure and Due Diligence into Science-based Policymaking<sup>\*</sup>

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## **Abstract**

I look at three settings in which complex, uncertain information must be used to

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## **1 Introduction**

The questions posed to this conference refer to the science guiding public policy as ‘Public Science.’ Chris Essex and I, in our book *Taken By Storm*<sup>1</sup> used the term ‘Official Science’ to mean much the same thing. These terms are new, but the situation is not—the underlying problem of incorporating esoteric advice into public policy is as old as society itself. Recall, for instance, the story from Genesis ch. 41 about Pharaoh and his ominous dreams. Seven dying cows appear and eat seven fat cows; then seven shriveled heads of grain swallow up seven plump heads of grain. The assembled prophets and fortune-tellers could make nothing of these dreams, but Joseph, the Hebrew seer, warned Pharaoh that it signified a coming famine. Seven abundant years would be followed by seven years of drought, and (said Joseph) the king must therefore immediately impose a twenty percent tax on agricultural output, with the proceeds used to store up food. Pharaoh followed this plan, perhaps encountering protests along the way from the taxpaying public who were not privy to the dreams; but the famine came as predicted and the country was spared ruin. Of course the hero in the story is Joseph, but Pharaoh also deserves credit for making good use of advice from a source whose reliability was not easy to assess.

Individuals in positions of responsibility often have to look at

is the most important, in terms of consequences for peoples' lives, but also the least systematic. I will focus especially on the mechanisms for bringing information to bear on environmental policymaking, arguing that the other two mechanisms provide ready-made models for improving decision mechanisms in the public sector. I will develop this argument in the Section Three before turning in the fourth section to the three questions posed by the conference organizers.

## **2 Trials, Finance and Science Panels**

### **2.1 Adversary proceedings in court**

Consider, first, a court trial. A man is charged with murder and faces life in prison. He claims he is innocent. An eyewitness saw him enter the building just before the murder. His fingerprint was on the knife, and there is fiber evidence the prosecution says can tie him to the murder scene. The defence says the eyewitness is wrong, the accused was in fact at home; that he used the knife when he visited the victim—an old friend—for dinner the week before, and the fiber could be from anyone who happens to have a light blue cardigan. What will the court do? The jury (or judge) must make a decision in the face of uncertain information that will either consign a man to prison or set him free. And in the process they may establish precedent for handling certain types of evidence or procedural disputes that could affect hundreds of trials in the future.

We all know what the basic shape of the process will be. The court will ensure that both the prosecution and the defence are adequately re

p, and the court will render a verdict. But even then the process is not over, because the losing

Courts can and do make mistakes. But it must be admitted that the process ensures that the decision draws in both sides of the story. This is a key point. The attorney on each side is there to present the case only for his or her side. If it turned out the defence lawyer was also spending a significant part of his time assisting the prosecution he could be disbarred for unethical conduct. Ultimately what we care about is that the *process* is balanced, not the individual participants. *Indeed it is necessary for the individual lawyers to be one-sided for the process itself to be balanced.* One reason is that there is often a public stigma attached to one side or the other.

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true to the best of their knowledge, but also that they have not omitted anything from the prospectus which is material. These steps are required no matter how small the dollar amounts involved in the stock issuance.

Despite the multiple layers of due diligence for prospectuses, frauds still occur. One of the most famous cases recently was the 1997 scandal involving Bre-X, in which millions of dollars were lost over a phony gold mine in Indonesia. In this case there were lapses in due diligence. The drill core was never made available for inspection. During its main boom, Bre-X never issued a prospectus. When it listed on the Toronto Stock Exchange, it filed an ore reserves study by a

both court proceedings and in the rules governing issuance of a prospectus. First, the *Principle of*

ct form of any computational analysis applied to . Second, the *Principle of Due Diligence* states that anyone conveying information with the expectation that readers will act upon it (including investing their own or others' money in s of the information.

### **.3 Science-based public policy formation**

The policy process specific to environmental issues has an extra strike against it: the enormous

expenses at the Nature Conservancy just on administration and fun      as of 7/1  
\$                      dollars ([www.charitynaviga](http://www.charitynaviga)

They are so quiet on financial issues but why they are so noisy on  
which are not intrinsically more important than financial issues. Part of the  
portant, supremely important perhaps, though public opinion polls do not reflect this. Another

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reater understanding of the science than the politician typically possesses. So an administrative

In *Taken By Storm* we call this 5638 635.3396 0.98 j10.98 0 0 10.98 99.1617 518.6985 Tm(e6985 Tm(e6985 T

Lest that last statement strike the reader as controversial, I should offer a supporting citation,

the public

out to be unusually cold and wet. This provoked



In the light of new evidence and taking into account the remaining uncertainties, most of the observed warming over the past 50 years is likely to have been the natural increase in the greenhouse gas concentrations.

There was no great advance of science in those 9 months to justify this amplification of certainty: some officials (never identified) simply stripped out the relevant uncertainties because, in effect, that was their job.

Another article in the models

es, but also because they undermine existing predictions. Uncertainty about those predicti

Gresham's law in economics--bad money drives good money out of circulation--but I do understand this law applied to science. Incompetent, dishonest, opportunistic, porch-climbing scientists will provide certainty where none exists, thereby driving out of

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ages long, dense with footnotes, all boiling down to a conclusion, which as it happens was

So far so good. The problems begin when som





year, to assert that the earth is indeed a slice. It is the same with climate change - you may deny it, but it is a fact.”

He conflates “climate change” (which is a permanent and natural state of the Earth’s environment) with human-induced global warming, but this does not disguise his point that anyone disagreeing with his position on the science (and the policy agenda he assumes it necessitates) can be dismissed as a Flat-Earther. In saying this he is following an earlier IPCC tradition: in a widely-reported Reuters article of April 2001 his predecessor Robert Watson publicly dismissed the suggestion that there is a division of expert opinion on climate change: “I personally believe it's something like 98-2 or 99-1,” referring to the proportion of scientists whom he said support the IPCC position.

There is nothing wrong with the IPCC holding a particular view on climate change, the problem is that it is an institution viewed by governments as a balanced adjudicator of the science, rather than as an advocate for one particular point of view. In fact there are many scientists who have published research that casts doubt on the IPCC conclusions, with more coming out all the time, and many have stated publicly that they disagree with the IPCC on professional grounds. What is frustrating to an observer and practitioner like me is that because the IPCC is a government institution whereas the critics—no matter how many or how competent—are individuals, there is a presumption that the institution must be right.

Environment Canada has also never sought to evaluate the arguments of scientists who dispute their position on global warming: indeed they do not seem to believe that there are any grounds for disputing their position. In their Action Plan 2000 they summarized the science with the statement “Our scientific understanding of climate change is sound and leaves no doubt that it is essential to take action now to reduce emissions.” (Chapter 7: “Investing in Future Solutions.”). Around the time this was published I attended a meeting on research funding with (among many others) a senior official at Environment Canada. In discussing climate change he lamented that he didn’t know of any experts who could present counterpoints to the dominant views he was hearing within his Ministry. I promptly took out a piece of paper and wrote down the names of at least a dozen scientists at universities, and the topics they could specifically address. I suggested he find the money to put on a workshop where these experts could come in and discuss their research. He was initially quite positive on the suggestion, but after thinking about it he handed me the list back and said that while he’d love to see it happen, he could not do it himself. His explanation was worded roughly like this: “The Minister has spoken and the Prime Minister has spoken. If I spend government money on an event that openly contradicts their views I would lose my job.”

This was a career civil servant, with considerable seniority, and he was unwilling to serve as a conduit for a balancing perspective out of fear of being fired. So, of course, no such consultation ever took place. Not every ministry is as unbalanced as Environment Canada, but listening to the utterances of Former Environment Minister David Anderson it is clear he only ever got one type of information, with the certainty quotient running extremely high. In response to my written suggestion in 2001 that he meet some of his skeptics he wrote back about having “conclusive proof that the climate has changed and that this is the result of human activities” thereby

dismissing the need to hear from others (quoted in *Taken By Storm* p. 56). More recently (February



amounts of money are usually at stake? There is no justification for any such double standard. The principles could be implemented as follows.

*The Principle of Balance.*

In *Taken By Storm* Chris Essex and I spelled out a detailed proposal for introducing balance into settings where scientific information is used to decide major policies. Suppose a municipality is trying to

Does this sound strange? Two teams? Handpicked so they hold foregone conclusions? Sure.

be neutral, only that the contrasting points of view be well-represented. In the end the two teams' reports will be set side by side. If they are evenly matched, so be it. That is

pipe dream to hope for a balanced process, but then again the issue is going to be here for a long time and there is no

the other group Tails. The job of the Heads group would be to produce a report making as strong a case as possible that human activity is causing a significant climate change that will have harmful consequences. The Tails group would have the job of making as strong a case as possible that human activity is not causing a significant climate change. The job of the Heads group would be to produce a report making as strong a case as possible that human activity is causing a significant climate change that will have harmful consequences. The Tails group would have the job of making as strong a case as possible that human activity is not causing a significant climate change.

in any other country.



*The Principle of Disclosure*

In addition to the above mechanism I would like to see rules established (akin to the FDQA in the US) governing what kind of science can be invoked for public policy. For a study to be referred to in a policy-relevant assessment it is not enough that it have passed journal peer review. It must meet a standard of disclosure in which the data and computational methods used to derive the results are either freely available, or in the case of proprietary data, has been supplied on request to

in my (admittedly limited) thinking about the nature of scientific knowledge by Michael Polanyi's fascinating book *Personal Knowledge*.<sup>11</sup> The richness and extent of his insights are not done justice by the one essay of his ("The Republic of Science") included in the conference reading package: indeed my answer to the question could be skipped in favour of reading the two-page preface to his book.

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scientific knowledge is motivated by a passionate interest in the subject and this inevitably brings the academic scientist into repeated contact with people who share that interest, including

not  
ly for their validity on the voluntary honesty and balance of the participants, any more than we

*course privileged in the formation of public policy? Can there be genuine public discourse if one party is privileged?*

If the concern is that scientists get inordinate sway over policy formation, I'd say scientific

conomists

overstated. Policy is driven by polling data, and technical arguments are at a disadvantage in this setting, since activists can use rhetoric and demagoguery to persuade the public to support worthless and costly measures. When the counterargument requires careful construction and cannot be communicated in soundbites then any technically dense communication is at a disadvantage.

But scientific discourse has been privileged in one sense: by being held to a much lower standard in terms of balance, disclosure and due diligence. Academic research, even when being used to drive multibillion dollar public investments, is done to standards that would never be acceptable in the business sector. This is not necessarily a problem for the academic purpose being served, since researchers have to have considerable leeway to make their mistakes in public in order to ensure scholarly communication remains open and important topics are probed through. The problem arises when governments assume journal peer review amounts to a standard of verification similar to what would be applied in a business setting or a trial procedure. This is a disastrous assumption.

*3. How can scientific knowledge and scientific methodology be made compatible with the interdisciplinarity and integration required of public policy discourse and formation?*

I have set out suggestions in the previous section that would address these issues, at least to some extent. But let me reverse the question: how can the interdisciplinary bodies involved in public policymaking (e.g. the civil service and the interested academic sector) be convinced of the need to grapple with the scientific knowledge and methodologies relevant to understanding the issues at hand? There is an onus on both sides. The users of the knowledge have to meet the producers of the knowledge halfway. It is not necessary for politicians to be scientists, or even for all their bureaucrats and advisors to be scientists. But they have to be prepared to do the hard work of learning some of the science, including the mathematical foundations.

I have, on several occasions, addressed audiences of influential bureaucrats on technical issues relating to climate change science and policy. While there are many intelligent and well-trained government staffmembers and elected officials who genuinely want to grapple with the technicalities, I have also encountered more than a few who are intellectually lazy, expecting to have complex mathematical ideas reduced to a thin, sweet milk then spoon-fed into them. But many of the important scientific issues of the day just cannot be reduced this way without fundamentally misrepresenting them. There are people who are happy to present their message in snappy soundbites, because their message is simplistic and shallow. But if we want sound policy we have to have a mechanism for communicating honest, complex, deep science into the policymaking process, without distorting or stripping down the content along the way. My suggestions, as laid out in the previous section, are aimed at doing just this.