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Principles of Science Policy Advice and their Application

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Research on Research Advice



The art of science advice to government

Peter Gluckman, New Zealand's chief science adviser, offers his ten principles for building trust, influence, engagement and independence.

In 2009, I was appointed as the first science adviser to the Prime Minister of New Zealand. The week I was appointed coincided with the government announcement that the New Zealand food industry would not be required to add folate to flour-based products to help to prevent neural-tube defects in newborns, despite an earlier agreement to do so. As it happens, this is an area of my own scientific expertise and, before my appointment, I had advised the government that folate supplementation should occur. But various groups had stirred considerable public concern on the matter, about health risks to the food supply.

Thus, in my first media interview as science adviser I was asked how I felt about my advice not being heeded. I pointed out that despite strong scientific evidence to support folate supplementation, a democratic government could not easily ignore overwhelming public concern about the food supply. The failure here was not political; rather, it was the lack of sustained and effective public engagement by the medical-science community on the role of folate in the diet. As a result, the intervention did not get the social licence necessary to proceed.

Five years on, I am still in the post. I

science adviser are providing advice not on straightforward scientific matters, but instead on issues that have the hallmarks of what has been called post-normal science¹. These issues are urgent and of high public and political concern; the people involved hold strong positions based on their values, and the science is complex, incomplete and uncertain. Diverse meanings and understandings of risks and trade-offs dominate.

Examples include the eradication of exogenous pests in New Zealand's unique ecosystems, offshore oil prospecting, legalization of recreational psychotropic drugs,



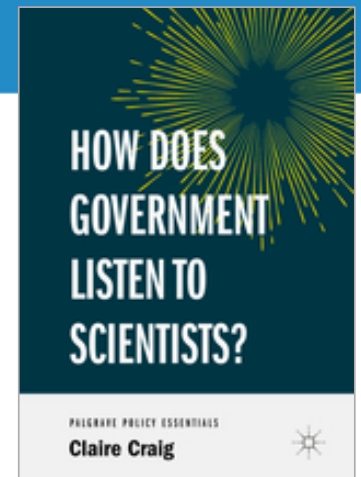
Guidance

Principles of scientific advice to government

Published 24 March 2010

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OECD calls for common principles for developing and communicating scientific advice

23/04/2015 - Governments would benefit from agreeing common principles for developing and communicating scientific advice, both in crisis situations and for long-term policymaking, according to a new OECD report. In light of recent controversies around science advice, the report proposes a checklist for countries to follow to ensure science advisory processes are effective and trustworthy.

[Scientific Advice for Policymaking: The Role and Responsibility of Expert Bodies and Individual Scientists](#) cites examples of recent events where science advice has been called into question, including the Ebola crisis, the 2011 Fukushima nuclear disaster and the 2009 earthquake at L'Aquila in Italy.

The report says governments need to clearly define the remit of scientific advice, by demarcating advisory roles from policy decision-making roles, and defining from the outset the legal responsibilities and potential liability of advisors. The scientific advisory process should also seek to mitigate controversies by introducing procedures to declare and verify conflicts of interest and by explicitly determining how to engage participation from non-scientists and civil society.

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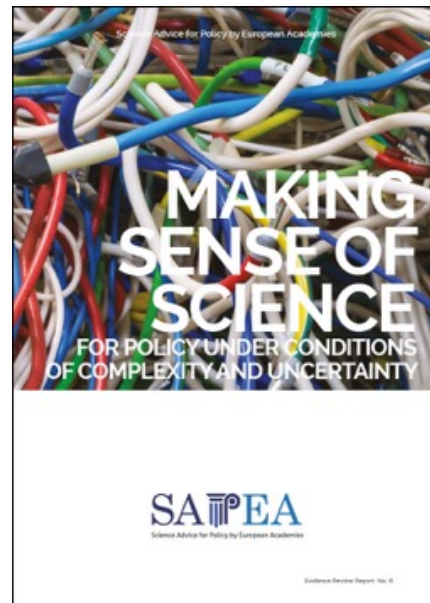
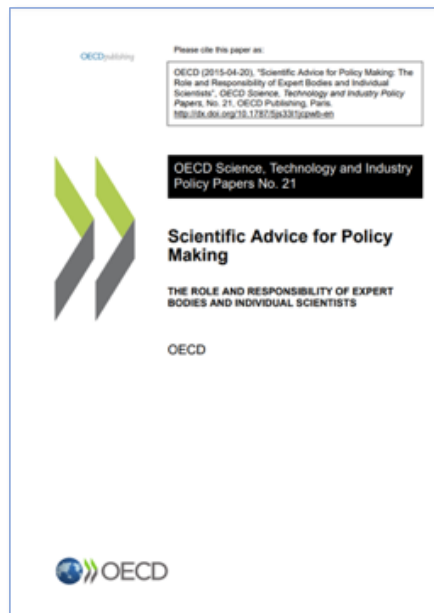
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Principles of Science Advice



Gluckman (2017)

Variety of structures and institutions for science advice

	Policy for science	Evidence for policy: options (strategic)	Evidence for policy: Implementation (operational and tactical)	Evidence for policy: Evaluation (strategic and tactical)	Horizon scanning	Crises
Individual academics	+	±	±	±	±	
Academic societies/profess'l bodies	+++	+	+	±	±	
Gov't employed scientists		+	++	+	+	+
Scientists within regulatory agencies		+	++	++	+	+
Independent think tanks		++	±	±	+	
What works units etc			++	+		
National academies	+++	+			++	
Gov' t advisory bds/science councils	++	+	+		+	
Science advisors	++	++++	++	++	++	++++

Comparative Analysis Across Global Institutions

1. **The European Commission**'s communication on the collection and use of expertise, "Principles and Guidelines: improving the knowledge base for better policies" (EC 2002).
2. **The UK Government**'s 'Principles of Science Advice to Government', published by the Government Office of Science in 2010 (UK GOV 2010).
3. The **OECD**'s "Scientific Advice for Policy-making: The Role and Responsibility of Expert Bodies and Individual Scientists (OECD 2015).
4. The **US National Academies** guidelines on "Using Science as Evidence in Public Policy" published in 2012 (NAS 2012).
5. The **Japanese Science and Technology Agency**'s whitepaper "Toward the Establishment of Principles Regarding the Roles and Responsibilities Science and Government in Policy-Making" (JST 2012).
6. The **EU Science Advice for Policy by European Academies**' report "Making sense of science for policy under conditions of complexity and uncertainty" (SAPEA 2019).

Comparative Analysis Across Global Institutions

	<i>Independence</i>	<i>Transparency</i>	<i>Responsibility</i>	<i>Accountability</i>	<i>Diversity</i>	<i>Timeliness</i>	<i>Rigour</i>	<i>Demarcation</i>
EU COMM	•	•	•	•	•	•	•	•
UK GOV	•	•	•			•		•
OECD	•	•	•	•	•	•	•	•
NAS			•	•	•		•	•
JST	•	•	•	•	•	•	•	•
SAPEA	•	•	•		•		•	•

Table 1. The eight principles and their occurrence in the six documents

Translation in Different Organizational Settings

- Trust
- Avoidance of hubris
- Independence
- Distinguish science for policy from policy for science
- Understand science informs and does not make policy
- Protect the privilege of science
- Recognize the limits of science
- Brokerage not advocacy
- Engagement with science community
- Engagement with non-academic community

nature

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Thus, in my first media interview as science adviser I was asked how I felt about my advice not being heeded. I pointed out that despite strong scientific evidence to support folate supplementation, a democratic government could not easily ignore overwhelming public concern about the food supply. The failure here was not political; rather, it was the lack of sustained and effective public engagement by the medical-science community on the role of folate in the diet. As a result, the intervention did not get the social licence necessary to proceed. Five years on, I am still in the post. I have come to understand that the primary functions and greatest challenges for a

science adviser are providing advice not on straightforward scientific matters, but instead on issues that have the hallmarks of what has been called 'post-normal science'. These issues are urgent and of high public and political concern; the people involved hold strong positions based on their values, and the science is complex, incomplete and uncertain. Diverse meanings and understandings of risks and trade-offs dominate. Examples include the eradication of exogenous pests in New Zealand's unique ecosystems, offshore oil prospecting, legalization of recreational psychotropic drugs, water quality, family violence, obesity, teenage morbidity and suicide, the ageing

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- Workshop on Danish Eco-System of Science for Policy jointly organized by EU Joint Research Centre & Danish Council for Research and Innovation
- 22 April 2021.
- Discussion Paper "Mapping the Danish Eco-System of Science for Policy"

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A Comparative Framework of Principles for Science Advice

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Abstract

The provision of sound scientific advice is a major resource for policy-making in contemporary societies. The key questions are how, where, when, and by whom science advice is organized and authorized. In order to provide a foundation for this, many institutions have launched a wide range of initiatives to establish principles for science advice. However, over the past two decades the volume of proposed principles has become overwhelming and perplexing. This problem of 'principle proliferation' poses a number of questions. Are the various sets of principles for science advice overlapping, leading to the emergence of global consensus, or, do they differ in significant ways? In order to answer these questions, this paper reports the results of a fine-grained analysis of several of the highest-profile sets of principles for science advice. We assess whether these principles are convergent, leading to agreed-upon principles, or divergent, leading to ambiguity over what constitutes sound scientific advice.

Keywords: science advice, science policy, evidence-based policy

1. Introduction

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Thank
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