

# Synthesis Report

Science Advice to Governments Conference

28-29 August 2014

Auckland, New Zealand



Office of the Prime Minister's  
Chief Science Advisor



**ICSU**

International Council for Science

[www.globalscienceadvice.org](http://www.globalscienceadvice.org)

#sciadvice14

## Acknowledgements

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2014 – Office of the Prime Minister's Science Advisory Committee, New Zealand

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## 1. Background and Objectives

The first Science Advice to Governments conference took place in Auckland New Zealand on August 28-29, 2014. The meeting was co-hosted by the Office of Sir Peter Gluckman, Chief Science Advisor to the Prime Minister of New Zealand and the International Council for Science (ICSU) and was timed to immediately precede ICSU's General Assembly of national members and scientific unions also held in Auckland. The presence of so many of the world's most distinguished scientists and leaders in their country's respective science systems (as science advisors and/or heads of academies) made this meeting a landmark event.

The Auckland conference was designed as an opportunity for the world's leading practitioners of science advice to meet and discuss the key challenges and good practices of their task, together with scholars having expertise in the field. The practitioners ranged from individual science advisors to the highest levels of governments and government departments, to heads of academies and other advisory committees. Delegates spoke to a variety of science advisory models that were established (or being established) in a number of jurisdictions globally (see conference [briefing document](#)<sup>1</sup> prepared by James Wilsdon *et al.* which outlines the most prominent models currently in use).

While the science advisory models considered at the conference each suit particular social, cultural and historical contexts, common across all of them was a primary concern for *science advice for public policy* as distinct from *policy advice for the science system*. Indeed, the former was the objective of the conference, having been clearly distinguished from the latter in both pre-conference briefing material and by the Chair's opening remarks. However, delegates recognised that the boundaries and associated roles of these two domains are necessarily blurred, particularly with many national science systems now being driven by 'grand societal challenges,' and by funding structures being designed to maximise the policy and economic relevance of science.

As the first conference of its kind with the participation of a considerable number of high-level practitioners and scholars, the Auckland meeting was deliberately exploratory in its objectives and approach. The foremost aim of the conference was to create a fairly informal space for **frank discussion about the practice of science advice** and, in particular, how to navigate the inherent tensions of the task – from epistemological issues stemming from the nature and sufficiency of evidence, and communicating scientific uncertainty, to procedural and structural considerations about maintaining independence and taking action in times of crisis.

A second aim of the conference was to **begin to build a peer network of science advice practitioners and scholars** to 1) provide peer support to each other regarding parallel issues arising in respective jurisdictions; 2) through such issues, explore both the conceptual and practical aspects that arise at the science/policy interface 3) provide context to emerging economies in the development of a science advisory system or in accessing science advice externally and 4) exploring the need and potential for concerted efforts in science advice multilaterally to international

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<sup>1</sup> Wilsdon, J., K. Allen and K. Paulavets, Science Advice to Governments: Diverse systems, common challenges. A briefing paper for the Auckland conference (August, 2014). Available at: [http://www.globalscienceadvice.org/wp-content/uploads/2014/08/Science\\_Advice\\_to\\_Governments\\_Briefing\\_Paper\\_25-August.pdf](http://www.globalscienceadvice.org/wp-content/uploads/2014/08/Science_Advice_to_Governments_Briefing_Paper_25-August.pdf)

organisations, particularly where there is an acute need (such as in a health crisis or natural disaster involving multiple countries) outside of established advisory committees and processes that tend to focus on longer-term issues. By helping to establish a network of both practitioners and scholars, the hope is to seed the development of this emerging field in a practical and reflective way.

A third aim of the conference was to respond to a growing global interest in the role of the scientific voice in policy-making. That is, the conference provided an initial opportunity to **gauge whether it is possible to develop a set of guiding principles for science advice** globally that could resonate with the varied cultural, historical and political contexts of the world's governments today. Less outcome-driven than exploratory, this aim was intended simply to start a conversation about what good science advice looks like and how we might support all economies to safeguard quality evidence for decisions.

## 2. Emerging Themes

The agenda for the conference (see appendix 1) was developed over the course of a year by the conference organising committee, which was established by ICSU (see appendix 2). Sir Peter Gluckman, Chief Science Advisor (CSA) for New Zealand was asked by ICSU to convene this group of high level practitioners of science advice and scholars from around the world to advise on the nature and direction of the conference. As the agenda took shape, the breadth and depth of experience and expertise within this group were tapped to suggest topics, speakers and themes to be developed both within the conference itself and its [briefing document](#) .

From the beginning it was agreed that the format of the conference should be as open as possible, with short formal interventions organised in a number of thematic panels, followed by facilitated discussion from the floor. This format was designed to encourage open discussion such that themes could arise naturally and be revisited over the course of the meeting, as necessary and desirable. The result was the crystallising of a number of key themes which will be taken up in the sub-sections that follow.

### 2.1 A Systems Approach to Science Advice

The conference was not intended to analyse and weigh the relative merits of the diverse models of science advice currently in practice in various jurisdictions. Rather, it sought to consider the hallmarks of science advice within a 'systems' perspective regardless of particular model used. This question was revisited throughout the conference through the lens of specific challenges (e.g. science advice in the context of entrenched ideology; science advice in the context of crisis) and as such, became an underlying theme.

Discussion crystallised around an idealised three-pillar system where science advice would be operationalised through formal channels; through informal channels; and through a dedicated mechanism to be triggered in times of crisis. The conference offered opportunities, through

illustrative examples from speakers and audience members, to sketch out the characteristics of these pillars, without seeking to point to any single jurisdiction's 'recipe' as the exemplar. These examples demonstrated that, in the real world, science advice is structured through a mix of these pillars, with different jurisdictions placing the emphasis in a variety of ways according to context.

#### Formal channels of science advice to governments

Formal channels of science advice are appropriate for longer-term data gathering, analysis and reflection and thus suited to protracted and complex issues. Process is paramount and there is a high degree of transparency, often with consultative and multi-stakeholder (including public) input if the committee is also tasked with making policy recommendations. Examples of formal channels within an overall science advisory system include:

- Advisory and expert committees: These may be standing committees attached to ministries with a regulatory function or ad hoc committees set up for a sole purpose on a limited time basis. Their work may be constitutionally mandated or designed to respond to identified needs.
- National academies: These well-established organisations are foundational to national science systems and thus an integral part of the science advisory model. Academies, by definition, have an academic independence that allows them to devise their own policy-relevant research questions or choose to focus on specific issues as requested by governments. A strong national academy can provide a formal structure for the development of science advice, usually operationalised in the development of in-depth reports that are issued to both government and the public.

#### Informal channels of science advice to governments

Informal channels of science advice are most often found vested in an individual science advisor, whether a CSA or departmental advisors. Although CSAs have multiple formalised roles to undertake with, and on behalf, of the executive, it is often their informal actions that can be the most valuable and influential to decision makers. Backed by the types of formal structures outlined above, these individuals enhance the overall system by:

- Establishing a visible and accessible single point of contact serving both government seeking scientific expertise and the science community seeking to channel insight and evidence to government;
- Acting as a networking and convening agent between various stakeholders at the science/policy interface, including working closely with established advisory or expert committees, or convening ad hoc expert panels as the need arises;
- Actively participating in 'everyday' and 'hallway' discussions with decision-makers on matters of policy that could benefit from scientific input – often initiating these quiet discussions and making it as easy as possible for decision-makers to give due consideration to scientific evidence;
- Informally prompting, coaching and giving direction to policy leaders within the civil service to ensure that they are able and willing to access scientific analysis of policy issues under consideration;

- Proactively interact at every stage of the policy process, unlike formal advisory panels, the terms of which will dictate how and where the deliverable is applied;
- Provide quick responses (or directional signals) to address acutely arising concerns, which is a reality of the way most science advice is sought by governments and initial policy options explored.

### Science advisory mechanism for crisis situations

Though not common to all jurisdictions represented at the conference, a mechanism for science advice in situations of public crisis could be viewed as a third pillar in a ‘systems approach’ to science advice. A specific approach to crisis-relevant science advice merits special consideration within a whole-system based model for at least two reasons. First, the potential impacts of public crises require a more acute level of awareness and preparedness than other policy issues requiring science advice. Second, the urgent response times and rapid appraisals demanded in crisis and emergency situations often force a redefinition of the role of the science advice practitioner from ‘advisor’ to ‘decision-maker’. Given this role shift, the hallmarks of a systems approach to science advice that is crisis-ready might include:

- An identified trusted individual – whether CSA, Head of Academy or other – who is in a position to quickly convene, synthesise and impart evidential knowledge to government and the public in an authoritative (but not authoritarian) manner;
- An evidence and intelligence gathering infrastructure that is well established prior to any crisis and that can be triggered by the identified science leadership at short notice. Early and ongoing risk identification and mapping support this infrastructure, including both a risk register and key contact people in the science community that could knowledgeably address each identified risk.

## 2.2 Qualities necessary for successful science advice

As the hallmarks of a complete science advisory system emerged through discussion and illustrative examples at the conference, so too did a number of qualities or ‘criteria’ for successful science advice in general. Some of these had been previewed in an earlier [paper published in Nature<sup>2</sup>](#) by Sir Peter Gluckman, as well as in a number of [papers and commentaries<sup>3</sup>](#) by both practitioners and critical observers of the field such as Heather Douglas, Chair of Science in Society at the University of Waterloo, James Wilsdon, Professor of Science and Democracy at the University of Sussex and Roger Pielke Jr., Professor in Environmental Science at the University of Colorado.

In addition to those qualities already outlined in pre-conference material and the Nature paper, the conference discussions raised or underlined particular qualities for success such as:

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<sup>2</sup> Gluckman, PD *The art of science advice to government* In Nature, Vol 507, March 13, 2014. Available at <http://www.nature.com/news/policy-the-art-of-science-advice-to-government-1.14838>

<sup>3</sup> See collected resource material at <http://www.globalscienceadvice.org/resources/>

- Balancing the tools of free and frank advice to decision-makers and of public accountability and transparency of processes;
- having political acumen, without ‘being political’;
- Understanding and addressing the limits of science and appropriately framing uncertainties;
- Understanding and making clear the inferential leaps that are necessary between assessing the evidence and choosing a course of action – understanding that the question of sufficiency of evidence is inevitably a value judgement;
- Understanding that the qualities of great scientists and great science advice practitioners are not the same. Although scientific merit is fundamental, it is perhaps the least of the skillsets required;
- Protecting the integrity of the science system in being able to provide high quality and robust evidence on which to base advice.

As this list of qualities emerged during the conference, so too did some overarching concepts in which they could be structured. This offered the seeds of a growing **set of guiding principles** (to which more may be added) for the practice of science advice to governments, for which there was broad enthusiasm in Auckland, but insufficient time and representation for the necessary discussion to mature. The concepts include:

- Trust: earning it and maintaining it with multiple stakeholders simultaneously. This can be a challenge when the motivations and objectives of stakeholders (government, public, media, and the science community – both academic and industrial) may not align on particularly contentious or complex issues. For instance, some referred to the common misconception that the science community often expects science advisory mechanisms to act primarily advocates for the science system, which is generally not the case and can in fact be counterproductive to the provision of impartial advice.
- Honest brokerage of knowledge: this is a concept introduced by Roger Pielke Jr. in 2009, and to which conference delegates added considerable nuance. An honest broker of knowledge seeks to elucidate what is known and what is not known about an issue and to explain what the data says about the implications of various possible courses of action, stopping short of advocating for any one of these. The concept was enhanced at the conference in recognising that while the honest broker seeks objectivity, the production of evidence itself is not values-free and that brokerage must include acknowledgement of inherent biases and limitations that result from how we frame questions and seek knowledge in the first place. However, this distinction was further nuanced by the acknowledgement that the values judgements with which science is undertaken are themselves distinct from the broader societal values which influence policy. Thus, the honest brokerage of science advice must remain apart from the broader societal debates, except in so far as to offer the evidence-based implications of each of the policy options that they present.
- Autonomy: Whether it is offered through formal or informal means, science advice must be developed and delivered independently from any political influence.



- Scientific privilege: Among the multiple justifiable inputs into policy formation, science must hold a privileged status by virtue of the rigorous and representative nature of the information it offers (contrasting with anecdote, opinion and ideology, all of which may legitimately motivate decision-makers). The scientific privilege may only be maintained if the integrity of scientific methods and the scientific enterprise itself are sound.
- Humility: The privilege of science must be balanced with an acknowledgement of its limits and the inferential gap that generally exists between what is known and the conclusions that are ultimately reached. This requires a certain amount of humility from the science community to recognise that its data will not necessarily be able to provide all the answers, and when the data are applied, they must be contextualised to the situation. The contributions of conference panellist Heather Douglas on the inferential leaps we make when moving from 'data' to 'evidence' to 'advice' was particularly useful here.

## 2.3 Supply and Demand of Science Advice

It was clear from the outset that the Auckland conference was an important moment that has already helped to galvanise a global conversation that had been building in various sectors including the OECD, the European Commission, the AAAS and others. But what was also clear early on was the recognition that the majority of delegates represented only one side of the equation – the 'supply side' of science advice as vested in the science community. This demographic is understandable given that the conference was built around the ICSU General Assembly and designed to capitalise on the unprecedented physical presence of so many heads of national academies and equivalent level representatives of the science community.

The 'demand side' of science advice within the policy community was less well represented at this inaugural conference. Arguably, a number of the organisations in attendance, such as the European Union's Joint Research Centre or the UK's Parliamentary Office of Science and Technology sit comfortably within the policy-making arena, however more input from otherwise isolated 'policy shops' will be important in future discussions.

For instance, while we are beginning to build an awareness of the optimal evidential basis for sound advice and the methods to impart this, far less is understood about what triggers requests for advice or even if the need for advice is well understood and commonly shared by policy makers.

Many academic and administrative surveys of the public service engagement with evidence exist<sup>4</sup> and can point to a number of broad challenges and directions for improving the demand for

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<sup>4</sup> See for instance:

Doubleday, R. and J. Wilsdon, eds. *Future directions for scientific advice in Whitehall*, April 2013. Available at: <http://www.csap.cam.ac.uk/events/future-directions-scientific-advice-whitehall/>

evidence in policy-making. However, it will be important for future work (and discussion) in this area to *simultaneously* consider the needs, motivations and operational limitations of both the supply and the demand sides of science advice. A true dialogue is imperative.

## 2.4 Complexity: multidisciplinary, multijurisdictional

The production, provision and ultimate application of science advice are a complex business, the challenges of which are compounded by context – political, cultural, jurisdictional, etc. – and the urgency of the situation for which advice is needed.

A recurring theme of discussion at the conference was the need for multidisciplinary and, increasingly, multijurisdictional responses to the types of questions for which governments today would need (and ideally seek) science based advice.

Science advice practitioners need to be conversant across disciplines, which is aided by a deep experiential knowledge of the ‘international language’ of quality science: sound and replicable methodologies; transparent datasets; peer reviewed work and publication of results. But their skillset need not be one of deep specific domain knowledge but rather to translate between the cultures of science and policy making. Science advisors must be able to reach out to the science community to source content expertise.

However, the social sciences stand out as a special challenge, both because they have a particular role to play in science advice, but also because the multiple methods of the social sciences are not always well understood. Qualitative research in particular presented a conundrum. Done well, it can provide invaluable insights into context, motivations, challenges and opportunities for policy (or advice) uptake, and can shine a light on unexamined or unintended biases that influence actions and decisions. Done poorly, it can be easily used by advocates of particular positions to undermine other evidence through the perpetuation of anecdote or entrenched patterns of thinking.

Yet, the overwhelming theme of conference discussions was of the indispensable nature of applying the social sciences to the issues we face because, ultimately, they are social issues. Climate change science, for instance, has been pioneering ways to incorporate effects of potential human activity (mitigation or otherwise) into its scenarios for scientific modelling.

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Fischer, A., et al. *Expert Involvement in policy development: A systematic review of current practice*. In *Science and Public Policy* 41 (2014) pp. 332–343

Gluckman, PD *The role of evidence in policy formation and implementation: A Report by the Prime Minister’s Chief Science Advisor*, September 2013. Available at: <http://www.pmcsa.org.nz/wp-content/uploads/The-role-of-evidence-in-policy-formation-and-implementation-report.pdf>

Lalor, B. et al. *Managing the environmental science–policy nexus in government: Perspectives from public servants in Canada and Australia*. In *Science and Public Policy* 40 (2014)

The extent to which the term ‘science advice’ illustrates the multidisciplinary nature of the project became a subject of debate at the conference, with unanimous recognition that it can be limiting. The German word ‘*wissenschaft*’ was suggested as an alternative for ‘science’. It means the rigorous and methodical study of a subject and does not make assumptions about natural, physical or social sciences. It was agreed that science advice must ultimately come from a *wissenschaft* approach.

A second issue of complexity relates to the increasingly multijurisdictional nature of today’s most pressing policy issues. Climate change, water access and quality, air quality, public health, food security and production, for instance, all cross geo-political borders. Scientists and science advisors must communicate across these borders and be more aware of the other jurisdictions’ approaches to knowledge production and use.

At the same time, multiple jurisdictions must collaborate in providing advice to multilateral international organisations. Processes like the IPCC have set an excellent standard for this type of collaboration, but require time and infrastructure to produce advice. Much more complex are the multijurisdictional questions that are time-sensitive such as in responding to global crises. Can current processes (through UN convening bodies for instance) be made more efficient and sensitive to individual domestic contexts with greater input and networking of existing science advisory mechanism? Conference delegates called for this to be explored in more depth.

## 2.5 The science of science advice

As a spark to ignite a more explicit global conversation about the state and practice of science advice to governments, the Auckland conference likely raised more questions than it could answer. Delegates agreed on the need for a rigorous and ongoing examination of the practice that would hold it up to the same standards of evidential and scientific analysis that it seeks to encourage in the policy world.

The idea of a science of science advice is not new. Yet, much of the historical antecedents for studying the science/policy nexus have been focused on policy levers designed to shape national science and R&D systems. Understanding the mechanisms that ensure the use of research-based evidence in policy is a different line of enquiry altogether.

Conference delegates had a variety of backgrounds and experience with this line of enquiry. Many were aware of the pioneering work of Sheila Jasanoff and other Science, Technology and Society scholars in this domain, with some deeply steeped in it. Some delegates brought backgrounds from disciplines such as health care research and community-based environmental planning that have been at the leading edge of engaged scholarship for many years. This was an important reminder of the lessons learned in certain areas of study about engaging knowledge end-users (in this, case policy makers) from the earliest stages in policy-relevant research. It was noted that science advice practitioners do well to read widely and across disciplines in order to cross-pollinate ideas about how to achieve successful knowledge translation to policy and practice.

In addition, the presence of notable STS scholars at the Auckland conference ensured that the discussions balanced practical concerns with a constant measure of self-reflexive analysis that

helped bring to the surface any underlying biases or unexamined assumptions in the practice. It was agreed that one of the most innovative qualities of the Auckland conference was to directly involve social scientists including philosophers and critical studies experts in the debates that occupy practitioners of science advice. That this cross-pollination of ideas should continue and that new areas of analysis should – as a matter of course – involve a cross-disciplinary and reflexive approach, was widely endorsed at the meeting.

### 3. Where Next?

It is clear that Auckland was a landmark event in convening, for the first time, such an assemblage of high-level practitioners, academics and critical analysts of the field. The associated publications and invited blogs that were timed to coincide with the conference, appearing on the conference [website \(www.globalscienceadvice.org\)](http://www.globalscienceadvice.org), at the [Guardian news site's blog on science and policy](http://www.theguardian.com/science/science-policy)<sup>5</sup> and in the [pages of Nature](http://www.nature.com/news/science-advice-1.15760)<sup>6</sup>, are evidence of the coordinated effort to ensure a broad event that could start to connect disparate initiatives on science advice to governments. The ultimate goal of the conference was to begin shaping a hub that could keep track of such initiatives and to connect them, where possible and desirable, without seeking to own or house them.

With this in mind, it has been important to consider the post-conference next steps with a view to maintaining momentum without compromising the informal and flexible nature of the emerging network that has begun to take shape. A number of activities and potential points of focus were discussed at the end of the conference for the immediate term (6-12 months). These are outlined in turn in the sub-sections that follow.

#### 3.1 Establishing the network – logistics and partnerships

The Auckland conference ended with a consensus call to 'continue the discussion' by building a semi-formal and broadly based Network of Science Advice Practitioners and Scholars that could continue to learn from each other. The aim is not to create an unnecessary new global entity, but rather to provide a virtual hub and an 'umbrella' or 'brand' with which subsequent events and initiatives could be associated, whether through shared contacts, expertise, resources, or other means. A biennial meeting under the Network brand would provide an opportunity for in-depth discussion on key topics of concern such as advising on risk, resilience and preparedness and issues of social license for new technologies, for instance.

To establish this Network (albeit only semi-formally), it was agreed that the original conference organising committee be reformulated as a Network Development Group. It will also be expanded upon to ensure that it is more representative of the regional, cultural, political, structural and gender diversity of the growing community of practice and scholarship. The Development Group will be

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<sup>5</sup> <http://www.theguardian.com/science/science-policy>

<sup>6</sup> <http://www.nature.com/news/science-advice-1.15760>

tasked with exploring the potential for developing a semi-formal structure for the Network (i.e. resource requirements, partnership potential, suite of activities).

### 3.2 Program of follow-on activities

It is not expected that such a Network would develop in-house resources or capacity to convene a formal suite of activities, beyond a biennial meeting, for which global partners and sponsorship will be necessary. However, the existence of such a Network will undoubtedly give rise to multiple possible events that could be hosted by various organisations with Network expertise, contacts and branding.

In the near-term, a set of at least two 'capacity-building' workshops are under discussion for 2015 – one in Quebec and aimed at Francophone countries, and another in Southern Africa to support capacity development regionally. As plans develop, with the expanded Network Development Group and prospective local hosts, information will be made available on the updated conference website.

### 3.3 Website as resource hub ([www.globalscienceadvice.org](http://www.globalscienceadvice.org))

In the immediate term, the conference website will be redeveloped as a resource for the Network and beyond. As convener and chair of the inaugural conference, Sir Peter Gluckman has committed his Office to reformulating and re-launching the website that was built for the conference, with a view to maintaining it as a hub of knowledge and discussion on science advice to governments. Already, as a result of the conference, the website is a valuable repository of: guest blogs from conference panellists and delegates; video clips covering the conference discussions in their entirety including interaction from the floor; briefing documents, presentations and research papers submitted by panellists and delegates; and an historical synthesis of Twitter discussion for the record).

Reformulating and rebranding the website will allow it to serve as an ongoing link among practitioners and scholars of science advice, both with announcements and events, but also as a place to post blogs and generate ideas. Crosslinks between the blog space and the Twitter account (@GlobalSciAdvice) will support deepening discussions and sharing information. In addition, as follow-on activities are developed, the website can be expanded to support these.

### 3.4 Topics for future focus

In addition to the possible future operational directions, conference delegates also called for special attention to be paid to a number of key focus topics for deeper discussion. For instance, there was

resounding agreement that a future meeting or workshop under the auspices of the emerging Network should focus on structures and capacity for science advice in the world's developing economies. In this, the issue was not only how to establish and support science advice structures domestically, but also how science advice from outside economies could appropriately and effectively be brought to bear on the domestic and transnational issues of the developing world.

Similarly, delegates agreed that deeper discussion is needed on how best to provide science advice, not just to partner economies but also to multi-lateral/international organisations. This type of advice differs from that developed through international processes such as IPCC in that the focus would be on mechanisms for rapid collaboration and consensus on more acute matters. Many also suggested that some focus on the specific roles and responsibilities of Academies and the science community in the advisory architecture was also worth exploring more systematically.

Finally, though it would have been impossible to achieve at Auckland, there was growing momentum to establish a set of Principles for Science Advice as an instrument to galvanise a global commitment to evidence-informed public policy. This is an exercise that would require broad-based consultation and engagement with many not present in Auckland, but the conference seeded an important idea.

Through what mechanisms these topics may be addressed – whether as a satellite workshop to a larger meeting, a dedicated event, or some commissioned analysis – remains to be determined by the Development Group and the Network.

## Conclusion

The Auckland conference was born from the dual observation that while more governments are recognising the need for and establishing science advice mechanisms, there is little by way of shared lessons about how best to do this. The conference responded to the need for a platform of discussion and sharing that could draw simultaneously from practical experience and scholarly analysis of the field. As an open and accessible event, it also encouraged a range and frankness of input into processes that have traditionally been limited to a 'members only' realm of government advisors, and highlighted the commitment to building a network that is inclusive regionally and professionally. As such, Auckland was evidence not only of the rapidly changing relationship between science and society, but also the changing relationship between the public and their elected officials, as mediated by science.

To quote conference chair, Sir Peter Gluckman, who was himself creatively (mis)quoting Australia's Chief Science Advisor Ian Chubb: "Science advice is indeed a contact sport – but played with a straight bat."

## Appendix

### A1. Conference Agenda

DAY 1				
9:15	Welcoming remarks	Steven Wilson	Executive Director, International Council for Science	ICSU / UK
9:30	Opening address	Sir Peter Gluckman	Prime Minister's Chief Science Advisor	NZ
<b>Panel 1 - The process and systems of science advice</b>				
10:00 - 11:45	Sir Peter Gluckman (CHAIR)	Prime Minister's Chief Science Advisor		NZ
	Jörg Hacker	President, German Academy of Sciences, Leopoldina and appointed to UN Science Advisory Board		Germany
	Shaukat Abdulrazak	CEO, National Commission for Science and Technology of Kenya		Kenya
	Raja Chidambaram	Principal Scientific Advisor, Government of India		India
	Kari Raivio	Chancellor Emeritus, University of Helsinki		Finland
	Nils Stenseth	President, Norwegian Academy of Science and Letters President, International Union of Biological Sciences		Norway
	David Mair	Head of Unit, Science Advice to Policy at the Joint Research Centre of the European Commission		EC
	William Colglazier	Former Science and Technology Adviser to the U.S. Secretary of State		USA
11:45	LUNCH (including Science Media Centre)			
12:45	Afternoon keynote	Anne Glover	Chief Science Advisor to the President, European Commission	EC / UK
<b>Panel 2 – Science Advice in situations of crisis</b>				
13:30 - 15:00	Anne Glover (CHAIR)	CSA to the President, European Commission		EC / UK
	Yuko Harayama	Executive Member, Council for Science & Technology Policy, Cabinet Office and Rep to Carnegie Group		Japan
	Andreas Hensel	Director, Federal Institute for Risk Assessment		Germany
	Lourdes Cruz	President, National Research Council of Philippines		Philippines

	Mary O'Kane	Chief Scientist, NSW Australia	Aus(NSW)
15:00	BREAK		
<b>Panel 3 – Science Advice in the context of opposing political/ideological positions</b>			
15:15	Ian Boyd (CHAIR)	Chief Scientist, Dept for Environment, Food and Rural Affairs	UK
16:45	Hubert Deluyker	Scientific Advisor to the Executive Director, European Food Safety Authority (EFSA)	EC
	Roger Pielke, Jr.	Director, Center for Science and Technology Policy Research University of Colorado	USA
	Gordon McBean	Professor, University of Western Ontario- Centre for Environment and Sustainability and President-elect, ICSU	Canada / ICSU
	Chris Tyler	Director, Parliamentary Office of Science and Technology	UK
	Chubb, Ian	Chief Science Advisor to the Prime Minister	Australia
16:45 - 17:30	Closing Plenary	Sir Mark Walport	Government Chief Scientific Advisor  UK
<b>Science Advice to Governments</b>			
9:10	Opening address	Zakri Hamid	Chief Science Advisor to the Prime Minister and Founding Chair, Intergovernmental Platform on Biodiversity and Ecosystem Services  Malaysia / IPBES
<b>Panel 4 – Developing an approach to international science advice</b>			
9:40- 11:00	Zakri Hamid (CHAIR)	CSA to Prime Minister and Founding Chair IPBES and appointed member of the UN's Science Advisory Panel	Malaysia / IPBES
	Carlos Nobre (TBC)	National Secretary, for R&D Policies and appointed member of the UN's Science Advisory Panel	Brazil
	Steven Wilson	Executive Director, ICSU	ICSU / UK
	Romain Murenzi	Executive Director, The World Academy of Science	TWAS / Rwanda
	John Boright	Executive Director of International Affairs, US National Academies	US
	Jaqueline McGlade	Chief Scientist, United Nations Environment Program	UNEP
	Pavel Kabat	Director and CEO of International Institute for Applied Systems Analysis	IIASA
11:00	BREAK		



11:15	Speaker	Phil Campbell	Editor-in-chief, Nature	
11:45	LUNCH			
<b>Panel 5 - The modalities of science advice: operationalising in context</b>				
13:00	Phil Campbell (CHAIR)		Editor-in-chief, Nature	UK
14:30	Heather Douglas		Chair in Science & Society, Balsillie School of International Affairs, U. of Waterloo Canada	Canada
	Mark Ferguson		Chief Scientific Advisor to Government & Director General, Science Foundation of Ireland	Ireland
	Rémi Quirion		Chief Scientist, Province of Québec	Canada Quebec
	Tateo Arimoto		Director, Innovation, Science and Technology Program of Graduate Institute for Policy Studies, Tokyo and Executive member, Global Science Forum	Japan / GSF
	Fidel Castro Díaz-Balart		Science Advisor to the President of the State Council and Vice-President of the Academy of Sciences	Cuba
	Brian Collins		Professor, Department of Science, Technology, Engineering and Public Policy (STeAPP) and Director, International Centre for Infrastructure Futures (UCL)	UK
	Sir Peter Gluckman		Prime Minister's Chief Science Advisor	NZ
14:30	BREAK			
14:45	Closing plenary	James Wilsdon	Professor of Science and Democracy, Science and Technology Policy Research (SPRU), University of Sussex	UK
15:30 16:00	wrap up	Sir Peter Gluckman	Prime Minister's Chief Science Advisor	NZ

## A2. Conference Organising Committee

**Dr. John Boright**, Executive Director of International Affairs at US National Academies

**Sir Peter Gluckman**, Prime Minister's Chief Science Advisor, New Zealand

**Dr. Anne Glover**, Chief Scientific Adviser to the President of the European Commission

**Dr. Romain Murenzi**, Executive Director of The World Academy of Sciences (TWAS)

**Dr. Carlos Nobre**, National Secretary, Research and Development, Ministry of Science, Technology and Innovation, Brazil; and appointed member of UN Scientific Advisory Board

**Sir Mark Walport**, Government Chief Science Adviser, UK

**Dr. James Wilsdon**, Professor of Science and Democracy, University of Sussex

**Dr. Steven Wilson**, Executive Director of International Council for Science (ICSU)

**Dr. Hamid Zakri**, Prime Minister's Science Advisor, Malaysia; founding Chair of the Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES); and appointed member of the UN Scientific Advisory Board.

### A3. Conference Attendance

(Green denotes speakers or panellists)

Omar Abdul Rahman	Omryn Technologies Sdn. Bhd.	Malaysia
Shaukat Abdulrazak	National Commission for Science and Technology	Kenya
Michele Acuto	STeAPP, University College London	UK
Kristiann Allen	Office of PM's Chief Science Advisor, NZ	NZ
Edward Amankwah	Centre for Environmental Governance	Ghana
Matt Amos	IUGG/Land Information New Zealand	NZ
Gonzalo Arenas	Council for Science, Technology and Innovation -CONCYTEC	Chile
Tateo Arimoto	National Graduate Institute for Policy Studies	Japan
Asela Atapattu	Environmental Protection Authority	NZ
Samuel Ayonghe	Cameroon Academy of Sciences and University of Buea	Cameroon
Folaranmi D. Babalola	University of Pretoria	South Africa
Tish Bahmani Fard	ICSU	France
Michael Barber	Flinders University	Australia
Alan Beedle	University of Auckland	NZ
John Bell	Australian Academy of Technological Sciences & Engineering	Australia
Daniela Binder	Australian National University	Australia
Jason Blackstock	UCL STeAPP (Science, Tech, Engineering and Public Policy)	UK
Maria Elena Boisier	Council for Science, Technology and Innovation -CONCYTEC	Chile
John Boright	International Affairs at US National Academies	USA
Geoffrey Boulton	The Royal Society	UK
Ian Boyd	Department of Environment, Food and Rural Affairs (DEFRA)	UK
Curtis Brainard	Scientific American	USA
Maureen Brennan	International Council for Science	Ireland
Micaela Buckley	Ministry of Business, Innovation and Employment	NZ
Melody Burkins	U.S. National Committee for the International Union of Geological Sciences	USA
Phil Campbell	Editor-in-Chief, Nature	
Edmond Cane	Albanian Academy of Sciences	Albania
Anthony Capon	United Nations University	Malaysia
Pandora Carlyon	Office of PM's Chief Science Advisor, NZ	NZ
Fidel Castro Diaz-Balart	State Council	Cuba
Denis Chang Seng	UNESCO	Pacific Island Countries
Marie-Lise CHANIN	Académie des Sciences, France	France
Raja Chidambaram	Scientific Advisory Committee to the Cabinet, India	India
Peter Christoff	University of Melbourne	Australia
Ian Chubb	Office of the Chief Scientist	Australia
Stefan Claesson	Royal Swedish Academy of Sciences	Sweden
E William Colglazier	US Department of State (until July 25, 2014)	USA
Brian Collins	STeAPP, University College London	UK

Elizabeth Connor	The KinShip	NZ
Ruth Cooper	The Royal Society	UK
Peter Crabtree	Ministry of Business, Innovation and Employment	NZ
Lourdes J Cruz	President of the National Research Council of the Philippines	Philippines
Chris Darby	GO-Science	UK
Justine Daw	Landcare Research	NZ
Paul De Barro	CSIRO	Australia
Hubert Deluyker	Scientific Adviser to the Executive Director, European Food Safety Authority	
LEE Dennis	Innovation and Technology Commission	China, Hong Kong
Roseanne Diab	Academy of Science of South Africa	South Africa
Heather Douglas	University of Waterloo Canada	Canada
Regdel Duger	The Mongolian Academy of sciences	Mongolia
Eckart Ehlers	Deutsche Forschungsgemeinschaft	Germany
Susannah Elliott	Australian Science Media Centre	Australia
Patricia Falcone	White House Office of Science and Technology Policy	USA
Karla Falloon	Ministry of Business, Innovation and Employment	NZ
Brad Fenwick	US State Department	USA
Mark Ferguson	Science Foundation Ireland	Ireland
Ian Ferguson	Ministry for Primary Industries	NZ
Fiona Fox	Science Media Centre	UK
Nick Gales	Australian Antarctic Division	Australia
Ramesh Ganesan	Ministry of Business, Innovation and Employment	NZ
Geoff Garrett	Dept of Science, Information Technology, Innovation, Arts The National Centre for Immunisation Research and Surveillance	Australia
Melina Georgousakis		Australia
Aidan Gilligan	SciCom - Making Sense of Science	Belgium / EU
Ardit Gjipali	Agency for Research, Technology and Innovation	Albania
Anne Glover	Chief Science Adviser to the President of the EC	EU
Peter Gluckman	Office of PM's Chief Science Advisor, NZ	NZ
Stephen Goldson	Office of PM's Chief Science Advisor, NZ	NZ
Seishi Gomibuchi	Ministry of Business, Innovation and Employment	NZ
Gustavo Gonzales	National Academy of Sciences, Peru	Peru
Marissa Gonzalez - Otoya	Council for Science, Technology and Innovation -CONCYTEC	Peru
Peter Griffin	Science Media Centre	NZ
Yvonne Grunder	The Royal Society	UK
Jörg Hacker	German National Academy of Sciences Leopoldina	Germany
Heide Hackmann	International Social Science Council Center for Science and Democracy, Union of Concerned Scientists	France
Michael Halpern		USA
Yuko Harayama	Cabinet Office of Japan	Japan
Kate Harland	Office of PM's Chief Science Advisor, NZ	NZ
Paul Harris	Australian Government	Australia
Andreas Hensel	Federal Institute for Risk Assessment (BfR)	Germany
Katherine Herbert	University of Auckland	NZ
Dacia Herbulock	Science Media Centre - New Zealand	NZ

Robyn Hill	The University of Auckland	NZ
Will Hine	TVNZ	NZ
Christopher Howe	WWF-New Zealand	NZ
Samuel Howerton	U.S. Department of State	USA
Emma Hudson-Doyle	Joint Centre for Disaster Research, Massey University	NZ
Mike Ives	SciDev.Net	Vietnam
Catriona Jackson	Science and Technology Australia	Australia
Colin James	Otago Daily Times	New Zealand
Sarb Johal	Joint Centre for Disaster Research, GNS Science / Massey U.	NZ
David Johnston	Integrated Research on Disaster Risk	NZ
Monique Jonas	National Health Committee	NZ
Katie Jones	Unitec Institute of Technology	NZ
Nick Jones	NZ eScience Infrastructure (NeSI)	NZ
Yuh-Jzer Joung	Science & Technology Policy Research and Information Center, National Applied Research Laboratories, Taiwan	Taiwan
<b>Pavel Kabat</b>	<b>IIASA and Wageningen University</b>	<b>IIASA</b>
Matthias Kaiser	University of Bergen	Norway
Motoko Kakubayashi	Japan Science and Technology Agency	Japan
Dr Kavintheran	Science 2 Action, MIGHT	Malaysia
John Kerr	Science Media Centre	NZ
Suhee Kim	Presidential Advisory Council on S&T	South Korea
Jinwoo Kim	Presidential Advisory Council on Science & Technology	South Korea
Rudiger Klein	European Alliance for the Social Sciences and Humanities	Europe
Peter Klinken	Government of Western Australia	Australia
Dr Koch-Krumrei	Head of our International Relations Department	Germany
Pia Kohler	Williams College	USA
Hirokazu Koi	Japan Science and Technology Agency	Japan
Michelle Kovacevci	Center for International Forestry Research	Indonesia/Australia
Mark Large	Unitec	NZ
Woosung Lee	Korean Centre for Innovation Policy	South Korea
Helen Lockett	The Wise Group	NZ
Yonglong Lu	Research Center for Eco-Environmental Sciences, CAS	China
Gabriel Lucio	National Secretary of planning	Ecuador
Don Mackie	Ministry of Health	NZ
<b>David Mair</b>	<b>Joint Research Centre (JRC)</b>	<b>EC</b>
Malegapuru Makgoba	Planning and Research ICSU	
Jonathan Margolis	U.S. Department of State	USA
Hassan Ehsan Masood	Research Fortnight   Research Professional	UK
Teatulohi Matainaho	PNG Research, Science & Technology Council	Pacific Island Countries
Adil Matloob	Ministry of Science and Technology	Iraq
Masahiro Matsuura	University of Tokyo, Graduate School of Public Policy	Japan
Kira Matus	London School Of Economics And Political Science	UK
Julie Maxton	The Royal Society	UK
Arbjan Mazniku	Minister of Education and Sports	Albania
<b>Gordon McBean</b>	<b>President-elect, International Council for Science</b>	<b>ICSU</b>

Marian McCay	Office of PM's Chief Science Advisor, NZ	NZ
Lesley McConnell	Ministry of Business, Innovation and Employment	NZ
John R. McDougall	National Research Council of Canada	Canada
Jacqueline McGlade	United Nations Environment Programme	UN
Federico Medina	National Secretary of planning	Ecuador
Sue Meek	Australian Academy of Science	Australia
Johannes Mengel	International Council for Science	France
Mahlet Mesfin	White House Office of Science and Technology Policy	USA
Jim Metson	Ministry of Business, Innovation and Employment	NZ
Denzil Miller	Department of State Growth Tasmania	Australia
Dong-Pil Min	Seoul National University/UN Secretary-General	Republic of Korea
Dr Mohd Yusoff Sulaiman	Malaysian Industry Government Group for High Technology	Malaysia
Jamie Morton	NZ Herald	NZ
Andrew Mount	Clemson University	USA
Hassan Mshinda	Tanzania Commission for Science and Technology	Tanzania
Rongping Mu	Institute of Policy and Management (IPM), CAS	China
Jan Marco Müller	European Commission	Belgium
Romain Murenzi	The World Academy of Sciences (TWAS)	Rwanda
Susan Muzite	Research Council of Zimbabwe	Zimbabwe
Carlos Nobre	Ministry of Science, Technology and Innovation, Brazil	Brazil
Jonathan Nok Andrew	Ahmadu Bello University	Nigeria
Dorine Odongo	The Scinnovent Centre	Kenya
Ludmila Ogorodova	Ministry of Education and Science of the Russian Federation	Russian Federation
Satoru Ohtake	Japan Science and Technology Agency	Japan
Mary O'Kane	Office of the Chief Scientist and Engineer, New South Wales	Australia
Sang-Dai Park	The National Academy of Sciences, Republic of Korea	South Korea
Jyotiraj Patra	International Development Research centre (IDRC)	India and Canada
Katsiaryna Paulavets	ICSU	France
Rick Petersen	Ministry of Business, Innovation and Employment	NZ
Jonathan Peterson	U.S. Department of State	USA
Nicky Phillips	Fairfax Media	Australia
Roger Pielke	University of Colorado, Boulder	USA
Richie Poulton	University of Otago	NZ
Rémi Quirion	Fonds de recherche du Québec	Canada
Olivier Ragueneau	Centre National de la Recherche Scientifique (CNRS)	France
Kari Raivio	Council of Finnish Academies	Finland
William Ray	Radio NZ	NZ
Catherine Rhodes	University of Manchester, UK.	UK
Benjamin Riley	Ian Axford (New Zealand) Public Policy Fellow	USA
Lee Robinson	Ministry of Business, Innovation and Employment	NZ
Melissa Robson	AgResearch/Environment Canterbury	NZ
Dinakar Salunke	Indian National Science Academy	India
Yasushi Sato	Japan Science and Technology Agency	Japan
Rico Schoeler	National Health Committee	NZ
Anthony Scott	Science New Zealand	NZ

David Skegg	Royal Society of New Zealand	NZ
Bruce Small	AgResearch Ltd	NZ
Malgorzata Smieszek	Arctic Centre, University of Lapland	Poland
Richard Smith	NZ Earthquake Commission	NZ
Nils Stenseth	IUBS and The Norwegian Academy of Science and Letters	Norway
Anne-sophie Stevance	International Council for Science	France
Paul Stocks	Ministry of Business, Innovation and Employment	NZ
Nur T.A. Suestiningtyas	Indonesian Institute of Sciences (LIPI)	Indonesia
Tracey Swift	University of Auckland	NZ
Fatos Tarifa	University of New York Tirana	Albania
Evis Tasellari	Agency for Research, Technology and Innovation	Albania
Steve Thompson	British High Commission	UK
Chuluun Togtokh	Ministry of Environment and Green Development	Mongolia
Julian Tollestrup	Office of PM's Chief Science Advisor, NZ	NZ
Caitlin Trasande	Digital Science	USA
John Troughton	Agribusiness Council of Australia	Australia
Emma Tumilty	University of Otago	NZ
Chris Tyler	Parliamentary Office of Science and Technology (POST)	UK
Maria Uhle	U.S. National Science Foundation	USA
Zafer Uygun	Ministry of Science, Industry and Technology	Turkey
Guy Van Den Eede	European Commission	Belgium
Boudy van Schagen	Biodiversity International	Burundi
Martin Visbeck	GEOMAR Helmholtz Zentrum für Ozeanforschung Kiel	Germany
Richard Walley	Ministry of Business, Innovation and Employment	NZ
Mark Walport	Government Office for Science	UK
Leonie Walsh	Victorian Government	Australia
Clare Ward	Families Commission/SuPERU	NZ
Wilma Waterlander	University of Auckland	NZ
Jeremy Watson	University College London (UCL)	UK
Lynne Whitney	Ministry of Education	NZ
Robyn Williams	Australian Broadcasting Corporation	Australia
Prue Williams	Ministry of Business, Innovation and Employment	NZ
James Wilsdon	University of Sussex	UK
Steven Wilson	International Council for Science	ICSU
Kate Wilson	NSW Office of Environment and Heritage	Australia
Linton Winder	Unitec	NZ
Chi-Huey Wong	Academy of Sciences located in Taipei	Taiwan
Anthony Worby	Antarctic Climate Ecosystems Cooperative Research Centre	Australia
Denise Young	International Council for Science	France
Judith Young	National Research Council Canada	Canada
Hamid Zakri	Office of the PM Science Advisor	Malaysia

## A4. Reference material

In addition to the conference briefing document and reference material available at the website (<http://www.globalscienceadvice.org/resources/>), delegates and speakers mentioned and recommended several documents from their respective organisations / initiatives and other key reading material. These are listed below, with apologies for any omissions. This is not intended as an exhaustive list of relevant material, but rather to capture those resources and case examples that were recommended by delegates during the conference.

### Books

- Simon Bastow et al: **The Impact of the Social Sciences: How Academics and Their Research Make a Difference**, Sage (2014)  
Recommended by Phil Campbell, Editor in Chief of Nature  
<http://www.uk.sagepub.com/booksProdDesc.nav?prodId=Book241492>
- Heather Douglas: **Science, Policy and the Value-Free Ideal**, University of Pittsburgh Press (2009)  
Douglas explores the role of values in science and the inadequacy of the ideal that science can and should be values-free.  
<http://www.upress.pitt.edu/BookDetails.aspx?bookId=35967>
- Sheila Jasanoff: **Science and Public Reason**, Routledge (2012)  
Jasanoff examines how democratic governments make use of evidence and argument to legitimize decisions and be accountable to citizens.  
<http://www.amazon.com/Science-Public-Reason-Society/dp/0415624681>
- Roger Pielke: **The Honest Broker: Making Sense of Science in Policy and Politics**, Cambridge University Press (2007)  
Pielke examines the range of options of roles that scientists can play in policy and politics.  
<http://www.amazon.com/The-Honest-Broker-Science-Politics/dp/0521694817>
- National Research Council: **Public Participation in Environmental Assessment and Decision Making**: National Academies Press (2008)  
[http://www.nap.edu/catalog.php?record\\_id=12434&utm\\_expid=4418042-5.krRTDpXJQISoXLpdo-1Ynw.0](http://www.nap.edu/catalog.php?record_id=12434&utm_expid=4418042-5.krRTDpXJQISoXLpdo-1Ynw.0)

### Journal publications and reports

- James Wilsdon and Robert Doubleday: **Beyond the great and the good**. Nature 485: 301-302 (2012)  
<http://www.nature.com/nature/journal/v485/n7398/full/485301a.html>



- James Wilsdon: **Future directions for scientific advice in Whitehall**. Centre for Science and Policy (2013)  
A collection of essays based on a recent series of seminars to stimulate fresh thinking and practical recommendations on future directions in scientific advice in Whitehall.  
<http://www.csap.cam.ac.uk/events/future-directions-scientific-advice-whitehall/>
- UK House of Commons Science and Technology Committee: **Scientific advice and evidence in emergencies: third report of session 2010–11** (2011)  
An example of a review of the use of science in government.  
<http://www.publications.parliament.uk/pa/cm201011/cmselect/cmsctech/498/498.pdf>
- Claire Dunlop: **The temporal dimension of knowledge and the limits of policy appraisal: biofuels policy in the UK**. Policy Sciences 43: 343–363 (2010)  
Political paper recommended by Brian Collins that describes the brokering function between government, science and policy.  
<http://www.globalscienceadvice.org/wp-content/uploads/2014/08/UK-Science-Policy-Article.pdf>
- Heather Douglas: **Inserting the public into science**. In Sabine Maasen and Peter Weingart (eds), *Democratization of Expertise? Exploring Novel Forms of Scientific Advice in Political Decision-Making – Sociology of the Sciences* vol 24, pp 153–169 (2005)  
<http://philtech.pbworks.com/w/file/attach/50115511/douglas%20-%20inserting%20the%20public%20into%20science.pdf>
- Jack Stilgoe & Simon Lock: **Why should we promote public engagement with science?** Public Understanding of Science 23: 4–15 (2014)  
<http://pus.sagepub.com/content/23/1/4.short>
- Council of Canadian Academies: **Science Culture: Where Canada Stands** (2014)  
Report on Canada’s science culture  
<http://www.scienceadvice.ca/en/assessments/completed/science-culture.aspx>
- Peter Gluckman, NZ Prime Minister’s Chief Science Advisor: **The role of evidence in policy formation and implementation**. Office of the Prime Minister’s Science Advisory Committee (2013)  
Survey conducted by the NZ Chief Science Advisor on public servants’ attitudes towards science advice in Government.  
<http://www.pmcsa.org.nz/wp-content/uploads/The-role-of-evidence-in-policy-formation-and-implementation-report.pdf>
- Research Fortnight: **Chief Scientist World: Global Science Advice special, Auckland, August 2014** (2014)  
Special supplement from Research Fortnight, an independent source of news, analysis, funding opportunities and jobs for the academic community.  
<http://www.globalscienceadvice.org/wp-content/uploads/2014/08/Research-Fortnight-CSA-supplement.pdf>

## Blogs & Websites

- **Science Foundation Ireland – Funding overview**  
<http://www.sfi.ie/funding/funding-overview.html>
- **Road to Paris – ICSU**  
<http://roadtoparis.info/>  
 An editorially independent blog about what is new and under-reported in the field of climate change, disaster risk reduction and sustainable development, in the lead up to the 2015 Climate meeting in Paris.
- **The Guardian: website on science policy**  
<http://www.theguardian.com/science/science-policy>  
 Several articles around the conference – interviews with speakers and key players.
- **InterAcademy Council**  
<http://www.interacademycouncil.net/>  
 resources available in all languages.
- **The Impact Blog**  
 Based on the book *The Impact of the Social Sciences* by Bastow et al.  
<http://blogs.lse.ac.uk/impactofsocialsciences/>
- **Science advice (Wikipedia page)**  
 Started by researcher Kim Nicholas and Michelle Kovacevic during Auckland conference. Outlines science advisory systems for a variety of countries.  
[https://en.wikipedia.org/wiki/Science\\_Advice](https://en.wikipedia.org/wiki/Science_Advice)

## Model Projects and Case Studies

- **The Toolbox Project**  
 A philosophical approach for improving cross-disciplinary communication, it was developed by Michael O'Rourke at Michigan State University and colleagues to help facilitate multidisciplinary collaboration.  
<http://www.cals.uidaho.edu/toolbox/>
- Danish Agency for Science Technology and Innovation: **The Effect of the Industrial PhD Programme on Employment and Income** (2012)  
<http://ufm.dk/en/publications/2013/the-effect-of-the-industrial-phd-programme-on-employment-and-income>
- **Value Isobars - The Landscape and Isobars of European Values in Relation to Science and New Technology** and the **Value Atlas prototype**  
 Led by Matthias Keiser, University of Bergen, Norway. The Value Isobars project has worked out a blue print for a more value based and value informed governance approach to science

and technology (S&T). The Value Atlas prototype proposes that central EU policymakers should routinely be informed by the European value landscape in relation to S&T.

<http://www.value-isobars.no/>

- UK Government: **What works: evidence centres for social policy** (2013)  
<https://www.gov.uk/government/publications/what-works-evidence-centres-for-social-policy>
  
- **Bundesinstitut für Risikobewertung** (BfR: Federal Institute for Risk Assessment)  
German model demonstrates greater levels of risk assessment.  
<http://www.bfr.bund.de/en/home.html>
  
- **The OECD Global Science Forum**  
Study to be published in early 2015 on the topics of:
  - Scientific advice in crisis
  - The responsibility and legal liability of scientific advisory bodies and individuals
  - International collaboration in scientific advice
  - The involvement of civil society in processes of scientific advice<http://www.oecd.org/science/sci-tech/oecdglobalscienceforum.htm>