



OFFICE OF THE PRIME MINISTER'S CHIEF SCIENCE ADVISOR

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“Building a Global Scientific Enterprise”

**Sir Peter Gluckman’s Keynote address at the ‘Forum of Fora’
AAAS Annual Meeting
San Jose California**

13 February 2015

This forum was designed to give us an opportunity to hear about events and initiatives that are actively shaping the future of science. This is an increasingly complex and intense global conversation where science meets policy, politics and society.

Scientists may argue that the ‘Scientific Enterprise’ – as a self-organising system of collaborating peers – is and has been for a long time, a global undertaking. It has well-established international standards of practice and modes of operation (for example peer review, publication, conferences), and it draws from and reaches into a global pool of practitioners. But from a broader perspective, the globalisation of science is not simple.

Science itself is undergoing major changes. Many of these are from internal pressures such as approaches that increasingly fuse the natural, mathematical and social sciences; big data, which is arguably reversing the traditional scientific paradigm of hypothesis-led to data-led research; and open access publication, which has many benefits but also the risks of poor quality and vanity publication. Some changes are also the result of external pressures, and it is these I will focus on.

Governments are increasingly expecting to see an impactful return on their investment in public R&D. They and society - writ large - are expecting science to be more focused on questions that are generally deemed important, including what have come to be known as ‘societal grand challenges.’ Again, this is changing how science is done, how it is planned and how it is funded. Concepts of co-design and co-production are increasingly taking root. And yet science largely remains funded within bounded jurisdictions and disciplines, while the questions it is asked to address are broad and global. Only in a few areas (generally addressing infrastructure) has science really become global. Global scale research is still in its infancy and models like the global research alliance for reducing agricultural greenhouse gases are still getting fully established.

But we also now understand that science is embedded in society – and not encapsulated apart it. Science cannot exist independently of the society that supports it – indeed we have come recognise the deeply connected relationship

between science and society. In this relationship, we must get beyond approaches that all too often remain grounded in the 'deficit model'. Thus, to 'build a global scientific enterprise' – today – means to engage society, to engage the policy maker and this engagement must be a true dialogue, not a patronising monologue that assumes concepts are too difficult for non-scientists to understand, or that science can go on operating independently of societal values.

This means that scientists must work with policy-makers, the public, NGOs, the private sector and other stakeholders to maximise the impact of research and to address the issues *and* opportunities that are not only global in nature but also require a more concerted global response. And the discussion must be inclusive. As Chair of the Small Advanced Economies Initiative, I can tell you that we worry about being excluded from conversations that sit on the edge of big power discussions. Large amounts of wisdom and talent are excluded.

Crucially, innovation cannot progress unless there is social license to use the technologies that emerge, and we are seeing increasing evidence that the views of the multiple publics that form a society cannot be taken for granted in this regard. Further, different societies have developed very different positions on some technologies, demonstrating that culturally and historically embedded issues of trust and integrity must be addressed.

The four groups you have heard from tonight, like the AAAS itself, are actively building the platforms on which global conversations start and global partnerships are built. You have heard from each of them so I will not repeat their messages, but let me add one more.

Last August, practitioners, policy makers and academics engaged in the study and practice of work at the science-policy interface met in Auckland for the first global Science Advice to Governments conference. Jointly hosted by my Office and ICSU, this conference dealt with a particular aspect of the relationship between science and society – that of ensuring that scientific evidence can properly inform public policy making.

Delegates considered the three dimensions of such advice independent of any particular model or advisory structure: 1) deliberative advice, which is advice that can often be prepared by panels of experts or academies on a particular defined matter; 2) science advice in situations of crises, when advisors effectively become engaged in the decision processes; and 3) the informal interactions between minister, chief executive or policy maker and the science advisor. This last dimension can easily be forgotten yet may be the most important. It can help frame the mindset and set the question at a very early stage. It can also assist with understanding the policy options in the inevitable presence of uncertainty. The role of informal science advice is very poorly understood but it is a crucial element in an overall systems approach.

What also became clear during the Auckland conference was that science advice, like knowledge production, is also a global effort, particularly as today's big questions –

climate change, food security, pandemics, biodiversity, energy and aging populations – know no geopolitical borders. How science advice at a transnational should operate remains a poorly resolved confusion of scientific, national, and other interests.

The energy and momentum evident in Auckland is being continued through the development of a global network – the International Network for Science Advice to Governments, which is operating under the aegis of ICSU. To build this network, the Auckland Conference organising committee has been expanded, diversified and re-cast as a Network Development Group.

In the next few months, this group will work through their respective networks and other partners to plan a suite of events including a capacity building workshop planned for Africa, a dialogue on innovation and social license at the WEF's Dalian meeting and at the WSF and next year in Brussels. The network website, www.globalscienceadvice.org, resource material and serves as the network's virtual home. I hope many of you will get engaged with its activities and indeed with the other fora presented tonight.

Thank you