



OFFICE OF THE PRIME MINISTER'S SCIENCE ADVISORY COMMITTEE

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Chief Science Advisor

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The Rt Hon John Key
Prime Minister
Parliament Buildings
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WELLINGTON 6160

Office of the Prime Minister's Chief Science Advisor Annual report 2012-2013

Dear Prime Minister

Preamble

The Office of the Prime Minister's Science Advisory Committee comprises the Chief Science Advisor and 3.3 FTE support staff. The Office has benefitted from collaborative funding from MBIE and MFAT to help create a full-time analyst position to support the Small Advanced Nations Initiative and aspects of science diplomacy, while continuing to operate within the budget allocation provided through the Department of Prime Minister and Cabinet. This report highlights activities for 2012-2013.

Public understanding of, and engagement with, science

I have accepted many invitations for a broad range of lectures and engagements related to science and its role in New Zealand's development, but unfortunately time does not permit me to accept more than a fraction of them. At the request of the late Sir Paul Callaghan I had chaired the *Transit of Venus* forum in June 2012. The goal of the forum was to promote awareness of the role science could and should play in New Zealand's future. This 'hybrid forum' set a new standard for engagement between New Zealand's research, policy and civil society communities. Subsequent to the Forum I released a public report entitled *Science and New Zealand's future: Reflections from the Transit of Venus Forum*; this was intended to promote further discussion of the central role of science in New Zealand's future.

To further enhance understandings of the complexities of science, I released a discussion paper entitled *Interpreting science: Implications for public understanding, advocacy and policy formation* in April 2013, which is intended to provide guidance to the public, media and policy maker on how to undertake better critical appraisal of scientific findings. It also highlights ways in which science can be misused in the public arena.

In addition to these papers, I have maintained regular electronic postings and a media presence that helps to bring critical evidence-informed knowledge to New Zealanders. Topics of interest covered this year have included: early childhood education and E-learning, youth mental health, the epigenetics of obesity, open access to data for research, water fluoridation, the nexus between science and policy, understanding of risk and the operation of the science and innovation system.

Providing a point of reference for various stakeholders in the New Zealand science and innovation system

The Office continues to act as a conduit into the science and innovation system, when sought by individuals and organisations. As a sounding board for stakeholders such as universities, CRIs, community groups, local authorities and industry (national and international), the Office has made every effort to direct requests appropriately, and in doing so, has developed productive links with MBIE, research institutions, the media and the private sector. I believe that the increasing profile of the Office – through speeches, media presence and other forms of outreach – has also assisted in raising the level of awareness of New Zealand's science, technology and innovation sectors.

Providing a sounding board for science and innovation policy

The development of science and innovation policy is primarily within the remit of MBIE. Other ministries such as Health, Primary Industries, Conservation and Environment also undertake science and innovation policy formation and oversight within the scope of their respective mandates. As such my involvement in the development of science policy is limited to when called upon to do so either by the Minister of Science and Innovation, senior officials or yourself.

In December last year I released my discussion paper entitled *Which science to fund: Time to review peer review?* This paper is intended to prompt critical reflection on the peer review system, which plays a crucial role in scientific integrity. In a small country such as ours, the policy-relevant questions to contestable funding and peer review reform are significant.

In addition, much of my work within this mandate area during the course of 2012/2013 has been to assist MBIE with matters related to the launch of the National Science Challenges, which required considerable input by the Office during the year. I chaired the Panel that assessed and selected the Challenges and I continue to provide support by engaging with the science community, the media and the public on this initiative as well as assisting MBIE with implementation. In June 2013, I gave an interview for the journal *Nature*, which helped to bring a global profile to the Challenges initiative.

Promoting the use of evidence in policy formation across government

As a priority, I have engaged in the promotion of quality scientific evidence in policy formation and its evaluation. This has been developed much further over the last year. The Office completed a survey of 17 public service agencies to critically assess the knowledge, attitudes and practices regarding the use of research-derived evidence in their work. I have analysed these results and presented my findings and recommendations to you in a draft report scheduled to be released in September 2013. In short, policy responses that are grounded in local needs and values and that are evidence-informed will stand a greater chance of success in effecting positive change for New Zealanders.

Special projects undertaken by the Office

Those of note include:

Rheumatic fever vaccine: working together with the Office of the Australian Chief Scientist, my Office evaluated the possibilities of developing a rheumatic fever vaccine, engaged with the relevant scientific community and arranged for the peer review of the proposal agreed to by the Australian and New Zealand Prime Ministers for funding.

Global Research Alliance for reducing Agricultural greenhouse gases: I have chaired the international science advisory panel for the New Zealand Fund for Global Partnerships in Livestock Emissions Research.

The Chairmanship of the National Science Challenge Peak Panel and the subsequent liaison with the scientific community has been a particularly large task. The degree of culture change within the science community required to effect this initiative means that this role will continue to be time-consuming.

Reports and advice as requested by Prime Minister

GUINZ review: At your request, I arranged for an independent international review of the Growing Up in New Zealand study and my Office facilitated local arrangements.

Two projects have occupied significant time in 2012/13; my report on Climate change *New Zealand's changing climate and oceans: the impact of human activity and implications for the future*, reported to you in August 2013, and *The Role of Evidence in Policy Formation and Implementation*, to be released in September 2013.

Using science to promote New Zealand's diplomatic interests

It is now internationally accepted that science can be a powerful tool to promote diplomatic interests. As a result during 2012 I was also appointed special science envoy within MFAT. As a small advanced economy and an island nation, New Zealand is uniquely positioned to use science and technology to advance its international interests.

In partnership with MBIE and MFAT, the Office has led the Small Advanced Economies Initiative that explores the issues affecting those economies where the limitations of scale are central to the policy options. The initiative has three main streams of work namely (i) science, innovation and enterprise policy, (ii) economic policy, and (iii) the needs of small nations in a changing multinational architecture. To this end, I have been working closely with ministries of science and innovation (and equivalents) in Ireland, Denmark, Finland, Israel and Singapore. An initial meeting of principals was held in Auckland in November 2012. At that meeting it was agreed that my Office would develop a detailed work programme for the group. This project consumes a significant proportion of the Office's time and resources.

In addition, I have assisted New Zealand's engagement with the United Nations, as a guest expert of the UNDP African regional offices and in support of New Zealand's upcoming bid for a Security Council seat.

I have supported MBIE at relevant joint commission meetings in the context of two of our key bilateral relationships: those of the US and the EU. The Office also arranged the first

joint meeting in some years between Australian and New Zealand CSA Offices and the respective Science Ministries. I co-chaired this meeting.

I have liaised with my equivalents in countries of special interest to New Zealand. Together with MFAT and MBIE, the Office co-organised an inaugural meeting of APEC economies' Chief Science Advisors and Equivalents. I co-chaired this meeting with our host, the Indonesian Deputy Minister for International Science and Technology Network, Dr Agus Hoetman. This event provided an opportunity to share best practice and discuss issues of common interest within the APEC region such as evidence in policy making, risk communication and the challenges in getting the right suite of mission-led and investigator-driven research in the public science investment portfolio. A second meeting is planned in 2014.

In August next year I will chair the first global meeting of Chief Science Advisors and Equivalents, set to coincide with the Annual General Meeting of the International Council of Science (ICSU), to be held in Auckland. As host of the Global CSA meeting, together with ICSU, I have established this year a core steering group, including my counterparts in the EU, Malaysia and the UK.

In addition to these landmark collaborative gatherings, I have continued to meet bilaterally with my counterparts globally, when the opportunities arise. To this effect, I have had productive exchanges with Professor Ian Chubb in Australia, Professor John Beddington in the UK and his successor, Professor Sir Mark Walport. I have also met on several occasions with Professor Anne Glover, the EU Chief Scientist, including in the context of the EU Science Conference – *Global Challenges and Global Collaboration: Towards a global health science policy*, where I delivered an address.

Other matters

I sit on the board of the New Zealand China Council, The Families Commission and the Defence Technology Advisory Committee.

Looking ahead

Although the Office is still relatively young and continuing to mature, I believe that its contributions are well recognised and valued both within the Executive and more broadly by various stakeholder sectors (including the public, industry, academia, government and civil society). Looking ahead, I see three additional foci for the coming year.

The first is to assist Government in meeting the 'Science and Society' Challenge that was put to Government earlier this year through the National Science Challenges process. This challenge is directed at New Zealand's leadership to develop better engagement between the public and the science sector. As such it will require:

- continued efforts to advance a culture of evidence-gathering and use within the Public Service and eventually lead to the establishment of a 'knowledge strategy' for government;
- additional effort in the classroom to inspire students at their earliest stages about science and to continue to capture their imagination with science and mathematics throughout their school years;

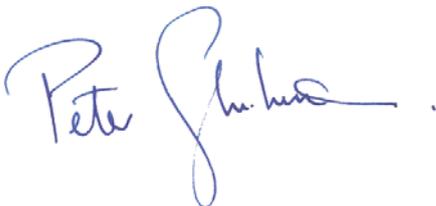
- outreach through public institutions and the media to help build public trust in science through engagement. It is only on the basis of such trust that there can be opportunity to have productive and meaningful national dialogue about new technologies and real and perceived risks.

The second focus is to assist New Zealanders and the New Zealand Government to acquire a more sophisticated understanding of risk and risk analysis. Without this we may find that we are acting inappropriately in two very different ways. The first relates to a lack of recognition that taking risks can be of real potential benefit. Without such awareness, we face mediocrity through over application of a misinterpreted precautionary principle. The second and converse concern relates to those circumstances that truly do demand risk management, such as natural hazards or climate change adaptation. Here we may find ourselves enduring unnecessary risks because of a lack of awareness and preparation. On both accounts, a more sophisticated view of risk analysis, management and communication is essential. Over the course of the next several months, my Office will help to correct such misapprehension with the assistance of experts in the field.

Thirdly, I believe there is advantage to be gained for New Zealand in having a deeper understanding of our innovation landscape as it pertains to economic diversification. Over the last year I have been work to define key innovation metrics applicable to a small advanced economy like ours, and significant patterns have already begun to emerge. In short, we need to understand better our unique advantages so that we can exploit these, while mitigating those challenges that are also specific to economies such as ours. A subset of this work will be to analyse the unique challenges and opportunities for New Zealand's small and medium enterprises in order to understand how our innovation system, and the public investments related to it, can offer the necessary support to promote growth.

I thank you for your support and input throughout this year. I am also grateful for the support of Cabinet, CEs of DPMC and Ministries, the contributions of Dr Alan Beedle who retired in June 2013 as my Chief of Staff and whom did much to assist me in establishing the Office, and to Professor Stephen Goldson my part-time strategy advisor, along with the support of Ms Kristiann Allen (now my Chief of Staff), Ms Kate Harland and Ms Megan Jeffries. I also acknowledge staff in MFAT and MBIE and Mr Andrew Sweet of DPMC for their ongoing assistance.

Yours sincerely

A handwritten signature in blue ink, reading "Peter Gluckman". The signature is fluid and cursive, with a long horizontal stroke at the end.

Sir Peter Gluckman KNZM FRSNZ FMedSci FRS