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Sir Peter Gluckman's speech at the launch of the Pilot Participatory Science Programme in Otago

Otago Museum

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There is little debate that science and its derivative technologies are critical to addressing the multitude of challenges that every society from local to global faces. And here, I am using science in the broadest sense of the word to include the natural and physical sciences, the social and engineering sciences. It is also true that scientists should not make the choices of how society should use or limit a particular technology; those choices are for society as a whole. Thus in an age when we are surrounded by an excess of information, much of it of highly variable reliability, it has become even more important that all members of society understand what science is, what it is not and how science can contribute to their lives and to the world around us.

Any assessment of our country would suggest that science has a critical role to play in our social development, our environmental protection and in our economic progress. Indeed it is easy to forget that our biological economy has, for over a century, been based on a solid background in research and technological development. It was that R&D that has uniquely allowed a small country distant from markets to survive and thrive as a first world economy - an economy dominated for a long time by agriculture; although now we are seeing growth in many other sectors of the economy also being driven by science. Yet at the same time we are a society that has been innovative in the social sector, and social science has much to contribute to our future as a healthy society. And as a country with a very special relationship to our natural heritage and environment, we know how important science will be to protecting both while at the same time understanding that making good choices about how to use those natural resources remains core to our future economic viability.

Yet despite all of this there is a paradox. While few would doubt the role science has played in getting us to where we are and that it is critical to our future, our inherent "science capital" is low. Many parents do not see the importance of science education, too few children see science as an essential tool for later roles in life (even if these careers are superficially well removed from science or the

technologies), our national investment in R&D remains relatively low, New Zealand science and scientists remain poorly represented in the mainstream media and so on.

When the Government decided to launch the National Science Challenges in 2012 it did something highly innovative – it opened the discussion to the public via the Great NZ Science Challenge and as chair of the National Science Challenges Panel, I found it encouraging to see so many people put ideas forward. It was also sobering that there were some rather mixed feelings in the science community about doing so and there is a lesson in that. In our report to the Minister and Cabinet, the Panel suggested that Government itself had a challenge to meet – what we called the “Science and Society Challenge” - we saw the need for Government to consider its own role in addressing perceived issues in STEM education and in how to enhance our nation’s science capital.

The Government responded by setting up a steering group comprising deputy chief executives from MBIE and the Ministry of Education and myself, supported by a reference group including teachers, communicators and scientists. The result was a strategy accepted by the Minister called *A Nation of Curious Minds* which was launched about 9 months ago by the Minister of Science and Innovation and by the Minister of Education.

A Nation of Curious Minds had three major legs – promoting and enhancing science education, promoting societal engagement with science and promoting scientists engaging with society. Actions are well underway supporting each of these legs but in my view the core activity that binds all three legs together is the tabletop – which is the participatory science programme.

We launch the first stage of this arguably globally unique programme today. Participatory science is not the same as citizen science although it evolved from it. Citizen science generally has a much narrower framing – either science is done by volunteers to assist a particular scientist’s research programme or to support a particular agenda of an interest group - although both approaches can have important educational spinoffs.

Participatory science was designed from the outset to have three essential characteristics:

- It must be pedagogically sound. It was assumed from the outset that all projects would involve young people; indeed projects would likely have a school or schools at their heart. This means that teachers must be sure that there is a solid and meaningful link to their pedagogical objectives.
- It must be scientifically sound. This means there must be a scientist or scientists engaged with the project. These may be university, CRI, NGO or

private sector based. Indeed I hope that the private sector does get engaged as it will show young people that science and technology education is valuable for a broad span of careers. But this does not mean that we are seeking projects that must be published in Science or Nature: what they need to do is create new relevant knowledge and do so by the processes that define science.

- It must engage the community. This engagement must be real and obviously should include family and whanau but hopefully other community groups, the private sector, local councils etc.

The Government grasped this concept and has now funded three pilot regions (Otago, Taranaki, South Auckland) and a national coordinator, Dr Victoria Metcalf, who works out of my office. Today we launch the programme in Otago. The funding is substantive and allows support for that critical first phase where young people, communities and scientists and teachers decide what they might like to do that can meet the criteria I have laid out. Then there is funding available to support the projects once approved. These projects might be small and involve one class, they might involve a whole school or several schools or even cross the three pilot regions. The projects might suit a 7 year old or an 18 year old or both. I am already hearing of some very interesting ideas and the formative discussion itself is a major learning experience for all involved: teachers, scientists, kids, community etc. The projects can be in any area of the sciences. The regional coordinators and Victoria will work with proposers to mould them into projects that meet these ambitious criteria.

This is very much a pilot and we will evaluate, learn and refine as we go along. That is why I am delighted one of the three pilot areas is in Dunedin with its strong intellectual tradition, with its abundant scientific and natural resources that make for great opportunities. Otago Museum has been chosen by MBIE to be the pilot area lead that will be responsible for project assessment and allocation. It has already established a number of partnerships in the role including with the University of Otago, the Otago Polytechnic, Ngāi Tahu and the NZ International Science Festival – which that will ensure that opportunities will abound.

This is an exciting first step but while it is easy for us to get expectations up, the challenge will be for teachers, scientists and their community to design projects that indeed turn everyone on, especially our young people and their community. I look forward to watching this pilot develop.