

James Buwalda

Jack Sommer's paper raises some issues that should interest all those involved in leading New Zealand's research and science activities.

New Zealand's scientists have been asked to respond to some big changes and challenges over the last decade. It should come as no surprise that some feel quite bruised and battered. Jack's survey reveals a mix of hope and woe, with many of those surveyed reflecting that they have felt a lot of pain and can't see much gain.

Survey results can provide valuable insights, but we should always be careful about what we conclude from the data. Jack Sommer acknowledges the limitations of his survey methodology and cautions readers about drawing inappropriate conclusions from his results. While acknowledging the views expressed by those scientists responding to Jack's survey – a snapshot of one part of the science workforce, there are other statistics that tell a different story.

New Zealand can be proud of its high quality researchers. Their productivity, measured by the average cost of published research papers, is one of the highest in the OECD. New Zealand is steadily increasing its share of the world's total scientific output. If anything, the rate of increase has accelerated since 1990. Our research is also high quality. Our research papers are cited more often than the world average in medical sciences, agricultural sciences and the humanities. New Zealand's international collaboration in scientific publications is also increasing steadily.

Such statistics don't signal a science system in distress. Instead, they suggest we have at least maintained, if not increased, the volume and quality of scientific output during the last decade. Other statistics point to some significant challenges still facing our science system. As a country, we don't seem to be making the best use of our high quality research. We have low numbers of patents, low numbers of researchers in the work force, and low levels of research investment by the private sector. Compared to other countries, our research effort attracts tiny levels of venture capital, and high-technology exports account for a tiny proportion of the value of total exports.

Of course, we would all like to do more for science, but science policy is inherently difficult in a small country like New Zealand. There has to be a balance between leading and responding to the needs of the community. In large countries, governments can do a wider range of things, so there is a greater chance of hitting the jackpot with successful policies. Furthermore, strong private sector R&D sets the agenda for the sort of support that the government can provide. Here in New Zealand, we depend a lot more on a small range of research and innovation policies. The relatively low level of

private sector R&D means we don't get the same direction for the Government's own investments.

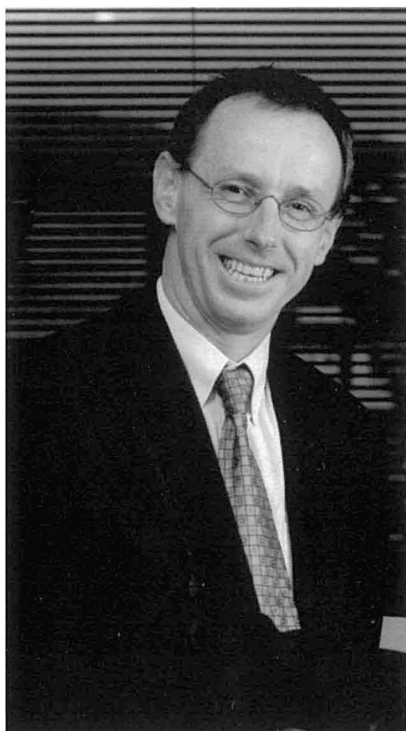
I can vividly remember the impact on my life as a scientist when, back in 1990, the science reforms gathered pace with the separation of policy and purchase functions (through the formation of the Ministry and the Foundation) and the subsequent formation of the CRIs. Now, sitting at the Chief Executive's desk at the Ministry of Research, Science and Technology, I am very conscious of the importance of ensuring changes have a positive balance of gain over pain.

We still have significant issues to address. We need to find ways to increase private sector R&D, to underpin the growth of high technology, high value businesses. We need to find ways to get more commercial value from the results of publicly funded research. We need to find ways to get more people in the community involved in research and innovation.

Scientists play a very important role in our society – contributing new knowledge and technologies that in turn lead to improvements in our lives, environments and enterprises. But the issues listed above suggest that science is not closely linked to the values and needs of society. Might the "tales of woe" suggested by Jack Sommer's survey have more to do with the weakness of those links than with the consequences of science reforms over the last decade?

So, what should happen next? We have taken note of Jack Sommer's survey results, alongside a variety of other quantitative and qualitative information. This all goes into the mix as we examine policy issues and provide policy advice. Over the last couple of years we have put in place a variety of new processes for measuring the results and impacts of science policies, particularly those relating to publicly funded research. These include an annual review of progress and achievements and a systematic rolling analysis of each major investment. These evaluations indirectly examine issues like those targeted in Jack Sommer's survey. We are interested in the "health" of the science system because it will inevitably influence the quality and value of the research carried out.

The value of Jack Sommer's survey lies more in what it adds to our understanding, rather than what it says on its own. Any insights and information about the "health" of the science system help identify critical problems and ways of addressing these problems. I am always careful to get as much information as I can before forming conclusions. I look forward to further "voices from the grassroots of science".



James Buwalda has been Chief Executive of the Ministry of Research, Science and Technology since 1996. He joined the Ministry after working for 17 years as a research scientist and then a science manager, firstly with the Ministry of Agriculture of Fisheries and then with HortResearch.

James graduated from Lincoln University with a B. Agr. Sci. (Hons) and then completed a PhD at the University of London. His subsequent research focused on mineral nutrition and photosynthesis of horticultural crops.

Since joining the Ministry, James has taken a particular interest in identifying and removing barriers to the application of research findings, in public policy and in business. He believes there is a lot more potential to generate valuable outcomes for New Zealand from the high quality research carried out here."

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