

Private Submission to Te Ara Paerangi – Future pathways.

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I make this submission personally – I have also contributed to my institutions (ESR's) submission but these three points listed below are my own submission to this consultation.

- (i) **Community.** The future pathway of science is to be inclusive. In an ideal scenario the team of 5 million will be engaged with NZ's Science missions. The current funding has a small allocation via 'curious minds' – this needs a major rethink. Our science 'workforce' can, and should, be inclusive and include community, iwi and hapu that take part in 'science' in its broadest sense. Grants (with a high-trust mode of operation) provided to community could help 'tie' them to our more traditional science institutions (CRIs and Universities). For example; a stream care group could apply to an MBIE fund for financial support to work with a university to assess the impact of their restoration efforts over the next 3 years. While there is funding mechanisms for academics to work with communities, there is not a reciprocal arrangement where funding is awarded to community groups to work with our Universities or CRI's.

NZ's researchers are innovating in a wide number of areas, they often explain new innovations/techniques to communities, iwi and hapu – the communities then say 'great', when can we use this in our backyard. The answer is often 'sorry no funding'. This is where the system is broken – there isn't a clear pathway for community-led initiatives to apply for funding.

The aim of this suggestion is to have an inclusive mindset when it comes to our science funding system. If communities continue to see our science system as something that "only scientists do in their labs" then how will we convince the wider public (and decision makers) of the value that R&D brings to Aotearoa New Zealand. I urge MBIE and decision makers to look at funding mechanisms for community engagement with the science sector – such investments will serve us well over the next generation and will provide the platform NZ needs to grow science investment.

- (ii) **National research priorities.** The lack of an agile set of National research priorities is hampering the science system. In my mind, a preferred future pathway would be a set of national research priorities that are refreshed every few years. A council could take submissions and there could be condensed to a workable list that our science system could work towards. Establishment of a list, does not mean other research is not a priority, rather it means that this topic area is in the spotlight for funding and 'attention'. Two exemplars of national priorities could be (i) in response to the PCE's report; research and systems that seek to defragment the environmental reporting system with an aim for better guardianship of our environment" or (ii) in response to the PMCSA's report on microbial resistance; research that supports NZ's role in tackling the increasing problem of antimicrobial resistance.

To cite an example, when I was Chief Scientist at the EPA there was a massive gap in the environmental fate of some chemicals used in agriculture (e.g glyphosate). We desperately needed data on this topic to make good decisions. In such a scenario the EPA could have made a submission to the 'national research priorities working group' to include this as an area for attention in a list of priorities. While not every submission will make it onto a list, at least there is a pathway to raise the issue. There are a variety of public departments without research budgets that desperately need the science system to respond to their area of expertise – I don't believe this pathway is very clear for them.

Finally, a set of national priorities needs cross-party support and a level of granularity to problems can be addressed. For example 'climate change' is too broad but "ways to reduce greenhouse gasses from our agricultural sector" could be actioned.

- (iii) **Funding pathways.** Whether it be a recent PhD graduate, a community member, a biotech start up, or an academic that needs a new instrument, any future funding system must have the 'flavours' to cater for a wide range of science applications, from flax roots to blue skies. Not all science can be funded, but there should be a forum for science 'ideas' to be heard and at least take part in the competition of ideas.

Are these funding modalities currently in the system? – I would argue 'no' – there are large gaps. I would urge MBIE to conduct a mapping exercise (relative to the funding systems in Australia and the UK) to identify where the gaps are and how to plug them. Aotearoa's funding system does not need to mirror these countries, but it can learn from their pathways. For example the DECRA and Future Fellow schemes in Australia provide mobile fellowships for excellent early and mid-career. In contrast NZ has a small handful of these. Likewise, the LIEF infrastructure scheme allows researchers that Universities to put in a bid for a pie of equipment to share. NZ is missing some of these pathways, or at times they are narrow goat tracks rather than true paths. A future funding system must have an agile pathways to empower our science missions. We depower our scientists if there is nowhere they can turn for their funding request to be heard.