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Re: response to TE ARA PAERANGI FUTURE PATHWAYS GREEN PAPER 2021

I am sorry I have not used your form, but it does not suit my purpose and I have to admit your deadline has crept up on me.

Before trying to respond to the questions outlined in the document, I want to give a little background to my experience and biases.

BSc Hons from Otago, PhD from University of East Anglia, repatriated on a UGC Post Doc back to Otago. I was employed temporarily by the organisation that was shortly to turn into NIWA in late 1986. I have spent about 30 years working for NIWA as a marine ecologist based in Hamilton. In 2014 I took up my current position as Director of the Institute of Marine Science at UoA.

I have reviewed for MBIE and Marsden and sat on Marsden Panels. I have received funding from both, as well as FRST, NSC, government departments and some international sources. I have reviewed proposals for many agencies in North America, Australia, Hong Kong and Europe and I have been lucky enough to work and collaborate extensively around the world. My work at NIWA has had me working for/with many central government agencies and regional councils.

I think this gives me both an interest and some lived experience in science in New Zealand since the reforms of the 90's. The opinions offered below are my own, although many of them reflect concerns shared with many colleagues along with looks of wonder from international colleagues as to how it 'works' in NZ.

Nevertheless, in my experience there are good people researching in NZ in many fields and many institutions around the country.

It is well documented, globally and in NZ, that we are in a biodiversity crisis, a climate crisis and an ecological sustainability crisis. We face a future of social upheaval if we are not transformational and innovative around these environmental issues. Therefore, it is both worrying and depressing to read this document which seems to ignore these scientific facts and continues to promote the exploitive narrow economic models and governance structures that have got us into this mess.

We need a revolution not an adjustment.

My personal view of our science systems is that they are an international embarrassment and a major failure. For the benefit of our Country and our researchers we need to rebalance and fix this urgently. The review does not really take a connected view of science for solutions in terms of research organisations but the most critical failure is that it appears to exclude the funding agencies (their processes, biases and fit-for-purpose) and the management agencies and businesses that are supposed to translate the science into action. These need to be viewed as part of the system and at the least the Government agencies must be equally scrutinised. We need radical transformation to reduce institutional stupidity and bureaucratic inertia.

Response to specific questions:

NGĀ WHAKAAROTAU RANGAHAU RESEARCH PRIORITIES

There are major failures in this area, Marsden is supposedly blue skies research but moves in a confusing way and fails to support sciences that are more interdisciplinary and of direct value to society – such as ecology. Ecology sits within the EEB panel but it has been poorly supported. In the MBIE context there is a very uneven split between environment and economic focused projects – but the reality is the economic element trumps the other elements of wellbeing.

In both cases I think you need an open, relevant and scientifically credible review. Predicting the future is difficult and picking winners even harder, we need to value diversity while ensuring we do not end up with Vegemite science. The system needs to be responsive and given the opportunity the science community will colonise new problems. More critical than picking winners amongst the science community is prioritising process and policy in the science management agencies and where relevant the government agencies who are charged with implementing policy.

The principles of Whanaungatanga should drive both our partnerships and approach to RSI. This needs to be a staged process with substantive resources put into capacity building and moving to new ways of working and fostering trusted relationship building. I think there are some good lessons here in some of the NSCs – but these need to be assessed and reviewed critically. We need an action focus because we are running out of time.

The first element of operationalisation is a restructure and refocus of the funding agencies. This should be science led not a pseudo-business model. There needs to be greater emphasis on funding work for social and environmental benefit – here the Govt must take responsibility while commercial investment is encouraged to pushing harder to support at an early stage the economic focused projects that meaningfully encompass ecological sustainability. Once we have realigned the funding inequity across these broad areas then this approach can focus down. Here the focus must be on scientific credibility and rigor in addressing complex, wicked, problems. It is critical to balance experience with the aspiration and enthusiasm of ECRs. Infrastructure is important but people more so.

TE TIRITI, MĀTAURANGA MĀORI ME NGĀ WAWATA O TE MĀORI TE TIRITI, MĀTAURANGA MĀORI, AND SUPPORTING MĀORI ASPIRATIONS

I am lucky enough to work with some wonderful Māori scientists and work constructively with a number of iwi. Challenges can arise because of differences

within Māoridom and these needed to be identified and resolved by Māori for Māori. We do need a good process to encourage Māori and Pacific students into science, especially environmental/marine science. Equally we need a process to help us all navigate this space to ensure that VM is a positive experience for all. This is a long-term and strategic issue. Mātauranga must be respected, but like any knowledge system it adapts and evolves and this is an area where a strong overlap between different knowledge systems can be the most powerful.

TE TUKU PŪTEA FUNDING

As identified in this report NZ does not invest enough in research funding, this is both a financial investment and a cultural one. In other countries that we might benchmark with (e.g., Singapore, Denmark and Finland) scientific knowledge is far more respected. However, restricting the comments to the finance. Whatever the percentage of GDP, it will be small and it's a zero sum game. This means we need to look for opportunity to make the money go further. We have very inefficient systems that are very costly in terms of the time and energy needed to prepare research proposals – especially for Endeavour. We could streamline this by focusing on credible and strategic science and track record. The current review processes are a joke. We need to stop wasting valuable research dollars on multiple levels of governance often of unspecified value.

It is great to see that finally MBIE are looking to create an environment where we can properly engage in EU research, we need more of these activities. I had a role as an advisor for the Asia Pacific Region for Future Earth's Ocean Knowledge Action Network and advocated that NZ should be part of the Belmont Forum – but was told by MBIE officials that this was not a wise investment.

In my experience the CRIs all operate differently; I suspect this is driven by how their exec view the role of their organisation. It is crazy that agencies doing so much long-term and strategically important work are effectively soft-money agencies. But going with improved financial stability must come more social and environmental responsibility supported by wise strategic vision and equity. A critical move will be to have more equitable funding models within CRIs and a focus on maintaining core skills and exploring connections. It is always a multivariate problem, but in my experience the CRIs are not good at picking winners. Much of the work that needs to be done is in the provision of baseline resource information, map, status and trends to support strategic research initiatives. Critical infrastructure is not well placed in CRIs operating under a business model and the incentive for facilitating interaction and providing meaningful access to resources is low. There have also been significant problems and a waste of $M's of research funding on public good research that is not subject to international peer review and not made public. We transitioned into the CRI model very quickly and transitioning out will be painful especially for senior management many of whom have spent their whole career on developing and defending the business.

NGĀ HINONGA INSTITUTIONS

In many countries we see much greater connection between university and government research centres. This seems to be the way to achieve both stability in the long-term and conduct strategic work while allowing for innovation and regeneration. We have examples of this at small scales with the Joint Graduate Schools that many of the Universities and CRIs engage in. In research, the attributes of collaborative, adaptive and agile just do not go with the corporate

business model as we have seen it played out by the CRIs. In a world dominated by milestones, short term outcomes and competition its hard to shift direction or open space for collaboration and opportunity. The NSCs have also experimented with new models and shown that change is possible (if funded), but they are still bound by the silos that have been erected around the research by MBIE and by imposed governance structures. These generate costs that along with along with inadequate funds make it hard to address the time commitments necessary for meaningful social engagement. This will limit the achievements of the NSCs. All these commitments fall on the researchers not on the agencies responsible for implementing change. To improve this situation, start by developing small advisory panels of credible and relevant researchers working under strategic guidelines to develop implementation plans that can be adequately funded. There are many important elements that sit around large research projects (e.g., NSCs) or institutions addressing issues such as empowering Te Tirti and engagement via media and coms. A critical distinction here is viewing these activities as administrative/supportive vs part of the research and scholarship. The latter would lead to better integration- the former often devolves to corporate advertising. It is easy to imagine a large trusted and independent organisation (like a university) with offices and staff/student interactions involving CRI, Government agency, business and NGO activates. This would undoubtedly be beneficial and there are small – scale experiments of this kind. But the human side of this is critical, staff need the space and time to engage and the freedom to problem solve. Without increased funding we can only reallocated our effort to these actions at the expense of others. Transfer of information is important but this is bridge we all need to walk on and see value in. This requires a major culture shift in Government agencies where new information is often seen as simply creating more work and more problems.

TE HUNGA MAHI RANGAHAU WORKFORCE

We need to develop a system that emphasises the contribution of research to the public good, specifically to our environmental stewardship and social equity and wellbeing. To do this we first need to ensure that we encourage scientists to be credible on the international stage – our country deserves this at least. This means values of openness, facilitation and respectful collaboration. Leadership of science organisations should go to credible relevant scientists. We need science management agencies of researchers and for researchers. Our priorities need to shift from BAU to addressing how we live well on a planet of finite natural resources. Almost all of our aspiring young marine scientists (from schools to universities) are concerned about environmental degradation, climate change, loss of biodiversity and ecological sustainability. We need to create a system that can support these people and give them a future.

We need to get the balance right, senior researchers who have proved their worth scientifically via international peer review need to be encourage as leaders, role models, mentors and facilitators. But we need a much better system to support ECRs, one of the most disheartening aspect of my job is the lack of opportunities for these bright, enthusiastic, and future gazing researchers. This is about funding but also networks (national and international) and simultaneously fostering the many soft skills needed alongside the in-depth knowledge necessary for our countries (and planets) future.

ECRs especially need some stability and opportunity. Base grants would help but this comes with responsibility to ensure that the funding is going to the people that

support the necessary values. We need to be very careful that base funding does not lead to complacency within certain groups. This again comes down to governance structures that are driven by researchers not pseudo business people and bureaucrats.

Yours sincerely

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Director, Institute of Marine Science