

Submission on the Te Ara Paerangi Future Pathway Green Paper from Dr Barbara Hayden*

*I have worked in New Zealand's RSI system for more than 4 decades including when research was embedded in government agencies (in Ministry of Fisheries, Ministry of Agriculture & Fisheries), have developed and participated in the two top-ranked OBIs, and am now engaged in high-level strategic planning based on end-user priority needs as part of my role at NIWA.

1 Research Priorities

KEY QUESTION 1: What principles could be used to determine the scope and focus of research Priorities?

Step 1: Identify the Vision

Prioritising the scope and focus of research first requires a clear view of the end game we are aiming to achieve. To that end, all good strategic plans start with a Mission Statement or a Vision, e.g., NZ's prosperity and well-being are driven by high quality, focused science.

Terms used in a Vision need to be defined and measurable, e.g., in the example above, what do we mean by 'NZ's prosperity'? How can we measure that in ways that can be linked to the research e.g., GDP; home ownership; growth in value of horticulture, agriculture, fisheries, aquaculture, forestry, e-tech industries; export revenues; environmental sustainable production and harvest methods are the norm; etc?

What do we mean by 'NZ's wellbeing' and how can we measure that, e.g., the health of our environments is maintained or improved; child mortality is reduced; Māori iwi, hapū, and whanau are partners in all decisions affecting their well-being; fire-resistant vegetation surrounds urban areas; all coastal and freshwaters are of swimmable quality; suicide rates are reduced; employment rates are increased; etc.?

Step 2: Define measurable goals/desired outcomes that will contribute to the Vision and can be achieved by research, i.e., the research Priorities

This should be a high-level scan by an expert panel of end-users, senior science advisors from government agencies and CRIs, Māori, and economists. The panel identifying these '**desired outcomes**' needs to include agencies that have the power and will to implement change based on research outcomes within their areas of responsibility. Some central and regional government agencies and industry bodies already have desired outcomes defined. Panel members will be aware of the '*problems*' or roadblocks that are preventing or slowing progress towards the Desired Outcomes and finding solutions to those problems should be the **primary focus** of the Priorities.

How the problems will be solved (e.g., by an opportunity, a technology, a space mission, a field of science or a combination of these) is secondary to the primary focus of solving a problem. How it can be solved should be left undefined to encourage scientists to come up with innovative or novel solutions or to use existing tried and tested methods. Good researchers keep abreast of developments in their disciplines and are trained to evaluate

existing research and to push the boundaries with new science. Encourage them to do so but don't constrain them by defining the focus of their potential solutions.

- Goals/outcomes should be quantifiable and time-bound, .e.g., x% improvement by 2032.
- Broad goals, e.g., 'climate change research' should be avoided because they are impossible to prioritise and assign timescales around. Climate change is affecting nearly everything we do but the goals/outcomes need to be quantifiable, e.g., 'Science to reduce NZ's greenhouse gas emissions in line with our COP21 commitments (which are quantifiable and timebound)' or 'Flood and other hazard predictions used by Civil Defence and Emergency Management agencies incorporate predicted climate change effects by 2023'.
- Avoid goals, e.g., human health outcomes, that do not fall within the scope of the science funding system under review.

Step 3: Prioritise based on urgency of need and likely quantum of benefit to the Vision.

Again, this should be done by an expert panel of end-users, senior science advisors, Māori, and economists (possibly the same panel used in Step 2). Duration and urgency of the required research should be one of the criteria used to prioritise the research as this will provide essential information on long-term/short-term research needs that funding agency(ies) need to plan their research spend across multiple years.

Step 4: Review annually and revise priorities if necessary

KEY QUESTION 2: A) What principles should guide a national research Priority-setting process? B) How can this process best give effect to Te Tiriti?

A) What principles should guide a national research Priority-setting process?

- The process should be responsive to the RSI Vision and Priority Goals/Outcomes as outlined in the example above in Q1
- Priorities should be reviewed regularly in the context of what has already been funded and the RSI community informed early of changes to priorities to ensure time and \$\$ are not wasted preparing proposals that have no chance of being funded.
- The process needs to be flexible enough to deal with unexpected perturbations such as the arrival of the Covid pandemic, e.g., by extending existing contract .

B) How can this process best give effect to Te Tiriti?

- By all parties understanding what the 'partnership' and 'participation' principles in the Treaty mean in the context of this priority setting process and the RSI system in general. Partnership does not always mean equality in the relationship.
- By seeking iwi input about who is/are appropriate to represent them in the priority setting process. This is simply good manners.
- Ensuring that these Māori representatives are engaged in the process from the beginning (including in establishing the overall Vision as described in Q1 above)

KEY QUESTION 3: How should the strategy for each research Priority be set and how do we operationalise and implement them?

- Return to the previous process of calling for proposals **only in the topic areas identified by end-users as highest priority**. This would require an end-user driven prioritisation process as suggested in Q1 above. It would also mean the end of the current highly competitive, undirected and inefficient use of RSI funding.
- Return to clearly defined SCPs and a requirement for non-CRI agencies to collaborate with the lead CRI to operationalise the key research priorities.

2 Te Tiriti, mātauranga Māori and Māori aspirations

KEY QUESTION 4: How would you like to be engaged?

My preferred way to engage with the key Māori and non-Māori partners and end-users (or their representatives) of our research is kanohi ki te kanohi. However, assistance in identifying the appropriate Māori personnel to engage with is sometimes challenging, even for some Māori researchers, because there are so many iwi, hapū and whānau, who are not all of one voice. Several research organisations employ Pou Ārahi to provide guidance and assistance with engagement. Their roles require a high level of skill in culturally and socially appropriate leadership to be effective. My CRI employs several Pou Ārahi and they are fantastic at facilitating appropriate levels of engagement

KEY QUESTION 5: What are your thoughts on how to enable and protect mātauranga Māori in the research system?

It requires a commitment on the part of agencies responsible for funding RSI such as MBIE to become a Tiriti-based organisations. While all government organisations are obliged to be Tiriti-based, re-imagining a Te Tiriti-based future for NZ's RSI system is not a trivial endeavour but sharing learnings from other agencies such as the Human Rights Commission that are going through a similar process is likely to be helpful.

The process of operationalising that obligation has to be done in partnership with Māori from the beginning and takes time.

KEY QUESTION 6: What are your thoughts on regionally based Māori knowledge hubs?

It is not clear what is meant by 'Māori knowledge hubs' in this question. Hopefully not a one-way dissemination of mātauranga Māori (like a library or web-search). One cannot assume that all rūnanga, hapū and whānau share common histories and aspirations as their overarching iwi.

For this reason, I'm not sure how feasible this is from a Māori perspective, but Māori are best placed to answer this question. I am non-Māori but during my science career have worked with iwi, hapū and whānau from Northland to Southland and many locations in between. Research is frequently place-based requiring collaboration with local hapū and whānau (and often generated by them) although the outcomes may have far wider implications and benefits.

It would be helpful from a practical research perspective if it were feasible to establish regional Māori agencies that could articulate the research needs of all of the iwi, hapū and whānau in their region but also be conduits for engagement of Māori and non-Māori, researchers and end-users. 'Māori engagement hubs' might be a more appropriate term for

identifying this need in NZ's RSI system; the concept embracing the sharing of mātauranga Māori and mātauranga Pakeha.

3 Funding

KEY QUESTION 7: How should we decide what constitutes a core function and how do we fund them?

The core functions of each of the CRIs were established when they were first established in 1992-1993 and documented in their Statements of Core Purpose (SCPs). Each CRI has defined lead (and contributing) areas research and the purpose and outcomes expected of each CRI, working in partnership with communities, industry, government and Māori, are clearly defined in those SCPs. Although there has been some mission-creep by a couple of CRIs, the Core functions of each CRI as defined in their SCPs are still relevant (although could probably do with a review and a tighter definition of some of the 'contributing' areas of research). However, the funding to maintain those core functions, the Strategic Science Investment Fund (SSIF), has remained static and therefore declined in value annually. This has led to an increased need for CRIs to seek funding from the current competitive RSI funding processes, e.g., the Endeavour Fund, not only for new innovative research but just to maintain essential capability in their core areas of science. The cost of applying for this competitive funding is huge.

Funds such as the Endeavour Fund, take no account of CRI core responsibilities and capabilities and, rather than facilitating collaboration, encourages aggressive competition and threatens key capability developed over many years. The reason being that the playing field is not even; the salaries of university researchers are already paid by those institutions, some independent research organisations operate as charities and do not have to make a profit, while CRIs have been set up as limited liability companies required to make a 9% return on equity back to their owners (the government).

Rather than driving efficiency, the competitive funding system has driven duplication of the capability already present in CRIs and aggressive competition in some areas. CRIs should not be operated as commercial companies. Their core funding needs to be adequate to support their core functions, which currently it isn't, and should be adjusted annually according to CPI or some more appropriate index of research cost changes.

KEY QUESTION 8: Do you think a base grant funding model will improve stability and resilience for research organisations, and how should we go about designing and implementing such a funding model?

Yes. See Question 7 above.

4 Institutions

KEY QUESTION 9: How do we design collaborative, adaptive and agile research institutions that will serve current and future needs?

Most CRIs are already highly collaborative, adaptive and agile research institutions that serve current and future needs. The problem lies not with the CRIs but with other agencies such as

universities and some private research organisations that choose not to collaborate, compete for funding and therefore spread the available funding thinly. The loosely focused, highly competitive funding process that has been operated in recent years has allowed this non-collaborative environment to proliferate.

- Reinforcement of the CRIs' SCP would help to emphasize that they are the lead agency in key core areas.
- Requiring collaboration with the appropriate lead CRI agency as a condition of projects or programme funding related to core science areas in the competitive funding environment would avoid unnecessary duplication of effort and inefficient use of funding.

KEY QUESTION 10: How can institutions be designed to better support capability, skills and workforce development?

They don't need to be designed better – they need to be funded better. See above.

KEY QUESTION 11: How should we make decisions on large property and capital investments under a more coordinated approach?

I do not have the necessary expertise to provide an opinion of this. Please refer to NIWA's submission on this topic.

KEY QUESTION 12: How do we design Tiriti-enabled institutions?

See Question 5 above

KEY QUESTION 13: How do we better support knowledge exchange and impact generation? What should be the role of research institutions in transferring knowledge into operational environments and technologies?

Many researchers, especially in CRIs, have very close links with the agencies that will implement the knowledge that is generated. I believe that direct exchange between the researchers and their end-users is the optimum mode of knowledge exchange and impact generation. We do this via Stakeholder Advisory Groups, Technical Advisory Groups I have regular scheduled meetings with Fisheries NZ, Biosecurity NZ, several Regional Councils, MfE, and Department of Conservation as well as unscheduled face-to-face and on-line meetings with endusers as a normal part of my work week and the interactions are always two-way.