

# Submission to Te Ara Paerangi Future Pathways Green Paper

From: Centre for Sustainability, University of Otago

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## Who we are:

The Centre for Sustainability/Kā Rakahau o te Ao Tūroa is an interdisciplinary research centre at the University of Otago. Almost all of our staff are research-only, and at present we also have two post-doctoral researchers. We also have a strong cohort of PhD students (currently 17, of whom 6 are Māori and 2 Pasifika). Our research covers a wide range of fields relating to sustainability and resilience, including agriculture, food, environment, energy, climate change and natural hazards.

The Centre has existed for over 20 years and has always had a strong focus on possibilities for transformative change, using transdisciplinary approaches and incorporating mātauranga Māori. We undertake collaborative research with mana whenua as well as with local authorities, government agencies, businesses, NGOs and other end users. Most of our research projects are collaborative efforts involving team members from other research institutions and from multiple disciplines.

The Centre's main source of income for all of its existence has been competitive research funding. Key funders have included FRST, MSI, MBIE Endeavour, Health Research Council, Marsden Fund, National Science Challenges, CoREs and the Sustainable Farming Fund, as well as PBRF. In addition, we frequently undertake research that is fully or partially funded by end-users.

We therefore have extensive experience of Aotearoa New Zealand's RS&I system. We are very supportive of the thorough review of our RS&I system promised by Te Ara Paerangi and largely agree with its identification of the multiple problems with the current system. Our feedback below is from the perspective of a research unit that has been attempting to achieve many of the aspirations of Te Ara Paerangi, and while we have achieved much in this respect, securing funding for our research is a constant, tenuous, and time consuming focus. We hope that our learnings from this struggle can be of use to the review.

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## Research priorities

### (a) Priorities for what topics get funded

The overarching function of research is to help build the future through generation of new ideas, innovations and knowledge, as well as the transfer of that knowledge and development of new researchers. It should also contribute to social and environmental wellbeing now, and not least to the transformation of social and economic systems and so achieve a just and sustainable future.

The window for action is closing fast. Aotearoa is at a critical juncture in world history when the global future is highly precarious for humanity and the natural systems we depend on. If greenhouse gas emissions are not rapidly reduced, we face an alarming future, and alongside this many of earth's systems and resources are becoming critically polluted and/or depleted. In the western world we are living well beyond the capacity for earth's systems to continue to support us, and yet we continue to act as if we can continue to grow consumption and production indefinitely. Colonisation and the economic and political systems that have grown out of this continue to support serious inequities in power, wealth, health and wellbeing for Māori and for other Indigenous peoples worldwide. This has led to increasing social discord and aggression both globally and for Aotearoa, which will be exacerbated by climate change and resource depletion.

We also point out the urgency of Aotearoa needing to be agile and responsive to the immediate challenges of and within the world that affect us directly. A good example is the collective research response on the complex health, economic, social and cultural dimensions of Covid.

Research therefore needs to be prioritised to both long-term and short-term wicked problems. The RSI system that is highly responsive to these issues and requires responses urgently – that is, finding solutions through research to problems occurring now. The research system needs to be proactive and more agile about opportunities and challenges to play a major role in processes of transformation. The current system for contestable funding is far too slow and unresponsive to rapidly emerging needs.

Climate change is a common destabilising factors across the many complex and interconnected 'wicked' problems that we need to grapple with in Aotearoa, and we argue that it needs to be prioritised because of its devastating implications if left unchecked, and the fact that we have a short window of 10-15 years to act decisively. This will require targeted research that will inform the transformation of systems of production and consumption, so future generations are not forever suffering from the inaction of their forebears.

This means that for this critical period of time. the RSI system must make choices about what types of research are prioritised, and how research is undertaken. It must recognise that, for the most part, the technical solutions to address climate change and other sustainability crises are well known (a point made repeatedly by the Climate Change Commission). At this juncture, there is much less need for research right now that addresses reductionist questions, is discipline-specialised, highly competitive and supports the interests of the status quo (which largely reflects the current system in its effects even if not in its intent).

Instead we need research that

- Is able to address complex, wicked problems and how to achieve systemic change
- brings together many disciplines and different forms of knowledge including mātauranga, and other Indigenous/local knowledge
- uses integrative approaches

- is collaborative
- Is action-oriented and outcomes -focused
- supports transition towards a sustainable and equitable future.

In terms of priorities, this means

- prioritising research for at least the next 10-15 years that supports a rapid and just transition, with a particular focus on wicked problems such as achieving a low-carbon economy/society
- developing a distinctive mātauranga-informed, Te Tiriti-aligned approach to the kind of future we are looking to co-create
- getting away from 'novelty' as the main measure that sorts funded from unfunded proposals, and focusing more on the potential of the research to underpin transformative change
- being open to 'fast-fail' research to test new approaches/techniques and discard them if they aren't successful
- asking – 'whose interests are served by this research'?
- having a research system that supports bold questions that could rattle foundational concepts about growth, consumption and production

Ways forward

- Having clear priorities (as above) for transformational research, its focus and the way in which it is done (see (b)). These priorities for 'public good' funding should be nationally developed and involve mana whenua, researchers, government and local government agencies and other groups representing the public interest.
- This doesn't mean all research is specifically aligned to government-set questions or themes. Some critical areas for Aotearoa do need to be specified and research funds directed to these, other research funds should be less directive but nonetheless aligned with national priorities.
- Use a 'boundary organisation' approach, bringing together science and policy and users organised (and funded) around a set of shared objectives rather than sitting exclusively within the RSI system.
- Accelerated and transformative impact is more likely to be achieved through co-designed approaches undertaken in partnership with users. While research programmes often try and design their collaborative arrangements in this way, institutional processes and resourcing do not fully enable such sharing of power, decision-making and resources.

(b) Priorities for how research is undertaken

How we do research is as important as what problems we focus on ... and these need to be aligned  
The wicked problems we face require a much greater focus on research approaches that

- are interdisciplinary / transdisciplinary / postdisciplinary
- are led or co-led by Māori researchers who are trained in mātauranga knowledge systems as well as western disciplines
- incorporate tikanga and other values from outside the academy
- are able to integrate knowledge
- are collaborative, both with other research groups/institutions and with those who will benefit from the research (e.g. where community-based research partners help to develop projects and outcomes)
- reciprocate, and especially give back to partnering communities

- support diversity and build capability amongst researchers
- support transformational actions.

This call for a greater emphasis for more transdisciplinary research isn't to diminish the value of discipline-specific research, but recognises that the RSI system AND institutions still automatically prioritise the latter. The legacy of disciplinary division and specialisation can be very hard to work with for those who wish to work in a transdisciplinary manner.

Additionally, research programmes should be places that are as transformative as the transformations they want to achieve in the world. There is significant value in reflecting on qualities of the research process rather than simply being focused on outputs. This means paying attention within the research design and delivery to matters including diversity, power, the quality of relationships within the team and with external research partners, and the sustainability implications of the research programme as well as its outcomes.

Furthermore, mātauranga and integration of women and other marginalized people involves relationship building, collaboration skills (especially for the people who have more privilege/benefit from their marginalization) and transforming how power works within teams; this takes time and is not supported through current "competitive" funding

Ways forward for the RSI system:

- prioritising interdisciplinary, transdisciplinary and post-disciplinary research in the RSI system
- all projects over a certain size have an expectation of co-leaders, and diversity in the co-leadership (young/older, Māori/pakeha, multi gender, etc.)
- expectations of reporting on not only on diversity, but also on the sustainability of the research process and the equity experiences of team members

## Te Tiriti, Mātauranga Māori, and supporting Māori aspirations

We support where Te Ara Paerangi is heading with its discussion in this section. The RSI system has to get better at giving effect to Te Tiriti, properly valuing mātauranga, and supporting aspirations of Māori.

Moreover, it needs to recognise this as a unique advantage for Aotearoa. If we do this well it can positively transform how we do research and how we address societal challenges.

We tautoko the submission by Takarangi Research (who we collaborate with in research projects) on their vision for a Te Tiriti-led research future. They have extensive experience of working with Māori communities as Māori researchers and their proposals are exciting and potentially transformative.

We'd like to raise one particular issue that we have faced as a research centre that is particularly relevant to research with mana whenua but is also relevant to other research collaborations

## Engagement and collaboration

The RSI system is currently really unhealthy for those who we seek to collaborate with in designing and delivering our research.

The system is (properly) increasingly wanting evidence of consultation, engagement and inclusion of end users, including high expectations of involvement/collaboration with Māori. At the same time, the high level of competition means that only a small proportion of research proposals get funded (~5-10%).

What this combination of circumstances means in reality is that a huge amount of unfunded time and personal resources are being put into discussion and co-design of potential bids by mana whenua as well as community members, companies, NGOs, government agencies etc. In addition they are then asked to commit time, resources and/or funding if the bid gets funded. All of this has to be written into the funding bid. And then we come back to them 9 months later, in most cases to say 'sorry that wasn't funded, can we try again?' And each group/community/organisation may have many requests from researchers every year for commitments, with highly uncertain outcomes. This has been incrementally getting worse over the years as collaboration expectations grow. Often Māori already have an inbuilt distrust of researchers in the first place especially when they are outsiders or are not known to them.

There couldn't be a better scenario for exhausting potential collaborators, losing their trust and faith, and endlessly drawing down lots of people's time and energy unnecessarily to no end. Also, in universities unlike CRIs with base funding, there is no funding allowance for the time spent developing bids so where these time commitment expectations grow, research-only staff in particular can become extremely stretched.

Ways forward:

- removing some of the burden of engagement back into the RSI sector which can lead engagement and priority setting to identify at least some research priorities
- encouragement for research teams to develop and maintain long-running relationships that may span multiple research projects
- longer-running research programmes that build up quality relationships over time, and can build on these for future research
- normalising funding for community-based team members, rather than it being seen as exceptional and complicated (including within subcontracting arrangements in research institutions)
- Having specific research questions (for at least some funds) each year so that a narrower range of potential research is bid for each year
- Changes to funding:
  - RSI funding available to recompense community members for their time in helping develop bids
  - base funding for universities that allows the institution more discretion about how it uses those funds for engagement (see Funding)
  - more flexibility so that engagement and refined research design can occur after a project gets funded, as part of the paid-for activity of the research
  - Research funding includes bridging money to support and encourage engagement at both ends of the research window – so that relationships can be built in the first place, and can be maintained once the funded timeframe is over, to enable new collaborations to be developed.
  - Improved funding for translation of science outputs that are fit-for-purpose (in te reo, and suitable for a broad range of audiences, i.e. general public/community groups, local govt etc)

## Funding

We strongly support the suggestion that overall funding for public good research should be significantly increased – it is currently woeful compared to many other first world nations, and this low level of funding underpins many of the issues we discuss in this submission.

### (a) Purpose of funding

As pointed out in the discussion document, current funding sources are complex and have mixed requirements and expectations. The purpose of the funds and the way they are managed are not a good fit either for the kinds of priorities we have identified nor for prioritising Māori research. Also, competitive funding works against cross-institutional collaboration.

The sector is used to thinking about research funding pots on continuums of ‘blue skies to applied’ research; ‘researcher-led to user-led’ research, and ‘base funded to competitive’ research. We don’t believe these continuums are particularly helpful for the situation we have sketched out above. We need support for projects that are BOTH blue skies and applied, and BOTH researcher led and user led. And importantly (new continuums?) inter/trans/post-disciplinary, which by its definition includes multiple knowledge systems and collaboration with the users of research to single-discipline, and complex, system-focused research to reductionist research. While not denying the importance of single-discipline and reductionist research, the priority for the next 10-15 years should be on the former.

We believe that supplying at least a large portion of research funding to research institutions as “base funding” will enable better long term planning by institutions, more building of long term relationships, long term funded infrastructure and experienced technical staff, funding for publication, and early stage researcher funding.

In addition, we find the overhead requirements of research institutions prohibitive to funding smaller, more dynamic research projects, where well over half of funding may be given to the institution to “keep the lights on”. This pushes research bids into larger, “empire” like groups and away from smaller, agile, community-focussed research bids. We believe (hope) that more base funding will lower the overhead requirements by large institutions.

Our research is focussed on communities, climate, energy, agriculture, and hazards and disaster risk reduction, amongst other subjects. All of these areas rely on long term collected data. We believe there should be separate funding of core functions, such as long term climate records, to ensure continuity of long term data collections. However, the definition of “core functions” should be tightly defined so that most RSI funding is still focussed on research projects.

### Ways forward:

- Shift away from the highly competitive funding environment
- Base funding available to universities and other research institutions
- A small group of “core functions” funded separately
- A significant portion of funding being made available for mission-focused projects on radical system transformation for a sustainable and equitable future
- Clear processes for researchers and collaborators to feed in problem areas for consideration for research prioritisation

- More funding allocated to longer-term projects. These have multiple benefits – long term relationships, capability development, and allow time to have an impact.
- For highly competitive funds, simplification of the application processes (or a concept proposal round) to avoid researcher burnout and engagement fatigue

## (b) Requirements of funders

In unstable and uncertain times, and when research findings may lead in new and unexpected directions, it doesn't make sense to make it so hard to adjust a research programme once it is funded. Currently there is a lot of bureaucracy and overview, and teams are expected to stick to exactly what they said they'd do, sometimes years earlier. But things change over time and we have to be able to be responsive without being penalised for this. It needs to be easier for research teams to pivot their research and adjust their research teams – currently there is a lot of paperwork and uncertainty and delays, which adds to researcher stress and administrative workload. . However Covid has shown us how we are good at pivoting, and also how funders can trust research teams.

Ways forward:

- Give teams the freedom to 'pivot' their research and adjust their teams to respond to changing circumstances and the implications of interim findings
- Allow teams to shift funding around within a project and report on this, rather than have to ask permission to do so
- funders should focus on contracted deliverables, not how they are delivered
- Require interdisciplinarity in teams and have it reflected in team leadership. If a team had decided not to be interdisciplinarity and diverse, then they need to spend the extra time explaining why not.

## Workforce

This is a major issue for the research community and Aotearoa, with many components that come together to make it difficult and unappealing for people to take on a research career, and especially hard for young people. Problems include:

- 'Science' is usually interpreted as STEM subjects, and privileged over other forms of knowledge and research approaches. This demeans other forms of knowledge, non-STEM disciplines, and creates a sense of hierarchy in the research world.
- The NZ science system comprises a high proportion of international academic staff, so mātauranga and cultural competency is not obvious to them nor necessarily obvious to all Kiwi researchers
- Even if there are many early career Māori or female scholars at an institute or on research teams, this does not automatically mean there will eventually be more Māori or women leaders; we cannot let numbers cloud our judgement since, in most cases, men remain in power even when there are "diverse" people working under them.
- Quotas and inclusion can be a tick box exercise, need ways to authentically include diverse voices in a transformative way within teams; this involves transforming the research culture
- Transdisciplinarity is key to address today's wicked problems, but the culture is not there to support good transdisciplinary research (e.g., STEM scientists saying that social science is "not real science" is a huge problem that should not be happening in research projects addressing pressing issues of today)

- Instability around un/funded projects, time pressures around funding applications prevent people from doing actual research/teaching etc.
- University overheads for postdocs makes PhDs “cheaper” for research teams than post-docs, so few post-docs are funded in research
- Short-term skills (e.g., coding) tend to be valued over long-term theoretical and process-oriented skills. E.g., start-ups can fail because they lack solid base of thorough training and theoretical depth. Current funding rewards quick skills and not the deep thinking paired with collaboration and application we need to address wicked problems.
- The projects need to be as transformative as the transformations that they are trying to address; Slow science vs. hyper competitive; need to change the competitive science model so that collaboration is valued and possible
- Fixed term research contracts prevent future planning for researchers (e.g., residency, families, buying a house, etc). Permanent positions are more about “right place at the right time” and not skills, research, etc.; like a lottery
- Privileging of international academics/researchers and international experience. People who have been educated through the NZ Uni system are less valued.

#### Ways forward:

- remove ‘science’ from RSI communications and strategies, and refer to ‘research’ and ‘knowledge’
- make it a requirement that institutions don’t charge overheads on post-docs.
- have a general post-doc fund, similar to the now defunct FRST Post-Doc Fellowship scheme.
- increase pay transparency – this could be attached to funding mechanisms. Scales and who is on what step is currently not transparent. This is a cultural shift.
- have training in interdisciplinary research, research integration, cultural competency, engagement, capability building (both re: western knowledge/methods and mātauranga)
- reporting should include feedback on how the research process and culture is developing and the experiences of Māori, women and others
- use reporting as an opportunity to improve the culture over time, not just report on pre-determined outputs as if the research team culture doesn’t affect research outputs and outcomes