Weather Radar New Zealand Limited
c/o gridAKL, 101 Pakenham St West
Central Auckland

Attn: RSI Green Paper Response

2022/03/16

Dear RSI Green Paper Response Reviewers

Please find attached our feedback on the RSI Green paper.

Overall, our submission advocates for stakeholder led governance in place of current institutional governance models.

Yours Faithfully

Luke Sutherland-Stacey
Director
Weather Radar New Zealand Ltd.

Dr John Nicol
Senior Scientist
Weather Radar New Zealand Ltd.

Weather Radar New Zealand Limited
c/o gridAKL, 101 Pakenham St West
Central Auckland

About the respondents.

Weather Radar New Zealand is a privately owned research company based in Auckland. Our researchers (including the authors of this note) deliver research services within the MBIE Smart Ideas, Endeavour and Callaghan Innovation funding programmes. We also undertake research for local government and on subcontracts for NIWA from their core funding.

We have set out some notes for key questions posed in the RSI Green paper:

1.3.2 Key Question 2

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

National Priorities e.g. Environment are set by central government, but responsibility for implementation of central government policy is frequently devolved to local government. Therefore, local government needs more input in setting research priorities.

There should be recognition of the distinction between *central* Government Research Priorities and *local* government research priorities (small p). Local government's input should be included where central government research Priorities should be in support of local government's statutory responsibilities (e.g. environment, CDEM, climate change).

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

Priority and Strategy Setting should be led by those who require the solutions, rather than those who offer the solutions.

We think that stakeholders should be involved in strategy, governance and leadership of priorities. Stakeholders have a good understanding of the problems which research should address. Therefore their input is essential in ensuring the overall strategy is designed to provide outputs at a range of time horizons to meet these needs. Stakeholders need to be assured that Priorities are well governed, the best way to ensure this is to involve stakeholders directly in the governance processes. Stakeholder groups also include leaders in the priority fields, particularly in terms of operationalisation of research outputs, therefore stakeholders in the leadership team provide an important perspective on the intellectual direction of research to achieve these goals.

The National Science Challenges have, in our view, at times suffered from a confusion of roles between Leadership and Researcher. In our view, Leadership should not be involved directly in delivery of research outputs because this can create a conflict of interest in the awarding of contestable research funding or setting directions of research. In this way, Leadership of a Priority will need to be clearly partitioned from the leader's other work activities.

3.2 Funding Core Functions

Core research activities are not undertaken exclusively by Central Government funded organisations. Expert working groups in relevant fields (e.g. Weather and Climate) should be established to better understand how core research activities are currently delivered across New Zealand. The groups should comprise representatives of all stakeholders currently involved in the core activity.

Weather Monitoring has been identified in the Green Paper as a core research activity. However, we take exception to the view that central government institutes are undertaking the bulk of this core activity:

> "...ownership of the [weather] monitoring network is shared between the National Institute of Water and Atmospheric Research and Metservice..." page 45

This statement is factually incorrect if, as we see it, local and central governments are inseparable in terms of delivering national environment monitoring objectives.

The largest proportion of the weather monitoring network is owned and operated by local government. In the Auckland region, for example, Auckland Council operates over 70 rain gauges, while NIWA and Metservice between them operate less than one tenth of that number.

In considering funding of key monitoring networks, in particular for weather and climate, it will be important to consider how funding responsibilities for an adequate monitoring network have been divested to local governments over the years. At the same time, central government research organisations (e.g. NIWA, MetService) have remained reliant on the aggregate (local + central) government monitoring networks. (e.g. for HIRDS, VSCN)

The distributed and devolved responsibilities characteristic of the weather and climate monitoring network are unlikely to be unique to this field. An essential first step in rationalising core funding functions will be the establishment of working groups tasked with identifying how core research activities are currently delivered.

3.2.1 Key Questions 7: How should we determine what constitutes a core function and how should a core function be funded?

A core function is an activity which is not practicable to duplicate and for which the value of the whole is greater than the sum of the parts. The core activity might be delivered through cooperation of multiple providers.

We reach for the Weather and Climate monitoring network example. Duplication of networks would be an unnecessary waste of resources. The aggregate weather and climate monitoring capabilities of NIWA, MetService and local government form a single core activity where the

overall national scale monitoring network is more valuable than any individual component. Funding strategy should reflect on such activities as a whole.

3.2.2 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.

Core roles funded by the base grant should be for support (e.g. technician) positions and strategic research equipment only. Base funded support roles and activities should be agnostic to the host institute. e.g monitoring results generated by core funded technicians and monitoring equipment should be accessible to all researchers.

It is undeniable that the current funding model delivers *a sense* of precarity for all participants. We think this precarity is unevenly distributed. For example precarity for a university professor means a lack of clarity of availability of scholarships for postgraduate students or CAPEX. Precarity for a CRI manager entails decisions about which projects can be funded . Precarity for a senior CRI researcher is unlikely to be tied to employment security, rather the details of research activity to be undertaken in a particular financial year. On the other hand, funding precarity for junior researchers is reflected in temporary contracts which directly impacts career progression and employment status. Likewise, precarity in research funding for small research organisations with no base funding impacts all levels of researchers.

A base grant funding model would overall improve the *perception* of stability and resilience of *larger* research organisations, but we argue mainly from the perception of those organisations' balance sheets. A base grant funding model would in and of itself not genuinely improve stability and resilience for the most vulnerable employees within those organisations.

We prefer core funding of core research activities only. The core activities would need to be determined carefully as per our comments above. Funding core activities in this way will improve stability of research organisations, as it will not be necessary to block out an initial proportion of more precarious funding to support ongoing core capabilities (e.g. research ships, supercomputers).

5 Research Workforce

We note the aspiration "... retains excellent talent...". It is also important that the research workforce funding model does not sustain unproductive participants. A balance between stability and precarity is necessary to ensure that the workforce remains highly talented.

An important component of a talent based approach is the filtering of less talented participants during the postdoctoral phase. In our view, the problem right now is that extreme precarity isinstead filtering participants based on their ability to tolerate precarity. Presumably this depends on gender, racial or socio-ecconomic factors.

Funding differences between PhD scholarships and postdoctoral positions should be addressed. If PhD students were paid similarly to postdoctoral scientists (or at the least, at an industry graduate rate) then there would be more incentive to choose able PhD candidates and also consider if the research activities should be undertaken by post doctoral scientists.

6.2.2 Key Question 17: How do we support sustainable, efficient and enabling investment in research infrastructure?

Funding of Core infrastructure should result in the delivery of capabilities which are agnostic to the host institute. Governance of core funded infrastructure should be separated from the institution responsible for technical delivery of the infrastructure.

In the weather and climate research space, New Zealand is in the rather absurd and usual position of being the only advanced economy for which the national radar network is not used for Weather and Climate research in the relevant government institute (NIWA). This is a serious failure of governance which results in poor return on science investment (the core monitoring is funded but then not used for research, impacting the quality of the research, impacting the quality of the research). Numerous government commissioned reports have found that the problem arises from counterproductive signalling from the shareholding ministries to the governing boards of NIWA and MetService. This problem could be solved by stakeholder led governance of core research infrastructure activities.