From:	no-reply@mbie.govt.nz
To:	Research, Science and Innovation Strategy Secretariat
Subject:	Draft Research, Science and Innovation Strategy submission
Date:	Monday, 11 November 2019 10:27:40 a.m.
Attachments:	Online-submission-form-uploadsdraft-research-science-and-innovation-strategy-submissionsMinistry-for-the-Environment-feedback-on-the-draft-Research-Science-and-Innovation-Strategy-8-Nov-19.pdf

Submission on Draft Research, Science and Innovation Strategy recevied:

Are you making your submission as an individual, or on behalf of an organisation?
Organisation

Name
Natasha Lewis

Name of organisation or institutional affiliation
Ministry for the Environment

Role within organisation
Deputy Secretary Strategy and Stewardship

Email address (in case we would like to follow up with you further about your submission)
claire.gibb@mfe.govt.nz

Which of the below areas do you feel represents your perspective as a submitter? (Please select all that apply)

If you selected other, please specify here:

Gender

Ethnicity

Name of organisation on whose behalf you are submitting, if different to the organisation named above

In which sector does your organisation operate: (Please select all that apply)
Government

If you selected other, please specify here:

How large is your organisation (in number of full-time-equivalent employees)?

Please indicate if you would like some or all of the information you provide in your submission kept in confidence, and if so which information.

Please upload your submission document here
Ministry-for-the-Environment-feedback-on-the-draft-Research-Science-and-Innovation-Strategy-8-Nov-19.pdf - Download File

Ministry for the Environment
Manatū Mō Te Taiao

Ministry of Business Innovation and Employment
Attention: Richard Walley
RSI-Strategy@mbie.govt.nz

Re: Ministry for the Environment feedback on the draft Research, Science & Innovation Strategy

Thank you for providing an opportunity for the Ministry for the Environment to provide feedback on the draft Research, Science & Innovation Strategy (Strategy).

The Ministry for the Environment (MfE) supports investment in research, science and innovation (RSI) and the review of the Strategy. RSI is fundamental to MfE policy development and our purpose of making Aotearoa New Zealand the most liveable place in the world. We acknowledge the work to date of MBIE in developing the Strategy. We endorse and support the joint submission prepared with MPI and DOC and have provided this submission to emphasise points of particular interest to our system leadership role for the environment.

As with the joint submission, this submission provides feedback through over-arching themes rather than addressing specific questions from the Strategy. We believe attention to these themes is essential for research, science, and innovation to play its role in achieving government priorities.

The Parliamentary Commissioner for the Environment released a review of the environmental reporting system this week. The review provides useful direction for consideration in the Strategy and we have referenced this through our submission.

Please find our nine submission points below, we would welcome the opportunity to discuss any of these with you.

Kind regards

Natasha Lewis
Deputy Secretary Strategy and Stewardship
Ministry for the Environment

Ministry for the Environment
Manatū Mō Te Taiao

Making Aotearoa New Zealand
the most liveable place in the world

Ministry for the Environment
Manatū Mō Te Taiao

MfE Feedback on the draft Research, Science & Innovation Strategy

1. Purpose should underpin the Strategy

The purpose of the Strategy is to support the government's 12 priorities under the three subheadings:

- Build a productive, sustainable and inclusive economy
- Improving the wellbeing of New Zealanders and their families
- Providing new leadership by government

MfE supports this purpose, and believe it should be at the core of the document. The Strategy should be strengthened by linking the role of various actors, focus areas and measures of success back explicitly to these priorities. Specifically, there should be a clear flow from the identified purpose of the Strategy, to identified actions in the Strategy. The document in its current form is not internally consistent in this regard.

2. Indicators of success should be defined by purpose

The indicators of success of the Strategy should focus on how will it is delivering on purpose. If the purpose is to contribute towards government priorities, then key measures will include:

- Contributions of RSI to the priorities
- Health of fundamental infrastructure
- Diversity and talent pipeline (tracked all the way from primary/secondary through to tertiary education and MSc/PhD to post-docs to early and mid-career scientists

3. The spread of investment should enable the scope and direction of the Strategy

At present MfE considers that we do not explicitly value government as a user of research in the same way we do the private sector. To support the government's stewardship of the environment, it is the duty of agencies to base their advice on evidence. The PCE poses;

> "How can we make economically efficient or socially fair environmental rules if we can't measure authoritatively what's happening to the physical resource base on which our wellbeing ultimately depends."[1]

In addition, an evidence base is critical if we are to achieve government priorities, in particular, those under subheading 'Build a productive, sustainable and inclusive economy.'

The scale and size of societal challenges places further emphasis on the need for Social Value and Public Application knowledge as referenced in the Strategy.

Applied research for public good is currently underfunded. Additional funding should be made available for applied, user-led research. Furthermore, additional funding is needed to achieve the

[1]Parliamentary Commissioner for the Environment, 2019, Focusing New Zealand's environmental reporting system. Page 4

government's target of raising national research and development expenditure to two percent of GDP by 2027 and to align New Zealand more closely with average OECD nation expenditure on Research and Development. Applied research for public good would have short turnaround timeframes of approximately 1-3years.

4. A strategy-led approach to investment

One of the systemic issues we see in the RSI system at present is a lack of strategic approach to investment. To ensure that investment into RSI will support government priorities, these need to be built into the assessment criteria. The investment strategy must be integrated and include the delivery of applied/operational research to deliver government priorities, particularly for cross-cutting issues that touch on multiple departments whether additional funding is provided or not.

Our investment system identifies a portion of 'mission-led' research (currently occupied by the National Science Challenges and Sustainable Food and Fibre Fund). These are not strategy-led initiatives however, and go only part-way to bringing together relevant stakeholders to set direction.

MfE supports mission-led research as a useful first step, but these missions must be derived from an overarching strategy. The example in the Climate space, is a useful first step: understanding the mission, looking to see what is being done, what is not and how research can be used to inform decision-making at various levels. This should be replicated for other important missions (that underpin government priorities) and be coupled with an intervention logic approach to ensure clearer investment signals are provided for 'mission-led' investments. Government roadmaps (e.g. Environment and Conservation Science Roadmap and Primary Sector Science Roadmap) should be consulted to collate already identified priorities and gaps.

5. RSI activity is needed both at and behind the frontier

The Strategy focuses on frontier research. MfE do not believe that a singular focus on frontier research will lead to appropriate investment allocation. To achieve many of the identified government priorities, a mix of investment in foundational infrastructure, scientific research and frontier research will be required.

The Strategy must acknowledge the importance of foundational infrastructure to support the science/policy system (to identify risk, state and trends, and impact) and the long-term allocation needs in order to enable such investment. In the case of some of our long-term data sets contestable funding is appropriate as the value proposition lies in its long-term funding and ability to provide status and trends over long-term time horizons. As identified by the PCE:

> Many information sources and information collection initiatives suffer from a lack of a commitment to maintaining them in the long term. The contestable nature of even long-term research funding has made it hard to maintain a commitment to collecting essential underpinning data, particularly when there is pressure to demonstrate novelty and innovation."[2]

A further critical element missing within the current draft of the Strategy is investment to support the translation and implementation of RSI into a practical application in a way that is accessible,

[2]Parliamentary Commissioner for the Environment, 2019, Focusing New Zealand's environmental reporting system. Page 37

understood, adopted and used. This investment is necessary at all levels of the RSI pyramid to ensure RSI is supported through all stages from development to application. One critical example, is the investment needed to ensure regional councils are supported in implementing policies, such as the Essential Freshwater Package and effectively exercising their monitoring and reporting obligations under the RMA.

6. More attention is needed at the 'foundations'

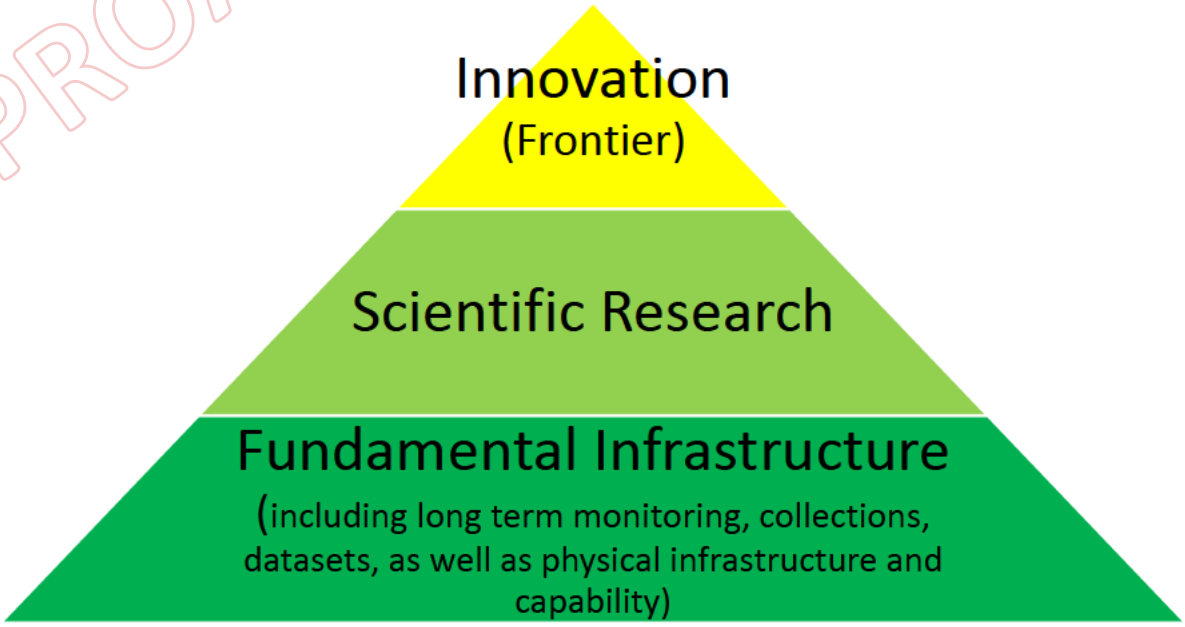
MfE believe that additional secure funding is need to support the foundations of RSI. A critical omission in the investment map is funding to support fundamental infrastructure.

Fundamental infrastructure requires long-term and stable funding to ensure the long-term collection of key data is uninterrupted. This funding should be additional and separate to the funding for scientific research and innovation as the integrity and completeness of fundamental infrastructure underpins all other research and innovation. As articulated by the PCE "while New Zealand's current science system is focused on innovative and leading-edge research, it is difficult (if not impossible) to effectively undertake such research without the solid foundational knowledge needed to ground our understanding."[3]

Having strong foundations is a dependency for scientific research and innovation, and something that is not able to be served by the market. This type of infrastructure includes baseline data against which to explore changes in state and trend; long-term experimental sites; taxonomy and collections; as well as investment to support data that is appropriately curated, stewarded and accessible for use and reuse.

In order to appropriate, curate and steward foundational infrastructure, funding is also required to ensure the physical infrastructure and capability, as well as ongoing scientific research to ensure usefulness in perpetuity.

Investment and research development pyramid



[3] Parliamentary Commissioner for the Environment, 2019, Focusing New Zealand's environmental reporting system. Page 42

The PCE has identified the following three main problems in the way we fund the collection of environmental data at a national level:

- a preference for funding exciting, novel research ahead of the collection of essential underpinning data
- the stagnation of datasets due to a lack of proper maintenance
- a lack of secure, ongoing funding for important new datasets[4]

MfE strongly supports the PCE on this matter. Environment Aotearoa 2019 highlighted the need for a coordinated environmental data collection programme. Further, the need for better data and monitoring to inform decision-making is a key issue being highlighted in the comprehensive review of the resource management system.

7. Connectivity is valuable where it contributes to the priorities

We agree with the basic premise of strengthening connections - but connectivity should be purposeful. As currently stated, international connectivity appears overly constrained to Small Advanced Economies (SAEs). Many of these SAEs do not share the same challenges of geography, demography or economy as New Zealand.

Also the value of connections will vary between projects and research areas. Some areas within the Strategy will require more New Zealand based centric focus, such as supporting priorities that are unique to New Zealand (e.g. our unique history, biodiversity and economy). Furthermore, improving coordination and collaborate across agencies and stakeholders will help ensure our science and data system has more impact on decision-making.

8. Vision Mātauranga section is a starting point only…

The intention in the Strategy is to consult and collaborate further with Māori as stakeholders. MfE would like to see co-design with Māori as Treaty of Waitangi partners.

The RSI system must be relevant to Māori, and support strengthening Māori leadership. This includes ensuring māturanga is acknowledged as a knowledge system and investment and decision-making within it is done in an appropriate way. More detail is required throughout the Strategy about how Māori aspirations and progress will be supported. This should not be limited to the Vision Mātauranga section.

The Strategy presents an opportunity to support more flexible frameworks for the assessment of excellence and impact of different disciplines. Acknowledging that excellence and impact in mātauranga may look different than in physics or biology or economics or social sciences may ensure that we don't inadvertently bias our RSI system between disciplines.

[4] Parliamentary Commissioner for the Environment, 2019, Focusing New Zealand's environmental reporting system. Page 37

9. We need a diverse pipeline and a receptive public

In order to attract and retain capability, we need to ensure the stability of institutions and foster their role in managing and developing capability. As it currently reads the Strategy is all about contest and innovation - not the long-term health and well-being of the people within the science system, such as scientists. Neglect of this will also not help in building an enduring pipeline of talent and attracting skills to further grow the NZ science system.

Additionally, in order to increase uptake and use (diffusion) of science we need to support greater science access, enthusiasm and literacy across all of our public.

We support the intent of the RSI to ensure we have a science community that reflects our wider community. This needs to include ethnic diversity, gender and age throughout the educational and workplace pipeline.