



BRIEFING

Briefing for the Incoming Minister of Research, Science and Innovation

Date:	20 June 2022	Priority:	Medium
Security classification:	In Confidence	Tracking number:	2122-4890

Action sought		
	Action sought	Deadline
Hon Dr Ayesha Verrall Minister of Research, Science and Innovation	For information	27 June 2022

Contact for telephone discussion (if required)				
Name	Position	Telephone		1st contact
Iain Cossar	General Manager, Science, Innovation and International		027 706 6966	✓
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The following departments/agencies have been consulted

Minister's office to complete:

Approved

Declined

Noted

Needs change

Seen

Overtaken by Events

See Minister's Notes

Withdrawn

Comments



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Title

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Purpose

This briefing provides a strategic overview of the key issues in the Research, Science and Innovation Portfolio to support your appointment as Minister.

In the annexes we have also provided a table of forthcoming advice to give you a view of the next issues you will be asked to make decisions on, and an overview of investment funds and processes you are responsible for. We have intended for this briefing to be read alongside material prepared for the Research, Science and Innovation Estimates select committee hearing on 23 June, which provides a more comprehensive view of issues in the portfolio.

Recommended action

The Ministry of Business, Innovation and Employment recommends that you:

- a **Agree** to discuss your priorities for the portfolio with officials

Agree / Disagree

Iain Cossar
**General Manager, Science, Innovation and
International**
Labour, Science and Enterprise, MBIE

20 / 6 / 2022

Hon Dr Ayesha Verrall
**Minister of Research, Science and
Innovation**

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Background

1. New Zealand's research, science and innovation (RSI) system contains much that is valuable and that we can be proud of: research of a quality consistently above the global average, a growing community of innovative technology-based companies, a global hub for both Pacific and Antarctic research, and some niche areas of world-leading expertise, not least in some health research.
2. The role of the RSI system is to create the future of New Zealand. With sufficient investment of the right kind, that could be a future of markedly improved population health and wellbeing, higher productivity with well-paid, rewarding jobs, and a flourishing, clean, protected environment.
3. However, the single most important observation we can make about New Zealand's RSI system is that it is too small, and has been persistently so for decades. Despite recent strong growth in business R&D leading to the highest level of expenditure in New Zealand's history, we still lag behind almost all countries to which we might want to compare ourselves. Our R&D expenditure sits at 1.4% of GDP, some way behind the OECD average of 2.68%. This measure is important because it represents our collective choices as a country – to favour investments which seek to partially mitigate today's (or often yesterday's) problems, rather than proactively dedicate our shared resources to a significantly better future.
4. This is an area in which Government has a genuine opportunity to make a real, lasting difference. Sustained increases in investment into a revitalised and redesigned RSI system hold the potential to radically and positively transform our country.

You have inherited a once-in-a-generation reform of the science system

5. Te Ara Paerangi – Future Pathways is a multi-year programme to reshape the research system. This is a once in 30-year opportunity to build a modern and future-focused system that is adaptable, resilient and connected.
6. Consultation for the Green Paper closed in March 2022 and began an open, deliberative and wide-ranging discussion on a range of issues facing New Zealand's research system. Key themes that have emerged include:
 - Calls for greater prominence of Te Tiriti o Waitangi (Te Tiriti) in RSI policies and structures
 - Support for a move to whole-of-system research priorities to focus on national challenges
 - Concern around the nature, availability, and longevity of funding
 - Significant workforce issues such as equity, career development, precarity and mobility
 - Support for a shift to more connections and collaboration in the system
 - A need for a more flexible and adaptive system that continues to support current areas of research, as well as being able to grow into new areas that have the potential to transform New Zealand's economy and achieve wider social and environmental goals
7. Through the consultation, the sector and stakeholders have shown an appetite for substantial change. There is expectation that the reform process will continue with the consultative approach taken during the Green Paper consultation. This approach will also ensure system level impacts and trade-offs in reform design and implementation are clearly communicated. MBIE is developing a 'white paper' for release at the end of 2022 which will set out directional decisions for the reform.

8. Given calls for greater prominence of Te Tiriti in stakeholder feedback, we consider there is a strong case for elevating the level of engagement with Māori, and ensuring that we are capturing the full range of Iwi interests. To this end, we recommend you meet with the Iwi Chairs' Forum to discuss the reforms in the near future.
9. Major system reform will either require significant new investment (potentially of several hundred million dollars) or major baseline realignment to be effective. This level of financial change will require some lead time before being implemented and early certainty about future funding. Successful delivery of Te Ara Paerangi – Future Pathways will also require balancing and consideration of trade-offs with other priorities across the portfolio.

While this reform programme is underway, you will continue to need to take decisions to ensure the effective operation of the RSI system

Implementing Ministerial decisions about property in Wellington and Wairakei will require early action

10. Constitutional conventions [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
11. The decision about replacement of the Healy building at the Institute of Geological and Nuclear Science's (GNS Science's) Wairakei site is less complex, but urgent due to the unsatisfactory nature of current working arrangements. GNS Science has submitted a business case to replace the Healy building [REDACTED]
[REDACTED]
[REDACTED] We will provide advice on the GNS Science business case shortly.

Achieving a successful outcome on "in-year payments" is critical to the perceived success of the RDTI

12. Another critical issue arising in your portfolio is decisions relating to the provision of a temporary 'in-year payments' facility for companies receiving RDTI tax credits. In-year payments would mean companies could be paid throughout the tax year as they incur R&D-related expenses. While addressing pressing cashflow issues for smaller innovative firms, this may also increase the desirability of investment in R&D for businesses. Regular payments would align the timing of government support with business decision making about R&D investment, rather than after the fact. Key segments of the innovation sector view the ability to receive in-year payments as critical to the practical utility of the RDTI.
13. We have developed a proposal using private sector providers to provide a low-cost bridging loan facility intended to operate for three years until Inland Revenue can deliver in-year payments through the tax system. Cabinet has approved the expenditure for the scheme in principle [CAB-22-MIN-0105]. Implementing this decision will require you to seek agreement from the Ministers of Finance and Revenue on the detailed design of the scheme, and approval from the Minister of Finance to provide loans from Crown Capital. You will shortly receive detailed advice on this issue.

There is a growing dispersal of research funding across the public sector that requires more coherent oversight

14. In recent months we have seen an increase in large-scale research initiatives across government departments, including primary industries, environment, conservation, foreign

policy (Antarctica) and health. While departmental engagement with their own science needs is welcome, there is not a consistent or coherent approach to where responsibility and funding should lie, and little consideration has yet been given to wider system impacts and opportunities, including outwards into the innovation sector. The previous Minister agreed to a set of principles that we would seek to employ when working with other agencies on RSI-related bids, although in practice we expect they may be difficult for us to enforce. In time we expect these principles to be the basis for an agreed whole of government approach as part of Te Ara Paerangi – Future Pathways.

There are a number of funding issues that will need to be addressed at Budget 23

15. Constitutional conventions
[Redacted]
16. Constitutional conventions
[Redacted]
17. Constitutional conventions
[Redacted]

The combination of a major reform programme and an ongoing work programme are putting significant pressure on departmental resources

18. Te Ara Paerangi is a demanding undertaking, particularly alongside the range of issues that continue to require attention as part of the ongoing operation of the RSI system. This is placing significant pressure on departmental resources, and will require ongoing prioritisation of the work programme.
19. Provision was made to fund 12 additional positions in MBIE in 2021/22 to run this programme, but this was not continued into 2022/23. Maintaining this level of resource will require either achieving savings elsewhere, and/or reprioritisation within the RSI system.

This pressure carries the additional risk of making us overly inwardly focussed

20. Managing such a large and significant reform programme with stretched resources will naturally draw our and your attention to the needs of the publicly funded science system. At the same time, however, New Zealand’s innovation sector can be seen as being at an inflection point, and requires sustained attention.
21. Over the last five to ten years we have seen a significant increase in innovation activity in New Zealand, and increased interest from overseas venture capital and multinationals in New Zealand innovation capabilities. On top of this, climate change challenges are creating significant global demand for climate technologies and threaten the future of climate exposed

industries. Increased competition between the US and China has also placed technology at the centre of geostrategic competition.

22. Within this context, understanding across government of innovation as a global economic process is poor, and we run the risk of losing the gains of the last five years through a failure to implement a coherent approach. (In many ways this is the essential thrust of the Productivity Commission's Frontier Firms report). There are a range of areas where this challenge is arising, including in implementation of the aerospace strategy, health regulatory approvals for innovative products, and climate innovation platforms funded under the Climate Emergency Response Fund.
23. Implementation of the Aerospace Strategy represents an immediate example of this challenge. The Aerospace Strategy is the joint responsibility of the Minister for Regional and Economic Development, the Minister of Research, Science and Innovation and the Minister of Transport. While MBIE is leading the development of the strategy, a key plank is the Civil Aviation Authority's (CAA's) ability to provide dedicated regulatory support to companies developing emerging technologies. Constitutional conventions
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
24. Successfully addressing these issues alongside an ambitious reform programme will require a sustained effort to build a constituency across government and within Cabinet that understands the critical role of the RSI system in improving New Zealanders' wellbeing.

Next Steps

25. While most of these issues will be familiar to you from your experience as Associate Minister, we would welcome the opportunity to have a discussion with you about your priorities for the portfolio in your new role.
26. The two annexes provide you with a further view of forthcoming advice and decisions:
 - Annex one provides an overview of key RSI funds, investment processes and relatively recent new investment initiatives MBIE is responsible for implementing
 - Annex two provides a list of upcoming advice requiring Ministerial decisions, including Cabinet papers and upcoming Board appointments

Annex One: Key research, science and innovation investments

An overview of key research, science and innovation funds, investment processes and relatively recent new investment initiatives MBIE is responsible for implementing. Note, the list is not exhaustive, instead focusing on areas we would like to draw to your attention in the short-term.

<p>Endeavour Fund</p>	<p>The Endeavour Fund supports excellent research with the potential to positively transform New Zealand’s economy, environment and society.</p> <p>The fund uses an open, contestable mechanism to select excellent research proposals that will provide the highest potential impacts across a range of economic, environmental, and social objectives.</p> <p>The Science Board, who you appoint, is responsible for making the investment decisions for the Endeavour Fund.</p> <p>The 2022 investment round is underway, with up to \$57 million per year available to invest.</p> <p>Investment decisions for the 2022 round will be made in August and you will have the opportunity to announce them in early September.</p>
<p>National Science Challenges</p>	<p>The National Science Challenges were established in 2014 with the aim of tackling the biggest science-based issues and opportunities facing New Zealand.</p> <p>Around \$680 million was invested in Challenges over ten years, with contracts ending in June 2024.</p> <p>In addition to our usual monitoring activities, we are capturing lessons-learned and shaping what comes next as the part of the Te Ara Paerangi – Future Pathways programme.</p>
<p>SSIF programmes</p>	<p>The Strategic Science Investment Fund invests in a wide range of programmes of research to deliver on government science priorities.</p> <p>The investments include CRI and Independent Research Organisations platforms, the Antarctic Research, Advanced Energy Technology, Data Science, and Infectious Disease Research platforms, and a new RNA platform.</p> <p>The contracts for CRI and IRO platforms are due to end in mid-2024. Our advice on where to next with these investments is being developed as part of the Te Ara Paerangi – Future Pathways.</p>
<p>SSIF infrastructure</p>	<p>The Strategic Science Investment Fund supports infrastructure with high national benefits that will not emerge during usual business because of the scale, complexity, long duration and multi-user nature of the investment.</p> <p>Our investments are wide ranging and include, for example, access to the Australian Synchrotron, Genomics, the New Zealand based Mission Operations Control Centre, National eScience Infrastructure, and the research vessel Tangaroa.</p> <p>Each investment is highly bespoke and tends to be relatively large and long-term. We have a continuous programme of engaging with the responsible entities and monitoring performance. With year-end approaching, we will be reviewing annual reports and keep you updated if and when material issues arise.</p> <p>Our approach for supporting and investing in RSI infrastructure is being reviewed as part of the Te Ara Paerangi – Future Pathways.</p>
<p>RNA platform</p>	<p>You recently announced Government’s intention to invest \$40.7 million over four years in an RNA platform via the Strategic Science Investments Fund.</p> <p>The investment will increase support for RNA research through to pilot manufacturing and</p>

	<p>facilitate engagement between research and industry partners.</p> <p>We are designing the process to make the investment and will be coming back to you shortly with the proposed funding priorities. The next phase will be to select the host and develop the platform.</p>
Infectious diseases platform	<p>Government is investing \$36 million over three years from its Strategic Science Investment Fund in an infectious diseases platform.</p> <p>The investment process is underway. ESR and the University of Otago will co-host the platform. Their contract has been signed and the draft platform plan will be assessed this month.</p>
GeoNet and Hazards funding	<p>MBIE is collaborating with the National Emergency Management Agency to develop a sustainable funding model for monitoring hazards in New Zealand.</p> <p>MBIE is leading the development of a budget bid for 2023 to fund GeoNet, the Tsunami DART Buoy network, Tidal Gauge Network, National Seismic Hazards Model and development of new prediction models.</p> <p>MBIE currently provides funding to GeoNet from its Strategic Science Investments Fund. We are extending that contract by one year to provide bridging funding while the new model for managing and funding hazards monitoring is developed.</p>
Catalyst Fund	<p>The Catalyst Fund is designed to support international science collaborations. It has four funding streams: Seeding, which supports new partnerships; Leaders, to support incoming and outgoing international fellowships for exceptional individuals; Influence, which supports New Zealand science sector participation in international forums; and Strategic, which funds strategic research collaborations with key international partners.</p> <p>Catalyst: Strategic is the largest share of the fund and is invested by MBIE on an ongoing basis in support of key bilateral relationships as part of a wider International Research, Science and Innovation programme.</p> <p>Examples of proposed investments include quantum technologies with the UK, space technology with Australia, advanced technology with Japan, and clean energy with Singapore. We intend to resubmit advice provided to the previous Minister on a framework for Catalyst: Strategic shortly for your decision.</p>
Expanding the Impact of Vision Mātauranga	<p>Government identified \$33 million over four years to invest in initiatives to expand the impact of Vision Mātauranga.</p> <p>We are contracting Ngā Pae o te Māramatanga to lead Kanapu, a new Māori Capacity Development Programme, that you have been invited to announce in late June.</p> <p>We are also working closely with a group of Māori RSI experts to determine the best way to invest the remaining funds. The group is shaping up a proposition to pilot two funds. One will support Māori-led programmes of research. The other will support Māori-led initiatives to seed connections between mātauranga Māori and RSI.</p> <p>We expect to provide you with advice on the purpose and form of these proposed funds later this year.</p>

Equity Diversity and Inclusion Capability Fund	<p>The Equity Diversity and Inclusion (EDI) Capability Fund aims to promote EDI best practice across Aotearoa New Zealand to ensure our research sector includes different perspectives reflecting our diverse population.</p> <p>Our first investment round, where we are looking to invest around \$4 million, is nearing completion. The round has taken longer to complete than anticipated given the nature of the investment and the need to update our contracts to ensure mātauranga Māori intellectual property is protected.</p>
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Annex Two: Upcoming advice requiring Ministerial decisions

Briefing title	Expected date
Endeavour Investment Fund Gazette Notice for 2023	15 Jun
Next steps for in-year payments of the R&D tax incentive	17 Jun
GNS Science: Wairakei Critical Facilities Replacement Business Case	20 Jun
Progress on the design of Climate Innovation Platforms	20 Jun
New to R&D Grant and R&D Student Grant: Draft Ministerial Directions	29 Jun
Progress finalising Research, Science and Innovation Cooperation Arrangement with United Kingdom	30 Jun
Te Ara Paerangi - Initial advice on Priorities	Early July
Future Pathways Timeframes for White Paper and Phasing of Reform Programme	Early July
Geothermal Innovation Park	Late July

Upcoming Cabinet papers

Title	Committee	Meeting Date
Negotiating Mandate for Association to the EU Horizon Framework Programme	DEV	TBC

Upcoming Board Appointments

Title	Appointments	Expected Date
Constitutional conventions		