



# How to enhance the value of New Zealand's investment in Crown Research Institutes

**Report of the Crown Research Institute Taskforce**



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Disclaimer:

This report is the work of the Taskforce as a whole and should not be taken to represent the views of the organisations the Taskforce members work for.

# Statement from the Minister of Research, Science and Technology, Hon Dr Wayne Mapp

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This Government has prioritised economic growth as the key to delivering the jobs, incomes and living standards that New Zealanders want. Science and innovation are at the heart of generating growth. Since we took office, improving the science system has been a major priority.

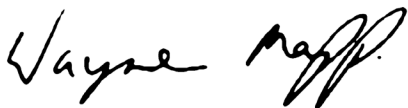
The Crown Research Institutes (CRIs) are a vital component of our overall science system. They employ over 4,400 people and receive around \$480 million of Government funding per year. In return, they provide vital science and research that underpins our economic, environmental and social performance.

We want to ensure that New Zealand gets the best out of the CRIs. To help with this we established the Crown Research Institute Taskforce last October. We asked the Taskforce to examine how CRIs can best deliver on national priorities and respond to the needs of research users, particularly industry and business.

The Taskforce, under the chairmanship of Neville Jordan, has worked quickly and effectively. They have carefully examined the purpose, operation, governance and funding of CRIs. They have consulted widely and tested the policies and practices which have developed since CRIs were established in 1992.

The result is a thorough report which gives clear recommendations to Government. We will carefully study the report with a view to implementing changes this year.

I thank the Taskforce for the considerable effort they invested alongside their expertise. This report will make an important contribution to ensuring science is at the forefront of the Government's programme of economic growth.



**Hon Dr Wayne Mapp**

Minister of Research, Science and Technology

# Statement from the Taskforce Chair, Neville Jordan

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The timing of this report is significant. A number of disparate currents are converging to create a rare opportunity for change. As economic development receives unprecedented focus, attention is turning to research, science and technology to address the challenges we face, both nationally and globally. There is also a greater recognition of the value that institutional collaboration and cooperation bring to New Zealand's RS&T system as a whole.

Within this environment, the improved performance of CRIs is critical. Collectively, CRIs are a rich repository of science capability and have a proud research tradition. They are to be commended for their achievements and the contribution they have already made to New Zealand. As the opportunity for change gathers momentum, we have a unique chance to build on their particular strengths and successes. Accordingly, this report presents a suite of recommendations designed to ensure that CRIs can meet their full potential to benefit New Zealand, and to allow the Government to further invest in CRIs, with greater confidence.

Our recommendations do not, at this stage, propose new money. Rather, they focus on the need to get the fundamentals right and change the attitudes and behaviours of CRIs through streamlined funding processes, strengthened governance structures and clarified goals for each CRI. This includes achieving a better balance between contestable and stable funding. We believe our science funding system has pushed competition as far as it can go as a means of driving efficiency, a view consistent with the findings of the 2007 OECD review of New Zealand's innovation policy.

Our recommendations do not address CRIs in isolation. They have been designed to accommodate further improvements to the wider RS&T system. This flexibility reflects our view that the opportunities and challenges we face as a nation cannot be met by CRIs alone. Universities and independent research organisations have equally vital roles to play, as does New Zealand business. In seeking to strengthen the role of CRIs we have been careful not to place other research institutions at a disadvantage.

I would like to acknowledge and thank my Taskforce colleagues, and all those officials who assisted us, for their dedication and focus. On behalf of the Taskforce I would also like to acknowledge the goodwill and support shown by CRIs, Science New Zealand, the New Zealand Vice-Chancellors' Committee and the leaders of the independent research organisations.

Taken together, our recommendations represent a rare opportunity to change the face of science in New Zealand. They will stabilise costs, establish a much improved investment outlook for CRIs and reinvigorate New Zealand's scientific environment.

Now is the time to enact change and enhance prosperity for all New Zealand.



**Neville Jordan CNZM**

Chair, Crown Research Institute Taskforce, February 2010

## Other Taskforce members



John D. McKenzie



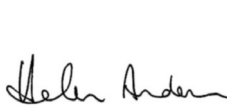
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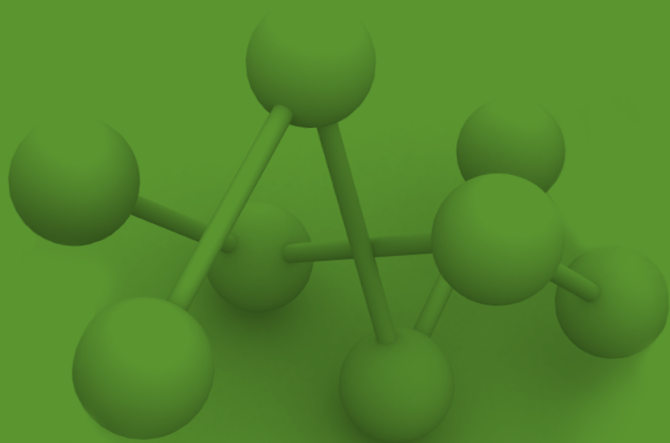
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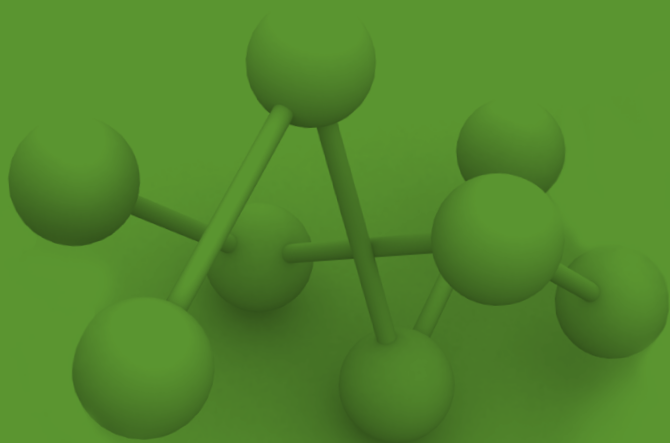
Dr Ron Sandland



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# Executive summary

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## **CRI's play a pivotal role in New Zealand's innovation system**

Crown Research Institutes (CRIs) matter to New Zealand. Their importance is increasing as science plays an ever more critical role in the nation's economic development. Research and the other services provided by CRIs help address New Zealand's most pressing issues: achieving economic growth by making the tradable sector more productive; improving the sustainable use of natural resources; and managing exposure to risks that could otherwise destabilise society, the environment and the economy.

Research and development generates profound and enduring benefits for New Zealand society. Ongoing government investment is essential. The Government established CRIs to improve the economic, environmental and social wellbeing of New Zealand, and they are delivering substantial benefits. However, the evidence received and our deliberations have led us to conclude that CRIs can and should contribute much more.

CRIs have the potential to be powerful engines of economic growth, forging national and international collaborations at the cutting edge of research and science. CRIs already attract international attention because of their strong links to business, government and other science organisations. We believe, however, that through greater collaboration CRIs can perform much better. Such collaborations will, the Taskforce believes, become more important in delivering benefits to New Zealand.

## **What needs to change so that CRIs contribute more to New Zealand?**

We do not believe changing the number of CRIs, their ownership status, or their employment arrangements will significantly improve their contribution to New Zealand. The question is not how many CRIs New Zealand should have, but what structures will best provide research services that address the problems and opportunities New Zealand faces. It is our opinion that the main factors impeding CRI performance relate to their funding, ownership and governance arrangements, as follows:

- Currently, it is not clear if a CRI's objective is to create value for itself, as a company, or to generate value for New Zealand. Current ownership arrangements seem to place undue emphasis on research and development that produces outputs that individual CRIs can capture in their statements of revenue and balance sheets, rather than on research that contributes to the wellbeing and prosperity of New Zealand. This can reduce quite significantly the overall impact of government investment in CRIs.
- There are multiple lines of accountability that dilute the CRIs' sense of purpose and direction. Each CRI is accountable to the shareholding Ministers, directly and through the Foundation for Research, Science and Technology (the Foundation), the Crown Ownership Monitoring Unit in Treasury (COMU), and the Ministry of Research, Science and Technology (MoRST). Each agency has its own perspective and requirements.
- CRIs are heavily dependent on competitive contracts, which are often short-term relative to the time frame in which science produces results. This makes it difficult for CRIs to operate strategically.
- We believe that existing funding and governance arrangements for CRIs inhibit collaboration, position natural partners such as universities and firms as competitors, and interfere with CRIs' adoption of best-practice research management. Governance and institutional arrangements can be considerably simplified so that CRIs have a stronger sense of purpose and direction.

## KEY ACTIONS

The Taskforce believes that the Government must be more explicit about what it wants each CRI to achieve and must fund the CRIs accordingly, so that they can deliver more for the national benefit. CRIs can do this if the Government encourages them to plan and operate for the long term, cooperate with complementary components of the New Zealand, as well as the global, research and innovation system, and use diverse and creative approaches to transfer knowledge to those in New Zealand best able to use it. This means having talented people in top leadership and management positions, giving them the authority they need to take strategic decisions and then holding them to account for the performance of their CRI. The measure of a CRI's success should be the positive impact it has on New Zealand – be that economic, social or environmental – not the commercial return a CRI has been able to achieve.

To set this up, we propose the specific set of actions listed in the recommendations, summarised as follows:

- CRIs were set up to address enduring challenges and opportunities that New Zealand faces. CRIs are still needed to do this, but the Government needs to clarify in a Statement of Core Purpose the exact role each CRI should play in delivering benefits to New Zealand. The Statement of Core Purpose should recognise the distinctive role of each CRI relative to other research organisations, including universities.
- The Government should fund CRIs to achieve their core purpose. A significant proportion of CRI funding (much greater than at present) should be allocated directly, on a long-term basis, to support the delivery of the core purpose activities of each CRI. The current level of contestable and 'at risk' funding renders CRIs vulnerable as businesses, creates uncertainty and undermines their ability to act strategically.
- CRIs face unnecessary compliance from an excessive number of contracts. Core purpose funding should be consolidated into a single contract, as soon as practicable. The core purpose funding should be negotiated against a rolling five year research strategy that is developed in consultation with relevant stakeholders and agreed with the Government through the CRI's Statement of Corporate Intent.
- A greater degree of certainty will enable CRIs to retain and develop capability, manage risk, and operate within a longer time frame to deliver excellent and relevant research.
- Contestable, open access funding should remain an important element – albeit on a smaller scale – of Vote Research, Science and Technology (RS&T) funding. This is vital to generate competing ideas and new entrants. However, we believe the system should put less emphasis on contestable processes as a way to drive better performance. Instead, more emphasis needs to be placed on holding organisations accountable to deliver benefits as defined in their Statement of Core Purpose, rather than allocating funding against promises of activity. Reducing the proportion of contestable funding is consistent with the findings of the 2007 OECD review of our innovation system, which found it to be too competitive and fragmented.
- A portion of Vote RS&T funding should be set aside for major national collaborative challenges, akin to the funding available to the Centres of Research Excellence. This would provide incentives for collaboration in new multi-disciplinary areas of research.
- In return for moving to reduce the proportion of contestable funding, CRIs need to be more accountable for delivering value to New Zealand. There is a need for the Government to improve the upfront surety of funding and to balance this with the following measures to improve performance:
  - Strengthen board accountability, by having public Annual General Meetings and annually monitoring and evaluating performance against the core purpose and Statement of Corporate Intent

- Measure CRIs against more balanced and comprehensive performance indicators. Primary responsibility for monitoring all aspects of CRI performance should rest with one entity. Performance indicators should explicitly include:
  - technology transfer as a core and measurable responsibility for all CRIs, so that the benefit of their ideas contributes to the wealth and well-being of New Zealand and not just the CRIs' balance sheets
  - measures that ensure CRIs remain financially viable and accountable for all government funding. There is a current perception, not reflected in practice, that CRIs are always expected to meet a nine percent return on equity target
  - tailoring the approach to setting financial targets to reflect a need to be financially viable, as opposed to financially profitable
  - expectations and targets around collaboration with international and national components of the research and innovation system.
- Measures of scientific excellence, to be assured through the greater use of independent expert science panels.
- Making a percentage of CRI core funding 'at risk', subject to performance against agreed milestones, if boards do not manage appropriately.
- To address the currently diffuse governance, investment and monitoring arrangements facing CRIs, the Government should combine its long-term CRI investment, ownership and policy responsibilities into one entity. The entity should also be responsible for managing contestable funds and funding infrastructure.
- CRIs are just one part of the research and science system, alongside private research organisations and universities. The Taskforce concluded that for some issues a wider view of the system is needed. We recommend a national research infrastructure strategy to rationalise and ensure open access to major research infrastructure, where it is clear that national economies of scale apply.

In making its recommendations, the Taskforce intends to make better use of the funds available through Vote RS&T and not to advantage and/or disadvantage any particular parties. An underlying theme of our recommendations is to strengthen and improve the effectiveness of the linkages between CRIs and all their stakeholders. These linkages are critical for deriving economic and other benefits from CRI research.

Making these changes will give CRI boards greater clarity and control over their funding. The changes will give them a stronger mandate to set strategic priorities and give them the authority to respond flexibly and quickly to the complex environments they operate in. We believe our recommendations will give CRIs greater certainty of purpose and provide the right settings for them to deliver greater benefit to New Zealand from the Government's investment in RS&T.

Implementing the recommendations will provide enhanced confidence and attractiveness for increased operational and equity funding from government.

The Taskforce notes that many of the recommendations we have reached are consistent with the views held by the Prime Minister's Chief Science Advisor.



# Our recommendations

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## The CRI Taskforce recommends

### ROLE AND PURPOSE

1. The Government retain CRIs as key components of the national science system, recognising that each CRI fulfils a unique role in helping New Zealand address issues and opportunities of national importance. The Government should also note that each CRI contributes in its own way, with CRIs differing from each other in the services they offer and the stakeholders they serve.
2. The Government should provide a clear, explicit and enduring strategic role for each CRI in a Statement of Core Purpose. It should develop this through a high-level dialogue with CRIs and their stakeholder communities, and in accordance with government's priorities for the RS&T system.
3. The Government maintains the CRIs as Crown companies but acknowledge that it uses a company legal structure to encourage efficient management rather than to operate CRIs as for-profit, commercial businesses.
4. Each CRI develops a Statement of Corporate Intent, to be agreed by Government, and updated annually. This should set out how the CRI will meet its core purpose over the next five years and what its shareholders will receive for their investment.

### FUNDING

5. The Government directly fund CRIs to deliver their core purpose in accordance with their strategy, as outlined in a Statement of Corporate Intent. The direct funding for delivering the core purpose should form a significant proportion of the CRIs' total Vote RS&T funding.
6. The Government negotiate and consolidate streams of funding for delivering the core purpose for each CRI as soon as practicable.
7. The Government require CRIs to use an agreed proportion of their core funding to form stable relationships with collaborative partners. The plan to meet this requirement should be set out in each CRI's Statement of Corporate Intent and monitored using key performance indicators.
8. The Government retain in Vote RS&T contestable, open access funding for investigating novel ideas. Open access funding should be awarded solely according to the merit of the proposals put forward. Although CRIs should continue to bid for these funds, the open access nature of the funds would allow new entrants into the RS&T system.
9. The Government include, as part of its open access investment programme, funding to support inter-institutional, collaborative research. This should be managed by nominated research directors from within research organisations across the RS&T system, including universities. This funding can be awarded through negotiation or contest.
10. The government agencies contracting with CRIs take into account the need to maintain a secure supply of the services they use and negotiate contracts of sufficient size and length to ensure this, while also being consistent with the procurement guidelines of the Controller and Auditor-General.

## TECHNOLOGY TRANSFER AND PARTNERSHIPS WITH BUSINESS

11. The Government encourage CRIs to develop stronger long-term partnerships with New Zealand businesses. These partnerships will, among other things, help to develop both research talent and the application of knowledge. Each CRI should describe its business engagement strategies in its Statement of Corporate Intent and support these strategies through core purpose funding.
12. The Government identify technology transfer as a core responsibility for all CRIs and require CRIs to develop, invest in and manage intellectual property with the intent of moving that intellectual property from their balance sheet into the private sector as soon as possible. Government should discourage CRIs from investing in commercialisation activities for profit maximising purposes – such as new start-up companies. Any commercialisation activity must be preceded by a full consideration of other options and the inherent risks of equity ownership.

## PROVISION OF INFRASTRUCTURE

13. The Government develop a national research infrastructure strategy to rationalise investment in RS&T infrastructure and to ensure its most effective use. CRIs should continue to finance business-as-usual infrastructure from their own resources. Where economies of scale or scope exist and the capacity of the infrastructure exceeds the needs of any one organisation, the investment and financing decisions should take place within the context of a national strategy and recognise the need to provide appropriate access.

## GOVERNANCE

14. The Government require CRIs, at the very least, to meet the disclosure standards expected of public companies. Government should require CRIs to hold an Annual General Meeting at which they describe and account for their activities over the previous year to shareholders and the public, identify the benefits they have produced for New Zealand and respond to questions.
15. The Government require the chairs of CRI boards to follow the Institute of Directors' best practice on how to manage the performance of the board, directors and chair, and how the board and chief executive should manage their relationship.
16. The Government follow the Institute of Directors' best practice in appointing boards; and review the current composition of boards to ensure they reflect an appropriate balance of expertise between science, technology transfer, finance, management and governance. Each board should include at least one eminent scientist to provide research leadership and science expertise.
17. The Government consider reappointing well-performing directors beyond the common two-term maximum, given the long-term nature of science, the importance of having directors take a long-term view and the time it can take for a new director to develop a full understanding of the range of CRI activities.
18. The Government consider appointing individuals as members of more than one CRI board concurrently, to help boards coordinate and find opportunities for collaboration that are consistent with the national good purpose of each CRI.
19. The Government require CRIs to establish independent scientific advisory committees and end-user panels to inform and verify the development of sound research strategies, scientific programmes and technology transfer activities.

## MONITORING AND EVALUATION

20. The Government monitor each CRI's progress against its Statement of Corporate Intent on an annual basis. Performance indicators should provide evidence of: collaboration, technology transfer, quality assurance, sector impact, and financial viability. Government should not own CRIs to deliver financial returns. However, Government should monitor financial viability to ensure that the CRI is able to deliver against its core purpose.
21. Each CRI agree with shareholders a cash flow target and tailored rate of return on equity. This should take into account the requirements for the CRI to be financially viable, invest in new assets and absorb risk.
22. Each CRI continue to retain surpluses for reinvestment if their board can identify good investment opportunities, that is, those that will enhance the benefits that CRIs can deliver to New Zealand. The government should retain any excess surplus in a pool of funds available to the wider science system to develop initiatives that will benefit the nation.
23. The Government evaluate the performance of each CRI against its Statement of Core Purpose on a five year rolling basis, using a set of key result areas agreed between the CRI board, government and the CRI's intended beneficiaries. CRI evaluation teams should include independent, international scientists and technology experts who can provide a broad perspective on the performance and relevance of each CRI to New Zealand.

## PERFORMANCE MANAGEMENT

24. The Government hold the board accountable for the performance of the CRI against its Statement of Corporate Intent. The Government should manage poor performance by providing expert advice and support to the board. The ultimate sanction for continued poor performance should be the removal of the chair and/or board. Government should place some portion of the core purpose funding to CRIs at risk, subject to performance against agreed milestones.

## ROLE OF GOVERNMENT AGENCIES

25. The Government align the funding, ownership and policy functions for CRIs into a single entity. The single entity could also manage contestable and infrastructure funding, and be responsible for developing policy and strategy for the whole RS&T system.

## NUMBER OF CRIS

26. The Government make no immediate changes to the balance and number of CRIs as there is no strong case at present for mergers or realignment. CRIs should continue to explore opportunities for realigning their capability where it will benefit New Zealand, and improve their efficiency by combining appropriate scientific and administrative functions.

## LEGISLATIVE IMPLICATIONS

27. The Government respond to this report and implement its recommended changes as soon as possible. The Government should review the existing legislation, with a view to providing security for the new arrangements and protecting them from short-term and opportunistic decision making in the future.





# 1. Introduction

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- 1.1 On 17 September 2009, the Prime Minister wrote to the Minister of Research, Science and Technology asking him to establish a Taskforce. The Taskforce was asked to recommend ways to position the Crown Research Institutes (CRIs) so that they can respond strategically to the needs of their end-users and drive future economic growth.
- 1.2 The terms of reference for the Taskforce are in Annex 1. Annex 2 provides a list of the Taskforce members.

## Purpose statement

- 1.3 Research, science and technology (RS&T) drives New Zealand's economy as a developed nation. They are essential to our continued prosperity and future well-being. CRIs, as the largest providers of science research in New Zealand, are pivotal to our RS&T system. This report reviews their role and recommends how they can be made even more effective, to the benefit of all New Zealand.

## The consultation process

- 1.4 The Taskforce members have spoken to a wide range of CRI stakeholders and received 64 written submissions. Annex 3 provides a list of submissions and people consulted.
- 1.5 The Taskforce and its chair also met on several occasions with Professor Sir Peter Gluckman, the Prime Minister's Chief Science Adviser, to explore his views about the current CRI model.

## The Taskforce heard consistent views about CRIs

- 1.6 The consultation process provided much valuable information, identified many ideas for improvement and revealed a remarkably consistent view across businesses, users of CRI research, universities and the CRIs themselves.
- 1.7 Analysing the views heard in the consultation process involved robust debate among Taskforce members, with the focus consistently kept on how to maximise CRI benefits to New Zealand.
- 1.8 There is a strong view that while CRIs are doing much good work and have responded to the signals and incentives of the system in which they operate, there are still opportunities to improve their performance. There is potential to transfer even more of their ideas into business and society using a diverse and creative range of technology transfer processes. The CRIs should be world-leading institutions in their particular areas.

## The Taskforce's response to what we heard

- 1.9 After considering the information we received and exploring ideas through stakeholder interviews, the Taskforce sought to identify barriers inhibiting the ability of the CRIs to benefit New Zealand, with a view to removing those barriers. At the same time, the Taskforce considered it important to retain those aspects of the CRIs which are clearly working well.

1.10 This report presents the views of the Taskforce on how to lift the performance of the CRIs, in keeping with its terms of reference. Our conclusions and recommendations result from the critical analysis of all the information and evidence we sought and received.

1.11 We have structured the report along the lines of our recommendations, as follows:

- First we consider whether CRIs remain a valid construct for the 21st century and conclude that they do indeed play a crucial role in driving New Zealand's economic growth. We do not recommend any changes to the company model, but do recommend that the Government make it clear that the core purpose of a CRI is to contribute to the national good rather than to generate profits. We recommend that the Government articulate a core purpose for each CRI, which recognises the unique and distinctive contribution that each CRI makes to New Zealand's balance sheet.
- Next we consider the ways in which the Government invests in and purchases services from CRIs. We are not convinced that current funding arrangements allow CRIs to perform as well as they could. We recommend several ways that funding should be reconfigured to help CRIs contribute more effectively to New Zealand's future growth and wellbeing.
- We then consider the governance and accountability arrangements for CRIs and conclude that these need strengthening and simplifying. We outline a number of ways in which this can happen.
- The final section of this report examines the roles of different government agencies in investing in CRIs and managing shareholder interests. We recommend a single entity be formed to manage investment, ownership and policy interests in CRIs. We outline an implementation and risk management plan.

1.12 The Taskforce suggests that government respond to this report by expeditiously implementing the recommended changes to the degree possible without making legislative change. Government should review the existing legislation with a view to providing security for the new arrangements and protecting them from short-term and opportunistic decision making in the future.

## 2. CRIs play a pivotal role in growing the economy and managing risk

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2.1 In this section, we discuss the role of CRIs in the national science system.

### **CRIs' place in the research, science and technology system**

- 2.2 Government-owned research agencies form a normal part of any national innovation system, although their relative importance can vary considerably among countries.
- 2.3 New Zealand's current government research agencies date from 1992, when the Government established the CRIs from the then existing Government-owned research bodies. The largest of these was the Department of Scientific and Industrial Research, established in 1926. Annex 4 provides a full list of the original CRIs.
- 2.4 In creating the CRIs, the Government sought to consolidate national scientific capability around key aspects of New Zealand's economic, environmental and social requirements. CRIs were established as Crown-owned companies as it was believed that a company model would encourage efficient, client-focused delivery of research services.
- 2.5 Since they were established, the CRIs have undergone a number of changes. These are described in Annex 5.
- 2.6 CRIs are a unique repository of skills and expertise and, alongside the universities, are responsible for some of the most sophisticated scientific infrastructure in New Zealand. At present, CRIs account for a significant proportion of New Zealand's overall research effort. They employ a combined staff of 4,400. In 2008/09 the total revenue of the eight CRIs was \$675 million and they accounted for a quarter of New Zealand's total research expenditure. Table 1 places CRIs in the context of the other major players within New Zealand's research system.

**TABLE 1: PROFILE OF RESEARCH PROVIDERS IN NEW ZEALAND**

ATTRIBUTE	UNIVERSITIES	CRIs	PRIVATE SECTOR, INCLUDING RESEARCH ASSOCIATIONS
Number	8	8	2,457 (reporting R&D expenditure in 2008)
Total operating revenue \$m	2,796 (2008 calendar year)	675* (2008/09)	NA
Research expenditure \$m	643	479* 515* (2008/09)	913
Research as % of total revenue	23%	76% (2008/09)	NA
Core business	Advanced/research-based teaching.	Research and technology transfer, support to industry sector.	Provision of goods and services for profit.
Type of research (% of total)	Basic 53% Applied 28% Development 19%	Basic 40% Applied 43% Development 17% (Proxy figures, based on all of Government Sector research data.)	Basic 9% Applied 32% Development 59%

Sources: Statistics New Zealand 'Research and Development in New Zealand 2008'; CRI Annual Reports 2008/09; and university Annual Reports 2008.  
\* figures provided by Science New Zealand.

2.7 While it is convenient to speak of CRIs in general, it is important to recognise that each CRI is unique. For example:

- ESR is an organisation that delivers scientific services and is a research provider. Its research supports new and improved services for largely government customers
- IRL differs from some of the other CRIs in that it supports a sector made up of individual enterprises whose own research needs differ widely
- AgResearch supports a sector in which disparate enterprises have many overlapping needs, making it easier to develop research that provides common benefit to the many separate enterprises
- Landcare conducts research that government agencies, such as the Department of Conservation and the Ministry for the Environment, need to be able to discharge their responsibilities in understanding and managing New Zealand's environmental resources
- GNS plays an important role in providing information the government needs to assess and manage certain natural hazards.

## CRIs remain relevant but could contribute more

2.8 The Taskforce is convinced that CRIs matter to New Zealand; their enduring capabilities are relevant nationally and unlikely to be obtained elsewhere.

2.9 CRIs fulfil a unique role, not only through the type of research they conduct but also because they develop human capability by offering a research training experience different from that of universities; and as custodians of national science infrastructure, including databases. CRIs also provide strong national centres of capability that provide the critical mass necessary to collaborate internationally.

- 2.10 Our deliberations and the evidence we received have led us to conclude that although CRIs already deliver substantial benefits to New Zealand, they could do even better. Science will play an ever more critical role in the nation's economic development. The Taskforce believes there is an opportunity to reposition CRIs to contribute significantly to New Zealand's economic growth.
- 2.11 Research and the other services that CRIs provide can help address New Zealand's most pressing issues. These services can:
- drive sustainable economic growth by improving productivity in the tradable sector
  - improve the sustainable use of natural resources
  - manage exposure to risks that could otherwise destabilise society, the environment and the economy.

### **RECOMMENDATION 1**

The CRI Taskforce recommends that Government retain Crown Research Institutes as key components of the national science system, recognising that each CRI fulfils a unique role in helping New Zealand address issues and opportunities of national importance. The Government should also note that each CRI contributes in its own way, with CRIs differing from each other in the services they offer and the stakeholders they serve.

- 2.12 The remainder of this report outlines how the Government could better use the assets held within CRIs. We note that few, if any, of these recommendations require significant new budget allocations. The recommendations do, however, require CRIs and the government agencies with whom CRIs interact to change their perspectives and approaches.



### 3. Government should clarify what it expects from CRIs

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- 3.1 In this section we discuss our recommendations about clarifying the role and purpose of CRIs.
- 3.2 If the Government is to help CRIs perform their roles more effectively, it needs to be very clear about what it wants CRIs to achieve. The company model for CRIs has created a perception that the CRIs' purpose is to generate profit in their own right, rather than create wider benefits for New Zealand.
- 3.3 A CRI is not a normal business, established in response to a market opportunity. Rather, CRIs were established in response to a market failure and the resulting lack of private sector activity in the areas in which CRIs operate. The market failure arises in part from the public good nature of research, which makes it difficult for research organisations to capture the benefits for themselves of the strategic research they perform. Significant proportions of the returns that arise from CRI research do not (and should not) go directly to the CRI that performed the research, but instead flow to other stakeholders, such as firms, industry groups and government departments.
- 3.4 The difficulty of capturing all the benefits of research means that the genuine rate of return on the Government's investments in CRIs is often much greater than that used in return-on-equity calculations. It is not possible for a CRI's financial statement to reflect adequately the public good benefits of long-term capability and the diffusion of knowledge created by CRI research. There are problems in measuring the overall return but this does not mean that government should ignore it – otherwise government is ignoring the whole rationale for setting up the CRIs in the first place.
- 3.5 A business set up in response to a market opportunity may pay a dividend to its shareholders. This, along with any capital gains, is how shareholders receive a return on their investment.<sup>1</sup> While the technical shareholders of CRIs are two Ministers,<sup>2</sup> from a broader public policy perspective the true shareholders are the New Zealand taxpayers and community.
- 3.6 The returns to shareholders include: the capability to respond to unexpected events, new options created by research, improvements in national wellbeing, better informed decision making, and economic and commercial activity that results from the uptake of knowledge by other sectors.
- 3.7 The Taskforce believes that the Government has tended to direct the governance, management and monitoring of CRI performance almost exclusively as if they were for-profit businesses. In particular, we believe that, over time, Government has placed too much emphasis on the commercial return to the CRI rather than the economic and other returns to New Zealand resulting from CRI research. Existing monitoring arrangements place too little weight on the extent to which CRIs transfer technology and information to the wider community, or on the economic and social gains captured outside CRI balance sheets. This emphasis encourages CRIs to deliver \$1 million in profit to their bottom lines rather than \$100 million to New Zealand as a national benefit.

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<sup>1</sup> Shareholders will need to sell their shares to realise capital gains.

<sup>2</sup> The Minister of Finance and the Minister of Research, Science and Technology.

## Statement of Core Purpose

- 3.8 The Government established CRIs and retains ownership of them because they use science to solve problems of national significance.<sup>3</sup> The Taskforce believes the Government needs to clarify its purpose for owning CRIs and be explicit that it does not look to them for a direct commercial return beyond that needed to be financially viable.
- 3.9 We recommend that Government develop a Statement of Core Purpose for each CRI. Each CRI's Statement of Core Purpose should set out the CRI's roles and responsibilities, including its non-research responsibilities.<sup>4</sup>
- 3.10 In preparing the Statement of Core Purpose in consultation with the CRI, the Government should consult with other CRIs and CRI stakeholders, including industry groups, large companies, research collaborators, iwi, territorial and local authorities, and central government.
- 3.11 These statements will clarify what each CRI is responsible for, avoiding potential duplication and boundary issues between CRIs. In areas where CRIs' interests overlap – for example biosecurity – the statement should either note the need for CRIs to collaborate or appoint one CRI to have overall responsibility, with a requirement for collaboration.

### RECOMMENDATION 2

The CRI Taskforce recommends that Government provide a clear, explicit and enduring strategic role for each CRI in a Statement of Core Purpose. It should develop this through a high-level dialogue with CRIs and their stakeholder communities, and in accordance with government's priorities for the RS&T system.

- 3.12 In doing this, the Government should recognise that each CRI has a unique mission, role and set of responsibilities although there can be some overlap in areas such as environmental research. Clearly, some CRIs are aligned with New Zealand's major trading sectors, but others have a greater public value focus, partnering with central Government and regional Government in areas such as public health or environmental protection.

## The company model

- 3.13 Some stakeholders have argued that CRIs are less effective because they are companies. Perceived problems with the company model arise from a lack of clarity about the purpose of the CRI business and how this purpose aligns with the profit motives associated with a company model. This has added to uncertainty about what the Government expects from CRIs.

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<sup>3</sup> The report of the Ministerial Science Task Group on 'Crown Research Institutes: Research Companies for New Zealand', 1991, noted (page 127): 'Because CRIs are being established primarily for the production of scientific and technological dividends, the Government has: Agreed that financial dividend payments to the Crown will ordinarily be nil or a very low figure.'

<sup>4</sup> Non-research responsibilities could include providing scientific services, managing national databases or other infrastructure, and providing impartial advice to government, as well as any specific responsibilities related to technology transfer and the development of human capabilities, especially through post-doctoral training and other education activities.



- 3.14 The Taskforce did consider moving CRIs to a not-for-profit model with charitable status, or changing the tax status of CRIs. On balance, we concluded that such a change would not be advantageous, not least because it would give CRIs a commercial advantage that could make it harder for private sector research providers to emerge.
- 3.15 Since their establishment, CRIs have invested a great deal in making the company model work effectively. The Taskforce believes it would be counterproductive to move from this model. Indeed, the company model provides a strong framework for defining the Government's expectations and for monitoring CRI performance.<sup>5</sup>

### RECOMMENDATION 3

The CRI Taskforce recommends that Government maintain the CRIs as Crown companies but acknowledge that it uses a company legal structure to encourage efficient management rather than to operate CRIs as for-profit, commercial businesses.

- 3.16 The board of each CRI should take responsibility for preparing a five year strategy setting out the ways in which the CRI would deliver against its core purpose. This strategy should be included in the Statement of Corporate Intent.
- 3.17 The boards should develop their Statement of Corporate Intent in consultation with each stakeholder community, particularly the government and non-government users of their research. For example, in developing its Statement of Corporate Intent, a CRI such as Plant & Food would consult with, among others, Zespri, Pipfruit NZ, Horticulture NZ, PGG Wrightson Seeds, the Baking Industry Research Trust, Griffins, NZ Winegrowers, and Goodman Fielder, as well as government agencies such as the Ministry of Agriculture and Forestry, the Ministry of Economic Development, and New Zealand Trade and Enterprise.
- 3.18 We note that many of the CRIs have strong partnerships with iwi and/or Māori collectives, and we encourage CRIs to maintain and develop these partnerships.

### RECOMMENDATION 4

The CRI Taskforce recommends that each CRI develop a Statement of Corporate Intent, to be agreed by government, and updated annually. This should set out how the CRI will meet its core purpose over the next five years and what its shareholders will receive for their investment.

- 3.19 The Statement of Corporate Intent for each CRI should provide an analysis of factors – domestic and international, positive and negative – that may affect the CRI's operations over the foreseeable future, and state how the CRI will address these factors. The Statement should cover both organisational and research issues.

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<sup>5</sup> The company model may also help protect CRIs from unexpected changes in annual budget funding, although this is negated by CRIs' high dependence on contestable funding.

- 3.20 The statement should describe how the CRI plans to collaborate with other research organisations in New Zealand and overseas, and particularly with universities, to make best use of their expertise and resources. In doing this, the statement should explicitly address why the CRI has decided to develop and build technology or capabilities, rather than buy and adapt technologies that already exist. The statement should also propose ways to nurture science excellence and talent within the organisation – from developing young scientists through to attracting the best scientists in the world to lead CRI programmes.
- 3.21 A Statement of Corporate Intent would be similar to a business sector prospectus.<sup>6</sup> Where a company's prospectus would set out expected returns to shareholders, a CRI Statement of Corporate Intent would set out expected and measurable returns to all of New Zealand. A CRI Statement of Corporate Intent should make the case for the Government to continue purchasing science capabilities and outcomes from that CRI.

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<sup>6</sup> A CRI wishing to raise equity would need to do so by presenting a business case through government budget processes.

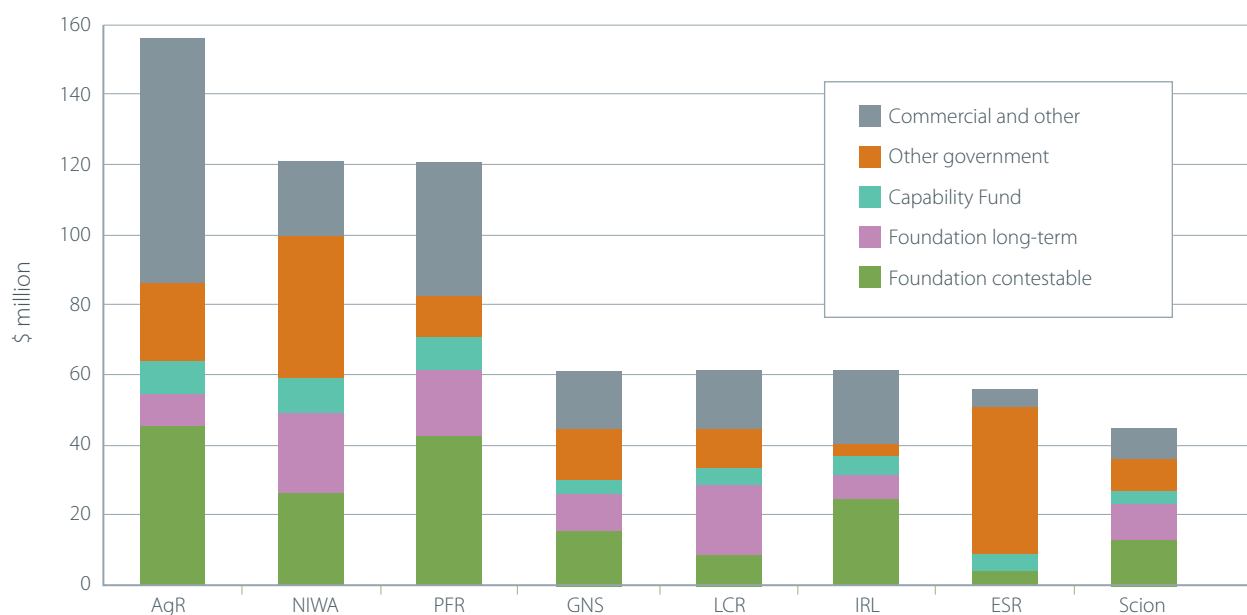
## 4. Government should provide funding for CRIs to meet the expectations set

- 4.1 In this section, we discuss the recommendations for funding, technology transfer and partnerships with business, and the provision of infrastructure.

### Funding mechanisms

- 4.2 The Taskforce believes that to improve CRI performance it is necessary to give CRI boards more control over their funding. Greater control will allow them to develop a consistent strategic direction and to operate in a more cooperative way with other science and government organisations. The way in which Government delivers funds to CRIs and the way in which CRIs account for their performance will need to change.
- 4.3 The Government has signalled that it intends to differentiate between the outcome areas it will direct funding to – for example, the environment or high-value manufacturing – and the tools and investment processes it will use to deliver such funding.<sup>7</sup>
- 4.4 The Government owns the CRIs and provided the equity necessary to establish them. From time to time, Government may decide to make additional equity injections. For example, Government might allow a CRI to develop a new area of research and development while maintaining current activity, or to purchase major new infrastructure on behalf of the wider scientific community.
- 4.5 CRIs receive operational funding from a variety of sources and through different mechanisms, some contestable, some not. The amounts and proportions of funding sourced from government and the private sector, and through different funding delivery mechanisms, differ considerably. This reflects each CRI's particular customer base and the nature and range of services it offers. Figure 1 below demonstrates these differences.

**FIGURE 1: CURRENT CRI FUNDING BY SOURCE**



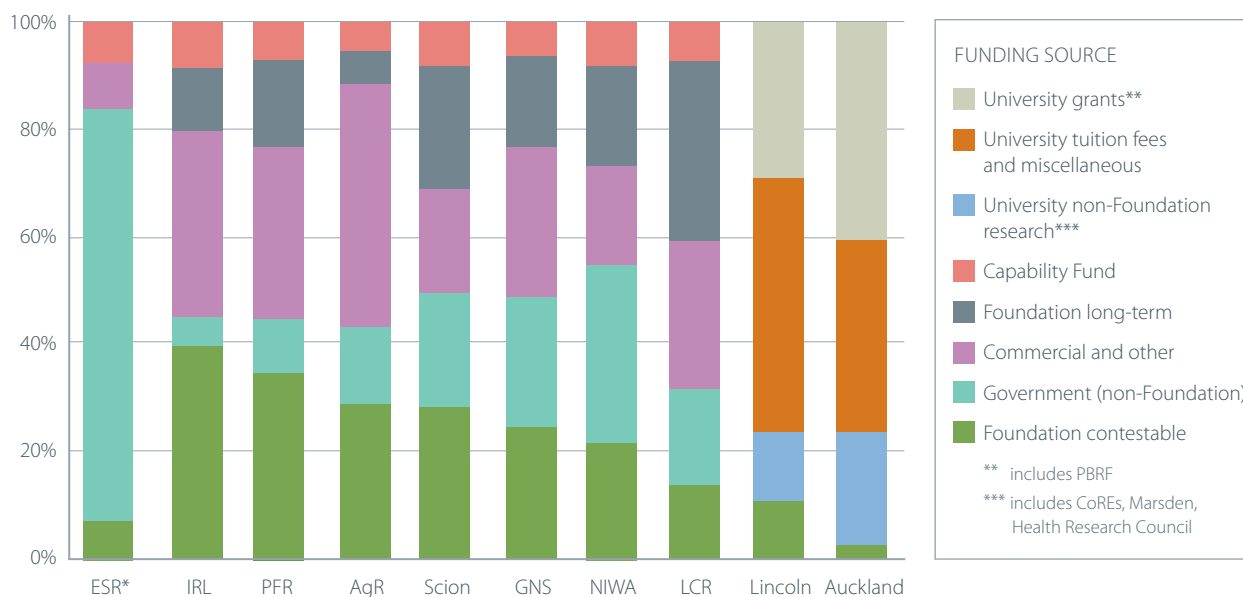
Sources: MoRST, Foundation and CRI 2009 Annual Reports.

<sup>7</sup> 'New Zealand's research, science and technology priorities: feedback document, MoRST 2009.

## Issues raised by contestable funding

- 4.6 A major problem is that CRIs receive much of their income from short-term, contestable funds. A high degree of contestability means a large proportion of their funding can be 'at risk' in any given year. For example, almost 40 percent of IRL's income is from contestable 'at risk' grants, making CRIs extremely vulnerable as businesses. The resulting uncertainty makes it difficult for them to operate strategically.
- 4.7 Figure 2 shows CRI funding percentages by source and compares these with the largest and smallest of New Zealand's universities: Auckland and Lincoln. With the exception of ESR, contestable funding constitutes between 15 and 40 percent of CRI income.

**FIGURE 2: CRI FUNDING PROFILE COMPARED WITH UNIVERSITIES**



\* The Taskforce considers that ESR's high proportion of income from single-year service delivery contracts with the New Zealand Police and Ministry of Health puts its financial viability more at risk than those CRIs with many Foundation contestable contracts.

Sources: MoRST, Foundation and CRI 2009 Annual Reports.

- 4.8 This highly contestable funding system has led to fragmented and complex lines of accountability and prevented CRI boards from fulfilling their potential role in developing CRIs.
- 4.9 In particular, because the Foundation is such an important source of funds for CRIs, the Foundation's procedures and decisions tend to influence the work programme of CRI scientists. This undermines the ability of the CRI boards to set directions and manage performance. CRIs do not have the flexibility or incentive to halt unpromising research at an early stage, and/or to reallocate resources into more promising lines of enquiry. CRIs act more as a 'science hotel', providing room and board for scientists, but with limited capacity to manage scientific resources in a strategic way.
- 4.10 Moreover, the dominant role of the Foundation means that CRIs and their researchers may put more effort into their relationship with the Foundation than into their relationships with the potential end-users of their research. This dominance can impede effective technology transfer, which requires strong relationships and continual dialogue.

- 4.11 This multiple accountability is inefficient and ineffective, creates churn and confusion for scientists and contributes to poor staff morale. Multiple accountabilities create unnecessary complexity. Moreover, it is expensive because of the number of contracts that can exist between the Foundation and a CRI, and the costs of preparing proposals for competitive funding, which, over time, are largely distributed back to the same organisation.
- 4.12 As well as creating problems for CRI governance, having a high proportion of income dependent on contestable funding also raises operational issues for CRIs. Contracts are short-term in relation to the normal time lag between conducting research and seeing it make a difference. This time lag is often at least 10 years. Research managers find it difficult or impossible to develop a balanced portfolio of long- and short-term, low- and high-risk projects, when they depend so highly on external, competitive funding.
- 4.13 As noted by a performance audit report of workforce planning in Crown Research Institutes, contestable funding can pose problems for workforce planning. Short-term funding priorities for science programmes can change, which makes it harder to plan longer-term capability.
- 4.14 Contestable funding directed to specific projects makes it harder to accept best-practice research management techniques that involve regular 'stop-go' decision taking. Research is risky and a large number of projects will not deliver the anticipated results. Researchers manage this risk by halting unpromising research at an early stage, and reallocating funds to new – more promising – lines of enquiry. Under a contestable funding model, scientists have no incentive to halt their research. If they do, they must return the funding to the Foundation. Decisions on what research to conduct are made outside the CRI, leaving the CRI administering a large mosaic of separate contracts, each related to only a small part of its overall activity.
- 4.15 One of the more subtle consequences of contestable funding in a competitive environment is that CRIs tend to look for solutions based on what they can already do, rather than considering how best to address the problem. Problems also arise because technology transfer activities may take place long after a particular project's funding has ended. The costs associated with ensuring that research contributes to national wellbeing do not stop when the contract funding stops.

## **Core purpose funding should contribute a greater proportion of public support for CRIs**

- 4.16 The high level of contestable funding to CRIs reflects best practice for Government purchasing. However, in some circumstances – for example when there is a sole supplier, a need to strengthen an existing activity, a need for continuity, or an intention to develop capability directed to broad outcomes – contestability may not be appropriate and may even be counterproductive. The Government has recognised that contestable funding is not always appropriate. This is why the investment tools the Government listed in its recent feedback document included 'long-term strategic research platforms'. These are long-term investments in areas that need a sustained commitment to science.<sup>8</sup> In addition, the Government has developed Backbone and capability funding tools to support infrastructure and capability development outside a simple contestable process.

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<sup>8</sup> The 1992 proposal for CRIs included a recommendation that the Crown fund CRIs to produce scientific outputs determined by CRI boards and not specific to government priorities – the non-specific outputs. This recognises that work in areas not currently of direct interest may create opportunities or develop capabilities that could become important in the longer term.

- 4.17 The Taskforce concludes that CRIs should receive a significant proportion of Vote RS&T funds through non-contestable, direct, long-term contracts. The long-term funding – core purpose funding – would help CRIs to deliver their strategic research plan, as articulated in their Statements of Corporate Intent. The core purpose funding should enable the CRIs to address the big questions outlined in their Statement of Core Purpose, as well as develop the capabilities they need to respond to new, unanticipated issues – such as biosecurity alerts – and to meet their other ongoing responsibilities. Core purpose funding will provide the stability a CRI needs in order to deliver in the long term.
- 4.18 Core purpose funding will also allow CRIs to operate strategically. This funding will give CRIs the freedom to put together and actively manage a portfolio of research to deliver against their core purpose. CRIs will have the flexibility to adjust their research portfolios in light of new information and opportunities.

## RECOMMENDATION 5

The CRI Taskforce recommends that Government directly fund CRIs to deliver their core purpose in accordance with their strategy, as outlined in a Statement of Corporate Intent. The direct funding for delivering the core purpose should form a significant proportion of the CRIs' total Vote RS&T funding.

- 4.19 We believe that non-contestable funding should form a significant proportion – in the range of 60 to 80 percent – of the total funding CRIs receive through Vote RS&T.<sup>9</sup> Setting proportions for the balance of contestable and non-contestable funding is not a precise science. Because of this, we are reluctant to suggest an exact target, as this should be particular to each CRI. The proportion of non-contestable funding delivered to each CRI should reflect its particular role and customer base so the levels reflect the responsibilities the Government has given each CRI. Funding contracts should identify how performance will be monitored and evaluated.
- 4.20 As a first step, core purpose funding should amalgamate funds currently awarded to CRIs through the CRI Capability Fund, the Backbone research and science scheme, Negotiated Investments and Outcome Based Investment instruments. However, over time, currently contestable funds that the Foundation has regularly given to a CRI for core research should be incorporated into this secure funding. The CRI board and management would then become responsible for investing this funding in a way that covers the core activities of the CRI. These activities should include outcome-directed research, research aimed at creating the capabilities necessary to meet future, perhaps as yet unknown, demands, and the CRI's non-research activities.

## RECOMMENDATION 6

The CRI Taskforce recommends that Government negotiate and consolidate streams of funding for delivering the core purpose for each CRI as soon as practicable.

<sup>9</sup> Given that Vote RS&T funding makes up a variable proportion of CRI revenue, even a high proportion of non-contestable Vote RS&T funding may translate to a dependency on contestable funding that is much higher than that found in equivalent agencies overseas. For comparison, Australian government research agencies usually receive around 70 percent of their total revenue through block funding, with the remainder coming from contestable government grant schemes and the private sector.

- 4.21 Because the proposed changes reflect historical patterns of funding allocation, they will not have any direct effect on those contestable funds that support research in universities and other research organisations. The changes we propose should strengthen opportunities for universities and other organisations to collaborate with CRIs, providing improved prospects for university and other researchers to contribute to national challenges.
- 4.22 One advantage of this direct funding approach is that it creates the stability institutions need to develop long-term relationships, both domestically and internationally. This means that the proposed changes in funding arrangements should in themselves help promote better links within the science system. However, given the increasing importance of both domestic and global cooperation, further incentives might be useful.
- 4.23 We therefore believe that Government should require each CRI to spend a proportion of its core purpose funding on contracts with other research providers. Such contracts should capitalise on the relevant expertise that sits in other organisations, which would avoid the need for a CRI to duplicate expertise that may already exist elsewhere. As in the Centres of Research Excellence (CoREs), such contracting should not become an end in itself, but a means to achieve the best R&D outcome. Such collaborative arrangements should be described in the Statement of Corporate Intent, encouraged through the use of independent scientific committees associated with the CRI board, and assessed on an annual basis through monitoring.

#### RECOMMENDATION 7

The CRI Taskforce recommends that Government require CRIs to use an agreed proportion of their core funding to form stable relationships with collaborative partners. The plan to meet this requirement should be set out in each CRI's Statement of Corporate Intent and monitored using key performance indicators.

### Contestable, open access funding should remain, but at a reduced level

- 4.24 Providing core purpose funding to CRIs would make the science system less contestable. In principle, this contestability encourages high performance and efficiency. However, the Taskforce believes that, at least in part, contestability has had an effect that was antithetical to that which was intended. The Taskforce also believes that reducing the dependence of CRIs on contestable funding will make the system more dynamic and efficient. One reason for this will be that upfront contestability will be replaced by better and more sophisticated monitoring and evaluation processes that assess what the CRI has actually delivered, as distinct from what its proposed research promised to achieve.
- 4.25 While the Taskforce believes that too great a dependence on contestable funding can prevent CRIs operating effectively, we do not believe the Government should remove the contestable element for CRIs altogether.<sup>10</sup> Contestable funding serves a different purpose from the funding we recommend that the Government provide to support the mission of CRIs, as described in their Statement of Core Purpose. In particular, contestable funding can support the shorter-term research that responds to already identified market needs and opportunities, or to immediate problems requiring a rapid solution.

<sup>10</sup> Note that in one sense all funding is contestable – it is just that the competition takes place at different levels. Even within a CRI there will often be a high level of contestability as the opportunities for research always exceed the level of funding available. Individual CRIs therefore need to develop their own sophisticated and tailored funding investment processes to deal with this.

- 4.26 We believe contestable funding must remain a significant part of our system because in some areas it is more efficient and can allow for other participants – including universities – to be involved, and can encourage the best new entrants and new science ideas into the system.
- 4.27 The criteria for distributing Vote RS&T funding should address excellent research proposals and their relevance, either to the Government’s priority outcome areas or to immediate, short-term research needs. The process for delivering this funding should be open and transparent, with all applications assessed objectively against a set of explicit criteria announced before the funding entity seeks proposals.

### **RECOMMENDATION 8**

The CRI Taskforce recommends that Government retain in Vote RS&T contestable, open access funding for investigating novel ideas. Open access funding should be awarded solely according to the merit of the proposals put forward. Although CRIs should continue to bid for these funds, the open access nature of the funds would allow new entrants into the RS&T system.

## **Open access collaborative programmes of research are also needed**

- 4.28 The Taskforce recognises that a particular challenge for CRIs under the proposed funding model will be to build up the large-scale, multidisciplinary work that crosses institutional boundaries. In Australia, CSIRO’s National Research Flagships demonstrate how it is possible for government research agencies to develop and implement such research. However, the Flagships also demonstrate the need for dedicated funding and strong drivers to promote inter-institutional collaboration, beyond that provided through core purpose funding.
- 4.29 Earlier recommendations that CRIs fund collaborative activity, which will be monitored and evaluated by Government, should encourage CRIs to develop national collaborative research programmes. To ensure this happens effectively, the Taskforce recommends that the Government use a proportion of open access funding to support major national collaborative challenges, akin to the funding available to the Centres of Research Excellence. This would provide incentives for collaboration in new multi-disciplinary areas of research.

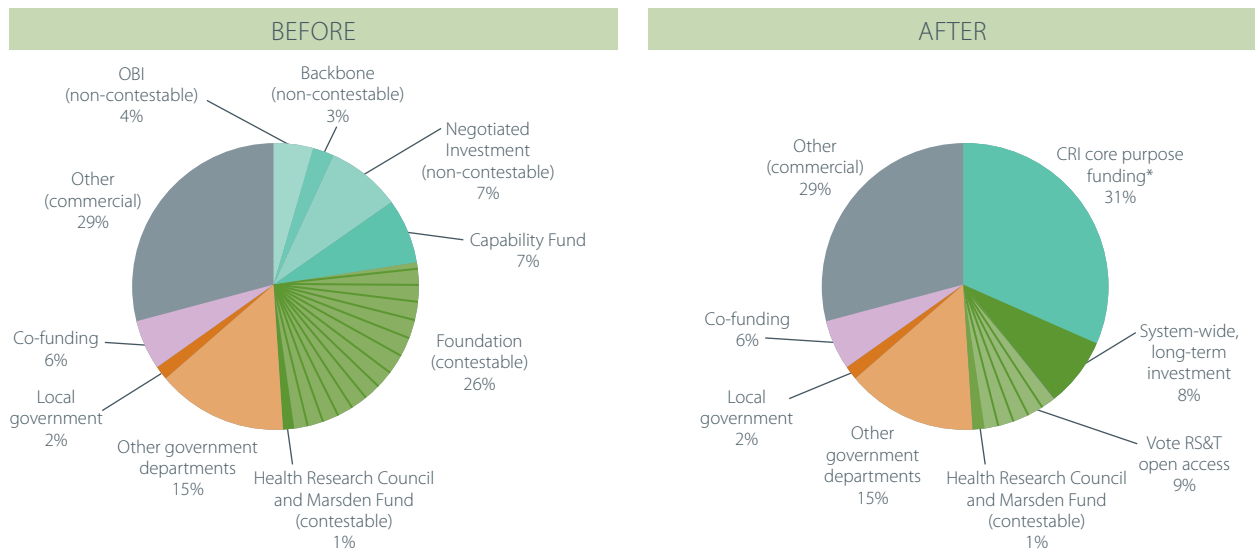
### **RECOMMENDATION 9**

The CRI Taskforce recommends that Government include, as part of its open access investment programme, funding to support inter-institutional, collaborative research. This should be managed by nominated research directors from within research organisations across the RS&T system, including universities. This funding can be awarded through negotiation or contest.



4.30 Figure 3 below describes the impact of these changes on the aggregate revenue profile of all CRIs.

### FIGURE 3: INDICATIVE CHANGE TO THE REVENUE PROFILE OF CRIs (TOTAL) BASED ON TASKFORCE RECOMMENDATIONS



\* Some core purpose funding should be used to contract with research partners.

4.31 In making its recommendations, the Taskforce intends to make better use of the funds available through Vote RS&T, not to advantage and/or disadvantage any particular parties. Implementation of our recommendations should take care to ensure our intent.

## Government in the broadest sense needs to purchase services from CRIs more consistently

4.32 Government departments, and local authorities purchase services directly from CRIs. In some cases, for example, forensics, meteorology, research necessary to inform policy development, and some areas of environmental management, government may be the only purchaser and the services that the CRI provides are critical to New Zealand. ESR, for example, relies on receiving around 40 percent of its income from a single service level agreement with the New Zealand Police.<sup>11</sup>

4.33 Some government departments and local authorities are reluctant to pay the full cost of these services. They argue that since many of the costs of the research have already been met through Vote RS&T, they should only pay the marginal cost associated with turning the research into practical advice.

4.34 The Taskforce believes that marginal pricing will send misleading market signals. As a principle, it is important that service providers charge users the full costs of the services they provide, as this is the only way that users can make rational decisions about the various services on offer. Users often underestimate the true costs associated with developing new advice. In the case of CRIs, users may fail to recognise that in purchasing advice or other services they are also building the CRIs' capability to provide future advice reliably and at short notice. The cost of providing a service has to include the cost of continuing innovation so that the service can continue to meet best practice and CRIs can meet the users' needs cost-effectively. The Government must be willing to pay for the quality of service it requires if it is going to continue to need the service.

<sup>11</sup> Information provided by the New Zealand Police.

- 4.35 The Taskforce suggests that government, and local authority customers of CRIs work with their CRI providers to develop a common understanding of best-practice guidelines for government procurement of research and other scientific services. Given that government contracts are an important source of income for some of the CRIs, it is important to be certain about the duration of these contracts. This is notable for ESR, although all CRIs receive varying portions of their revenue by providing services to government. ESR depends on annual service provision contracts, and for this reason is unlikely to benefit substantially from the long-term government funding described in the preceding sections.

#### **RECOMMENDATION 10**

The CRI Taskforce recommends that government agencies contracting with CRIs take into account the need to maintain a secure supply of the services they use and negotiate contracts of sufficient size and length to ensure this, while also being consistent with the procurement guidelines of the Controller and Auditor-General.

### **CRIs need a focus on technology and information transfer**

- 4.36 CRIs are differentiated from other parts of the research system because they conduct their research to produce maximum benefit for New Zealand. To do this, CRIs need to have a strong focus on technology transfer. CRIs can be successful only if they make their research findings widely available and useful.
- 4.37 CRIs need to use a variety of methods to transfer technologies and ideas to different types of users. In some cases these users might be government departments, in others the general public, a whole sector – such as the wool industry – or particular firms with specialised capabilities or needs, for example, in nanotechnology. Success depends on focusing on what end-users need and are capable of adopting, and on taking a creative approach to disseminating the results of the research and ensuring they are used.
- 4.38 Where technology transfer requires users to invest in developing the research into a commercial product, a tight intellectual property position and exclusive licensing arrangements may be necessary. However, in most other circumstances, it is not appropriate or wise to narrowly interpret technology transfer as commercialisation. Advisory visits, open source information, publishing popular books directed at the general public, and staff secondments are all examples of effective technology transfer mechanisms. Not all users will be looking for the most recent or leading edge research outputs – some of those seeking advice and information may need access to science that has been around a long time, often in the form of know-how.
- 4.39 CRIs are encouraged to contract directly with private firms and government clients. Such private contracts can help CRIs understand their customers' business needs, capabilities and opportunities. Although such contracts are useful, CRIs need to use other instruments, beyond contracts, to forge partnerships and transfer knowledge and technologies to the private sector. Such partnerships should allow CRIs to plan research programmes that are more in line with the needs of industry and give businesses an early insight into potential investment opportunities. Supporting New Zealand firms to exploit commercially the knowledge held by and generated within our CRIs will help to maximise the economic benefit from CRI research.

- 4.40 Government should encourage CRIs to find ways in which they can engage more effectively with the private sector. IRL's 'What's Your Problem New Zealand?' competition showed how CRIs can develop long-term relationships proactively. Each CRI's Statement of Corporate Intent should describe how that CRI plans to engage with business and how its core purpose funding should support this engagement.

#### **RECOMMENDATION 11**

The CRI Taskforce recommends that Government encourage CRIs to develop stronger long-term partnerships with New Zealand businesses. These partnerships will, among other things, help to develop both research talent and the application of knowledge. Each CRI should describe its business engagement strategies in its Statement of Corporate Intent and support these strategies through core purpose funding.

- 4.41 CRIs can also generate revenue by developing, protecting and exploiting intellectual property. Sources of this funding can include licensing agreements and spin-offs. As indicated earlier, Government's focus on the financial return achieved by CRIs may have encouraged them to invest in commercialisation activities when other forms of technology and information transfer may have been more appropriate or more effective, even if they generated less revenue for the individual CRI.
- 4.42 The Taskforce firmly believes that CRIs need to invest heavily in technology and knowledge transfer activities. The CRI focus on performing research that will have impact by being taken up and used should be central to their overall mission. The expertise of CRIs is in research and research management, not in running for-profit businesses. For this reason, the Taskforce recommends that the Government strongly encourage CRIs to develop and invest in IP, but with the intent of moving that IP from their balance sheet and into the private sector as soon as possible.
- 4.43 The Taskforce believes CRIs should not typically provide equity in the commercialisation of their own IP, or set up their own companies. We do not consider CRI investments in commercialisation an efficient use of capital. It is extremely risky to start up a new company when compared with working with an existing enterprise that has experience and established management, production, marketing, distribution and other systems.

#### **RECOMMENDATION 12**

The CRI Taskforce recommends that Government identify technology transfer as a core responsibility for all CRIs and require CRIs to develop, invest in and manage intellectual property with the intent of moving that intellectual property from their balance sheet into the private sector as soon as possible. Government should discourage CRIs from investing in commercialisation activities for profit maximising purposes – such as new start-up companies. Any commercialisation activity must be preceded by a full consideration of other options and the inherent risks of equity ownership.

## Develop a strategy for building a national research infrastructure

- 4.44 CRIs should finance business-as-usual research infrastructure through their own resources, when they need such facilities to fulfil their Statement of Corporate Intent and they are likely to be the sole users of those facilities. Setting an explicit financial rate of return helps CRIs do this. Even in these circumstances, the Government should expect that the CRI will share extra capacity, making it available to other parts of the science and research system.
- 4.45 Some assets may be too large for a single CRI to buy, may have a capacity that exceeds the needs of any single user, or may be a unique database or collection. In this situation, where economies of scale or scope exist, different funding arrangements are necessary. National research infrastructure may need joint planning and shared funding. It may be necessary to support the national status of the infrastructure by developing governance arrangements or providing direct central agency funding. Such arrangements might involve universities as well as CRIs. CRIs might gain the required capital through collaborative ventures or through equity injections from government.
- 4.46 We considered various options for providing national research infrastructure. For example, Public Private Partnerships (PPPs) could be used. We concluded that where options existed to lease or hire infrastructure from a private provider, these options should be explored.
- 4.47 We have concluded that capital investment in national research infrastructure should generally be made by the Government through equity injections that cover the cost of procurement. Such decisions should take place within the context of a national research infrastructure strategy and recognise the needs of universities and other research institutions, and the implications for subsequent operating costs. As identified in recommendation 25 of this report, the government entity responsible for overseeing the science system should be responsible for developing and implementing a national research infrastructure strategy, and providing advice to Government on investment opportunities. This agency should also ensure that New Zealand research organisations have access to nationally significant infrastructure items.

### RECOMMENDATION 13

The CRI Taskforce recommends that Government develop a national research infrastructure strategy to rationalise investment in RS&T infrastructure and to ensure its most effective use. CRIs should continue to finance business-as-usual infrastructure from their own resources. Where economies of scale or scope exist and the capacity of the infrastructure exceeds the needs of any one organisation, the investment and financing decisions should take place within the context of a national strategy and recognise the need to provide appropriate access.

## Summary of new funding arrangements

- 4.48 Table 2 below describes the characteristics of the various funding streams that we propose, including a national research infrastructure fund.<sup>12</sup> As discussed later, the Taskforce believes that all of the funding streams identified in this table should fall within the responsibility of a single entity, as described in recommendation 25.

<sup>12</sup>The Government's proposed restructure of Vote RS&T released in its October 2009 feedback document identifies a national research infrastructure outcome.

**TABLE 2: SUMMARY OF PROPOSED CRI FUNDING STREAMS FROM VOTE RS&T**

	CRI SPECIFIC FUNDING		OPEN ACCESS, SYSTEM-WIDE FUNDING	
Funding instrument	Core purpose funding	System-wide, long-term investment	Project funding	National research infrastructure
Function	Direct funding of CRIs to deliver on core purpose	Open access contest or negotiation	Open access, contestable	Capital investment for shared facilities
Length of investment	Enduring	Long-term	Short-term	Long-term
Attributes	Meets national objectives		Enables new entrants and new ideas	Collaborative
Contract holder	CRI board	Research director in CRI, university or other institution	Lead scientist	Host organisation
Evaluation/ Sanctions	Every five years Directed at CRI board/CEO	Every three years Directed at research director	Project evaluation	Central agency



## 5. Strengthening CRI governance will help CRIs contribute more

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- 5.1 In this section, we discuss the recommendations for strengthening the governance and performance management of CRIs.
- 5.2 Retaining CRIs as companies and providing them with more stable funding by providing direct, core purpose funding makes it possible to improve CRI governance arrangements. In turn, this should make it possible to hold CRIs more accountable for their performance.

### Simplified accountability

- 5.3 Currently, the CRIs have multiple accountabilities. CRI chief executives are responsible to their board and their board in turn is responsible to the shareholding Ministers. CRIs are also responsible to the Foundation – which provides a significant proportion of CRI revenue in the form of contracts for identified research activities.<sup>13</sup> MoRST also plays a role, setting accountability requirements for the CRI Capability Fund, and financial performance is managed via The Treasury.
- 5.4 Complex governance arrangements can make it difficult to identify who is responsible for achieving agreed outcomes. Such lack of clarity results in game-playing, confusion and recrimination. This complexity also creates a difficult situation for the Foundation, because of its continued need to weigh up how its purchasing decisions will affect national capability, as well as the quality of the scientific research.
- 5.5 The Taskforce believes that the current arrangements – where a CRI is accountable to the CRI board, and the board to the shareholding Ministers – are necessary to achieve good governance. As with any company, the success of a CRI would then reflect the performance of its board, provided the board has the power it needs to fulfil its responsibilities. For this reason, the Taskforce believes the Government should ensure that CRI boards have the authority they need to give their CRI purpose and direction. This includes having the flexibility to reprioritise investments in response to short-term developments and the emerging findings of their science. In empowering CRI boards, the Government should also recognise that it is not the role of its various agencies to micromanage CRI operations and that accountability should focus on evaluating outcomes.
- 5.6 The proposed changes to the funding system for CRIs will require boards to take a different approach. Under the previous funding system the CRI boards had to react to changing priorities set by other organisations. The new approach requires them to plan and implement a strategy based on their own expert assessment of the environment within which they are operating. Boards will therefore need to become involved to a greater extent than before in setting priorities and assessing the ongoing value of the work of their organisations. An example of this will be the need to assess whether research in a specific area should be carried out within the CRI or whether another organisation, either domestic or international, would be better able to carry it out. In their key portfolio areas, boards will need to ensure that New Zealand has access to sufficient capability to meet future needs.

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<sup>13</sup> CRIs collectively hold almost 400 contracts with the Foundation.

## Board operations and performance

- 5.7 Relevant legislation and documents such as the Owner's Expectation Manual for CRIs (CCMAU, 2007) define the board's roles and responsibilities. The Treasury's Crown Ownership Monitoring Unit (COMU), formerly CCMAU, assesses board performance on behalf of the shareholding Ministers. We believe that these arrangements should be changed to strengthen the link between the board of a CRI and overall CRI performance.

## A Statement of Core Purpose

- 5.8 A board will only be able to operate effectively if each CRI has a clear sense of its own continuing role and purpose. The development of a Statement of Core Purpose (discussed in sections 3.8 to 3.12) will clarify the mission of a CRI and ensure the board understands the purpose of its CRI.

## A Statement of Corporate Intent

- 5.9 Working within the boundaries and expectations set by its Statement of Core Purpose, the board of each CRI should prepare a Statement of Corporate Intent. This Statement of Corporate Intent should present a five year strategy setting out the ways in which the CRI would invest its core purpose funding and how this would meet the responsibilities set out in its Statement of Core Purpose. As is the current requirement, the Statement would be updated and presented to shareholding Ministers annually. It would include annual financial forecasts and be a public document, tabled in Parliament.
- 5.10 The Statement of Corporate Intent should also respond to the annual Operating Framework that shareholding Ministers provide to CRIs. Consistent with the move to empower CRIs and allow them to develop their own strategic directions, we would expect the Operating Framework to remain relatively unchanged from year to year, with significant changes being the exception rather than the rule.
- 5.11 The continuing morale and wellbeing of CRI staff are important contributors to success. An integral part of science management is to put in place arrangements that create a vibrant and creative workforce. It is likely that CRIs will need to change their management practices to create strong, outcome-focused work programmes that allow scientific endeavour and excellence to flourish and be properly recognised. Government should expect to see a strategy for nurturing scientific talent and enhancing staff morale as part of the Statement of Corporate Intent.
- 5.12 The Government should maintain an overview of the operations of each CRI and the collective CRI portfolio by using the Statements of Corporate Intent, and regularly reviewing the set of capabilities residing in New Zealand's RS&T sector. The Statements of Corporate Intent should set out the key performance indicators (KPIs) that government will use to monitor performance on an annual basis, and to evaluate success on a five year rolling basis.
- 5.13 The Government may wish to review the Crown Research Institutes Act 1992 in order to reflect the changes we recommend to Statements of Corporate Intent. The table in Annex 6 provides an overview of the current suite of accountability documents and the recommended changes.
- 5.14 CRIs should meet the standards of disclosure required of public companies. We suggest introducing a continuous disclosure regime like that currently being trialled in New Zealand's largest State Owned Enterprises.



- 5.15 The Taskforce believes that shareholders should play an active role. CRIs should introduce a form of Annual General Meeting, with parts of the agenda open to the public, at which the board describes and accounts for their activities over the past year. In a broader sense, the shareholders of a CRI include all taxpayers, and Ministers other than those formally identified as shareholders often have a very direct interest in the work of particular CRIs.

#### **RECOMMENDATION 14**

The CRI Taskforce recommends that Government require CRIs, at the very least, to meet the disclosure requirement standards expected of public companies. Government should require CRIs to hold an Annual General Meeting at which they describe and account for their activities over the previous year to shareholders and the public, identify the benefits they have produced for New Zealand and respond to questions.

- 5.16 The arrangements described so far concern the relationship between the boards and their shareholders. It is equally important to have arrangements that formally link the chief executive with the board. Under legislation for Crown companies, the chief executive cannot be a member of the board. In our opinion, this makes it even more important to have clear lines of accountability between the chief executive and the board. The Taskforce believes that it is good business practice for the chief executive to prepare an annual operational plan that details how the chief executive will implement the board's Statement of Corporate Intent over the coming year.

### **Board membership and appointments**

- 5.17 The Taskforce supports the Government continuing to follow the Institute of Directors' best practice on board composition and board requirements through the life of the company. Each year, the shareholding Ministers should review the board's composition to make sure it meets Government expectations, as well as being suited to the company's direction, its operating environment and external influences.

#### **RECOMMENDATION 15**

The CRI Taskforce recommends that Government require the chairs of CRI boards to follow the Institute of Directors' best practice on how to manage the performance of the board, directors and chair, and how the board and chief executive should manage their relationship.

- 5.18 Boards should be able to access the knowledge they need to govern effectively, and address the business opportunities and threats facing the CRI for which they have stewardship. Each board must have the range of expertise needed to work with management in developing and articulating its strategy. This expertise should include an understanding of how science might deliver the desired outcomes. Boards should include at least one eminent scientist with the seniority, wisdom and competency required to help the boards move CRIs ahead.

## RECOMMENDATION 16

The CRI Taskforce recommends that Government follow the Institute of Directors' best practice in appointing boards; and review the current composition of boards to ensure they reflect an appropriate balance of expertise between science, technology transfer, finance, management and governance. Each board should include at least one eminent scientist to provide research leadership and science expertise.

- 5.19 The Taskforce believes that Government should continue to appoint CRI board members on merit. Board members do not represent stakeholders or other organisations but are members in their own right because of the expertise they contribute. We support appointments of board members for three year terms, beyond the common two year maximum. As a general rule, the Taskforce believes the Ministers should consider reappointing members who have been making a useful contribution, and who are able to build on their learning from their previous term(s).

## RECOMMENDATION 17

The CRI Taskforce recommends that Government consider reappointing well-performing directors beyond the common two-term maximum, given the long-term nature of science, the importance of having directors take a long-term view and the time it can take for a new director to develop a full understanding of the range of CRI activities.

- 5.20 The Taskforce also believes that the Government should consider allowing individuals to be members of more than one board. While in principle this could create conflicts of interest, it would help to coordinate the strategies of the various CRIs. Cross-membership will give boards a more comprehensive understanding of the overall CRI portfolio, helping them to collaborate and cooperate over the long term.

## RECOMMENDATION 18

The CRI Taskforce recommends that Government consider appointing individuals as members of more than one CRI board concurrently, to help boards coordinate and find opportunities for collaboration that are consistent with the national good purpose of each CRI.

## The role of advisory committees

- 5.21 The Taskforce believes it is important to supplement the board's work with less formal, independent advisory committees. Each CRI should use scientific advisory committees to inform its development of strategy and collaborations.
- 5.22 CRIs should also set up end-user panels to enable research users to advise on the development and implementation of CRI strategies. Direct face-to-face accountability with end-users has many advantages, not least the potential to develop a mutual understanding of capabilities, needs and opportunities, in

both the short and long term. For those CRIs with a strong primary or secondary sector focus, the panels should include sector representatives. Those CRIs with a strong public good focus should also include government department representatives.

- 5.23 Scientific and end-user panels will provide information to help CRIs develop their Statements of Corporate Intent and operational plans. The most useful information will be about complementary research or the ability of end-users to absorb research.

#### **RECOMMENDATION 19**

The CRI Taskforce recommends that Government require CRIs to establish independent scientific advisory committees and end-user panels to inform and verify the development of sound research strategies, scientific programmes and technology transfer activities.



## 6. Performance measurement should monitor operations and evaluate outcomes

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- 6.1 In this section, we discuss the recommendations for measuring and monitoring CRI performance.
- 6.2 If ownership and investment strategies are changed, the Government will need to change the ways it measures and monitors performance. Performance measures and indicators should be both practical – easy and cost-efficient to collect – and meaningful.
- 6.3 The current performance measures for CRIs focus either on the outputs of research programmes, or on financial performance. We believe that these performance measures do not assess the full impact of the CRIs.
- 6.4 The primary interest of the Crown should be to ensure that the CRI meets its short- term, intermediate and long-term contributions to the scientific, development and knowledge transfer activities necessary to support its relevant sectors in accordance with its mission. The Crown should recognise that CRIs are not established with the objective of providing revenue to the Crown, and monitoring should be focused on ensuring the Crown's assets and investment are prudently managed.

### **Performance measures should reflect ownership and investment expectations**

- 6.5 The Government should measure each CRI's performance against its purpose, as set out in its Statement of Core Purpose, and monitor how it implements its research strategy, as set out in its Statement of Corporate Intent.
- 6.6 This should be done through a set of key performance indicators (KPIs) that assess research management processes and achievement against three to five key result areas that should be identified in the Statement of Corporate Intent. Developing and using appropriate performance indicators will give the Government confidence that its strategic investments in CRI capability and its purchase of research are delivering benefits to New Zealand.
- 6.7 Each CRI's set of KPIs should reflect the CRI's distinctive role and purpose. These KPIs should measure how viable the CRI is against both financial and non-financial measures. Some of these may be generic, applying to all CRIs; others will be specific to an individual CRI, reflecting its particular mission and responsibilities.
- 6.8 KPIs should exist for each level of the CRI's governance arrangements – the Statement of Core Purpose, the Statement of Corporate Intent and the operational plan. We recommend that each CRI board negotiate a suitable set of KPIs with the Government as they develop the accountability documents. KPIs developed in this way will need to be enduring, given that the returns from CRI activities will be long-term.

- 6.9 The Taskforce has concluded that CRIs should report against most KPIs annually, even though performance does not follow annual cycles and some indicators involve long lag times. The trends in data are often as important as absolute measures.

## RECOMMENDATION 20

The CRI Taskforce recommends that Government monitor each CRI's progress against its Statement of Corporate Intent on an annual basis. Performance indicators should provide evidence of: collaboration, technology transfer, quality assurance, sector impact, and financial viability. Government should not own CRIs to deliver financial returns. However, Government should monitor financial viability to ensure that the CRI is able to deliver against its core purpose.

## Financial performance

- 6.10 A company must be financially viable in order to deliver against its core purpose. The Taskforce supports the need to manage each CRI so that it is financially viable subject to the Government needing to retain the capabilities each CRI provides.

## Setting financial targets

- 6.11 The Taskforce agrees that requiring CRIs to generate financial returns promotes good management of CRI resources. In particular, it makes management responsible for the financial viability of each CRI and for developing strategies to meet future capital requirements; it can also help CRIs provide good pricing signals.
- 6.12 However, there is a widespread view among stakeholders that having an inflexible rate of return requirement discourages CRIs from producing economic or any other returns to industry. This is partly because of a belief that the CRI must pay this return to the Crown as a dividend. In fact, the Taskforce has found that CRIs often do not find it difficult to meet an explicit rate of return, because under current arrangements they can negotiate a different rate with the Government.
- 6.13 The uncertainty that exists around the need to pay dividends does create problems for CRIs. We recommend that each CRI agree with shareholders a cash management target and tailored rate of return on equity. This agreement should take into account what the CRI needs to be financially viable and to invest in new assets. Negotiations should take into account factors such as the nature of the CRI, the risks facing the business, its ability to adjust to revenue shocks, the likelihood of such shocks, the strength of its balance sheet, its capital asset plan, economic conditions, and other strategic objectives.
- 6.14 In negotiating the cash management target and return on equity rate, the board should be aware of the capital charge rate set for government departments.<sup>14</sup> Like any prudent business, CRIs should retain some surpluses to protect financial viability and enable capital reinvestment.

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<sup>14</sup> Government could benchmark tailored rate of returns against the capital charge rate, which is currently set at 7.5 percent.

- 6.15 The Taskforce also believes that CRIs should provide their monitoring agency with forward cash flow projections. These projections should include an outline of the maturity profile of their public and private sector contracts, and the risks associated with these.

#### **RECOMMENDATION 21**

The CRI Taskforce recommends that each CRI agree with shareholders a cash flow target and tailored rate of return on equity. This should take into account the requirements for the CRI to be financially viable, invest in new assets and absorb risk.

### **Voluntary dividends**

- 6.16 The Taskforce recommends that each CRI retain financial surpluses for reinvestment if its board can identify good investment opportunities. The Treasury has told the Taskforce that this is largely consistent with the existing approach. The Taskforce believes, however, that the Government needs to communicate this position more effectively, along with an explicit commitment to reinvest surpluses to achieve greater benefits for New Zealand. The Government should not intend to extract dividends. If a CRI chooses to pay a dividend, we believe that government should retain this within a pool available for reinvestment in the broader science system.

#### **RECOMMENDATION 22**

The CRI Taskforce recommends that each CRI continue to retain surpluses for reinvestment if their board can identify good investment opportunities, that is, those that will enhance the benefits that CRIs can deliver to New Zealand. The government should retain any excess surplus in a pool of funds available to the wider science system to develop initiatives that will benefit the nation.

### **Non-financial performance**

- 6.17 Government should seek two kinds of non-financial performance measures outlined in the Statement of Corporate Intent: a set that reflects progress towards achieving the CRI's core purpose and a set that reflects how the science being done contributes to achieving the key results areas. The first set of KPIs tells how well the CRI is progressing towards its 'destination'; the second tells whether the CRI has arrived at the right place.

### **Setting key performance indicators**

- 6.18 It is difficult but not impossible to establish non-financial performance measures for the science sector. Case studies are inevitably selective but can provide quantitative cost-benefit data. More sophisticated and complex assessments, such as economic modelling or real options analysis, can also help to measure economic impact in certain circumstances. The customers and end-users of the research are often in the best position to assess CRI performance as they will understand what is possible and the environment in which a particular CRI is operating.

- 6.19 It is important that KPIs developed for the CRIs capture the full range of benefits each CRI delivers to its end-users, the shareholders and, in a wider sense, New Zealand. KPIs should be both quantitative and qualitative. For example, KPIs might measure both the benefit the CRI delivers to end-users, and the satisfaction of those users with the services they receive.
- 6.20 The Taskforce has not formed a definite view on what appropriate KPIs might be because they need to flow directly from each CRI's core purpose and strategy set out in the Statement of Corporate Intent. Clearly, some KPIs will be specific to individual CRIs. Moreover, the indicators will need to cover the full range of activities performed by each CRI and not just its research activity.
- 6.21 Performance indicators should also include measures that reflect best practice for managing research. These performance indicators might include: the use of independent science panels to ensure quality; the level of stop-go decision taking; the involvement of end-users; collaboration with other research organisations, both national and international; and evidence of financial viability (as discussed in section 6.10 – 6.15).

## External assessment of performance

- 6.22 The performance measures discussed in the preceding paragraphs should apply at the level of the institution, rather than to individual projects or contracts. Given the diverse responsibilities of some CRIs, however, it may be necessary to evaluate the separate components of each CRI to produce an institutional level picture. This is important because the board will be responsible for developing each CRI's Statement of Corporate Intent and for supporting the different groups that make up the CRI.

## Review using expert panels

- 6.23 In addition to monitoring performance through annual reporting, the Government should commission independent, expert panels to review the overall performance and operations of each CRI on a five year rolling basis. These evaluations would assess the extent to which a CRI has delivered against the three to five result areas listed in its Statement of Corporate Intent.
- 6.24 The panels will need to cooperate closely with the CRI and should include international experts in the fields covered by the CRI. In addition to experts in science, the panels should include people who understand, and are able to assess, the ways science can make an impact. Panels should also include people who can comment on the CRI's management, management processes and organisational health.
- 6.25 The evaluation process should place the performance of the CRI in the context of international best practice, making use of international benchmarks. The panels should recommend to the Government and to the CRI board ways in which the CRI might improve its performance across all areas. The report should become a public document.



- 6.26 There should be a parallel policy process that assesses the continued relevance of the CRI's purpose, as expressed in its Statement of Core Purpose.

### RECOMMENDATION 23

The CRI Taskforce recommends that Government evaluate the performance of each CRI against its Statement of Core Purpose on a five year rolling basis, using a set of key result areas agreed between the CRI board, government and the CRI's intended beneficiaries. CRI evaluation teams should include independent, international scientists and technology experts who can provide a broad perspective on the performance and relevance of each CRI to New Zealand.

## Ensuring high performance

- 6.27 A central theme running through all our recommendations is the need to empower CRI boards to manage CRIs better and to lift their contribution to New Zealand's economic, social and environmental wellbeing. Boards should be accountable for the success – and failures – of the organisations under their watch.
- 6.28 The previous section describes how government can monitor the performance of the CRIs. Since the board is accountable for the performance of the CRI, the shareholders should ensure that the chair of the CRI board monitors and manages board performance according to best practice.
- 6.29 The question then arises as to how best to react when monitoring reveals areas of weakness and poor performance. The responsibility for organisational performance rests with the board, and the Government holds the ultimate sanction of removing the board in the face of persistent failure.
- 6.30 The first response to poor performance should be to place a CRI 'on watch', similar to the action COMU currently takes when CRIs exhibit financial performance issues. The investment entity would support such CRIs to identify the causes of persistent failures and to put in place an action plan to resolve the problems identified during monitoring visits. If necessary, CRI management and the board would receive mentoring support from other successful CRIs and/or receive help from experienced directors sourced through the Institute of Directors' 'Score' programme.
- 6.31 If a CRI 'on watch' failed to respond to the support provided, the board should outline to shareholders how it proposes to proceed. Government might expect the board to consider senior management changes, depending on the reasons identified for poor performance and the extent to which these might be under management control. The ultimate penalty for persistent failure would be the replacement of the board. The science capabilities held within CRIs are of immense importance to New Zealand's future and it is important that the most competent people are managing them.

6.32 The Government might also wish to place a proportion of the core purpose funding 'at risk' through the rolling review process, to encourage good performance. Although this would send an unequivocal signal to the organisation, it would not necessarily address the underlying causes of poor performance. If the performance is poor but the outcome is still important, it becomes essential to understand the causes of the poor performance and take action to address those causes in a way that does not place science capabilities at risk. This is not to say that funding should not be withdrawn from non-performing areas of science—indeed, if a CRI has appropriate science investment and research management processes in place, such reallocations should take place automatically within a CRI and without the need for external intervention.

#### **RECOMMENDATION 24**

The CRI Taskforce recommends that Government hold the board accountable for the performance of the CRI against its Statement of Corporate Intent. The Government should manage poor performance by providing expert advice and support to the board. The ultimate sanction for continued poor performance should be the removal of the chair and/or board. Government should place some portion of the core purpose funding to CRIs at risk, subject to performance against agreed milestones.

## 7. The role of government agencies will need to change

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- 7.1 In this section, we discuss the recommendation about the role of government agencies.
- 7.2 The recommendations in this report will strengthen lines of accountability to ensure that CRIs know what the Government expects them to deliver. Implementing the recommendations will also make the CRI management accountable for success or failure.
- 7.3 The Taskforce believes that arrangements need to be simplified at a whole-of-government level if the proposed arrangements are to have full effect.
- 7.4 At present, responsibility for monitoring CRI performance is spread across Government: The Treasury, the Ministry of Research, Science and Technology, and the Foundation all monitor different aspects of CRI performance, often in isolation from each other. Shifting towards core purpose funding will put more emphasis on monitoring and evaluating performance. In our view it will be difficult for the Government to fulfil this role under current arrangements.
- 7.5 A single entity should provide advice to shareholding Ministers on, among other things:
- managing the Crown's ownership interests in CRIs, including appointing boards<sup>15</sup>
  - reflecting the Government's science priorities for each CRI in its Statement of Core Purpose and Statement of Corporate Intent
  - reviewing performance against the Statement of Corporate Intent and using external panels to evaluate CRIs against a broader 'mission', using rolling reviews over a five year period
  - making long-term investment decisions in research at CRIs or other public research organisations
  - deciding on contestable funding from Vote RS&T
  - informing government on proposed national research infrastructure investment decisions requiring equity injections and updating RS&T policy and priorities.
- 7.6 A move towards core purpose funding will also affect the management of contestable funding. At present, the Foundation is able to build considerable synergies between its contestable research portfolio and its long-term research investments. The Taskforce agrees that long-term contestable funding should be aligned with the Government's investment priorities for CRIs and the overall science system.
- 7.7 Given the different purposes of contestable and non-contestable funding delivery mechanisms, decisions about allocating contestable funds must be made in a fully transparent, accountable and arm's-length manner that offers equal opportunity to all elements of the national science system. An independent, contestable funding system would retain the elements that make contestable funding efficient and maintain the strong focus on scientific excellence. Contestable funds could remain complementary to long-term investments in CRIs but this would be achieved through clear articulation by government of the areas in which contestable projects are required.

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<sup>15</sup> The Treasury, through COMU, should continue to provide expertise on monitoring financial performance, and on board appointments and performance management, to the main oversight entity. These are specialist skills which may be difficult for the single entity to provide.

7.8 The Taskforce believes that the single entity responsible for CRIs should also administer the four funding streams it has identified in this report:

- core purpose funding
- system-wide, long-term funding
- short-term contestable funding
- infrastructure funding.<sup>16</sup>

7.9 The entity should also be responsible for developing policy and strategies for the whole RS&T system.

#### **RECOMMENDATION 25**

The CRI Taskforce recommends that Government align the funding, ownership and policy functions for CRIs into a single entity. The single entity could also manage contestable and infrastructure funding, and be responsible for developing policy and strategy for the whole RS&T system.

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<sup>16</sup> See Table 2.

## 8. The balance and number of CRIs is about right

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- 8.1 In this section, we discuss the recommendation to retain the same balance and number of CRIs.
- 8.2 The Government asked the Taskforce to consider whether New Zealand had the right balance of CRIs and whether there would be merit in merging some CRIs.
- 8.3 Our consultation process did not identify a clear consensus on the number of CRIs. Some stakeholders argued that there are too many CRIs. Other stakeholders suggested that it might be possible to improve the performance of CRIs in part by reducing their number and getting cost savings from the administrative economies of scale. We found no apparent evidence that the size of the CRIs limits their operations.
- 8.4 Others argued that structural change was not the place to start in this review. There were also suggestions that at least one CRI, ESR, should have a different status, as its primary role was service delivery rather than research.
- 8.5 Support for the status quo was built on the strong stakeholder relationships the existing CRIs have developed and the risk that structural change might diminish these.
- 8.6 In considering these issues, the Taskforce noted that some CRIs had already investigated options to merge. CRIs might merge to become more efficient by saving costs through sharing corporate and other services, and/or more effective by bringing together complementary capabilities in a single organisation.

### **Forced mergers are not justified**

- 8.7 In our view, and in the view of the CRIs we interviewed, the cost savings that might result from mergers would be unlikely in themselves to justify the costs associated with the change. The Taskforce was unable to find evidence that cost savings in overheads would in themselves justify merging one or more CRIs and we do not recommend any such action.
- 8.8 We anticipate that there will be a continuing need to rebalance the capability held within the CRIs and across the whole science system, as new opportunities, threats and problems arise. The system needs to be more dynamic and responsive to national needs. The question is not how many CRIs New Zealand should have, but what structures will best provide research services that address the problems New Zealand faces.

### **Rebalance should be driven by strategic need**

- 8.9 Rather than make a one-off decision about number and scope, we recommend an incremental approach, as Government reviews the purpose and role of each CRI. Strategic need should drive any rebalancing, not cost-saving. Decisions to rebalance or merge CRIs should reflect both 'top-down' direction from the Government about its requirements and 'bottom-up' information from the CRIs and their stakeholders about ways to deliver.

8.10 The ultimate objective should be to build a more flexible and responsive national innovation system in which CRIs are able to divest, cease, coordinate, integrate or merge activities and lines of research on a case-by-case basis. Providing direct, core purpose funding will help achieve this. In addition, moving to a more open, collaborative system will help remove any impediments resulting from existing structural arrangements. Making it possible for people to move within the overall science system and to better use and share physical assets is essential if the nation is to maximise its return on its investments in science.

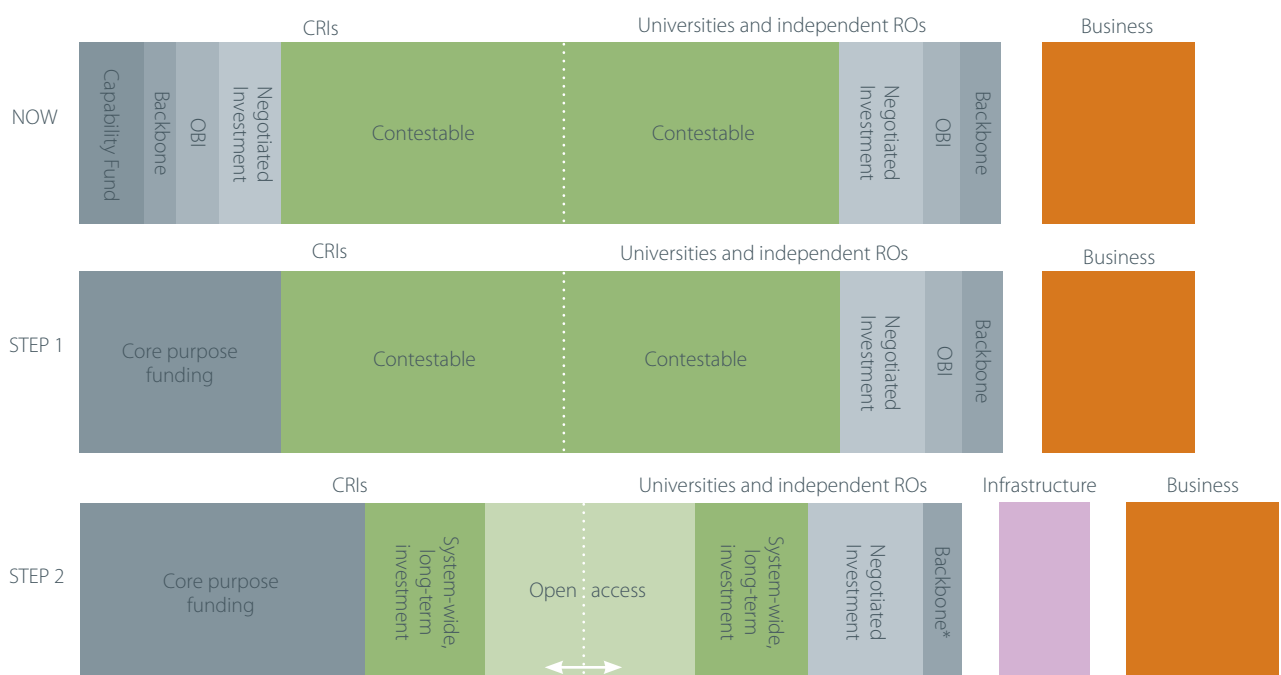
#### **RECOMMENDATION 26**

The CRI Taskforce recommends that Government make no immediate changes to the balance and number of CRIs as there is no strong case at present for mergers or realignment. CRIs should continue to explore opportunities for realigning their capability where it will benefit New Zealand, and improve their efficiency by combining appropriate scientific and administrative functions.

## 9. Implementation and risk management plan

- 9.1 Implementing the recommendations in this report will result in some major changes to New Zealand's science and research system. The Taskforce is aware these changes will take time. Transition and implementation plans will need to be developed so research organisations are not disadvantaged by the time it will take to put changes in place.
- 9.2 The Taskforce believes that the Government should announce the changes it intends to make as soon as practicable after considering the Taskforce report.
- 9.3 The Government should then nominate a group of officials to start immediate work on:
- preparing a detailed plan and timeline for implementation of the agreed arrangements, including considering the merit of any necessary legislative change to the Crown Research Institutes Act 1992 and the Foundation for Research, Science and Technology Act 1990
  - working with each CRI to draft statements of core purpose for each CRI and to produce the requirements for comprehensive Statements of Corporate Intent
  - moving CRIs to a less contestable funding environment. Figure 4 below illustrates a three-step approach and recognises that in the current economic and financial climate the initial allocation of government funding to CRIs must be fiscally neutral
  - advising on the machinery of Government issues relating to ensuring a single entity has lead responsibility for overseeing CRI policy development, funding, non-financial monitoring and evaluation.
- 9.4 Figure 4 below outlines the steps Government could take to move to our recommended funding arrangements.

**FIGURE 4: IMPLEMENTATION STEPS**



\* Excludes database funding, which should be managed through infrastructure funding.

- 9.5 Step one covers the non-contestable funds that CRIs already receive, and would appropriate individual contracts to a single contract for each CRI. Step one would also include the transfer of some currently contestable funds to the direct funding pool. As shown in Figure 3, this would not be sufficient in itself to achieve the proportion of secure funding the Taskforce believes will be essential to enable the CRI boards to take responsibility for the strategic development of the organisations while ensuring financial viability.
- 9.6 Step two should involve shifting more of the contestable funds already directed to CRIs into the non-contestable pool, as contracts come up for renewal. In doing this it will be important to ensure that the changes do not disadvantage other players in the system.

## **The risks associated with our recommendations and how to manage them**

- 9.7 The new arrangements that we propose involve significant change and change will always involve risk. The implementation plan will need to consider these risks and put in place arrangements to minimise and manage them. In doing this it will be important to focus on the manifold advantages of the proposed changes – simplification, reduced transaction costs, a focus on outcomes rather than process, increased cooperation, stronger links between the research system and end-users, and a bigger return on the Government's investments in CRIs.
- 9.8 One major risk is that the CRIs will be unable to respond to the proposed changes because their existing skill sets and cultures reflect past practice and outlooks. Similarly, the move from ex ante assessment processes associated with a contestable funding system to the ex post approaches associated with outcome evaluation may require the addition of new skills to the entity that will have responsibility for CRI oversight.
- 9.9 Major cultural change is involved in moving from a system that has been subject to a degree of micromanagement by bodies external to the CRIs to one based on big picture thinking. This requires an ability to respond quickly to external events, not least flowing from improved linkages with potential end-users. It can take time to achieve and will require very effective communication processes that cover all stakeholders, as well as careful recruitment and organisational restructuring.
- 9.10 Another risk is that while CRIs produce the opportunities, their take-up requires considerable investment by other players in the innovation system, including the business sector. The Taskforce believes that parallel work by Government on business support mechanisms, capital markets and the tax system will help mitigate the risks that arise in this area.
- 9.11 The risk that some players within the system might resist the proposed changes is real but the magnitude of change proposed in this report is necessary if CRIs are to achieve their full potential. Change requires strong and coordinated leadership at the political, bureaucratic, board and chief executive levels. The Government will need to be very clear that it intends to implement our recommendations by providing strong leadership, clear directions and a preparedness to act to remove impediments that might arise if institutions focus on their own rather than the national interest. Government will also need to provide the certainty that is necessary to ensure that transitional arrangements can work through the system with an assured end point, in both timing and outcomes. Implementation must focus on national interest, cooperative rather than competitive approaches, and the imposition of strong and effective governance arrangements.



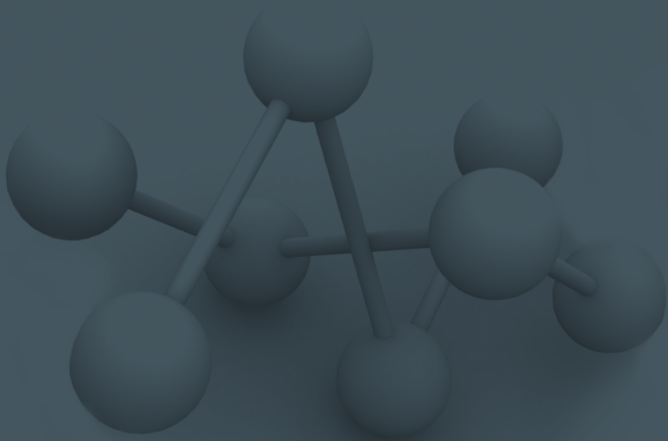
9.12 The success of the new arrangements will not be apparent until they are in full operation and this will inevitably take time. A major risk is that problems or delays in implementation provide opportunities to back down from the intended outcomes. One way to address this is to embed the proposed changes in legislation, so that they become less subject to short-term, non-strategic change.

## Legislative change may be desirable

- 9.13 With the exception of changes to agency roles, which would require changes to relevant legislation, the Taskforce has received advice that the Government can implement many of the changes this report recommends without the need for any immediate legislative change. This should allow the Government to act quickly in responding to the report, which is important given the need for science in general, and the CRIs in particular, to support the national economic growth agenda.
- 9.14 While legislative change is not essential, the Taskforce was told in the course of its consultations that the CRI legislation would benefit from a review. In particular, parts of the CRI Act that were important for the start-up stages of CRIs are now redundant; and other parts of the legislation may be in need of revision.
- 9.15 Given that a review of the CRI legislation is overdue, the Taskforce believes that this should take place in parallel with the implementation of the changes this report proposes. In the course of reviewing the legislation, the Government should make the amendments necessary to provide legal support for the changes we have proposed. While this may not be strictly necessary, it will have the benefit of providing a greater degree of certainty that the changes being made are for the long term. This is important because the whole tenor of our recommendations is to enable the CRIs to take a strategic and holistic approach to their development by providing greater certainty. The stronger the signals the Government can provide that it is making changes for the longer term, the more successful will be the resulting outcome. Any concerns about the enduring nature of the changes the Government introduces will decrease their effectiveness.

### RECOMMENDATION 27

The CRI Taskforce recommends that Government respond to this report and implement its recommended changes as soon as possible. The Government should review the existing legislation, with a view to providing security for the new arrangements and protecting them from short-term and opportunistic decision making in the future.



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# Annexes

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# Annex 1: Terms of reference

The full terms of reference for the Taskforce are available at: <http://www.morst.govt.nz/current-work/CRI-Taskforce/CRI-Taskforce-Terms-of-Reference/>

The following table provides a cross reference between the text of the report and the scope of the task given to the Taskforce.

SCOPE	CRI SPECIFIC FUNDING
Recommendations and assessment of any alternative or additional initiatives that could be taken to strengthen the CRI model, including the merits of reconfiguring the number and scope of CRIs.	8.1 – 8.10
Guidelines for developing 'Statements of Core Purpose' for each CRI, including how stakeholder views should be incorporated and how often such statements should be issued.	3.8 – 3.12 5.8 – 5.15
Advice on how to improve the overall governance of CRIs including consideration of how to strengthen their boards.	5.3 – 5.23
Guidelines for reviewing performance against Statements of Core Purpose and other performance measures.	6.5 – 6.9 6.22 – 6.32
Recommendations that will ensure CRIs partner with other research providers and with the private sector, with specific reference to: <ul style="list-style-type: none"> <li>relationships with universities and the alignment of staff incentives, career paths and the opportunity for staff interchange</li> <li>relationships with CoREs and the opportunity for staff interchange</li> <li>relationships with the private sector and appropriate incentives for transferring knowledge.</li> </ul>	4.21 – 4.23 4.28 – 4.30 4.36 – 4.43 6.21
Assessment of the current method of measuring financial performance and viability, any views on alternative methods of ensuring financial performance and viability, and any suitable non-financial performance measures for individual CRIs.	6.5 – 6.21
Principles for determining core funding levels for each CRI including how to achieve a balance between long-term capability needs while ensuring continued short-term dynamism.	4.19 – 4.23
The impact of any changes to core funding to CRIs on wider RS&T funding mechanisms (e.g. whether core funding to CRIs leaves a critical mass for funding via contestable processes).	4.24 – 4.31
Relationships with international research organisations and other international linkages.	4.22 6.24 – 6.25
How any recommended changes to the CRI model fit within the wider RS&T system.	7.1 – 7.9
Any necessary changes to the organisational form of the CRIs including changes to the Crown Research Institutes Act 1992 or other legislation.	9.3 9.13 – 9.15
An assessment of the timing for introducing change to the CRIs.	9.1 – 9.6

## Annex 2: Taskforce membership

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### **Neville Jordan – Chair**

Neville Jordan, CNZM, is a graduate engineer and holds an honorary Doctor of Engineering from Canterbury University. In 1975, he founded MAS Technology Ltd, a telecommunications microwave company. He grew this from a start-up to a significant multinational company and achieved a successful IPO on the NASDAQ main board. Neville then founded Endeavour Capital.

He has served on several Ministerial advisory committees, six years on the board of a Crown Research Institute, AgResearch, and three years each on the boards of the Foundation for Research, Science and Technology and the Prime Minister's Growth and Innovation Advisory Board.

He has received the Governor-General's Supreme Award for Exporting and was invested as Companion of the New Zealand Order of Merit in 1999.

Neville was inducted into the New Zealand Hi-Tech Hall of Fame in 2005 and the Business Hall of Fame in 2006. He was President of the Royal Society of New Zealand from 2006 to 2009.

### **Dr Rod Carr**

Rod Carr is Vice-Chancellor of the University of Canterbury and a former managing director of Jade Software Corporation. He is also a former Acting Governor and Deputy Governor of the Reserve Bank of New Zealand and has held senior executive roles at the Bank of New Zealand and National Australia Bank. Rod is currently Vice-President of the Canterbury Employers Chamber of Commerce and is a director of Lyttelton Port Company Ltd and Taranaki Investment Management.

In May 2009, Rod was appointed as the Chair of the National Infrastructure Advisory Board.

### **John D. McKenzie**

John McKenzie is currently the Group General Manager of the Seeds, Grains and Nutrition Division at PGG Wrightson, where he is responsible for the global seed business with operating units in New Zealand, Australia and South America. Prior to this role, John was the Managing Director and major shareholder of the proprietary seed company Agricom, which was founded in 1985 and sold to PGG in July 2005.

John also owns a 520 ha arable and horticulture farm and has an interest as equity partner in a 1,900-cow irrigated dairy unit. He has been Chairman of the Foundation for Research, Science and Technology plant and genotech reference group and is a member of the New Zealand Plant Breeding & Research Association.

### **Dr Ron Sandland**

Ron Sandland, AM, was previously CSIRO's Deputy Chief Executive, Australia. He joined CSIRO's Division of Mathematics and Statistics in 1969 and became chief of the division in 1988. In 1999 he became Deputy Chief Executive of CSIRO and led the Flagship Initiative.

Ron was made an Honorary Life Member of the Statistical Society of Australia in 1998 and won the CSIRO Medal for Lifetime Achievement in 2006. He is a Fellow of the Australian Academy of Technological Sciences and Engineering, and was made a Member of the Order of Australia in 2007.

## Dr Helen Anderson

Helen Anderson became Chief Executive of the Ministry of Research, Science and Technology (MoRST) in February 2004, after being MoRST's Chief Scientific Adviser for more than five years. She has a PhD in Geophysics from the University of Cambridge. She was a practising scientist at both New Zealand's Department of Scientific and Industrial Research and one of its successors, Geological and Nuclear Sciences (GNS), a Crown Research Institute.

Prior to her roles at MoRST, Helen was the Director of Earth and Ocean Sciences in Dunedin, a collaborative effort between GNS and Otago University.

In 2009, Helen was elected as a Companion of the Royal Society of New Zealand and was appointed to the Board of Fulbright New Zealand. She is an inaugural member of New Zealand Global Women, a leadership organisation formed in 2009, which comprises leaders from a range of disciplines and industries.

## Murray Bain

Murray Bain joined the Foundation for Research, Science and Technology as Chief Executive in April 2004. His previous experience in the science sector included acting as director for a Crown Research Institute and a start-up ICT company.

Murray was Acting Chief Executive Officer and Chief Operating Officer for the Accident Compensation Corporation, a Foundation Executive in the establishment of Industry New Zealand, and an Assistant Governor at the Reserve Bank of New Zealand.

Murray began his working life as an IT professional with Trust Bank Canterbury and the Trust Bank Group nationally. His various roles with Trust Bank Group included heading the treasury function, finance, and the banking side of the group. Murray has a Bachelor of Science in Pure Mathematics and a Master of Commerce (Honours) in Economics from the University of Canterbury.

## Andrew Kibblewhite

Andrew has been the Director of the Policy Advisory Group at the Department of Prime Minister and Cabinet since November 2004. Previous positions have included General Manager R&D Operations at Industrial Research Ltd, and General Manager Innovation and International at the Ministry of Research, Science and Technology. He also worked for 14 years in a range of management and analytical positions at the New Zealand Treasury, providing advice on regulatory, environmental, health, commercial tax and public management policy. Earlier in his career, Andrew spent two years as Budget Manager at the Department of Conservation.

Andrew has a BSc(Hons) from Canterbury University, a BCA from Victoria University and an MBA from Stanford.

## Struan Little

Struan Little is Deputy Secretary, Dynamic Economy at the New Zealand Treasury. He has worked in a range of economic policy roles in the public and private sector. Since joining the Treasury in 1987, he has held various senior positions including Manager, Macroeconomic Policy, head of the Treasury's Strategy Unit, Assistant Secretary responsible for international, infrastructure and environmental issues and Acting Deputy Secretary, Economic Performance. Between 1993 and 1995, Struan was seconded from the Treasury to the World Bank, where he held an adviser position at New Zealand's shared constituency office.

# Annex 3: List of submissions

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## INTERVIEWS WITH

Dr Alex Malahoff and Con Anastasiou, GNS

Andrew Cleland, Institute of Professional Engineers

Dr Andy West, AgResearch

Danette Olsen and Gillian Wratt, Cawthron Institute/Independent Research Associations of New Zealand

Dr James Buwalda, former Chief Executive of MoRST

James Palmer, MAF

Jeremy Hill, Fonterra

Jim McLean, Plant and Food

Dr John Hay and Dr Susan Macken, ESR

John Morgan, NIWA

Malcolm Blair and Paula Scholes, Public Service Association

Professor Sir Paul Callaghan, Victoria University of Wellington and the McDiarmid Institute

Paul Hargreaves, Datacom

Penny Fenwick and Jonathan Hughes, New Zealand Vice-Chancellors' Committee

Professor Sir Peter Gluckman, Prime Minister's Chief Science Advisor

Shaun Coffey, IRL

Dr Tom Richardson and Dr Russ Ballard, Scion

Dr Warren Parker and Jo Brosnahan, Landcare

Presentation from the Ministry of Economic Development on the Economic Growth Agenda

## SUBMISSIONS FROM

### CRIs

AgResearch

GNS

ESR

IRL

Keith McConnell (Chair, IRL)

Landcare

NIWA

Plant and Food

Scion

Science New Zealand



## **GOVERNMENT DEPARTMENTS**

Department of Conservation  
Ministry of Agriculture and Forestry  
Ministry of Civil Defence and Emergency Management  
Ministry of Economic Development  
Ministry of Education  
Ministry for the Environment  
Ministry of Fisheries  
Ministry of Foreign Affairs and Trade  
New Zealand Police

## **INDIVIDUALS AND ORGANISATIONS**

Dr David Bibby  
John Brandeis  
Bridger Beavis and Associates  
Professor Delwyn Clark  
Shaun Coffey  
Dr Terry Day  
Dr Mike Dunbier  
Dr Doug Edmeades  
Peter Foster  
Colin Harvey  
Margaret Kilvington  
Keith Mackie  
Scott Matenga  
Owen McShane  
Rob Stewart  
Dawson Stuart  
Simon Upton  
Dr Graham Weir  
Dr Andy West  
Dr Rod White  
G.W. Yeates

## **PRIVATE SECTOR, END-USERS AND RESEARCH ORGANISATIONS**

ANZCO Foods  
BRANZ  
CRL Energy  
Dairy New Zealand  
Environment Canterbury  
Fonterra  
Foundation for Arable Research  
Heavy Engineering Research Association  
Independent Research Associations of New Zealand  
Plant Breeding Research Association of New Zealand  
Regional Councils Science Advisory Group  
SKOPE Industries  
Transport Research New Zealand  
Zespri

## **SCIENCE GROUPS**

Meteorological Society  
New Zealand Association of Scientists  
New Zealand Institute of Agricultural and Horticultural Science  
Public Service Association

## **TERTIARY SECTOR**

Building Research Capability in the Social Sciences  
Lincoln University  
University of Auckland  
University Commercialisation Offices of New Zealand  
University of Otago  
Victoria University of Wellington

## Annex 4: The original CRIs

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CRIs
AgResearch Ltd (AgResearch/AgR)
The Horticulture and Food Research Institute of New Zealand Ltd (HortResearch) <sup>17</sup>
New Zealand Institute for Crop & Food Research Ltd (Crop & Food Research)
Industrial Research Ltd (IRL)
New Zealand Forest Research Institute Ltd (Forest Research) <sup>18</sup>
Institute of Geological and Nuclear Sciences Ltd (GNS)
Landcare Research New Zealand Ltd (Landcare Research/LCR)
National Institute of Water and Atmosphere Research Ltd (NIWA)
Institute of Environmental Science & Research Ltd (ESR)
Institute for Social Research and Development Ltd (Social Research and Development) <sup>19</sup>

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<sup>17</sup> HortResearch and Crop and Food merged in 2008 to form the New Zealand Institute for Plant & Food Research Limited (PFR).

<sup>18</sup> Now Scion.

<sup>19</sup> This CRI was disestablished in 1995.

## Annex 5: CRI evolution

The following table outlines major events for the CRIs and the changes they have undergone in the past 18 years.

PHASES IN CRI DEVELOPMENT	CHARACTERISTICS
Establishment 1992–1993	<ul style="list-style-type: none"> <li>• 10 CRIs were formed from existing government research labs and funding streams.</li> <li>• The CRIs were part of the drive to separate policy, purchase, ownership and provision functions across the state sector.</li> <li>• CRIs had majority access to Vote RS&amp;T Public Good Science Fund.</li> <li>• Most funding was allocated competitively with short-term contracts.</li> <li>• There was very little devolved funding: non-specific output funding of 5% to 8% of revenue.</li> </ul>
Early years 1993–1995	<ul style="list-style-type: none"> <li>• Effort was on achieving both financial viability and scientific credibility.</li> <li>• There was a strong focus on the Foundation as the revenue source. Bidding had strong emphasis on end-user links.</li> <li>• Competition increased considerably when the Public Good Science Fund was opened up to universities in 1994.</li> <li>• Social Research and Development Ltd closed in 1995 owing to lack of financial viability.</li> </ul>
Consolidation and growth 1995–2002	<ul style="list-style-type: none"> <li>• There was fierce competition: warned by the failure of the social research CRI, building revenue and maintaining financial viability became a priority.</li> <li>• The Foundation removed audit trail – a mechanism used to smooth the impact of competitive bidding for CRIs.</li> <li>• CRIs were perceived as acting more in their own interests and less in the interests of the country.</li> <li>• Despite this the CRIs collectively paid dividends of nearly \$50m to fund the establishment of the New Zealand Venture Investment fund in 2001.</li> </ul>
Developing leadership 2002–2004	<ul style="list-style-type: none"> <li>• CRIs acknowledged a need to be working more cohesively in the public interest.</li> <li>• Professional groups were developed (e.g. HR, strategy, finance, commercialisation) across the CRIs to share best practice and develop skills and a culture of collaboration and trust.</li> <li>• CRIs desired to be more involved in the policy environment, rather than just a provider of research.</li> <li>• Science Enterprises Group, a collaboration of CRIs, universities and research associations published 'A Framework for Research and Development in New Zealand' in 2004.</li> </ul>
Greater outward focus 2005–present	<ul style="list-style-type: none"> <li>• Closer working relations developed across all CRIs.</li> <li>• Many CRIs formed closer working relationships with universities through student mentoring and PhD supervision and became partners in Centres of Research Excellence.</li> <li>• There was recognition that the ideal mix of skills, infrastructure and connections exists across institutions rather than residing in one.</li> <li>• CRIs undertook constructive engagement and partnering with sectors, companies and policy agencies to overcome constraints of the purchase-provision model and improve focus on national needs, supported by a good deal of evolution in system policies: <ul style="list-style-type: none"> <li>• the introduction of the CRI Capability Fund in 2004</li> <li>• exploring the idea of devolved funding—leading to the introduction of negotiated funding in 2006</li> <li>• further improvements to negotiation in 2008 leading to the first 'platform' investment in Natural Hazards Research</li> </ul> </li> <li>• Research Application Indicators were introduced in 2006, to take a broader view of performance beyond finance.</li> <li>• The OECD's review, in 2007, of New Zealand's innovation policy concluded that contestability should be reduced and that CRIs needed mission statements and a better set of performance measures.</li> <li>• Two CRIs, Crop and Food and HortResearch, merged in 2008.</li> <li>• A proposal to merge AgResearch and Lincoln University was considered in 2009. After consideration, both organisations rejected the proposal.</li> </ul>

## Annex 6: Accountability arrangements

CURRENT ARRANGEMENTS		PROPOSED ARRANGEMENTS			
Title	Accountability regime	Distribution	Title	Accountability regime	Distribution
Outline of Shareholder Expectations	This is an annual document provided by shareholders to supplement the CRI Act 1992 with broader expectations with regard to governance, reporting requirements, and the role and responsibilities of CRI directors in general. Sets out requirements common to all CRIs (Operating Framework for CRIs) and gives an overview of the Government's agenda.	Shareholding Ministers provide to CRIs  Publicly available on COMU website	Statement of Expectations	This will be a generic statement of CRI expectations provided by shareholders that describes the CRI framework in a way that augments and clarifies the CRI Act (particularly reporting requirements, financial settings, and commercialisation settings).	Shareholding Ministers provide to CRIs. Deemed to endure unless significant departures
Statement of Corporate Intent (SCI)	CRIs are expected to deliver an annual Statement of Corporate Intent which covers a range of information required under the CRI Act 1992. This includes the objectives of the organisation, the nature and scope of the activities to be undertaken and a range of relevant financial information.	Public – tabled annually in Parliament	Statement of Core Purpose	The Government will provide a clear, explicit and enduring strategic role for each CRI in a 'Statement of Core Purpose', which it should develop using a high-level dialogue with each CRI's stakeholder community. It will essentially be a mission statement that will reflect the reason the Crown owns the CRI and how it benefits its end-users.	Shareholding Ministers to provide CRIs on a five-yearly basis  Publicly available on government and CRI websites. Included within SCI
Business or Strategic Plan	With the SCI, CRIs also provide Ministers with their draft business/strategic plans that contain considerably more information (often commercially sensitive) than is required to be included in the SCI.	Shareholding Ministers, CRI board and management only	Statement of Corporate Intent (updated annually on a five-year rolling basis)	The Statement of Corporate Intent should set out how each CRI will meet its core purpose and what its shareholders will receive for their investment. KPIs will be included in this document.  The document will be prepared with a five-year forecast and will be updated annually. Annual financial forecasts will be included.	Public – tabled in Parliament
			Operational Plan	Each CRI board will require the chief executive to prepare and be accountable for an annual operational plan to implement the strategies outlined in the Statement of Corporate Intent.	CRI board and management only

CURRENT ARRANGEMENTS			PROPOSED ARRANGEMENTS		
Title	Accountability regime	Distribution	Title	Accountability regime	Distribution
Annual Report	Within 3 months after the end of each financial year CRIs present an annual report of the operations in that financial year and audited consolidated financial statements.	Public-tabled annually in Parliament	Annual Report including Annual Financial Update	Within 3 months after the end of each financial year the CRI will deliver an annual report on operations and audited consolidated financial statements for the completed year.  Measures will be against those KPIs outlined in the Statement of Corporate Intent. This report will highlight variations against the five-year plan outlined in the SCI.	Public-tabled annually in Parliament and presented at public AGM
Half yearly report	CRIs produce a half yearly report by 28 February, including such information as required by the SCI, under s18 of the CRI Act	Public-tabled annually in Parliament		No change.	
Quarterly reporting	CRIs provide quarterly updates on financials and significant achievements/milestones or arising issues.	Provided to shareholding Ministers	Quarterly reporting	CRIs provide quarterly updates on financials and significant achievements/milestones or arising issues.	Provided to shareholding Ministers

## Annex 7: Bibliography

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Further public documents relating to CRIs, including the Outline of Shareholder Expectations and each CRI's Statement of Corporate Intent can be found at:

<http://www.comu.govt.nz/crown-research-institutes.html>

Discussion documents and media releases from the Prime Minister's Chief Science Advisor can be accessed at <http://www.pmcasa.org.nz/>



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