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Parliamentary paper

Crown Research Institutes: Results of the 2011/12 audits





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Crown research institutes: Results of the 2011/12 audits

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Auditor-General's overview

Science and innovation are important to New Zealand's economic growth. The two high-level (government priority) outcomes that the science and innovation sector contributes to are "growing the economy" and "building a healthier environment and society". Crown research institutes (CRIs) are central to the Government's expectation that investing in science makes a significant contribution to New Zealand's economic and environmental prosperity.

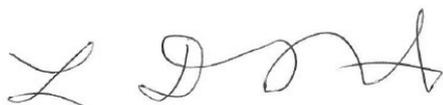
Each year, I report on the results of our annual audits of CRIs, including their financial performance and control environment, systems, and controls. I have been particularly pleased with the quality of CRIs' management control environment and their financial systems and controls. These have been rated highly compared with other public entities.

The quality of performance reporting is vital to understanding how effectively and efficiently public entities are using the public resources they receive. Recently, changes were made to CRIs' accountability arrangements and performance framework. CRIs are now required to report against the outcome/impact measures for their core purpose outcomes in their annual reports. For 2011/12, these measures are included in their 2011-16 statements of corporate intent.

I signalled last year that we would look at whether the CRIs are meeting this requirement. My staff found that only Landcare Research New Zealand Limited had done so. Although all CRIs had some measures for assessing outcomes, they did not always report clearly what was being measured and whether the outcome was being met. In my view, CRIs need to improve their reporting of achievements against core purpose outcomes. This is an essential part of the accountability of CRIs for the Government's investment in science.

For the last six years (except for 2009/10, when a change to tax law resulted in an aggregate deficit result), CRIs had a positive financial result. This year, we have also looked more closely at eight indicators in the financial statements – consistency and accuracy of the budget/forecast processes (*stability*), financial capacity to "bounce back" from unanticipated events (*resilience*), and financial capacity to manage longer-term uncertainties (*sustainability*). I consider that these indicators may be a useful complement to the indicators already used by the monitoring department (now the Ministry of Business, Innovation and Employment), and hope that they generate debate.

My intention in the next year or two is to widen the focus of this report to the science and innovation sector as a whole. I will continue my interest in the quality of CRIs' reporting against the core purpose statements and report again on the results of our analyses of financial performance in the CRI sector. I will also report on CRI and State-owned enterprise decision-making at Board level about future strategies, tactics, and operations based on the right information, in the right form, at the right time.

A handwritten signature in black ink, appearing to read 'Lyn Provost', written in a cursive style.

Lyn Provost
Controller and Auditor-General

11 March 2013

Part 1

Introduction

- 1.1 In this Part, we provide an overview of the Crown research institutes (CRIs) and discuss the more significant changes to the CRIs' operating environment, including changes to the structural, governance, and reporting regimes.

Crown research institutes

- 1.2 The eight CRIs were established under the Crown Research Institutes Act 1992 (the CRI Act) to carry out research for the benefit of New Zealand. The CRIs also provide a range of scientific and advisory services.

- 1.3 CRIs operate as separate Crown-owned companies, each with a particular and distinct "public good" science/research purpose.

- 1.4 The eight CRIs are:

- AgResearch Limited (AgResearch);
- Institute of Environmental Science and Research Limited (ESR);
- Institute of Geological and Nuclear Sciences Limited (GNS);
- Industrial Research Limited (IRL);¹
- Landcare Research (New Zealand) Limited (Landcare Research);
- National Institute of Water and Atmospheric Research Limited (NIWA);
- New Zealand Institute for Plant and Food Research Limited (Plant and Food Research); and
- New Zealand Forest Research Institute Limited (Scion).

- 1.5 The eight CRIs are described more fully in Appendix 1.

- 1.6 For the year ended 30 June 2012, the eight CRIs reported combined total revenue of about \$703 million and total assets of \$733 million. CRIs' aggregate equity was just under \$527 million. Together, they employed just under 4000 full-time equivalent staff.

Changes in the operating environment of Crown research institutes

- 1.7 CRIs are required to promote and facilitate the application of the results of research and technological developments, and maintain their financial viability. In achieving these objectives, CRIs – like many other companies – are affected by the current economic situation and by the resultant expectation of efficiencies within the public sector generally.

¹ IRL ceased to be a CRI on 1 February 2013, when it became a subsidiary of the non-CRI Crown entity, Callaghan Innovation. We have retained it in the group we reviewed because it was still a CRI for 2011/12.

- 1.8 The report of the Crown Research Institute Taskforce in February 2010² initiated considerable change for CRIs and for science research funding and policy agencies. The objective has been to increase the realisation of the benefits to New Zealand from science-based innovation, reduce complexity in the funding and monitoring system, and shift responsibility and accountability for investment decisions.
- 1.9 For CRIs, these changes included:
- a cultural change to more open access and being more focused on the CRI's stakeholders, with stakeholder surveys conducted by the monitoring department, now the Ministry of Business, Innovation and Employment (MBIE), with CRI input;
 - a statement of core purpose (SCP) for each CRI, setting out the enduring purpose and focus for the CRI;
 - the requirement for each CRI to prepare its statement of corporate intent (SCI) in close consultation with its sector groups, businesses, and other end users;
 - shifting significant funding from funding agencies to CRI Boards, so that the CRI Board received core funding (direct Crown funding), with the amount and percentage varying for each CRI, and took on an investment (and accountability) role for strategy and resource allocation;
 - a new suite of key performance indicators that give weight to both the financial viability requirement of the CRI and the requirement to deliver research that benefits New Zealand; and
 - balance sheet reviews by the monitoring department.
- 1.10 For policy and funding agencies, changes included:
- The Ministry of Research, Science and Technology and the Foundation for Research, Science and Technology were disestablished, and a single entity was created in 2011: the Ministry of Science and Innovation (MSI). MSI became part of MBIE from 1 July 2012, initially as MBIE (Science and Innovation) and then as MBIE – Science, Skills and Innovation Group.³

2 Crown Research Institute Taskforce (2010), *How to enhance the value of New Zealand's investment in Crown Research Institutes*. The report is available on MBIE's science and innovation website (www.msi.govt.nz).

3 MSI began operating on 1 February 2011, after the integration of the functions of the former Ministry of Research, Science and Technology and Foundation for Research, Science and Technology. MSI was disestablished on 30 June 2012, when its operations were merged with those of the Department of Labour, the Department of Building and Housing, and the Ministry of Economic Development to form the Ministry of Business, Innovation and Employment on 1 July 2012. MSI's operations became MBIE (Science and Innovation) for the early stages of the merger. The change to the final structure of MBIE took effect on 19 November 2012, and MBIE (Science and Innovation) became part of the MBIE – Science, Skills and Innovation Group.

- Primary responsibility for monitoring CRIs was moved from the Treasury's Crown Ownership Monitoring Unit (COMU) to MSI, then MBIE. COMU retained a role in monitoring CRI financial performance.⁴
- More of the funding allocation decisions were shifted from funding agencies to CRI Boards, because the Boards are closer to both the science and the end users' requirements.

1.11 There have also been initiatives to support business investment in research and development, and a review of the research requirements and support for the high-value manufacturing and services sectors. This included the 2011 report *Powering Innovation: Improving access to and uptake of R&D in the high value manufacturing and services sector* (the *Powering innovation* report).⁵ The role and capability of IRL was reviewed, leading to a Cabinet decision to disestablish IRL as a CRI and incorporate its operations into an "advanced technology institute" called Callaghan Innovation.

IRL's new status

1.12 IRL ceased to be a CRI on 1 February 2013 and became a fully-owned subsidiary of Callaghan Innovation. IRL continues to carry out its previous functions and responsibilities with much the same staffing, until further decisions are made about the structure and operations of Callaghan Innovation. It has been renamed Callaghan Innovation Research Limited.

Callaghan Innovation

1.13 The Callaghan Innovation Act 2012 set up Callaghan Innovation in response to a major recommendation of the *Powering Innovation* report, which looked at how to boost the growth of firms in the high-value manufacturing and services sectors. Callaghan Innovation began operating on 1 February 2013.

1.14 Callaghan Innovation's focus will be broader in scope than the work of the former IRL. It takes over a range of business development functions that currently sit within other agencies, including the administration of some business research and development grants. It brings together the operations of the former IRL, MBIE's business investments team, and the Auckland FoodBowl.⁶

⁴ Until 31 January 2011, COMU was the primary monitoring department for CRIs. From 1 February 2011 until 30 June 2012, MSI was the primary monitoring department for all CRIs, with COMU having a secondary role in monitoring CRIs' financial performance. On 1 July 2012, MSI operations were transferred to MBIE, where the monitoring of CRIs continued to be carried out by the original monitoring group. Monitoring CRIs is now one of the functions of MBIE – Science, Skills and Innovation Group.

⁵ Ministry of Science and Innovation (2011), *Powering Innovation: Improving access to and uptake of R&D in the high value manufacturing and services sector*. See <http://www.msi.govt.nz>.

⁶ The FoodBowl is a purpose-built facility located near Auckland International Airport and operated by New Zealand Food Innovation Auckland Limited. It was set up to support innovative food and beverage companies, providing them with export-certified processing facilities.

- 1.15 Callaghan Innovation's main objective is to support science and technology-based innovation and its commercialisation by businesses, primarily in the manufacturing and services sectors, to improve their growth and competitiveness. Callaghan Innovation provides a link between its own facilities, expertise, and resources and those of other Crown agencies and research organisations, such as CRIs, universities, and polytechnics. It has close links with New Zealand Trade and Enterprise, with which it is co-located in Auckland, Wellington, and Christchurch.
- 1.16 An establishment board was responsible for the preliminary planning. The new Board continues the implementation work and is preparing the new entity's business plan and accountability documents.

Reporting reforms – the statement of core purpose

- 1.17 In November 2010, the Government released an SCP⁷ for each CRI that set out:
- each CRI's roles and responsibilities, and how these will benefit New Zealand;
 - the operating principles that describe the way a CRI must conduct itself;
 - the outcomes for each CRI (the SCP outcomes); and
 - which areas a CRI will lead to achieve the SCP outcomes and which areas a CRI will contribute to (led by another CRI to achieve its SCP outcomes).
- 1.18 In our previous report on the results of our CRI audits,⁸ we drew attention to the new performance framework for CRIs, including SCPs, and new reporting requirements. In the 2011/12 audits, we looked at CRIs' reports of performance against their SCPs.
- 1.19 In Part 4, we comment on CRIs' reporting against the SCP outcomes, as reflected in the SCI, and on their use of the core funding.

Our future focus

- 1.20 Our intention in the next year or two is to widen the focus of this report to include public entities in the wider science and innovation sector.
- 1.21 We will continue our interest in the quality of CRIs' reporting against their SCPs and report again on the results of our analyses of financial performance of CRIs.
- 1.22 We will also report on CRI and State-owned enterprise decision-making at Board level about future strategies, tactics, and operations based on the right information, in the right form, at the right time.

⁷ SCPs for each CRI are available online: <http://www.msi.govt.nz/get-connected/crown-research-institutes/cri-toolkit/section-2-planning-and-reporting-requirements/statement-of-core-purpose/>.

⁸ Part 7: Results of Crown research institute audits, *Central government: Results of the 2010/11 audits (Volume 1)*, December 2011.

Part 2

Audit results for 2011/12

- 2.1 In this Part, we report on the audit results for CRIs for 2011/12, including:
- our audit opinions;
 - our evaluation of CRIs' systems and controls;
 - matters of significance we raised in the context of the annual audit; and
 - our surveys of CRIs' insurance and asset management.

Audit opinions

- 2.2 We issued standard unmodified audit opinions for seven of the CRIs for 2011/12.
- 2.3 For IRL, we issued an unmodified opinion for 2011/12. However, we noted the proposal for IRL to become a subsidiary of another entity.⁹ We also noted that, although IRL might be disestablished, there was no time frame for this to occur. This event had been disclosed in the financial statements, and we added comment on this in our audit report to highlight that uncertainty to the reader.

Systems and controls

- 2.4 We assessed that the systems and controls of CRIs were of a high standard.
- 2.5 As part of the annual audits, our appointed auditors assess and grade the management control environment of CRIs and their financial (but not their service performance) information systems and controls. We report our assessments of each CRI to its management and Board, the Minister of Science and Innovation, MBIE (as the monitoring department), and the Treasury.
- 2.6 In 2011/12, all eight CRIs were graded as having either "Very good" or "Good" management control environments and financial information systems and controls. A "Very good" grade means that the appointed auditor did not recommend any improvements. A "Good" grade indicates that we do not have any significant concerns but that the appointed auditor recommended improvements that would be beneficial.
- 2.7 Figure 1 shows a summary of the grades for 2011/12. Our appointed auditors' assessments for 2011/12 continue to show strong performance by CRIs.

⁹ That other entity was to be known as the Advanced Technology Institute, but was instead called Callaghan Innovation in recognition of the work of the late Sir Paul Callaghan.

Figure 1
Summary of Crown research institutes’ grades for 2011/12

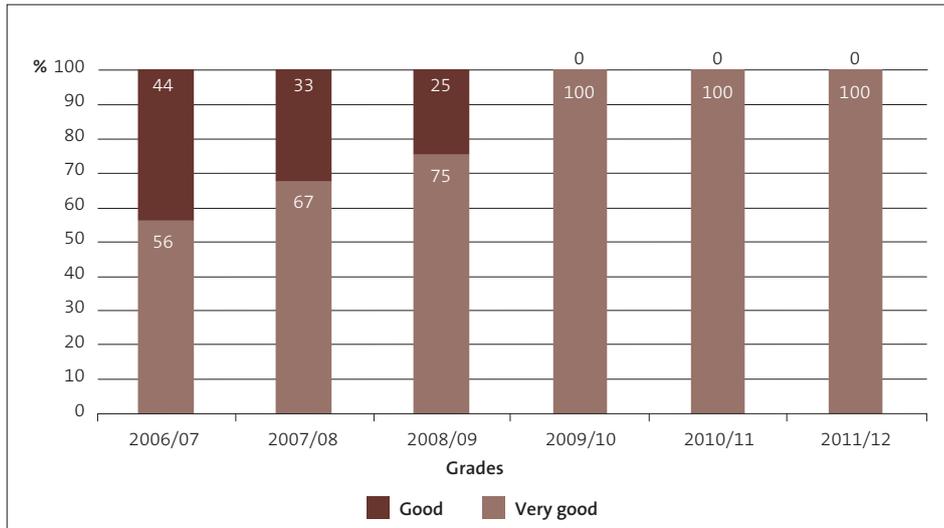
	Management control environment	Financial information systems and controls
Very good	8	3
Good	0	5
Needs improvement	0	0
Poor	0	0

Management control environment

2.8 We graded all eight CRIs’ management control environments as “Very good” in 2011/12, continuing the trend of the previous two years. The grades for CRIs’ management control environments since 2006/07 have all been either “Very good” or “Good”, with a steady improvement to 100% “Very good”.

2.9 Figure 2 shows the grades for the management control environment since 2006/07.

Figure 2
Grades for Crown research institutes’ management control environment, 2006/07 to 2011/12

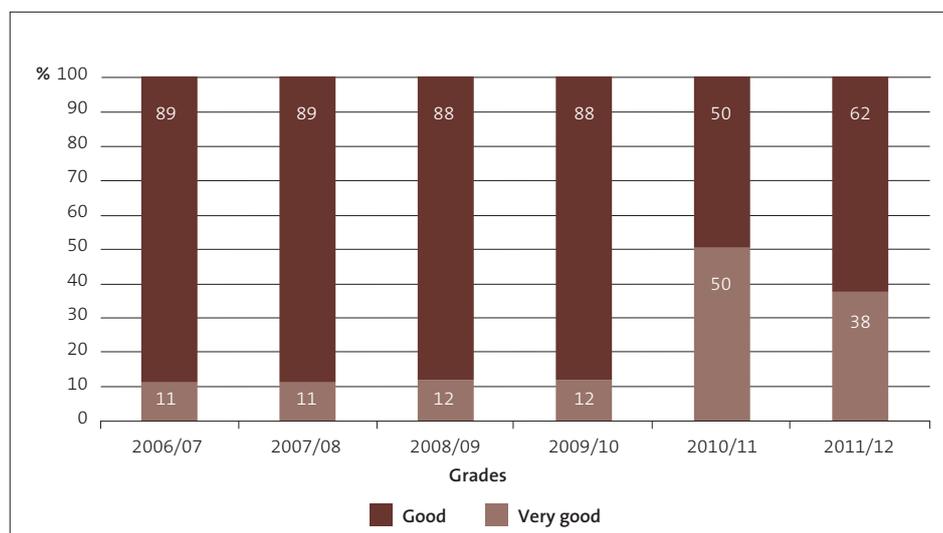


Financial information systems

2.10 The grades for CRIs’ financial systems and controls since 2006/07 have also all been either “Very good” or “Good”. Three of the eight CRIs were graded as “Very good” in 2011/12, compared with four in 2010/11 and one in 2009/10. The CRIs that improved their grades from “Good” to “Very good” in the last two years responded fully to our recommendations for improvement in the previous year.

- 2.11 Those CRIs that continue to be graded as “Good” responded in part to our recommendations for improvement.
- 2.12 Figure 3 shows the grades for CRIs’ financial information systems and controls since 2006/07.

Figure 3
Grades for Crown research institutes’ financial information systems and controls, 2006/07 to 2011/12



Matters of significance

- 2.13 We noted the following matters in particular CRIs during the 2011/12 audits. In each instance, we discussed the matters with the CRI’s Board and management, and reported them to the Minister and to the monitoring department.
- 2.14 We will discuss with the monitoring department how CRIs manage their projects and assets and operate their core funding agreement, to determine whether there is any relevant guidance and support from MBIE that might be helpful to the CRIs.

Revenue recognition

- 2.15 Project accounting continues to be an area where there is subjectivity in recognising revenue. We noted improvements in this area in one CRI and changes to project management structure in another. In a third CRI, we identified two contracts where an additional loss should have been recognised in keeping with the relevant accounting standard. The net effect of these was small (\$165,000) and has not been adjusted for.

- 2.16 We noted that four CRIs had deferred some of their core funding. One of the four received its core funding as usual but also received \$5 million that was specifically tagged for development in Christchurch. Because this funding was for a specific purpose rather than for the general objectives of the business, the CRI and MBIE agreed that it should be deferred and recognised in line with the expenditure on that specific purpose.¹⁰ We discussed the funding deferrals with the monitoring department and understand that the timing of the CRIs' use of funds is influenced by the nature of their science/research projects.

Refurbishment/renewal of assets and asset management planning developments

- 2.17 We noted refurbishment/renewal of assets and/or major asset plan development in three CRIs.

Valuation of heritage assets

- 2.18 Two CRIs disclosed their heritage assets in the financial statements as assets that cannot be reliably valued because of their unique and irreplaceable nature.¹¹ One of the CRIs did not revalue two of its three heritage assets for this reason. The other could not reliably value any of its four heritage assets. This is an issue for all CRIs with heritage assets.¹² CRIs receive some of their core funding to apply to the upkeep of these assets.

Business restructuring

- 2.19 The operations of two CRIs were noted as having been affected by the acquisition/disposal of subsidiary businesses. By acquiring a subsidiary, one CRI had acquired existing customer contracts and their associated future revenue streams. For the other CRI, the sale of a subsidiary contributed to lower revenues and expenses compared to budget for 2011/12. The same CRI has provided for impairment to, and is seeking to recapitalise, a poorer performing part of its business and has undergone internal company restructuring.¹³

Effects of the Canterbury earthquakes on operations

- 2.20 The operations of two CRIs were noted as having been affected by the Canterbury earthquakes because of minor damage and/or earthquake-related insurance matters.

¹⁰ Core funding is discussed further in Part 4.

¹¹ An example is Scion's germplasm collection.

¹² In our view, it is preferable to have heritage assets recorded at their deemed cost in the financial statements than not at all. However, this presupposes that the entity knows what heritage assets it has and that such assets can be reliably measured. If reliable measurement of value is not possible, we encourage the entity to disclose the nature and extent of such assets.

¹³ We comment in Part 3 on the potential resilience of the CRIs.

Poorer financial performance

- 2.21 We noted a considerable decrease in science revenue in one CRI, with loss of revenue from a subsidiary following restructuring (see paragraph 2.19). Commercial revenue for this CRI was \$1 million less than in 2010/11.

Insurance of assets by Crown research institutes

- 2.22 The theme for the Auditor-General's work programme in 2012/13 is *Our future needs – is the public sector ready?* As part of this theme, we carried out some work on public entities' insurance of property, plant, and equipment assets, to help show how well insured the public sector is. The information helps in considering the risk that those assets will not be available to deliver services to meet future needs. We asked our auditors of all CRIs for some information about insurance of CRI assets.
- 2.23 There are eight CRIs, and the total value of their property, plant, and equipment assets as at 30 June 2012 was about \$500 million. Most of these assets, apart from land, are currently subject to some form of insurance.
- 2.24 The main insurance contract for six of the eight CRIs¹⁴ is a collective insurance programme that includes a common approach to insuring risk. The property insurance element covers a large range of asset types for the CRIs. The collective is based on a maximum foreseeable loss limit of \$150 million for each loss, with automatic reinstatement of limits after a loss. The loss limit is less than the total value of assets covered by the collective that might possibly be at risk. Such an approach is common where there is a reasonable spread of risk.
- 2.25 As well as the \$500 million of property, plant, and equipment assets, a number of CRIs have heritage collection assets, the value of which is not recorded in their financial statements because it cannot be assessed with enough reliability.
- 2.26 None of these heritage collection assets are insured. CRIs told our auditors that either they were unable to get insurance for these asset types or it was too expensive to do so.
- 2.27 Also, one CRI has chosen to "self-insure" information technology and other specialist equipment, and another has chosen to "self-insure" its biological assets. Where assets are self-insured, the CRI has the capacity to fund the repair or replacement of such assets, if necessary.
- 2.28 Most CRIs have experienced a significant increase in insurance premiums since 2010/11. Four of the eight CRIs identified that insurance premiums had more than doubled. Three of the eight CRIs also noted an increase in their insurance excess, and one noted further policy exclusions compared with the previous year.

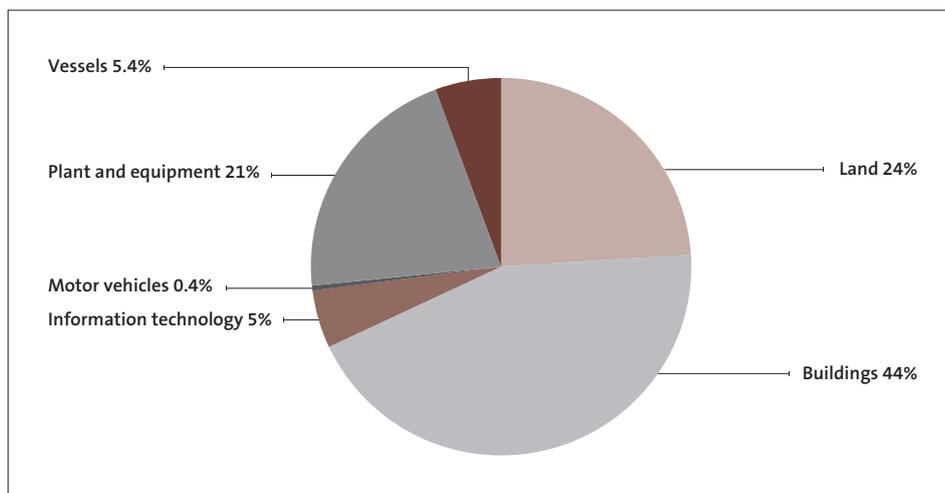
14 AsureQuality is also in the collective insurance programme.

- 2.29 When asked about 2012/13, most CRIs expect a further significant increase in their insurance premium. Others expect further policy exclusions or a further increase in their insurance excess.
- 2.30 We plan to report for all the public entities surveyed on the extent of insurance cover in place for property, plant, and equipment and the extent to which there have been changes in such cover in the past two years. The full report will be published later in 2013.

Asset management in Crown research institutes

- 2.31 In 2011/12, we also looked at asset management in the public sector. As a further contribution to the Office's theme for 2012/13, the Auditor-General wanted to find out more about, and report on, the management of significant physical assets throughout much of the public sector. This included the condition of significant assets, how well maintained they are, whether enough is being spent to renew them, and the adequacy of checking and reporting on those assets.
- 2.32 We received returns from about 350 public entities, including all the CRIs. The focus was on assets that are significant to the delivery of services.
- 2.33 There is more than \$220 billion of property, plant, and equipment (excluding intangible assets) in the public sector, of which about \$500 million is held by CRIs. Nearly all CRI assets are considered significant. They are largely made up of buildings, land, and plant and equipment. Figure 4 sets out the proportion of significant asset types held by CRIs, by value.
- 2.34 In 2011/12, about \$60 million was spent on assets. This equates to 12% of the total assets held by CRIs. We are currently analysing whether the condition and levels of maintenance or renewals in CRIs are consistent with other areas of the public sector, and will cover this in a separate report to Parliament.

Figure 4
Proportion of significant Crown research institute asset types, by value



Note: Percentages do not add to 100 because of rounding.

Part 3

Financial performance from 2006/07 to 2011/12

- 3.1 In this Part, we report on the financial results for CRIs for 2011/12 based on the audited financial statements. We also look at the financial performance of CRIs in the last six years, using analysis of CRIs' accuracy and consistency of budget processes, financial capacity to "bounce back" from unanticipated events, and financial capacity to manage longer-term uncertainties.

Financial results

- 3.2 The financial results for CRIs are positive for 2011/12, with an aggregate net profit of \$21.5 million. All CRIs made a profit of between 1.1% and 5.4% of revenue, and four out of the eight CRIs achieved better results than planned.
- 3.3 Figure 5 shows the CRIs' financial results for 2011/12.¹⁵

Figure 5
Summary of 2011/12 financial results

CRI	Revenue \$million	Net profit		Planned Net profit \$million	Variance from plan \$million	Dividend \$million
		\$million	%*			
AgResearch	157.6	4.2	2.7%	4.2	0.0	0
ESR	58.6	2.4	4.1%	2.9	-0.5	0
GNS	73.7	4.0	5.4%	2.2	1.8	0.6
IRL	67.8	1.2	1.7%	2.2	-1.0	0.3
Landcare Research	59.3	1.3	2.2%	1.4	-0.1	1.1
NIWA	121.3	5.5	4.6%	3.0	2.5	0
Plant and Food Research	121.4	1.3	1.1%	0.1	1.2	0
Scion	43.9	1.6	3.7%	1.3	0.3	0
Total	703.6	21.5		17.3		

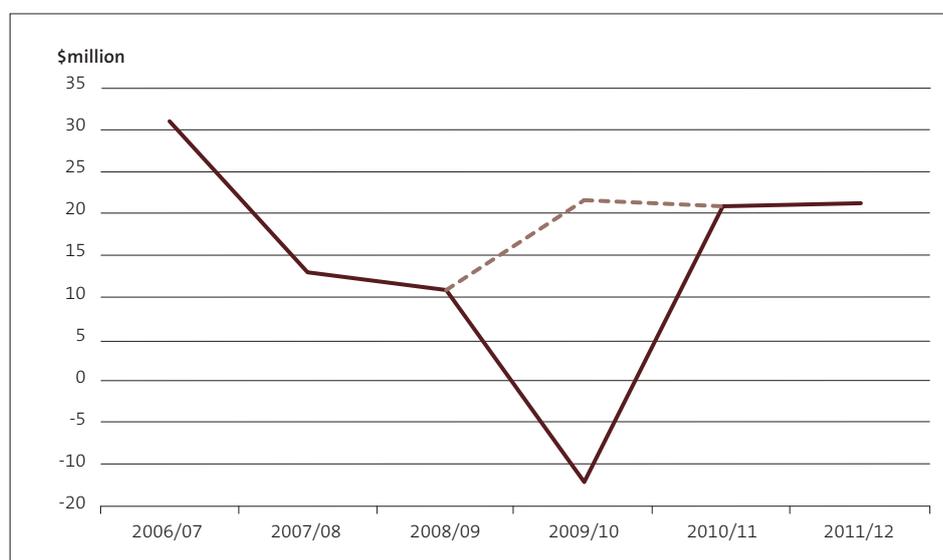
* Net profit as a percentage of revenue.

- 3.4 Figure 6 shows the CRIs' aggregated financial results for 2006/07 to 2011/12. CRIs' aggregate net profit was more than \$10 million for each year except 2009/10, and more than \$20 million in 2010/11 and 2011/12.
- 3.5 In 2009/10, there was a negative aggregate result. This was because a change in tax law for depreciation on buildings resulted in a tax adjustment that affected

¹⁵ All results have been rounded to one decimal place.

the tax expense in that year.¹⁶ The total of the tax adjustment in 2009/10 for CRIs was \$33.646 million. Without that adjustment, CRIs' performance would have been an aggregate net profit of around \$21.6 million (see the dotted line in Figure 6).

Figure 6
Aggregated financial results for Crown research institutes, 2006/07 to 2011/12



Note: The graph uses figures for the parent CRIs from the audited financial statements for 2006/07 to 2011/12. The result is indicative of the annual net surplus/deficit. The results for 2006/07 and 2007/08 include two CRIs that merged to form Plant and Food Research in 2008/09.

- 3.6 Three CRIs provided a dividend to the shareholders for 2011/12: GNS, IRL, and Landcare Research. The CRIs tend to retain profits, making them available to be reinvested in the business (for example, to be applied to capital expenditure on new assets and the renewal of existing assets) rather than making a return to the shareholder, as a dividend.

Financial performance requirements and indicators

- 3.7 The CRI Act requires CRIs to remain financially viable. Viability is defined as:
- generating an adequate rate of return on shareholders' funds; and
 - operating as a successful going concern.
- 3.8 MBIE monitors CRIs. To analyse financial performance and related risks, MBIE uses a set of financial performance indicators that focus on viability and sustainability.

¹⁶ In the 2010 Budget Statement, the Government announced (and subsequently enacted) legislation to effectively remove depreciation deductions on buildings with expected lives of 50 years or more from the 2012 income year. This change lowered the tax base for such buildings, which created a "one-off" increase in both the deferred tax liability and tax expense in the current year. The changes were effective for years beginning on or after 1 April 2011.

These indicators are fairly standard for Crown entities (and the private sector). They are listed in Appendix 2. MBIE also recently commissioned a “balance sheet review” of each CRI.

- 3.9 We reviewed CRIs’ annual reports for 2011/12 and found that most CRIs publish most of the financial performance indicators required by MBIE in their annual reports.
- 3.10 In the following paragraphs, we look at the financial performance of CRIs by analysing some financial information from the last six years.

Understanding Crown research institutes’ financial performance

Developing a new approach

- 3.11 In our reports on the 2012-22 long-term plans of local authorities¹⁷ and on the education sector 2011 audit results¹⁸, we noted that we are exploring ways of analysing financial statements to understand financial performance, and have come up with a possible approach. We are receiving useful feedback, which is informing how we use this approach.
- 3.12 We have applied the approach to the financial statements of CRIs, using indicators that seem relevant. We are open to debate and discussion about the usefulness of this approach, and the set of indicators, and welcome the opportunity to discuss them with CRIs, MBIE, and COMU.
- 3.13 The financial statements have an important role in assessing performance. Although they say little about many of the non-financial objectives of public entities, they describe and summarise many of the factors that reflect financial risks that might affect whether a public entity achieves its objectives (for example, through the underlying revenue, costs, liabilities, and assets).
- 3.14 In this section, we use the analytical approach we are developing to help understand the financial uncertainty that surrounds CRIs’ capability to deliver on their objectives. We will use the results of this analysis to inform our audit teams, and look into any results that are consistently and/or materially outside of what is usual for CRIs.
- 3.15 Where we have identified that the results for individual CRIs sit outside what is usual, we will discuss them with individual CRIs, and encourage the CRI, where appropriate, to investigate further.

17 Office of the Auditor-General (2012), *Matters arising from the 2012-22 local authorities long-term plans*, Wellington (see Part 4, pages 51-65).

18 Office of the Auditor-General (2012), *Education sector: Results of the 2011 audits*, Wellington (see Part 2, pages 9-26).

3.16 As with all analysis of financial performance, there are limitations to what can be inferred. Our approach does not provide a comprehensive assessment of a public entity's performance but focuses on the potential uncertainty of performance.

About our set of indicators

- 3.17 Our approach uses indicators in three areas to assess aspects of CRIs' financial performance:
- We look at the accuracy of an entity's budgeting, and consistency of budgeting for its use of financial resources. We have called this *stability*. For example, we compare actual performance with budget/forecast.
 - We look at the entity's ability to respond to short-term unanticipated events, or how well the entity can "bounce back", without major structural or organisational change. We have called this *resilience*. For example, we look at "fixed costs",¹⁹ and whether current assets cover current liabilities.
 - We look at how prepared the entity is for long-term uncertainties and to maintain itself in the longer-term. We have called this *sustainability*. For example, we focus on balance sheet items such as assets, liabilities, and debt, together with related items such as capital expenditure and depreciation.
- 3.18 The indicators we have used to assess these aspects of financial performance could be a useful complement to the measures MBIE already uses. Our indicators are set out in Figure 7.

Figure 7
Indicators by aspect of financial performance

Stability	Resilience	Sustainability
Budget to actual cash flows applied to operations	Current assets to operating cash flows	Equity to total assets
Budget to actual cash flows applied to assets and other investing activities	Current assets to current liabilities	Retained earnings to total equity
	Fixed costs* to operating and capital and investing cash flows	Capital expenditure to depreciation

* See Footnote 19.

3.19 Appendix 3 sets out the detailed results of our analysis of each of these indicators.

19 In fixed costs we have included only personnel costs, interest expenses, and depreciation and amortisation.

What we found

3.20 In general, there was a great deal of variation between CRIs, which we outline in the following paragraphs. Although all CRIs have science research as their business, the kinds of activities each carries out, and the risks associated with them, are quite distinct, and are probably not easily managed in a uniform or consistent way.

The stability of Crown research institutes

3.21 We have looked at budget to actual cash flows applied to operations and to assets and other investing activities.

3.22 CRIs' planning and budgeting for operational activities shows budget and actual spend closely aligned.²⁰ However, all CRIs' budgets for assets and investments were consistently a lot more than what was actually spent.²¹

3.23 Looking through the cash flow statements, the difference resulting from this "over-budgeting" appears to have been used variously to pay off debt, increase cash, or cover variances in other areas.

3.24 We suggest that CRIs look at the factors that have given rise to the over-budgeting and whether there are any implications in terms of quality of forecasting and cash management.

The resilience of Crown research institutes

3.25 Resilience is affected by the flexibility of a company's cost structures and the buffer that is provided through certain balance sheet items. We have looked at current assets to operating cash flows and to current liabilities. We also looked at fixed costs²² to operating and capital cash flows.

3.26 Our analysis²³ shows that CRIs vary in their capability to respond to unexpected events without major structural or organisational change, or recourse to external funders.

3.27 CRIs' current assets are enough to cover current liabilities, and those assets, on average, would cover operating cash flows for about three months if, for example, there were a change in their operating environment or a significant decrease in the level of revenue received. The personnel costs, interest expenses, and depreciation and amortisation (costs that cannot be easily changed), average 57% of operating, investing, and capital cash flows.

20 See Figure 11 in Appendix 3.

21 See Figure 12 in Appendix 3.

22 We focused only on personnel costs, interest expenses, and depreciation and amortisation.

23 See Figures 13, 14, and 15 in Appendix 3.

The sustainability of Crown research institutes

- 3.28 We looked at equity to total assets, retained earnings to total equity, and capital expenditure to depreciation.
- 3.29 Our analysis shows that CRIs are managing their longer-term uncertainties with increasing levels of equity and retained earnings.²⁴
- 3.30 Spending on assets is also above depreciation and amortisation estimates.²⁵ Because this spending can include spending on new assets as well as the renewal of existing assets, it is not possible to say what the implications are for asset durability without further information from CRIs about the quality of asset maintenance.

Further development of the approach

- 3.31 We consider that the analysis that we have used adds a potentially useful dimension to the monitoring of a CRI's ability to manage risks to, and changes in, its operating environment. We will be discussing the approach with the CRIs, MBIE, and COMU.

24 See Figures 16 and 17 in Appendix 3.

25 See Figure 18 in Appendix 3.

Part 4

Core funding and performance against statements of core purpose

- 4.1 We are not required to audit the performance information of CRIs, only to attest that reporting requirements have been met. In this Part, we examine how:
- the CRIs have met the requirements for reporting against their SCIs;
 - those reports reflect the SCPs; and
 - CRIs report on their use of the core funding to achieve the core purpose.
- 4.2 We have not reviewed impact and output reporting generally or compared the quality of reporting with previous years. We have focused on the reporting as it reflects the new SCPs.

Reporting requirements

- 4.3 Under the CRI Act, the CRIs are required to report against their SCIs. This reporting focuses on a set of financial indicators agreed with Ministers. CRIs are also now required to report on their progress towards their SCP outcomes.
- 4.4 The new accountability and reporting requirements for CRIs were introduced in response to the Crown Research Institute Taskforce's report. Each CRI now has an SCP that outlines the purpose, outcomes, scope of operation, and operating principles for each CRI. The SCPs are expected to be enduring, with a 10- to 15-year life span. They are to be reflected in each CRI's annual SCI. The SCI is an outline of the CRI's five-year strategy and how that strategy will contribute to the CRI's outcomes. The SCI also includes a performance framework for measuring and assessing progress.
- 4.5 MBIE now expects CRIs to report not only on financial viability but also on a range of science and innovation indicators for CRI impacts.
- 4.6 The new performance framework sets out what resources a CRI will use, the activities it will carry out (outputs), the difference it will make (impacts), and its contribution to goals for New Zealand (its own and CRI outcomes).²⁶
- 4.7 We expect public entities to tell their own performance story, clearly articulating what they are doing and how this affects outcomes. For CRIs, this would include SCP outcomes, as reflected in the SCIs.

Were reporting requirements met?

Were statement of core purpose outcomes reflected in the statement of corporate intent?

- 4.8 We reviewed the SCIs for 2011-16 and found that all CRIs had included the outcomes that are set out in their SCPs.

²⁶ Ministry of Science and Innovation (2012), *Guidance for CRI Statements of Corporate Intent*, Wellington, page 6.

Were statement of core purpose outcomes reflected in the annual report?

- 4.9 We also reviewed the annual reports of CRIs to see whether CRIs have reflected their SCP outcomes in their annual reports. Five CRIs had disclosed their SCP outcomes in their annual reports. However, for four of those CRIs, their outcomes were not well linked to the rest of the reported performance. Three CRIs had not mentioned the SCP outcomes at all.
- 4.10 Overall, the reported performance in the annual reports for CRIs is not strongly linked to the SCP outcomes. In our view, the CRIs are making progress but need to do more to ensure that the standard of performance reporting is adequate to tell the reader how well CRIs are achieving their SCP outcomes.

Measures and trends

- 4.11 The goal in a performance story is to give a clear picture of the actual performance compared to intended performance. This is why specific measures of outcomes are important, together with targets. Establishing a good performance framework for measuring and assessing progress is important for providing an informative report of performance to stakeholders, as well as having a tool that is embedded into everyday management. The CRI toolkit²⁷ specifies that the Board is responsible for holding management responsible for meeting the performance measures/milestones in the SCI and business plan.

Measures included in statements of corporate intent

- 4.12 All CRIs had some measures for assessing outcomes. However, we noted that the measures were of variable quality and it was not always clear what was being measured and how that would show whether the outcome was being met.
- 4.13 Some of the issues we noted were:
- outcome/impact measures that were based on CRI outcome goals (or other outcome areas), which were different from, and not linked to, the SCP outcomes;
 - outcome/impact measures based on business centres rather than SCP outcomes, which means that key performance indicators (KPIs) do not directly correlate to outcomes, making it difficult to see a clear performance story;
 - vague measures (for example, measured by client satisfaction surveys) that do not articulate the specific measure or target or desired progress; and
 - measures that are based on activities or outputs rather than being measures of outcomes (for example, an outcome that is measured by publications achieved). This does not show how the outcome is being achieved.

²⁷ The CRI toolkit contains information and guidance for CRI board members, managers, and staff. It is available on MBIE's science and innovation website, www.msi.govt.nz.

- 4.14 In one of the better examples, from ESR's 2011-16 SCI, the outcome is to "Improve the safety of freshwater and groundwater resources for human use and the safer use of biowastes". The related impact measure is "Increased use of biowastes as a resource not a waste measured by the number of communities adopting biowaste reuse initiatives".

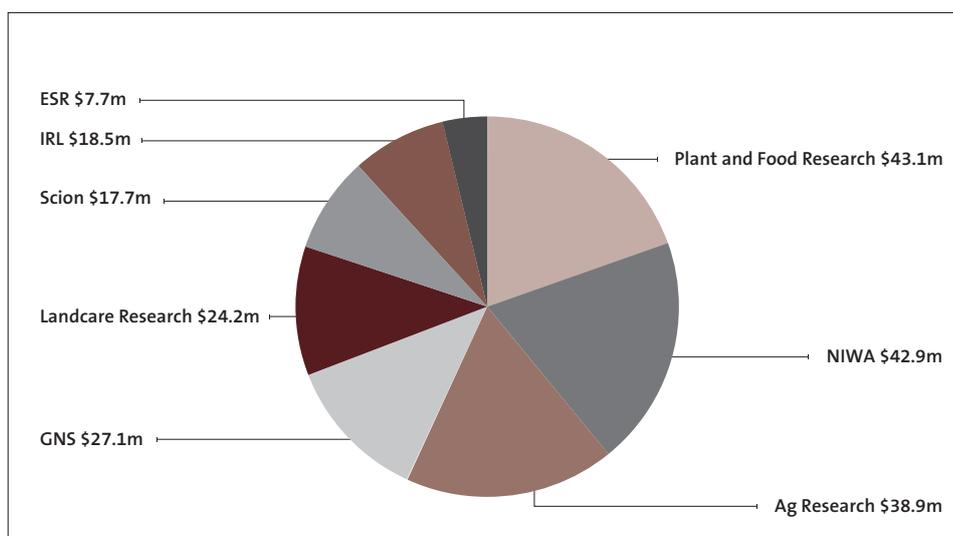
Annual report against the measures of core purpose outcomes

- 4.15 Only Landcare Research had reported against the outcome/impact measures set out in its 2011-16 SCI for core purpose outcomes. Using the framework set out in its 2011-16 SCI, Landcare Research reported progress against its SCP outcomes in its annual report for 2011/12, using KPIs for each impact. It then discussed the highlights achieved during the year that related to each specific outcome/impact. Outcomes, impacts, and the initiatives that related to them were clearly linked, so the reader could see how Landcare Research's activities were intended to affect national outcomes and what progress had been made. Landcare Research could further improve its reporting by including measures of the outcome KPIs and providing, over time, some trend data.
- 4.16 In comparison, most of the other CRIs had a lot of information on their main innovations, achievements, programmes, or projects and might have loosely linked these to overall outcomes. However, they did not report any results against the SCP outcome measures included in their SCI. This makes it difficult for the reader to see whether the CRI achieved what it intended to achieve. We will discuss the quality of performance reporting with the CRIs and MBIE and encourage them to make improvements.

Use of core funding

- 4.17 CRIs receive core funding to enable them to address the outcomes sought under their SCPs. MBIE – Science, Skills and Innovation Group will co-ordinate in-depth reviews of each CRI by an independent panel of New Zealand and international experts at least once every five years. The panel will assess and report on the CRI's contribution towards achieving its outcomes and company performance.²⁸
- 4.18 This includes reporting against the core funding that was introduced in the 2011 Budget, which was intended to support each CRI to fulfil its core purpose and to contribute to the outcomes set out in its SCP. Figure 8 shows a breakdown of core funding for CRIs for 2011/12.

Figure 8
Breakdown of core funding for 2011/12



Source: Response to 2011/12 Estimates Vote Science and Innovation, Post hearing questions, Question 122.

- 4.19 Each CRI's Board is responsible for deciding how to invest its core funding and is accountable for the CRI's success in fulfilling its core purpose, carrying out its strategy, and achieving its SCP outcomes.
- 4.20 Both NIWA and Plant and Food Research have clearly reported how they have invested their core funding for 2011/12. In their annual reports, they have used tables to show achievements for each core funded component, the amount of core funding spent on that component, and which SCP outcome the achievements have contributed towards.
- 4.21 CRIs could further improve their reporting by also disclosing the results of actual performance against outcome measures in this context. Over time, this would allow readers to see whether the achievements and core funding spent are affecting the overall outcomes.
- 4.22 In general, CRIs need to improve how they report achievements against SCP outcomes. This is an essential part of their accountability to their sector groups and to the Government.

Appendix 1

About Crown research institutes

Crown research institutes (CRIs) were established in 1992 under the Crown Research Institutes Act 1992. They are Crown entities with the primary purpose to carry out research for the benefit of New Zealand.

CRIs also provide a range of scientific and advisory services. They are expected to work with industry, firms, and other organisations to encourage and support the sharing of new technology and knowledge.

CRIs receive funding from different sources, including contestable and non-contestable government funds, contracts for services with local and central government agencies, and commercial work. They are expected to maintain their financial viability and their scientific capability.

The eight CRIs²⁹ whose results are covered in this report are listed below, with each CRI's statement of core purpose:

- AgResearch Limited (AgResearch) – AgResearch's purpose is to enhance the value, productivity, and profitability of New Zealand's pastoral, agri-food, and agri-technology sector value chains to contribute to economic growth and beneficial environmental and social outcomes for New Zealand.
- Institute of Environmental Science and Research Limited (ESR) – ESR's purpose is to deliver enhanced scientific and research services to the public health, food safety, security, and justice systems and the environmental sector to improve the safety and contribute to the economic, environmental, and social well-being of people and communities in New Zealand.
- Institute of Geological and Nuclear Sciences Limited (GNS) – GNS's purpose is to undertake research that drives innovation and economic growth in New Zealand's geologically-based energy and minerals industries, that develops industrial and environmental applications of nuclear science, that increases New Zealand's resilience to natural hazards, and that enhances understanding of geological and earth-system processes.
- Industrial Research Limited (IRL) – IRL's purpose is to increase the contribution of the industrial, manufacturing, and associated sectors to the New Zealand economy by empowering industry to drive innovation in manufacturing and services.
- Landcare Research New Zealand Limited (Landcare Research) – Landcare Research's purpose is to drive innovation in New Zealand's management of terrestrial biodiversity and land resources in order to both protect and enhance the terrestrial environment and grow New Zealand's prosperity.

29 IRL has since become a subsidiary of Callaghan Innovation and is no longer a CRI.

- National Institute of Water and Atmospheric Research Limited (NIWA) – NIWA's purpose is to enhance the economic value and sustainable management of New Zealand's aquatic resources and environments, to provide understanding of climate and the atmosphere, and increase resilience to weather and climate hazards to improve the safety and well-being of New Zealanders.
- New Zealand Institute for Plant and Food Research Limited (Plant and Food Research) – Plant and Food Research's purpose is to enhance the value and productivity of New Zealand's horticultural, arable, seafood, and food and beverage industries to contribute to economic growth and the environmental and social prosperity of New Zealand.
- New Zealand Forest Research Institute Limited (Scion) – Scion's purpose is to drive innovation and growth from New Zealand's forestry, wood product, and wood-derived materials and other biomaterial sectors, to create economic value and contribute to beneficial environmental and social outcomes for New Zealand.

CRI's have set up many subsidiary companies or joint ventures to develop and commercialise intellectual property.

Figure 9 shows the size of each CRI, with number of staff, revenue, assets, and equity as at 30 June 2012.

Figure 9
Number of staff, revenue, assets, and equity of each Crown research institute, as at 30 June 2012

CRI	Number of staff	Revenue \$million	Assets \$million	Equity \$million
AgResearch	762	157.6	252.0	201.7
ESR	370	58.6	59.1	37.9
GNS	364	73.7	51.0	26.9
IRL	357	67.8	54.9	40.1
Landcare Research	375	59.3	45.3	27.2
NIWA	591	121.3	134.5	95.8
Plant and Food Research	799	121.4	96.2	69.6
Scion	295	43.9	40.0	27.6
Total	3,913	703.6	733.0	526.8

Note: The number of staff shows the number of full-time equivalent staff, from data provided by the Ministry of Business, Innovation and Employment. Financial data are for CRI Groups and are from the 2011/12 annual reports. Revenue figures include Crown and commercial revenue and other income (such as interest).

The governance structure for all CRIs is the same: the shareholding Ministers (the Minister of Finance and the Minister of Science and Innovation) appoint the board of directors, which is accountable to the shareholding Ministers for the CRI's performance.

CRIs' boards of directors are required to produce an annual statement of corporate intent, an annual report, and a half-yearly report, all of which must be presented to the House of Representatives by the responsible Minister (currently the Minister of Science and Innovation).

Since 2008/09, CRIs have been required to hold annual general meetings with shareholding Ministers or their representative, where the board of directors describes and accounts for the CRI's activities during the past year.

Appendix 2

Financial indicators used to monitor Crown research institutes

Figure 10 shows the financial indicators used by the Ministry of Business, Innovation and Employment to monitor Crown research institutes.

Figure 10
Financial indicators used to monitor Crown research institutes

Indicator	Description	Calculation
Operating margin	The profitability of the company per dollar of revenue.	EBITDAF** / Revenue
Profit per FTE*	The ability of the company to generate a return from its staff.	EBITDAF / FTEs
Quick ratio	Adjusted ratio of current assets to current liabilities, adjusted for assets that cannot be liquidated quickly and liabilities that do not require cash to settle.	Current assets less inventory less prepayments / Current liabilities less revenue received in advance
Interest coverage	The number of times that the company can cover interest expense with profit.	EBITDAF / Interest paid
Profit volatility	The standard deviation of the past five year's profit, scaled by average profit.	Standard deviation of EBITDAF for past five years / Average EBITDAF for the past five years
Forecasting risk	The average difference between forecast return on equity and actual return on equity for the past five years.	Five year average of return on equity less forecast return on equity
Adjusted return on equity	Return on equity after removing the impact of fair value movements.	NPAT*** excluding fair value movements (net of tax) / Average of share capital plus retained earnings
Revenue growth	Measure of whether the company is growing revenue.	% change in revenue
Capital renewal	Measure of the level of capital investment being made by the company.	Capital expenditure / Depreciation expense plus amortisation expense

* FTE = Full-time equivalent staff.

** EBITDAF = Earnings before interest, tax, depreciation, amortisation, and fair-value adjustments.

*** NPAT = Net profit after tax.

Source: Ministry of Business, Innovation and Employment.

The Ministry of Business, Innovation and Employment also considers the following:

- revenue-growth by source;
- revenue per full-time equivalent staff member;
- cash/net debt/gearing; and
- interest cover.

Appendix 3

Our analysis of Crown research institutes' financial performance

In Part 3 we reported the findings of our analysis of CRIs' financial statements from 2006/07 to 2011/12,³⁰ which we did in order to look at the accuracy and consistency of budget processes (*stability*), financial capacity to “bounce back” from unanticipated events (*resilience*), and financial capacity to manage longer-term uncertainties (*sustainability*). In this Appendix, we summarise our findings for each aspect of our analysis.³¹

Stability

To help understand accuracy and consistency of budget processes, we focused on comparing actual performance in two areas – operational, and assets/other investing – with budget/forecast.

Figure 11 shows the ratio³² of budgeted to actual operational cash flow for each CRI, each year, from 2006/07 to 2011/12 (marked by separate data points) and uses the average and standard deviation (SD) to summarise them.

The ratios compare CRIs' actual spend with what was originally budgeted. A ratio of 1.0 indicates accurate budgeting.

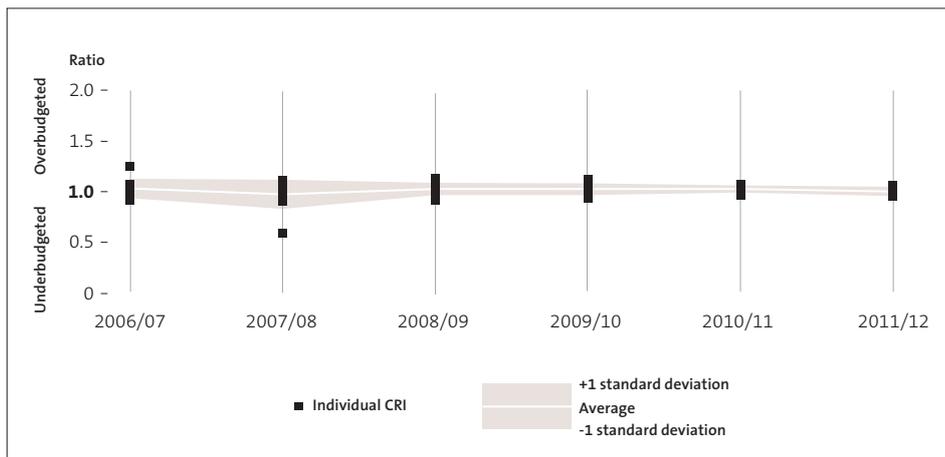
From 2006/07 to 2011/12, the sector average is consistent at around 1.0, indicating that budgets were close to actual spending. This performance has improved during the six years, with the variance of CRIs from the average decreasing more noticeably in the last three years.

30 The results for 2006/07 and 2007/08 include two CRIs that were merged to form Plant and Food Research in 2008/09.

31 The financial data collected represents the financial activities of the parent organisation and does not include any subsidiaries. There are advantages and disadvantages in doing this, but on balance we consider that this is appropriate for the analysis. This is because, among other things, comparability across the public sector is important and materially large subsidiaries can then be analysed separately. For CRIs, we have not included any separate (and material) subsidiary information in our data set, but we may do so in future years. As an example, NIWA Vessel Management Limited (which owns the *Tangaroa*) has not been separately included. However, using NIWA's group accounts would not have materially changed our overall findings or conclusions about CRI's stability, resilience, or sustainability.

32 The term ratio refers to the relationship between two numbers of the same kind. In this report, we compare two accounting line items within the financial statements by dividing the two items, then we express the resulting ratio as a number – for example, 1.0.

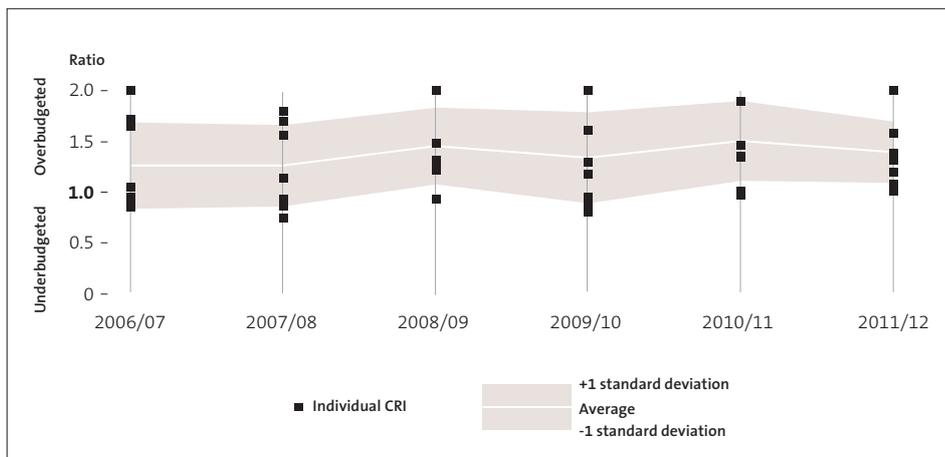
Figure 11
Accuracy of budgeting for operations



In contrast, Figure 12 shows the ratio of budgeted to actual cash flow applied to assets and other investing activities for each CRI, during the same period (again, with a ratio of 1.0 indicating accurate budgeting).

From 2006/07 to 2011/12, actual spending was consistently a lot less than what was budgeted for.

Figure 12
Accuracy of budgeting for assets and other investing



Resilience

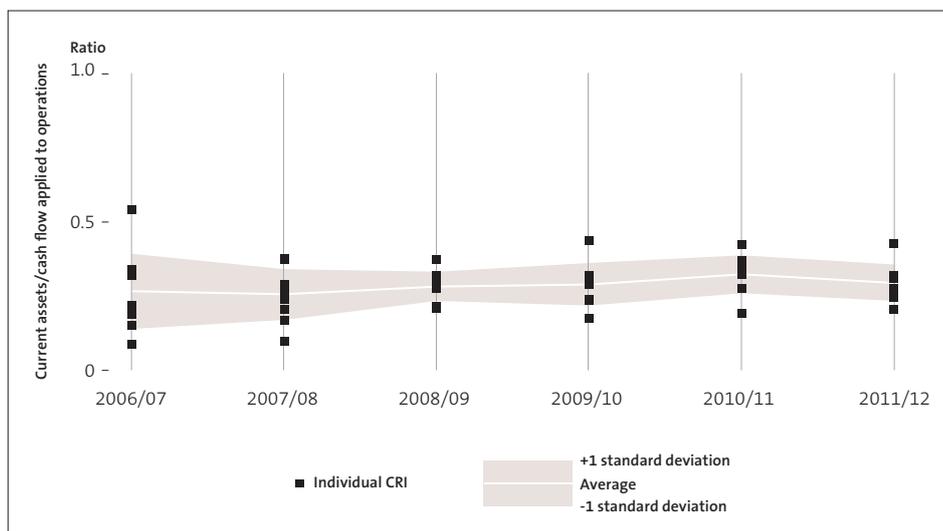
For the component of financial capacity to “bounce back” from unanticipated events, we looked at the flexibility of the CRI’s cost structures and the buffer provided through certain balance sheet items.

Figure 13 shows the ratio of current assets to operating cash flows for each CRI, from 2006/07 to 2011/12, and uses the average and SD to summarise them. The ratios indicate how long the operational cash flows of the entity could be supported using only current assets as funding.

A ratio of 1.0 indicates that current assets would cover one year of operating cash flow.

On average, current assets could cover operating cash flows for just over three months. These results have been stable for the last six years, and there is low to moderate variability among CRIs.

Figure 13
Potential to use current assets for operating costs



In Figure 14, a ratio of 1.0 indicates that the value of current assets is enough to cover the value of the current liabilities.

From 2006/07 to 2011/12, the sector average moves from 0.9 to 1.1, indicating that CRIs have increased their capability to cover their current liabilities with the value of their assets. Variability between CRIs is moderate to high.

Figure 14
Potential for current assets to cover current liabilities

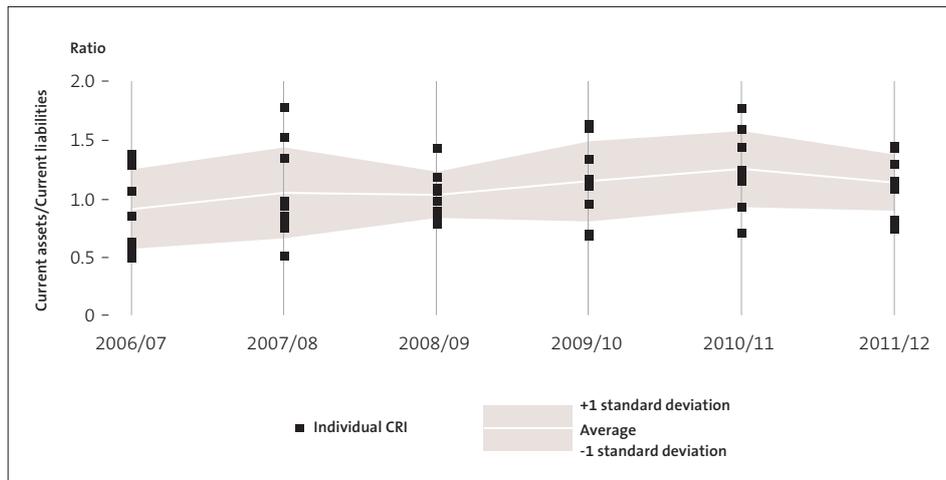
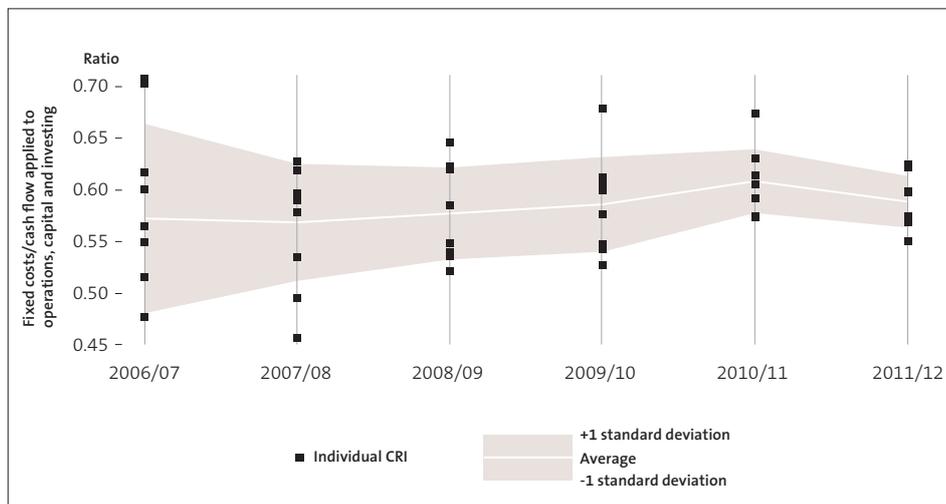


Figure 15 show the ratios of fixed costs to cash flows applied to operations, capital, and investing. These ratios indicate the flexibility of the CRIs' cost structure. Fixed costs include only personnel costs, interest expenses, and depreciation (as a proxy for renewal capital expenditure) and amortisation.

A high proportion of fixed costs could indicate less capability to manage unexpected change by adjusting the spending of the company. Variability is moderate to high.

Figure 15
Level of fixed costs



Sustainability

For the component of financial capacity to manage longer-term uncertainties, we looked at equity to total assets, retained earnings to total equity, and capital expenditure to depreciation and amortisation.

Figure 16 shows the ratio of total equity to total assets for each CRI. A higher ratio means fewer liabilities,³³ a greater level of equity, and more room to move in times of uncertainty. The proportion of equity in CRIs has followed an upward trend from around 0.60 (or 60%) in 2006/07 to around 0.68 (or 68%) in 2011/12 – a result of assets increasing at a faster rate than liabilities. Variability between CRIs is moderate to high.

Figure 16
Level of equity compared to assets

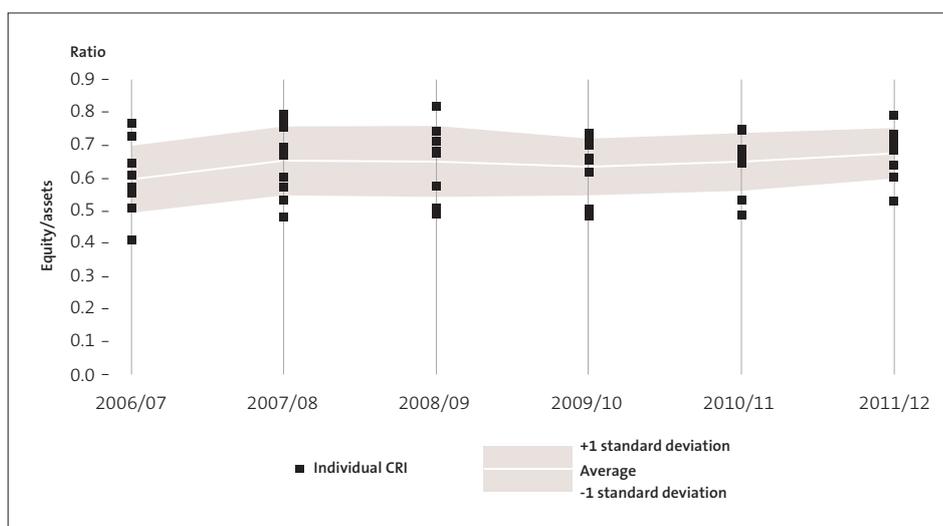


Figure 17 shows the ratio of retained earnings to total equity for each CRI. An increasing ratio can indicate long-term profitability and/or an increasing proportion of retained profits. From 2006/07 to 2011/12, the proportion of retained earnings in CRIs has followed an upward trend from around 0.39 (or 39%) of total equity in 2006/07 to around 0.53 (or 53%) in 2011/12. Variability between CRIs is low.

³³ Equity plus liabilities equals assets.

Figure 17
Level of retained earnings to equity

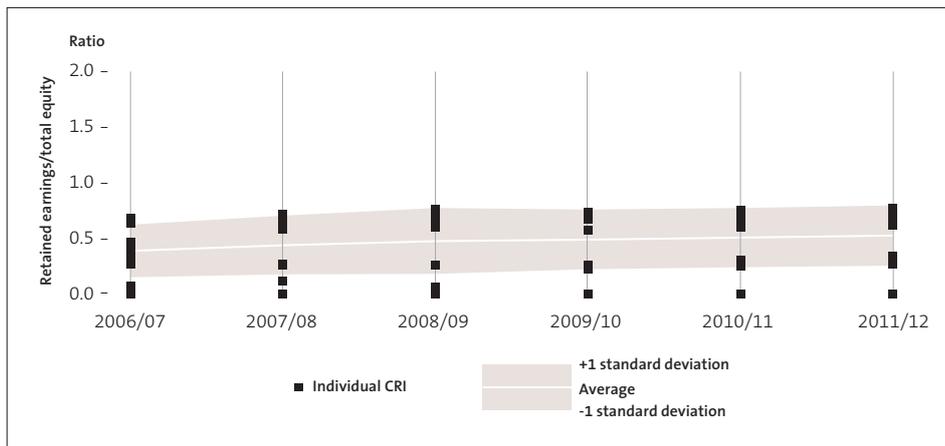
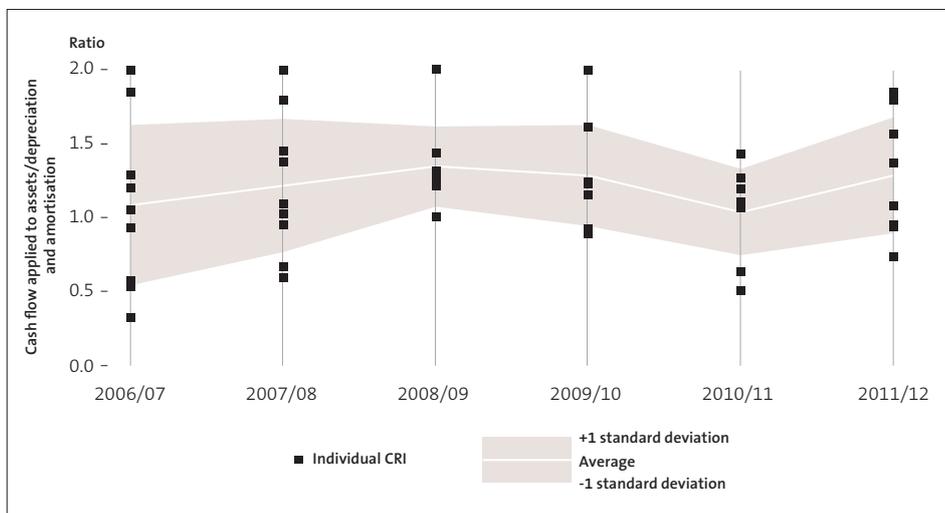


Figure 18 shows the ratio of spending on assets compared to depreciation and amortisation for each CRI. The ratios assume that depreciation and amortisation is a reasonable estimate of the amount of spending required to maintain the existing asset base. Therefore, if asset spending is above depreciation and amortisation (the ratio is more than 1.0), this is positive. However, because this also includes spending on new assets, we expect the ratio to be above 1.0, and possibly well above 1.0, in growing sectors. The ratio has been between 1.1 and 1.4 from 2006/07 to 2011/12, with moderate to high variability between CRIs.

Figure 18
Capital expenditure compared to depreciation and amortisation



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Other publications issued by the Auditor-General recently have been:

- Inquiry into decision by Hon Shane Jones to grant citizenship to Mr Yang Liu
- Ministry for Primary Industries: Preparing for and responding to biosecurity incursions
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- New Zealand Defence Force: The civilianisation project
- Effectiveness and efficiency: Stories from the public sector
- Department of Conservation: Prioritising and partnering to manage biodiversity
- Auckland Council: Transition and emerging challenges
- Matters arising from the 2012-22 local authority long-term plans
- Education sector: Results of the 2011 audits
- Response of the New Zealand Police to the Commission of Inquiry into Police Conduct: Third monitoring report
- Annual Report 2011/12
- Roles, responsibilities, and funding of public entities after the Canterbury earthquakes
- Effectiveness of arrangements to check the standard of services provided by rest homes: Follow-up audit
- Inquiry into aspects of ACC's Board-level governance
- Education for Māori: Context for our proposed audit work until 2017
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