

CONFIDENTIAL

18th December 2015



**Four Year Rolling Review Report
NIWA Taihoro Nukurangi 2015**

Report from the Review panel



TABLE OF CONTENTS

1. ACKNOWLEDGEMENTS	3
2. EXECUTIVE SUMMARY	4
3. REVIEW CONTEXT	7
4. PERFORMANCE AGAINST THE STATEMENT OF CORE PURPOSE	9
4.1 CONTEXT FOR ASSESSMENT	9
4.2 PERFORMANCE OF NIWA AGAINST THE SCP	10
5. REVIEW FINDINGS	15
5.1 GOVERNANCE PERFORMANCE	15
5.2 OPERATING MODEL	17
5.3 ORGANISATIONAL HEALTH	19
5.4 ORGANISATIONAL STRATEGY	21
5.5 FINANCIAL PERFORMANCE AND VIABILITY	22
5.6 INFRASTRUCTURE	31
5.7 SCIENCE QUALITY, STRATEGY AND DELIVERY TO OUTCOMES	35
5.8 VISION MĀTAURANGA	38
5.9 WORKING WITH OTHERS FOR IMPACT	39
6. NIWA'S FUTURE CHALLENGE	42
APPENDICES	44
APPENDIX 1 – REVIEW TERMS OF REFERENCE	44
APPENDIX 2 – BRIEF BIOGRAPHIES OF PANEL MEMBERS	52
APPENDIX 3 – LIST OF INFORMATION REVIEWED BY THE PANEL	54
APPENDIX 4 – LIST OF INDIVIDUALS WHO THE PANEL MET OR SPOKE TO	58

1. ACKNOWLEDGEMENTS

The Panel would like to record its appreciation for the outstanding support it received from both NIWA Taihoro Nukurangi and the Ministry of Business, Innovation and Employment (MBIE) Monitoring and Governance team in undertaking this review.

NIWA put enormous effort into the production of the very significant amount of documentation provided to the Panel in advance of the first meeting and then responded promptly and comprehensively with further information requests as they came from the Panel.

All meetings of the Panel with the NIWA Chair, Board, senior management and staff were able to be held in an open and constructive dialogue, with NIWA participants doing their best to help the Panel understand the dimensions, challenges and complexity of their organisation.

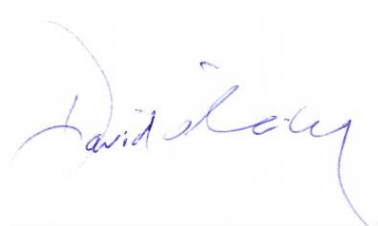
The Panel felt very privileged to be able to spend a day with the wider NIWA leadership team during the NIWA Leadership Forum and also be invited to attend the NIWA Excellence Awards dinner. Both events gave the Panel a unique opportunity to see the way in which One NIWA truly operates and the passion and commitment of all NIWA staff to meeting the NIWA Purpose and Outcomes.

MBIE seamlessly provided the logistical support needed for the review, in particular ensuring that the large numbers of stakeholder interviews were able to be undertaken over a very few days – no mean organisational task.

The Panel has written this report hoping to provide value to NIWA Board and Senior Management as they look to the challenges and opportunities ahead. We are confident that you are well placed to meet them.



Jenn Bestwick (Chair)



David O'Reilly



Paul Morgan



Tricia Harris

2. EXECUTIVE SUMMARY

The NIWA Context

The National Institute of Water and Atmospheric Research (NIWA Taihoro Nukurangi) provides a broad range of science and research services in accordance with its Statement of Core Purpose (SCP). NIWA is New Zealand's largest provider of climate and atmosphere, water and oceans science¹. It employs approximately 600 FTE and had total revenues of \$126m in FY2014/15. NIWA's purpose as specified by its SCP 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 safety and well-being of New Zealanders".

NIWA is governed by an independent Board of seven directors appointed by the Minister of Science and Innovation. The organisation operates a matrixed science consultancy model to manage its organisation, science teams and projects. It's Executive, Science and Operations Management Teams work functionally and geographically across the organisation to deliver NIWA's organisational and science outcomes.

NIWA is host to two National Science Challenges (NSCs) – Deep South and Sustainable Seas – and is a collaboration partner in three of the other challenges namely, Our Land & Water, New Zealand's Biological Heritage and Resilience to Nature's Challenges. NIWA has a number of collaborations with New Zealand and international science organisations.

Review Findings

i. Organisational Performance

The Panel Review found NIWA to be a well-managed, high-functioning organisation. NIWA takes its SCP obligations and outcomes seriously and pays careful attention to their delivery by positioning its Statement of Corporate Intent (SCI) and Annual Report in the context of them.

NIWA conducts research across the breadth of its scope of operations and works with other research providers in a number of collaboration contexts including NSC's, Graduate Schools as well as on specific projects and publications.

The Panel found NIWA's systems and processes to be considered and well-designed in the main. NIWA's financial and Human Resources systems and processes appear particularly strong and embedded throughout the organisation. Organisational controls and risk management mitigations appear to be in place along with appropriate continuous improvement and review processes. The Panel found NIWA's work in the area of Health & Safety to be very strong.

ii. Financial Performance

NIWA has consistently met its financial forecasts and has sound governance protocols in place. The financial systems are aligned to the professional services consultancy model operated by NIWA. The project management system employed by NIWA provides a high level of visibility of resource allocation, project delivery and oversight of costs and gross profit margin allowing NIWA to respond quickly to any material deviations from budget.

¹ NIWA Statement of Corporate Intent 2015/16

The Panel notes and commends NIWA on having received a clean external audit report in 2015 with no new significant management improvement areas observed by the auditors.

iii. Science Quality, Strategy and Delivery

In interviews with stakeholders NIWA is credited with having a number of New Zealand's leading scientists in their field. Their contribution to New Zealand science is acknowledged and valued by stakeholders. The contribution and profile of these scientists is an asset for NIWA and has meant NIWA has been able to achieve trusted science advisor status in a number of arenas for a number of years.

The Panel considers NIWA needs to find ways of allowing some of its next generation science leaders to gain profile before its current generation retire, firstly so that NIWA does not experience a crisis of perceived capability but secondly that its stakeholders can have visibility of the continuation of delivery of science for impact for New Zealand. The Panel observes NIWA has comprehensive succession plans in place. Furthermore it understands that management is aware of the capability issues and is planning how to address this.

The Panel are satisfied that NIWA has in place Science Plans that align with its SCl and demonstrate how the organisation intends to contribute to its outcomes over the next 5 years. NIWA also provided information to assure the Panel that its performance against traditional science quality metrics is satisfactory and in line with other CRIs and NZ Universities. Stakeholders in general reported satisfaction with the quality of science outcomes achieved although this is not consistently the case with a small but significant proportion of stakeholder expressing concerns regarding timeliness of delivery and/or other concerns regarding commercial acumen and associated judgement on some projects. Stakeholders unanimously expressed confidence in the quality of NIWA's science

Triangulation of the above factors has satisfied the Panel that NIWA's science is of high quality and generally delivered in accordance with customer expectations regarding performance. However, the Panel observes that NIWA does not use independent expertise to monitor its science quality in any structured or consistent way. While this does not appear to have resulted in any adverse impacts for the organisation to date, the Panel considers NIWA should address this apparent gap in its monitoring and overview by appropriate systematic independent review to ensure effective management of science quality and prioritisation.

The Panel understand NIWA regards its Strategic Advisory Panel as its Science Advisory Panel and utilises the mix of science, stakeholder and business leadership on the panel to input into the organisation's strategy and direction.

iv. Working with others for Impact

The Panel observes NIWA is an active participant in a broad range of collaborative arrangements with research organisations, industry group and wider government entities. Collaboration partners interviewed during the review provided mixed feedback on NIWA as a partner. While the review panel was unable to determine any particular reason or theme, it appears NIWA works harder to partner with organisations where it values the relationship highly and in such instances builds strong and enduring relationships. In other instances it tends to be less committed resulting in more mixed relationship outcomes. Discussions with management indicate they are aware of this issue and are working to improve performance. In light of this the Panel considers NIWA needs to ensure that where it does enter into an arrangement (whether it be a collaboration, partnership or project) it does so with more clearly defined expectations and operating principles. This will ensure all parties have a shared expectation and avoid unnecessary and potentially damaging reputational impacts through perceived non- or under-performance by either party.

v. *Management of Capital Intensive Infrastructure*

An area of tension for NIWA is the application of its policy on access and supply of data to others. It appears to the Panel there are a number of contributing factors, namely:

- application of NIWA's data access policy results a perception of inconsistent outcomes to some users;
- the commercial contractual arrangements under which some data is captured limits NIWA's ability to supply to others; and
- data from some of NIWA's more intensive computing technology takes considerable work (and associated cost) to supply into a useable form for external users.

The above factors result in differing outcomes which contribute to users and potential users distrusting NIWA's practices in this regard. The Panel considers NIWA needs to address this matter and urgently determine a sustainable basis for supply of data going forward. The Panel understands work is underway in MBIE to consider the wider issue of funding and access to databases and collections funded through CRI Core Funding.

Similar tensions arise in relation to the funding and its implications for NIWA's management of its vessel fleet. Similarly the Panel understands that further work is underway with MBIE to determine funding and access arrangements beyond the current contract term. The Panel observes that independent Value for Money Review of NIWA's management of the vessel fleet indicated NIWA is a prudent, responsible and efficient manager of the vessels. This review has not found anything to suggest otherwise and hopes this matter can be resolved satisfactorily in a timely manner.

NIWA's Future Challenge

The Panel concludes that NIWA's biggest challenge is how it builds upon its current organisational performance to step into leading the science debate in its areas of science expertise through provision of high quality, independent information. A number of central agency and business leaders raised with the Panel the challenge facing NIWA in the current New Zealand context, namely to, with urgency, work with others in the science community to ensure that science is at the heart of informing the growing public debate, providing relevant, timely, accessible, clear and considered research outcomes to support New Zealand to deal with critical decisions regarding its management of natural resources and environment. This will require NIWA to become even more agile in its operational management. It will need to be an inclusive, willing and intelligent partner retaining the integrity of its science whilst accelerating its delivery and working with others to provide considered solutions that traverse complex science interfaces. It will need to increase the already significant communication of its science outcomes in ways that support constructive public debate and work across professional disciplines to deliver solutions to New Zealand's wider natural resource and environment challenges.

The Panel recognises that NIWA cannot achieve this change without other government agencies support and partnering. It requires changes to resourcing and partnering models that will be new to the parties and it requires a degree of inter-agency planning and commitment to realise the true opportunities for New Zealand.

This is a big challenge but an exciting one. For NIWA it is recognition that its science has never been more relevant to New Zealand and beyond. The Panel considers NIWA is well placed to rise to this challenge and wishes it every success in delivering against it for the benefit of New Zealand.

3. REVIEW CONTEXT

The 2010 Crown Research Institutes (CRI) Taskforce reforms are an integrated suite of changes designed to increase the impact and benefit of the CRIs to New Zealand. Central to the reforms is the intention to increase the CRIs' focus on collaboration with, and efficient technology transfer to the sectors and key stakeholders they serve. Each CRI has adopted a Cabinet-approved Statement of Core Purpose (SCP) which reflects this focus and clearly articulates the purpose, expected outcomes and strategic role for the organisation. To ensure CRIs continue to increase their contribution to New Zealand's economic, social and environmental well-being, the CRI Taskforce also recommended, and Cabinet agreed [CAB Min(10)43/5C refers], that the government evaluates the performance of each CRI against its SCP through a process of independent rolling reviews.

It has been agreed with the Minister of Science and Innovation that two reviews will be undertaken each year. Given the cycle of reviewing the seven CRIs will be completed every four years, these reviews will be known as the four-year rolling reviews. These reviews are described as rolling for two reasons: firstly, because they are designed to review each CRI successively, and secondly, because they will draw on an aggregation of performance-related information that is already routinely generated to inform the matrix of monitoring and assessment processes established around the CRIs.

Purpose of the review and this report

The purpose of these reviews is to provide shareholding Ministers with insights on where each CRI's performance can be improved and assurance on where the CRI is operating effectively in delivering outcomes that contribute to New Zealand's economic, social and environmental wellbeing. The reviews will include an assessment of governance effectiveness, financial viability and sustainability as well as an identification of opportunities and barriers to success. Findings from the reviews will also support CRI Boards in their governance role. This report is the outcome of the sixth such review, that of NIWA Taihoro Nukurangi (the National Institute of Water and Atmosphere). The review was undertaken between September and December 2015.

Scope of the review

As outlined in the Terms of Reference for the review (Appendix 1), each CRI's SCP provides the scope of enquiry for the four-year rolling review. The review is expected to evaluate the CRI's performance and progress in delivering to the purpose, outcomes, scope of operation and operating principles in its SCP. There will also be some consideration of the likely durability of outcomes in the current economic and environmental context. The reviews are expected to evaluate factors that influence the CRI's overall success in contributing to its SCP outcomes now and into the future.

On an annual basis, each CRI, in collaboration with its key stakeholders, measures and evaluates its impact on its respective sectors. The independent Panel undertaking the four-year rolling review is not expected to duplicate this work. However, based on the measures and assessment generated by the CRI, the Panel should evaluate how well the CRI is contributing to the outcomes in its SCP and assess the quality of the measures used to inform that assessment.

The Terms of Reference for the review have the following as out of scope:

- how science reviews are undertaken by the Science, Skills and Innovation Group; rather the science reviews themselves may be sourced as an informational input into this project;
- measuring the performance of the CRI in delivering against individual contracts; rather the Panel will evaluate how the CRI manages its contracts overall; and

- measuring the CRI's science quality; rather the Panel will evaluate how well the CRI is monitoring, measuring and improving science quality.

The Review Panel and processes

Panel members were appointed to ensure an appropriate mix of experience in governance, corporate finance and economics, senior management of science organisations and organisational review. The Panel membership was Jenn Bestwick (Chair), David O'Reilly, Paul Morgan and Tricia Harris. Brief biographies for the Panel members are attached as Appendix 2.

The Panel reviewed and disclosed to NIWA any potential conflicts of interest that members may have in relation to this process (refer Appendix 2). There were no direct conflicts identified. Relevant indirect issues were managed by the Chair throughout the review process.

The Panel was appointed by the MBIE in early September 2015 and it convened on 14th September 2015. Panel members were then provided with a range of background materials from both MBIE and NIWA. The information from NIWA was based on an information request and further information was provided throughout the period of the review. The full list of information provided to the Panel through the review is detailed in Appendix 3.

In undertaking the review, the Panel sought to be:

- future focused: while taking account of the performance over the last 4 years, the majority of effort was spent on understanding the position of NIWA for the future;
- independent: working closely with NIWA and MBIE but remaining independent of both to ensure the Panel's report reflects a genuinely independent assessment;
- objective: the Review sought to be objective and as much as possible evidence-based. The Panel remained open minded throughout and relied on evidenced-based analysis in reaching its findings;
- interactive: the Panel consulted with members of the NIWA Board and senior management team intermittently throughout the review and NIWA had the opportunity to see and comment on matters of factual accuracy in the draft report before it was finalised;
- confidential: the Panel, respecting the candour and openness of all who participated in the review - including external stakeholders - undertook methods to preserve confidentiality and ensure no statements in this report are directly attributable to individuals or specific organisations;
- efficient: the Panel aimed to be efficient in their engagements with NIWA and keep time commitments and other costs to a minimum; and
- respectful: the Panel was respectful at all times of the heartfelt views and perspectives of contributors to the review.

The Panel met with the combined Board, Chief Executive Officer (CEO) and the senior management team. The Panel then attended part of the NIWA Leaders Forum and Excellence awards followed by meetings with individual senior management members and the CEO. In addition the panel met with some of the third-and fourth-tier science staff, Te Kūwaha staff, younger scientists and Vessel management and inspection staff. The Panel held meetings or teleconferences with a number of external stakeholders over 3 days. The full list of those the Panel met with, or spoke to, is provided as Appendix 4.

The Panel discussed its preliminary findings with the NIWA Chair on the 17th of November and with the NIWA Board and executive management team at its meeting on 25th November 2015. A draft report was provided to both MBIE and NIWA for comments on matters of accuracy on 4th December 2015, and the final report was provided to MBIE and NIWA on 18th December 2015.

4. PERFORMANCE AGAINST THE STATEMENT OF CORE PURPOSE

4.1 Context for assessment

Within the context of its SCP a CRI's performance is measured against two key deliverables:

1. the impact of its research in relation to economic, social or environmental benefits for New Zealand; and
2. the financial performance of the CRI.

The Table below provides the Panel's assessment of NIWA's performance against its SCP. This assessment is in the context of a number of over-arching themes relating to NIWA's operating environment, namely:

- the introduction of the National Science challenges of which NIWA hosts two and participates strongly in three others;
- a rapidly changing science policy environment including
 - the release of the National Statement of Science Investment 2015-2025
 - the current review of CRI Core Funding
 - changes in MBIE contestable science funding processes
 - development of regional research institutes
 - the capping and/or reduction of research expenditure by most central and local government agencies since the global financial crisis;
- the recent downturn in the energy sector flowing into reduced research and use of the RV Tangaroa;
- the latest incarnation of the Land and Water Forum; and
- a willingness to ensure greater co-ordination amongst central agencies regarding research priorities for environmental science.

The Panel's observations are made both in relation to past performance and in the context of NIWA's planned direction. Many of the observations made in the Table below are elaborated further in Section 5.

4.2 Performance of NIWA against the SCP

THE NIWA SCP	PANEL PERSPECTIVE OF CURRENT PERFORMANCE
<p>Purpose</p> <p>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 safety and wellbeing of New Zealanders.</p>	<p>The Panel believes that NIWA delivers strongly to its purpose.</p>
<p>Outcomes</p> <p>NIWA will fulfil its purpose through the provision of research and transfer of technology and knowledge in partnership with key stakeholders including industry, government and Māori to:</p> <ul style="list-style-type: none"> • increase economic growth through the sustainable management and use of aquatic resources • grow renewable energy production through developing a greater understanding of renewable aquatic and atmospheric energy resources • increase the resilience of New Zealand and South-West Pacific islands to tsunami and weather and climate hazards, including drought, floods and sea level change • enable New Zealand to adapt to the impacts and exploit the opportunities of climate variability and change and mitigate changes in atmospheric composition from greenhouse gases and air pollutants • enhance the stewardship of New Zealand's freshwater and marine ecosystems and biodiversity • increase understanding of the Antarctic and Southern Ocean climate, cryosphere, oceans and ecosystems and their longer-term impact on New Zealand. 	<p>NIWA pays careful attention to its delivery of Outcomes by positioning both its SCI and Annual Report in the context of each of them. Staff are reminded of the Outcomes through internal communications. Demonstration of delivery of the Outcomes is still primarily through case studies with few examples of econometric analysis.</p> <p>NIWA partners strongly with key central and local government stakeholders in delivering to its Outcomes. Partnering with some industry and Māori stakeholders tends to be more transactional and, while within scope and not compromising science integrity, focussed on client outcomes rather than national benefit.</p> <p>NIWA is an active participant in national forums such as the Land and Water Forum.</p>

THE NIWA SCP	PANEL PERSPECTIVE OF CURRENT PERFORMANCE
<p>Scope of operation</p> <p>To achieve these outcomes, NIWA is the lead CRI in the following areas:</p> <ul style="list-style-type: none"> • aquatic resources and environments (with a focus on surface freshwaters and coastal environments) • oceans • freshwater and marine fisheries • aquaculture • climate and atmosphere • climate and weather hazards • aquatic and atmospheric-based energy resources • aquatic biodiversity (including biosystematics) and biosecurity. <p>NIWA will work with other research providers and end users to contribute to the development of the following areas:</p> <ul style="list-style-type: none"> • biosecurity, freshwater and hazards management • climate change adaptation and mitigation • ocean floor exploration • seafood sector • urban environments • Antarctica. 	<p>In general NIWA delivers within its Operational Scope. However, while understanding that the Scope of Operation was agreed amongst the CRIs as the SCPs were developed, it is important to distinguish between the role of 'lead CRI' as opposed national lead across all research organisations.</p> <p>There is no explicit reference in the Scope of Operation to the research interface between land and water. The Panel would expect that if NIWA is undertaking activity at that interface it would be strongly partnered with other research providers and end users from the inception of such research. Rather than risking internal recruitment beyond its SCP, partnering to meet the converging social, biophysical and environmental research demands of ecosystem management will be essential.</p> <p>NIWA has taken a strong role in the development of the NSCs and now hosts 2 NSCs as well as being an active participant in 3 others.</p> <p>International collaborations are strong as indicated by the large proportion of joint publications and important projects such as the Climate Survey.</p> <p>The NIWA vessels provide a platform for both national and international research partnerships. The current funding model presents conflicts for NIWA's prioritisation of vessel use potentially resulting in the risk that commercial revenues to cover operating costs are prioritised over national science and research organisation objectives. The Panel considers this funding and access dilemma needs to be addressed potentially via either policy or the risk management process.</p>

THE NIWA SCP	PANEL PERSPECTIVE OF CURRENT PERFORMANCE
<p data-bbox="201 264 499 297">Operating principles</p> <p data-bbox="201 302 331 326">NIWA will:</p> <ul data-bbox="254 334 1041 1308" style="list-style-type: none"> <li data-bbox="254 334 1041 496">• operate in accordance with a Statement of Corporate Intent and business plan that describes how NIWA will deliver against this statement of core purpose, and describes what the shareholders will receive for their investment <li data-bbox="254 529 1041 626">• meet its obligations as a Crown Company and remain financially viable, delivering an appropriate rate of return on equity <li data-bbox="254 756 1041 886">• develop strong, long-term partnerships with key stakeholders, including industry, government and Māori, and work with them to set research priorities that are well linked to the needs and potential of its end-users <li data-bbox="254 1016 1041 1114">• maintain a balance of research that both provides for the near-term requirements of its sectors and demonstrates vision for their longer-term benefit <li data-bbox="254 1211 1041 1308">• transfer technology and knowledge from domestic and international sources to key New Zealand stakeholders, including industry, government and Māori 	<ul data-bbox="1108 334 1938 1373" style="list-style-type: none"> <li data-bbox="1108 334 1938 464">• NIWA provides SCIs, Quarterly and Annual Reports that are strongly positioned around delivery against the SCP. These documents also provide case studies of what the shareholder has received for its investment. <li data-bbox="1108 529 1938 724">• NIWA has very robust processes around meeting its obligations in remaining financially viable and delivering an appropriate rate of return on equity, and meets its forecast revenue and Return on Equity (ROE) with exemplary consistency and precision given the uncertainty of the environment in which they operate. <li data-bbox="1108 756 1938 984">• NIWA has very strong long-term relationships with key central and local government stakeholders though strategic partnering practices are not in place between the parties and all interviewed acknowledge work in this area is required. Relationships are weaker with some industry and Māori stakeholders. The Panel questions how visible NIWA's research priorities are to some groups. <li data-bbox="1108 1016 1938 1179">• NIWA is both very responsive to the near-term needs of its key central and local government stakeholders and undertakes longer-term research for future benefit. The Panel did not observe how NIWA sets its balance of research horizons. <li data-bbox="1108 1211 1938 1373">• NIWA maintains very strong international networks ensuring that the stakeholders with whom it works benefit from evident knowledge transfer. NIWA has invested in its communication capability as an enabler for knowledge transfer and is considered the leading CRI in this regard.

THE NIWA SCP	PANEL PERSPECTIVE OF CURRENT PERFORMANCE
<ul style="list-style-type: none"> • develop collaborative relationships with other CRIs, universities and other research institutions (within New Zealand and internationally) to form the best teams to deliver its core purpose • provide advice on matters of its expertise to the Crown • represent New Zealand's interests on behalf of the Crown through contribution to international scientific issues and/or bodies as required • seek advice from scientific and user advisory panels to help ensure the quality and relevance of its research • establish policies, practices and culture that optimise talent recruitment and retention 	<ul style="list-style-type: none"> • In general NIWA works to form 'best teams' with other research organisations to deliver to its core purpose. It has strong graduate school partnerships with a number of universities to ensure future national capability in its areas of research activity. NIWA actively participates in the development and now hosting of the NSCs and for a considerable period of time has worked well with other research organisations in previous partnership models. Commercial tensions can at times prove a barrier to collaboration. • NIWA sets a high standard for provision of advice to the Crown with highly experienced staff being made available, often <i>pro bono</i>, over significant periods of time. • Outputs from NIWA research and databases contribute directly to United Nations Environment Programme assessments and contributions to the production of major international assessments such as the IPCC assessment reports and UNEP ozone assessments and international programme reports. Under the UN Framework Convention of Climate Change and the Global Framework for Climate service NIWA helps South-West Pacific Islands build capacity to deal with climate extremes and change. • NIWA maintains user advisory panels to ensure the relevance of its research. The quality of its research is assessed primarily through internal processes or as required by clients. • NIWA has very robust policy, practises and culture to ensure talent recruitment and workforce development which promotes retention. There are strongly monitored succession planning processes for senior and 3rd/4th tier

THE NIWA SCP	PANEL PERSPECTIVE OF CURRENT PERFORMANCE
<ul style="list-style-type: none"> • enable the innovation potential of Māori knowledge, resources and people • maintain its databases, collections and infrastructure and manage the scientific and research data it generates in a sustainable manner, providing appropriate access and maximising the reusability of data sets • seek shareholder consent for significant activity beyond its core areas. 	<p>staff.</p> <ul style="list-style-type: none"> • Te Kūwaha ensures a 'home' for Māori capability within NIWA and operates in NIWA's matrix model with distributed capability throughout the organisation. It provides useful capacity building for the wider NIWA team. Recently the organisational focus on, and investment of resource into, innovation in the Māori research domain has been limited while a new leader for Te Kūwaha was identified. Actions are being implemented to increase activity in this area. • NIWA is a careful custodian of its databases, collections and infrastructure. Its policies with respect to accessing its data are not clear to many external stakeholders and are point of tension for the organisation. • The Panel is not aware of any failure to seek shareholder consent for activity beyond its core areas.

5. REVIEW FINDINGS

5.1 Governance performance

NIWA's governance is provided by a 7 person Board appointed by the Shareholder. The Board has broad representation of backgrounds and experience relevant to NIWA and its scope of operations.

The Board operates in accordance with generally accepted standard governance practices. The Panel reviewed various documents prepared for and considered by the Board and found them to be broadly representative of a fit-for purpose governance board.

The Panel observes that the NIWA Board:

- holds regular scheduled meetings of both the full Board and its Committees;
- has a Committee structure that is fit-for-purpose for NIWA and consistent with best practice;
- operates under a Code of Practice;
- conducts a structured Annual Self Review of its performance;
- papers are well prepared and afford the Board with high level of information across NIWA's areas of operation;
- holds Annual Strategic planning days which provide leadership and direction to the management team as they embark on the annual planning processes with the involvement of the Stakeholder Advisory Panels;
- conducts engagement with a range of stakeholders throughout the year, both internal and external to NIWA; and
- are engaged in the wider activities of NIWA and participate in many forums where the organisation is present.

From the Panel's brief exposure to the Board's activities it appears the Board considers and discusses the papers provided to it in the course of its meetings and provide guidance and input on the matters before it.

The Panel notes that reporting on science activity is largely narrative based (other than in relation to financial metrics). While the Panel acknowledges this is useful to Board members in that it supports their understanding of individual projects, it considers the Board may wish to discuss how it assures itself of the strategic merit and quality of NIWA's science at group and organisational levels on a regular basis. This could be through the establishment of a systematic method determined relevant to the organisation by the Board.

The NIWA Board suggested that they are comfortable that excellence in NIWA science is being maintained. They base this on listening to the broad range of networks the Board has and also the repeat business they have for applied sciences.

Board reporting on the operations and performance of the organisation are extensive and complete. The Board receives excellent visibility of the key functional performance metrics for the organisation at its meetings enabling it to have good governance oversight over the critical risks and performance aspects of the organisation. Papers and minutes are well

documented and well presented. The Panel observes that it is not necessarily clear from the Board papers the actions required by the Board (e.g. decision making versus discussion or information for noting).

The Board reports it regularly requests papers on particular topics as they relate to the organisation. The Panel did not review any such papers but did see evidence of requests in Board minutes.

The Panel concludes that the NIWA Board is broadly operating in line with expected governance standards and protocols.

Opportunities for enhancement

The Panel considers that for the Board to continue to improve its performance it may wish to consider the following enhancements to its functioning:

- introducing regular Board Only time at the start of each meeting. This standard governance practice would allow the Board to discuss any matter without management present. Typically this practice is useful in supporting best practice operations and in particular benefits include
 - provision of advance notice to the chair about any issues individuals wish to have explored
 - voicing of any concerns members have about particular matters on the agenda. This enables the chair to ensure that their concern is handled in the most effective and constructive manner. The chair can then brief the chief executive on the board's concerns
 - developing a collective consciousness about something on the agenda that would have been handled differently (and not so well) had the members of the board not had a chance to become aware of their similar (or dissimilar) thinking;
- structuring Board Papers to support the Board consideration of strategic matters at each meeting and separating these out from the regular monitoring aspects of the Board's role;
- developing metrics to support the Board's visibility of its science performance. The Panel acknowledges that traditional measures of science quality may not be the most relevant to the NIWA Board but encourages the Board to consider how it assures itself that NIWA's science capability and performance in its key areas of science is performing & retaining science quality;
- considering expanding a "Dashboard" approach to key performance indicators including both operational and strategic indicators; and
- clearly identifying the purpose of each paper and the action required by the Board in response to the paper.

5.2 Operating model

The Review Panel observes that NIWA runs an operating model that is based upon professional service consultancy and advisory firms. Structured as a consultancy, NIWA operates all of its science and research activity on a project basis with well-defined disciplines and systems to afford delivery against those projects. The organisation centralises its enabling functions (e.g. Financial, HR, IT, Facilities Management, Communications) to create an operating environment in which science and research projects can be delivered. All projects are budgeted to include direct resources (people and other direct inputs/costs) and receive an overhead charge apportioned relative to the size of the project.

Researchers are responsible for finding projects in their areas of discipline and may be “booked” to work on projects led by others as appropriate. A researcher at any level may lead a project, however true to the consultancy model the more senior researchers are more likely to find and lead the larger projects.

In order to deliver against this model NIWA operates a matrix management model across the entire organisation that comprises of multiple matrices namely:

Matrix 1 – Executive, Science and Operations Management Teams – responsible for overall leadership and management and alignment of the organisation;

Matrix 2 – Distributed Regional and Science team leaders with centralised function managers – responsible for science delivery by location, by team, and aligned with organisational systems/processes; and

Matrix 3 – Project management teams – established to respond to particular science projects and accountable for project deliverables.

The nature of the multiple matrices recognises NIWA's distributed staffing and office model and recognises that not all capability in particular services or functions will necessarily reside in a single location. Furthermore, it allows NIWA to deploy its science capability flexibly. Accordingly NIWA provides central functional capability to support the distribution of its science capability across multiple sites, operating under regionally managed groupings with dual accountabilities to regional operational managers and national science area leads.

NIWA operates under a strong internal brand and culture of “One NIWA” which encompasses all three matrices. This operating philosophy is designed to ensure that resourcing priorities and capability decisions are taken across the entire organisation and where possible science capability is applied wherever it is most productive both in terms of science delivery and organisational efficiency. NIWA uses project management systems and disciplines internally to manage against both internal metrics and client accountabilities.

Within this structure all teams share responsibilities to drive high levels of utilisation across all teams. This matrixed approach appears to enable NIWA to achieve very high levels of productivity across its science teams and a good level of organisational visibility of resourcing needs and priorities.

NIWA manages staff time and productivity through a highly structured project management system which enables management to monitor project progress and resourcing in

considerable detail while also supporting monthly, quarterly and annual reporting. The benefits for management ensuring both internal performance, as well as delivery to customers, are very significant. The Panel did not hear any concerns from the staff they spoke to as to the detailed reporting that is undertaken which suggests that staff have been both sufficiently supported to use the system and also derive benefits from it.

The Review Panel observes that:

- to external observers the structure appears complicated and difficult to navigate, but is clearly understood by those operating within it. New staff report it takes a while to learn how the organisation works but that once properly oriented it works well for staff;
- NIWA achieves a high level of utilisation of its science capability and has been able to deploy science capability more widely than would be typical of similar research organisations by applying this model and in doing so achieve wider application of core science capabilities;
- NIWA's operating model means it is well positioned to respond to customer/end-user science and research needs and can reasonably easily (re-)configure its science capability to new projects without jeopardising organisational productivity measures;
- NIWA's operating model affords it a high level of visibility across the entire organisation and supports co-ordinated decision making around investment in resourcing and capability;
- the matrixed nature of the NIWA model affords staff multiple career development opportunities and pathways which is resulting in a high degree of internal appointments and progressions;
- the devolved nature of projects to project managers throughout the organisation means NIWA has had to invest in training to support all staff to operate in the matrix project structure providing NIWA scientists and researchers with wider project skills;
- the NIWA matrix potentially results in a lack of accountability regarding strategic direction and ownership of critical decisions;
- the matrix is reliant on application of strong project management disciplines throughout the organisation which while present are not yet consistently applied. NIWA is continuing its training programme for all staff to ensure all staff have the relevant skills to work in the model; and
- NIWA's project management system affords managers and science leaders a high level of visibility of project progress against budget and staff utilisation, however is largely financially and resource based so does not necessarily provide other project monitoring data (e.g. project against agreed milestones, science quality, customer satisfaction). NIWA relies on other parallel documentation to provide this.

Opportunities for enhancement

The Review Panel observes that NIWA may wish to consider:

- introducing a more structured approach to client relationship management both at the “prospecting” and “delivery stages”. The devolved nature of the operating model risks client relationships being held by “few” rather than “many”. This results in risk both in terms of single point of contact but also in terms of risk of non-satisfaction/non-delivery and while the Panel understands escalation to the senior leadership team occurs when a project is significantly under-performing, customers reported this was not always the case. The Panel considers a more structured client management framework may assist to both pick this up early and potentially increase opportunity for NIWA;
- considering incorporation of wider key project metrics into its project management system to provide a single point of “Project truth” for the organisation may be beneficial in providing an integrated lens on projects; and
- given the importance placed on the project structure and consultancy based model within NIWA, the Panel didn't observe much emphasis on commercial management skills across the projects run by the organisation. Given the heavy emphasis on delivery of commercial projects the Panel considers NIWA may wish to consider how it develops staff commercial skills and embeds commercial disciplines in its operating model to both continue to build on NIWA's performance and support on-going innovation in its commercial model.

5.3 Organisational Health

Culture

NIWA has an excellent, positive, energetic organisational culture. The most recent staff survey (2014) reflects this with more positive staff responses from those of the 2011 survey. As with many such organisational surveys the most positive responses were around the individuals' team but importantly there were very strong positive responses to the way in which staff see they have freedom to their jobs and take a sense of personal achievement from doing so.

The Panel attended part of the annual Leaders Forum which involves a day of training and strategy discussion and then a day of the NIWA Board Chair and senior management relaying performance and future direction to about 130 staff. The Panel was impressed by the way some quite difficult messages (e.g. drug testing of staff; staff utilisation) were able to be made in a constructive, positive way. Likewise the messages around future uncertainties of funding were deliberately positive with strong reinforcement by individual senior management. On the evening of the second day a dinner for all those staff is held at which excellence awards are made. Importantly these awards are not just in the science areas but across a range of organisational activities. The Panel found the structure, style and staff engagement at the Forum to be exceptional. The Panel understands that, after the Forum, senior management then take a road show around the various sites to ensure all staff understand the previous years' performance and the future direction. As part of the annual planning cycle this appears to work well.

The confident organisational culture has a potential flip side from an external perspective with some stakeholders spoken to referring to a culture of arrogance, 'we know best', and aloofness. This perspective was also evident in recent stakeholder surveys. All stakeholders spoken to by the Panel acknowledged that this varied by individuals they worked with across the organisation.

Policies, processes and practices

NIWA runs a very tight organisation with the support of its staff. The HR policies and practices are at best practice for the CRIs.

In particular, the very strong focus on Health and Safety through 'NIWA Safe' stands out. The way in which the RV Tangaroa was able to meet the very demanding safety standards of the energy sector in a short period of time and then that NIWA drew on those lessons in rolling out 'NIWA Safe' across the organisation is commendable.

Staff performance processes are rigorous with objectives reviewed, uniform rewarding of high performance and active management of low performance. Staff spoken to acknowledged that they are fair and all understand the decision making processes involved. As with many organisations, younger staff would like to see poor performance dealt with more swiftly but saw good performance being well recognised.

The demographics of NIWA are similar to many other CRIs with a skew towards the older end and few research staff under 35 years of age. Only 30% of science staff are women and less than 5% are Māori. These disparities are all issues NIWA is conscious of and working on. There is only one woman on the senior executive team and the Panel hopes that over time this will also be addressed.

The young staff spoken to were universally committed to NIWA, enthusiastic about their roles and aware that employment opportunities at NIWA are highly competitive. They report feeling privileged to be in their roles. Several appreciated that they were being trusted with preparation of draft proposals in preparation for the next MBIE competitive round. However their comments around mentoring and support were variable with some feeling strongly supported/having good access to senior staff and others feeling quite isolated. Although NIWA has good policies in place for induction and support of new staff implementation seems to be variable.

Workforce planning is undertaken at an organisational level. There is a policy of no direct replacement of staff when positions become vacant with decisions made against priorities set within annually refreshed capability plans. The plans viewed by the Panel were detailed and provided a good insight into the depth of planning undertaken by NIWA. Staff turnover of about 8% annually has enabled NIWA to manage capability changes strategically and promptly.

Succession plans are in place for all key staff. Several stakeholders spoken to commented on the looming issue of the large number of senior experienced staff who may decide to reduce their hours or retire in the near future. The Panel is confident that the succession planning undertaken means that NIWA will be able to manage these challenges as they arise.

5.4 Organisational Strategy

NIWA undertakes an annual cycle of strategic planning which commences with a Board and Senior Management workshop attended by NIWA's Strategic Advisory Panel comprising highly experienced national and Australian science, stakeholder and business leaders. That workshop is supported by a range of thoughtful position papers so that national and international trends in economic, business and environmental research are well considered. Output from the workshop then shapes the direction of internal planning.

As is the case with some other CRIs, NIWA views its SCI as its key strategy statement taking the SCP as the context within which it operates. This means that there is no parallel organisational strategic plan and the actions in the SCI are, as expected, detailed only for the upcoming year with a few impact statements for each area to 2018/19.

In the last few months a summary strategy on a single A3 sheet has been developed, in part as a response to staff feedback from the 2014 Leaders Forum. This summary provides an excellent overview of the organisation's 'Enabling Strategies' but is currently less helpful with respect to the 'Science Strategies' and provides no detail as to the overall strategic intent of the Board and management apart from reiteration of the Core Purpose and Outcomes from the SCP. The Panel discussed the Science Strategy summary with the CEO and understands further development on this is underway.

The Panel was impressed with the articulation of NIWA's enabling strategies, the aspirational goals and the actions NIWA proposes to take to achieve those goals.

Many of the enabling strategies are discussed elsewhere in this report but in particular the Panel sees the 'NIWA Safe' and 'NIWA Values' as being at very best practice. The overarching focus on 'One NIWA', which has been embedded through the organisation for more than a decade, has supported significant changes in business focus over that time and ensured that the matrix management model is able to function successfully.

As detailed in Section 5.2 the NIWA operating model is based around provision of professional services. This has significant implications for the future development of the organisation as it requires the maintenance of a breadth of research capability to meet the demands of a wide range of possible investors in applied research. A strategy over recent years of creating a flexible organisation through appropriate personnel policies and development of excellent administrative support systems facilitating management oversight has seen NIWA consistently generate sufficient work to fill its revenue pipeline and deliver to SCI targets. This focus on revenue and organisational flexibility appears to make NIWA quite agnostic regarding its commercial project work focus appearing almost ambivalent as to where the revenue is derived, as long as it is within its scope.

The financial projections in the SCI suggest that there is no intention, or perceived opportunity, to grow the business beyond NSC participation and that over the next five years the mix of underpinning research to professional service (including applied research) activity will shift from 50:50 to 40:60. The implications of this are not articulated but the Panel is concerned that at some point the proportion of underpinning research may not be adequate to inform the national good or wider end-user requirements. Some stakeholders echoed this concern raising questions regarding their visibility of the depth in basic science being undertaken within NIWA.

The combination of the business model forcing maintenance of breadth is being managed alongside other significant challenges to the science base. These challenges include uncertainty regarding core funding and a shift in priority in MBIE (and NSC) contestable processes towards a gated 'excellence' focus and a convergence of sciences beyond the scope of the NIWA SCP such as the integrated focus on land and water. Taken together these challenges suggest to the Panel that NIWA science funding is at considerable risk. If revenues fall in the next 2-3 years the panel did not observe the processes by which NIWA will prioritise its science and research (see also Section 5.6), who it should form strategic alliances with and what other strategies it will apply to generate new revenue opportunities.

Opportunities for enhancement

As detailed above the Panel is of the view that NIWA could usefully develop an organisation wide strategy for the next 4-6 years (at a level more detailed for the out-years than contained in the SCI) which encompasses its proposed structure including:

- the relative scale of underpinning and applied research including the optimal balance between self-directed and client directed research;
- strategic partnerships;
- sector strategies;
- commercialisation intentions; and
- strategic management of current (and any future) subsidiaries.

5.5 Financial performance and viability

Key Observations:

- NIWA has excellent financial management systems and processes;
- good financial governance protocols are in evidence;
- there is a history of consistently delivering results to forecasts;
- science funding structure uncertainty coupled with pressures on future net earnings are emerging risks;
- the strong financial position provides a sound platform for future developments;
- significant capital development expenditure will change the balance sheet shape by 2020; and
- overall the business model is sustainable but reliant on no materially adverse developments in either funded science activity or major infrastructure funding arrangements.

Financial Governance & Systems

From information provided to it the Panel concludes NIWA's has developed a strong and well-resourced suite of financial and administrative systems and reporting capability aligned to the science based professional services model and agile corporation strategy being pursued. Review of material routinely reported to the Board and the Senior Management

Team confirms that information includes both company overview and detailed drill down of the key drivers of operations, financial performance and financial position necessary to effectively manage the organisation. Elements of reporting are structured to align with the SCP and the NIWA National Centres designed to encapsulate the scientific activity in each area of responsibility attributable to NIWA and also to the SCI through regular progress reporting against SCI metrics. A comprehensive project management system facilitates resource allocation, project delivery, and oversight of costs and gross profit margins.

The Panel notes for the financial year 2015 NIWA received a clean external audit report with no new significant management improvement areas observed by the auditors and confirmation that improvement areas identified in 2014 had been resolved during 2015. This in itself is testimony of the sound financial management standards being achieved at NIWA. The Board procedures connected with both the external audit and the internal audit function follow good practice and include review of an Audit Corrective Action status report providing oversight of the continuous improvement processes.

NIWA's internal audit programme is considered to follow sound practice for this discipline. It reflects the accountability of a public body with appropriate compliance components but also has elements targeting process improvement to derive added value from the function.

A risk management framework process established in FY2014-15 is routinely reported to and reviewed by the Board and the senior leadership team. This is appropriately structured incorporating a wide range of operational risks and computation of residual risk after allowing for relevant controls and mitigation measures. The process is under developmental review and reporting is in a heat map format highlighting those residual risks classified as significant and inviting priority management scrutiny. Given the nature of certain risks an approach NIWA could consider, while containing the administrative overhead, is to periodically undertake a deep dive on a Board selected high risk topic as a means of assuring the Board the risk ranking continues to be appropriate and mitigation measures remain effective since last being assessed.

Finance and Administration has signalled a number of initiatives in the 2015 SCI and in particular the Panel supports those designed to lift the financial planning and analysis capability of finance staff facilitating deeper engagement with operating sections of the organisation and to improve reporting effectiveness through expanding the use of the sophisticated reporting tools in NIWA's suite of applications. These objectives are in line with an established Finance sector trend of generally seeking both improved operational efficiency and to position finance personnel as trusted forward looking business partners of the rest of the organisation in addition to the more traditional recording and stewardship role.

Current Financial Results & Structure

i. Overview

Over the 2012 -2015 review period NIWA has demonstrated a credible capability to deliver against its SCI financial targets. Net Profit After Tax (NPAT) has lifted from the 2011 low of \$1.3m which included absorbing \$1m of restructuring costs to the 2015 high of \$5.8m (refer Chart 1). Results have exceeded SCI targets in three of the four years 2012-2015 with only 2014 coming in below earlier predictions. Given NIWA's revenue and cost structure annual earnings variations are considered to be well within acceptable parameters and reflective of a business receiving well informed and focussed management oversight.

Chart 1

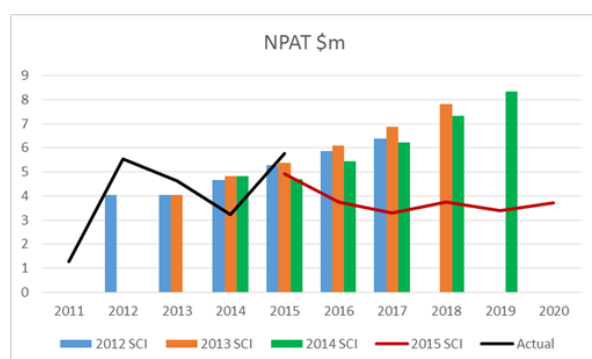
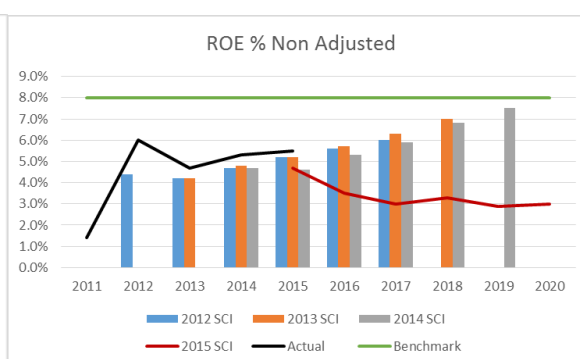


Chart 2



Return on Equity (ROE) is the commonly accepted value delivery measure among CRI's in the absence of tangible measures of national benefit from "New Zealand Good" science. NIWA has generated stable returns ranging between 4.7% and 6.0% excluding the 2011 outlier and has consistently delivered to its SCI targeted ROE (refer Chart 2). The Panel observes these shareholder returns are below a suggested 8.0% benchmark with the lower NIWA specific SCI targets having been signed off during the previous annual SCI approval processes.

ii. Revenue

NIWA has consistently achieved its revenue targets and delivered to the SCI revenue objectives (refer Chart 3).

For the review period 2012 to 2015 NIWA has grown its revenue 7.1% from 2011, a 2.27% compound annual growth rate. In the prevailing economic climate and having regard to the primary mix of revenue sources discussed in more detail below this represents a strong overall performance. \$3.5m budgeted revenue from the NSCs was not received in 2015 the gap being filled with revenue from other sources illustrating the benefit of the broad portfolio of operations managed by NIWA.

Annual variations to forecast have been less than plus or minus one percent over the review period indicative of realistic planning and a commitment to deliver (refer Chart 4). Significant revenue growth is being forecast from 2016 and this is explored in the section below dealing with financial forecasts and future risks.

Chart 3

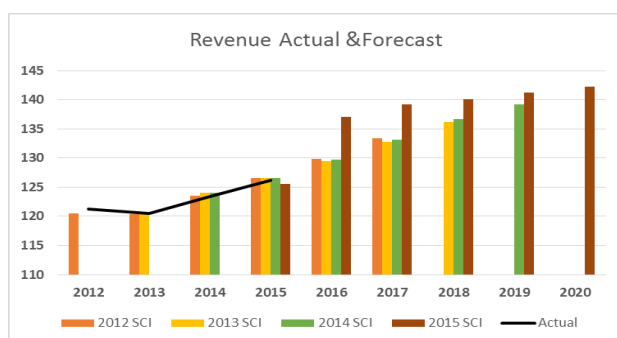
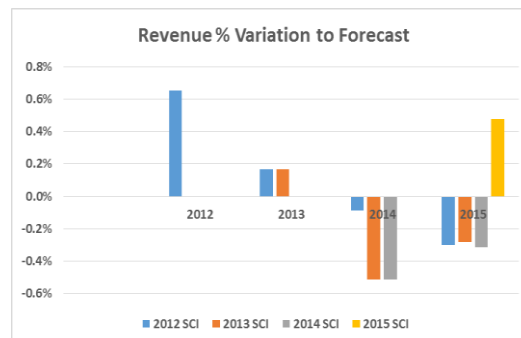


Chart 4



iii. Expense Structure

Expenses have grown 4.8% over the 4 year review period, slightly more than the 4.1% revenue growth achieved over the same duration (refer Table 3). A large proportion of expenses are fixed or semi fixed in nature restricting ability to effect short term reductions, for example personnel and depreciation account for 63.1% of total expenses in 2015. Personnel costs in particular are “sticky” as maintaining core science capability is important to achieving longer term strategic objectives. A cost structure with a high proportion of personnel related cost, which in NIWA’s case is also reflective of a highly qualified and mobile staff structure, adds to the cost versus revenue pressure faced by the company. This expense development factor is influencing the forecast earnings reduction in the SCI however the Panel observes that NIWA has excellent management oversight of cost structures and profit margins on a project by project basis and has acted proactively in the past when expenses have needed attention.

Table 1

Operating Expenses \$m	2012	2013	2014	2015	4 Year Growth	2015 Proportion
Personnel Costs	60.7	59.3	59.1	60.5	-0.3%	51.0%
Depreciation & Ammortisation	11.1	12.1	12.9	14.4	29.8%	12.1%
s9 (2)(b)(ii)						
Directors Fees	.3	.3	.3	.3	1.7%	0.3%
Audit Fees	.2	.2	.2	.2	15.8%	0.2%
Total Expenses	113.2	114.0	116.3	118.6	4.8%	100.0%

iv. Cash Flow and Capital Expenditure

NIWA produced a \$75.5m operating cash flow 2012 to 2015 and spent \$46.3m on capital expenditure, \$4.1m less than the \$50.4m depreciation over the same period (refer Chart 5). It distributed \$6.0m as dividends to the Crown and applied \$13.4m to paying down debt leaving it holding a healthy \$9.9m cash balance at June 2015. By most measures the

organisation has turned in a strong financial performance over the 4 years and is well positioned to handle trading risks and the increased capital expenditure programme signalled in the 2015 SCI.

Chart 5

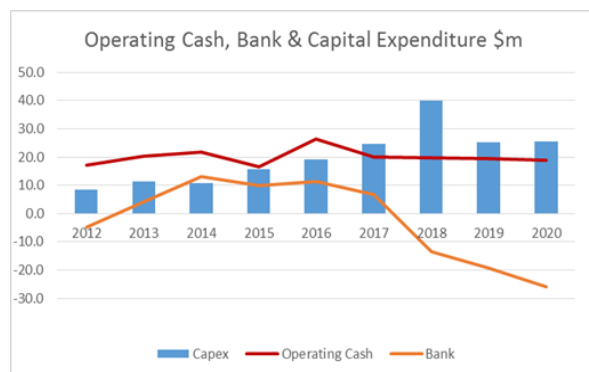
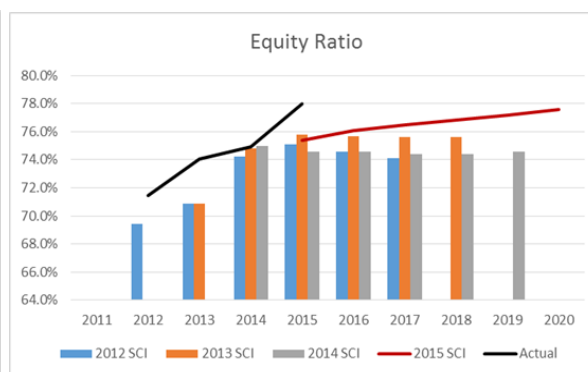


Chart 6



v. Balance Sheet

The equity ratio and working capital have been progressively strengthened to a relatively high 78% over the review period as debt has been repaid and cash reserves accumulated after providing for \$6m of dividend distributions. This steady improvement is illustrative of NIWA's focussed financial management over recent years. A conservative gearing structure is supported as being prudent given the capital asset intensive nature of NIWA's operations and dependency on securing contestable science funding for a high proportion of annual income.

Financial Forecasts and Future Risks

i. Financial Results

The projected and constant NPAT decline over the SCI forecast period 2016 to 2020 is a signal that under the assumptions adopted the NIWA earning capacity is expected to come under future pressure (refer Chart 1). This reduction is reported as resulting from a decision to invest in core science capability in 2016 and the associated financing cost and depreciation expense from a significant future capital expenditure asset renewal programme. While the trend is clearly signalled in the SCI, under the assumptions used the focus appears to be on containing the profit deterioration as opposed to targeting offsetting earnings growth. In part this earnings pressure also comes from operating expenses rising at faster rates than revenue growth. On past performance NIWA has demonstrated strong cost and profit margin control capability. What is not clearly identified is whether or not there is capacity to lift revenue rates to compensate for rising expenses in either the fully funded model applicable for contestable government funding or for commercial work undertaken for local body government and industry. The other implication is that proposed capital expenditure investments will not generate the same Return on Investment (ROI) as is being achieved from existing assets. Given the business model with which NIWA operates this outcome of lower returns is entirely possible as significant sums are signalled for upgrading premises the full cost of which is unlikely to be fully recoverable through increased charge out rates for services provided.

s9 (2)(b)(ii)

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

s9 (2)(b)(ii)

[Large redacted text block]

[Redacted text block]

s9 (2)(b)(ii)

s9 (2)(b)(ii)

iv. Cash Flow and Capital Expenditure

A significant increase in capital expenditure to \$134.6m is projected 2016 to 2020 (refer Chart 5) exceeding depreciation of \$79.6m by \$55.0m this difference being primarily proposed investment in a High Performance Computer replacement and a substantial facilities renewal programme. These will be subject to business case approval process closer to the scheduled time. The panel supports NIWA's intention to adopt a portfolio approach to confirm the effectiveness of the overall facilities deployment before considering each site upgrade independently given the scale of the facilities upgrades being proposed.

The increased capital expenditure results in a predicted negative cash position developing in 2018 and through to 2020 and almost certainly for some years beyond. NIWA has the capability to stage timing of both routine capital expenditure and some of the proposed asset renewal programme if circumstances warrant however as presented in the SCI debt funding peaks at \$26.0m in 2020. A \$10.0m revolving credit facility is currently in place which the Panel considers should be maintained as insurance to cover any working capital fluctuations and timing related peaks that arise during any one year. This implies a more structured debt facility will be required for the capital asset funding. The current balance sheet will readily support funding of \$25m to \$30m as will the historic trading and cash generation track record assuming no significantly adverse future deterioration. However with limited capability to lift earnings under existing constraints and restricted access to additional share capital the Panel recommends NIWA maintains its prudent policy of paying down any new debt as quickly as practical and accordingly supports the 5 year loan tenor proposed in the SCI.

v. Balance Sheet

Over the 5 years forecast in the SCI the equity ratio is forecast to be maintained at or above 74% (refer Chart 6) signalling NIWA's implied intention to appropriately manage its planned business development. At 78% the actual 2015 equity ratio is higher than NIWA were predicting as the opening position for the SCI forecasts giving it some headroom for delivery against the lower equity ratio targets.

Nevertheless the steady equity ratio improvement trend under the SCI's conservative earnings and high capital expenditure assumptions point to fiscal operating discipline and the relatively strong starting balance sheet structure with the capacity to sustain NIWA's planned operations throughout the 2016 to 2020 forecast period.

To test this against the 2015 balance sheet assuming \$25m of asset additions funded by drawing down 2015 cash deposits and taking on \$15m of term debt the equity ratio holds at 70% and the working capital position remains within acceptable parameters (refer Table 4 below). The implication is the company can sustain its capital expenditure plans all other factors including NPAT and working capital developments also coming in as forecast. Managing both aspects will be important to delivery of the forecast equity growth.

Table 4

Balance Sheet						Adjusted
\$m	2012	2013	2014	2015	Capex	2015
Total Equity	95.8	100.4	103.6	105.4		105.4
Equity Ratio	71%	74%	75%	78%		70%
Non Current Liabilities	7.7	8.7	14.8	8.1	15.0	23.1
Current Liabilities	30.6	26.5	26.6	21.7		21.7
Total Equity and Liabilities	134.1	135.7	145.0	135.2		150.2
Non Current Assets	104.3	103.5	101.3	102.5	25.0	127.5
Current Assets	29.8	32.2	37.0	32.7	-10.0	22.7
Total Assets	134.1	135.7	138.3	135.2		150.2
Working Capital	-8	5.6	10.4	11.0		1.0
Ratio	1.0	1.2	1.4	1.5		1.0

Working capital deteriorates 2016 to 2020 as cash reserves are progressively consumed and replaced with debt. Balance sheet management will require increased attention going forward and some caution will be warranted with both the current ratio (-2.9%) and quick ratio (-0.16) projected to move to a negative positions in 2020. This deterioration is reflecting the underlying short term funding assumptions incorporated into the SCI and reinforces a panel recommendation to maintain access to adequate working capital funding reserves and to structure acquisition of capital assets with loans of appropriate tenor.

s9 (2)(b)(ii)

vi. Dividend Policy

The dividend policy is clearly enunciated in the Policy and Procedure Statements and incorporates appropriate pre-requisites and restraints applicable for determining any dividend paid. An alternative approach NIWA could consider would be to specifically target payment of an annual dividend within a range of proportions of NPAT but with payment still subject to the existing policy criteria. This change of emphasis would provide management a clear fiscal objective and the discipline that can be associated with having such targets.

It is considered appropriate that NIWA pre-funds planned capital asset additions such as are being signalled in the current SCI once it and the underlying intent are approved.

Opportunities for enhancement

The Panel considers that while current financial policies and practices are very robust the following may provide benefit to NIWA:

- prioritise the planned enhancements of cash flow monitoring and forecasting systems as an enabler for increased working capital planning and management indicated as being necessary over the SCI review duration;
- maintain access to adequate working capital funding reserves and structure acquisition of high value capital assets using loans with appropriate conditions and tenor;
- purposely identify all opportunities to lift revenue rates and gross profit margins.
- encourage increased sector management ownership of SCI revenue forecasts by developing defined revenue objectives for each major revenue classification over the next 2 to 3 years as an alternative to applying percentage growth factors to historic revenues;
- further develop management of revenue opportunities by adding trend reporting to highlight summary category value changes over time for both opportunities identified and business secured;
- extend the annual capital expenditure planning cycle to improve the forward view by identifying material items above an appropriate value threshold on a 2 or 3 year planning horizon. Add a second dimension to frame the capital expenditure request and approval process separating expenditure into appropriate classifications to facilitate funding allocation and prioritisation;
- extend the risk management framework to include Board assurance through periodic detailed reviews (maximum 2 or 3 pa) of Board selected high risk items focussed on those risks that NIWA can influence;
- consider refining the dividend policy as proposed; and
- establish with MBIE the future funding arrangements for RV Tangaroa.

5.6 Infrastructure

Overview

The capital asset intensive nature of its operations is a stand out NIWA feature with significant asset value under its stewardship, in certain cases unique high value assets essential for delivering its core purpose and undertaking the specialist areas of scientific endeavour assigned to it. NIWA's high value individual assets are land and buildings, the high performance computing facility and its research vessels although there is also a substantial investment in scientific and operational computing resources and in a wide range of specialist equipment.

To provide context, at 30 June 2015 term and intangible assets had an original cost of \$259.2m and net book value of \$102.5m. Investment is evenly spread with Land 15.3%, Buildings 24.4%, Vessels 21.3%, Plant & Equipment 28.1%, EDP & Software 6.9%, and Others

4.0% of the net book value. Annual depreciation and amortisation is circa \$13m to \$14m implying an average of around 6 years remaining depreciable life on assets excluding land. Annual routine and replacement capital expenditure has been of the order of \$10m to \$12m which while slightly less than annual depreciation has been managed within the boundaries of the annual operating cash flow. The most recent material addition was completion of the purchase of the Bream Bay marine research centre in FY2015 for \$4.3m.

Within its financial capacity NIWA is seen to be renewing and upgrading its infrastructure to maintain its future science and operating capability and planning indicates the major portion of routine capital expenditure will continue to be directed at the equipment asset category. The panel observes that given the magnitude of annual capital expenditure NIWA has a degree of timing flexibility it can employ to adjust the spend to variations in other financial outcomes.

In the 2015-2020 SCI NIWA signals its intentions to undertake major asset replacement or upgrades over the next 5 years – notably its high performance computer system (HPC) for \$15m and premises \$45m including those at Bream Bay, Hamilton, Wellington and Christchurch.

The HPC is an important data processing asset enabling complex research modelling with access made available to other Crown entities for their research. Replacement is to be managed in conjunction with the National e-Science Infrastructure arrangements (NeSI). In stakeholder meetings participants confirmed NIWA is regarded as providing effective and economic management of this particular resource.

Vessels is another unique and important asset category with RV Tangaroa being described by NIWA as “New Zealand’s most substantial piece of scientific equipment”. Its economic life was extended to 31 years in 2011 and with a replacement cost variously estimated at between s9 (2)(b)(ii) will demand development of a clear replacement strategy as the vessel approaches the end of its economic life.

Nationally important heritage assets and databases are managed and maintained and do not have a balance sheet value assigned to them. Access policies applicable to these and other information data sets are summarised in the 2015 SCI. The panel notes data access and cost recovery is an area of friction with some stakeholders and customers and endorses efforts to establish transparent protocols and policies in this area.

NIWA employs extensive IT resource and applications to conduct its science and manage operations. Policies for governing and managing the information system infrastructure as described to the panel are considered appropriate having regard to the diversity of applications and the critical nature of certain data bases. NIWA has advised business continuity plans establish the overall strategic goals for crisis management and recovery for the business and the complementary IT Strategy identifies priority order for restoration of services plus contains incident and crisis response procedures. Incident response plans cover cyber security incidents plus facilities and service restoration or redeployment. System design structure includes automated fail over for high priority systems and appropriate alternative arrangements for the less critical systems. Governance procedures for managing information system capital investment are also considered appropriate for the business acknowledging the diverse range of science and administrative applications involved.

Looking forward the SCI identifies specific actions in the information technology space including delivery of an information records management system that meets the needs of the company, its stakeholders and statutory obligations. A detailed strategy for environmental information and the associated data base management has been established to guide ongoing developments and delivery of objectives in this important arena.

One aspect NIWA could usefully consider in conjunction with asset renewal programmes is whether financial advantages would accrue from operationalising any of its capital expenditure by leasing rather than purchasing the relevant asset. This is unlikely to be appropriate for specialist assets such as laboratory upgrades or for small value semi consumable items but for assets such as core IT, motor vehicles, and even premises refurbishment the cost / benefit and advantage / disadvantage analysis would be worth undertaking.

Vessel Operations

Given the scale of investment and relative importance to delivery of NIWA's SCP and SCI outcomes the vessel operations were reviewed in greater detail than other infrastructure elements.

NIWA operates and reports on three research vessels under its management (RV Tangaroa, Kaharoa and Ikatere) representing a substantial investment in enabling delivery of the underlying science in the Coasts and Oceans and Climate, Atmosphere and Weather arenas detailed in the SCI. These assets will be important resources for the NSCs, including "Sustainable Seas" and "Deep South" being hosted by NIWA and potentially others in which NIWA will participate as a collaborator. RV Tangaroa with its ocean going capability and specialist equipment is the largest and most heavily utilised of the three vessels by a considerable margin and accordingly is dominates total vessel revenue generation. RV Tangaroa has been the subject of several reviews to validate its economics and to form the basis of discussion on appropriate future ownership and funding structures. **s9 (2)(b)(ii)**

[REDACTED]

[REDACTED]

[REDACTED]

The Panel received information on vessel operations from NIWA and was given the opportunity to inspect the RV Tangaroa while in dry dock for scheduled maintenance and its statutory survey. Company pride in this flagship vessel and management commitment to maintaining operational and asset standards of all vessels at a high level, while achieving maximum utilisation to achieve economic objectives was evident throughout discussions. The Panel's impression is NIWA has the capability to effectively manage its significant marine assets, fully understands the key cost and revenue drivers and has the commercial contracting experience necessary to secure work to bridge the gap between Government funding and the revenue required to fully cover vessel operating costs.

Vessel income is derived from Government funded research programmes conducted by NIWA and work undertaken for other Crown customers, international bodies and academic institutions and marine orientated industries with charter income from the latter two categories representing circa **s9** of annual vessel revenue, a material contribution to

having these assets available for core science and related activities. s9 (2)(b)(ii)

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Financial outcomes are heavily influenced by the number of voyage days achieved out of a theoretical maximum available in any year and by the mix of voyage types and customers serviced. s9 (2)(b)(ii)

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] NIWA signals in its SCI that a KPI will be success in achieving efficient use and maximum utilisation in partnership with other key Government agencies. Achieving this goal will be important in the context of managing NIWA's financial risk from its vessel management responsibility.

NIWA has advised it has some flexibility in timing vessel maintenance and its own research voyages in order to maximise vessel utilisation and commercial charter income. The Panel notes NIWA is strongly incentivised to do so given current funding arrangements that do not fully meet the cost of ownership. Equally it is incentivised to prioritise commercial activity over contracted activity with other Crown bodies which in the panel's opinion could be a potential source of conflict and customer dissatisfaction. The panel observed no evidence that such re-prioritisation has actually occurred – it is rather noted as a potential risk. Whether existing funding arrangements are the most appropriate to meet Government research and science delivery objectives is a matter the panel understands is being actively reviewed. SCI forecasts incorporate assumed changes in the future sources of revenue and past performance suggests all things being equal NIWA can meet these vessel revenue targets. However being a significant contributor to NIWA's results it does mean NIWA carries the commercial risk of having this oceans research resource available to New Zealand and any significant decline in utilisation over a prolonged period does present a risk in terms of delivering an adequate return on these assets and also to the NIWA profit objectives essential for delivery of its overall corporate strategy. To this extent sustainability of the vessels existing operations is reliant on continuation of Government funded research at a level sufficient to meet any ownership and operating costs NIWA is unable to be covered by either diversion of its core funding or charter income from other organisations and commercial customers. The Panel supports an early determination of vessel funding considerations to give NIWA certainty for future planning purposes.

Information provided the Panel confirms at June 2015 the vessels net asset value was s9 (2) including scientific and other special research equipment tied to the vessels. s9 (2)(b) (ii)

[REDACTED]

[REDACTED]

Economic lives of the vessels have been reviewed and extended in recent years, RV Tangaroa in 2011 from 26 years to 31 years and RV Kaharoa in 2015 from 16 years to 25 years. Annual vessel depreciation is \$2.2m which will fully depreciate the 2015 vessel (hull, engines and fixed equipment) asset residual value in 10 years. Given higher maintenance costs usually apply to heavy plant items as they approach the end of their economic life and the economic life itself becomes less certain this accelerated depreciation is considered a prudent policy selection. While there may still be 20 to 30 years before a replacement is actioned the sooner a long term strategy for maintaining appropriate science capability is resolved the more options that will be available for NIWA to implement if necessary.

The Panel supports a previous report recommendation that to avoid earnings dilution future capital expenditure aimed at adding to vessel capability or integrated into a vessel be evaluated against a targeted return on assets which should be higher than the ~3.0% SCI after tax return on equity targets.

5.7 Science quality, strategy and delivery to Outcomes

Science Quality

Interviews of external stakeholders by the Panel universally showed a very strong confidence in the quality of the science being undertaken by NIWA and, in the case of those stakeholders purchasing research, a belief that the reports they had contracted were of high quality.

A significant proportion of those interviewed expressed views regarding a lack of visibility of the depth of science quality behind the 'rockstars'. It appears to the panel this is not necessarily based on any negative experience but more on a lack of exposure to the wider science staff. There was some suggestion that some key customers may demand increased visibility of science quality assurance in the future.

NIWA delivers the expected science metrics to MBIE as part of its reporting processes, including numbers of publications in peer reviewed journals and books, plenary and conference presentations as well as reports to their stakeholders. NIWA uses the same metrics as part of its annual performance review processes for science staff.

At present it appears NIWA's Science Advisory Panel does not provide specific independent advice to the Board on research strategy, prioritisation, quality or future science activities outside of its input into NIWA's strategic planning. Such advice could be provided via an expanded mandate for the existing Panel, a separate, dedicated, Science Advisory Panel or alternatively through *ad hoc* panels of international reviewers as appropriate. In the material provided to the Panel NIWA states that it maintains 'a pragmatic approach' to external peer review of its science. This has meant that it has participated fully in externally driven reviews of some of its science (mainly driven by MBIE and its predecessors) of which the last was of 'Freshwater Research' in 2013. In that review NIWA had 4 contracts of which 2 were assessed as performing above expectations and 2 were assessed as performing below expectations. NIWA itself has only undertaken one recent independent review (by a single reviewer) of an area of its science and all other assessment has been based on internal peer review.

NIWA provided the panel with some high level metrics around its science quality which show that its publication rate has been relatively stable over the last several years. Data from MBIE assessing publication rate/FTE across all the CRIs show that while NIWA performs at a good level compared to other CRIs it has a significantly lower publication rate/FTE over the last several years than the top performing CRI.

NIWA were asked by the Panel to provide benchmarking information against like institutions at both national and international level using tools such as Scopus or Incites. NIWA confirmed they did not routinely benchmark their performance but did provide benchmarking comparisons (publication rates, citation indices and H factors) against other national institutions and several comparable international institutions. The data showed that NIWA performs well against such benchmarks. The Panel is of the view that such benchmarking should be undertaken internally at a more granular level than that it provided (i.e. within key areas of science rather than at an aggregated institutional level) and should be undertaken at least biannually.

Science Strategies

NIWAs' science strategies are maintained as a series of 'living', annually refreshed, Science Plans for each of its National Science Centres (Aquaculture, Fisheries, Coasts & Oceans, Climate & Atmosphere, Hazards, Freshwater & Estuaries, and Environmental Information). These plans are maintained by the Chief Scientists and provide analysis of situational drivers, capability and capital expenditure requirements, immediate research plans (which feed into the SCI) together with plans for the next 5 years. The best of these plans encompass detailed research partnering approaches and a strong focus on delivery to national benefit. The Science Plans are standalone documents with no priority setting across the National Science Centres. The Panel saw no evidence of other cross-cutting priority setting plans.

Given the consultancy based model which NIWA has adopted, the Panel anticipated that there would be significant attention paid to business development strategies focused around key sectors and partnerships. The Panel was provided with operational Sector Plans that provide a useful way of monitoring tasks and activities. It isn't clear to the Panel how cross-science sector activity is co-ordinated given the Science Centre focus of the science strategies.

Over the last several years about \$9M of core funding has been redirected to different priorities using an appropriate set of criteria including: potential benefit; end-use, capacity to uptake outputs; science quality; unique capabilities; and the overall balance of strategic and applied research. Almost all the redirection of core funding has been a deliberate shift from strategic research towards those activities targeted at increasing the transfer of science knowledge to end users. There has been little if any shift of core funding between the three main areas of science (atmosphere/climate, marine and freshwater) that the panel could detect. A significant amount of core funding (about \$11.5M p.a.) has been aligned to the NSCs. Although NIWA has not yet received the revenue gains it anticipated from the NSCs it now has good understanding of the baseline revenue it will derive and can plan ahead treating further investment as contestable funds from within the NSC processes.

Delivery to Outcomes

NIWA maintains a strong focus on its delivery to outcomes in its reporting documents primarily through case studies. However, they have had a relatively *ad hoc* approach to reviewing actual delivery. During 2015 a standardised internal review framework has been developed to cover annual assessment of all core funded programmes. These reviews may include external stakeholders or experts and look to cover both science quality and impacts as well as consideration of future positioning. This is an important initiative and the proposed framework looks very fit for purpose. The Panel strongly supports the involvement of independent experts in the reviews so that NIWA science quality and delivery to outcomes is deliberately tested beyond internal peer review.

s9 (2)(b)(ii)

NIWA state that it intends to undertake further quantitative reviews of the impact of parts of their science, perhaps annually, and because of the expense and complexity are seeking different ways of achieving this. The Panel acknowledges the challenge associated with quantitative assessment of science impact however supports NIWA pursuing further this approach and encourages its delivery as soon as possible. The Panel considers working with other research institutes may facilitate this process.

Opportunities for enhancement

Opportunities for NIWA in further strengthening its science delivery include:

- taking account of the increased MBIE focus on 'excellence' by including systematic external, independent, peer review of its science;
- undertaking regular, though not necessarily frequent, benchmarking of its science outputs at the level of key science domains;
- pursuing the proposed approach to quantitative reviews, including independent assessors, of the impacts its science is making for New Zealand;
- documenting its cross-cutting science strategies, priorities, alliances taking account of the convergence of science which New Zealand will need into the future; and
- articulating its value proposition through quantitative measures of outcomes and impact.

5.8 Vision Mātauranga

NIWA had an early history of incorporating the positioning of Vision Mātauranga in their strategy through their own Te Kūwaha approach. This has included developing strategic relations, community engagement and science projects with a range of Māori groupings whether iwi, hapū or whānau as well as in Māori businesses. This active leadership allowed the organisation to be a leader in science with the Māori community through the last decade.

The NIWA strategy has evolved into the current documented Te Kūwaha with this Centre reporting up to the Senior Executive rather than being part of the senior management team. Te Kūwaha is a small matrixed group of NIWA staff who report into their respective science team as well as providing a focus and leadership to wider engagement with Maori. Te Kūwaha works across the wider organisation and given its size this results in it being stretched in its ability to service the NIWA group. Stakeholder feedback expressed concerns for the key individuals in regard to achieving quality in science outcomes, managing the interplay between western and Mātauranga Māori approaches to science, while also managing the many requests for assistance across the organisation.

The question posed to and by the Panel is whether the Vision Mātauranga strategy evolved in depth and breadth through the organisation has in recent times lost its way and energy. It appears to the Panel that some of NIWA's profile in working with Māori has declined in recent times in part because of the recent departure of a very strong, nationally networked, strategic leader. NIWA has recently secured a new leader for Te Kūwaha and is currently planning to revitalise its activity in this area.

Feedback from the Panel's interviews with stakeholders indicates NIWA's current projects with Māori organisations are resulting with variable degrees of success. NIWA may wish to consider a more strategic approach to engagement, leadership ownership, and the building into the philosophy of the NIWA way principles and values of tikanga Māori to reflect the diversity of both science and stakeholders that the organisation must engage with into the future. A tiered approach to managing key Māori stakeholders is to be encouraged.

If NIWA is to be successful in the MBIE competitive processes in future it is crucial that it presents a strong and distinctive approach to delivery of Vision Mātauranga in all its proposals.

Opportunities for enhancement

The new leader appointed to Te Kūwaha is currently planning a re-energised future focussed strategy. This is an opportune time to review resources available as both human capital and budget. The Panel believes that the current allocation of \$400kp.a. of Core Funding is insufficient given both the importance of Vision Mātauranga to delivery by any CRI and also the significant potential in future business from the growth in Māori assets.

The Noho Marae based work to develop NIWA staff together with deliberate community focus while growing long established business relationships all require nurturing and developing to another level.

5.9 Working with others for impact

Customer Relationships

NIWA maintains strong relationships with its larger central, local government and commercial customers and stakeholders. These relationships are generally held by senior NIWA staff and are proactively managed to ensure regular contact. These relationships appear strong and enduring. While some larger government customers report the relationship with NIWA is positive they also indicate these have not yet achieved a "Strategic Partnering" basis. These customers acknowledge this is not solely due to NIWA but see this being an important and necessary step.

Across NIWA's wider customer base the nature of relationships appear to be more diverse with many relationships appearing transactional and/or reactive in nature. A small number of commercial customers report issues with NIWA staff responsiveness and/or commercial acumen. In a competitive market space, the implications for NIWA are that customers are increasingly considering where and when they use NIWA to undertake their projects, making active decisions to go with other providers (public and private) where they see greater value in alternate offerings. The implications of this are that NIWA's strict adherence to its science excellence and neutrality criteria will by implication limit its market. The Panel does not necessarily view this negatively as a positioning proposition, however given this approach the Panel considers NIWA may wish to give further consideration to its collaborative and competitive relationships with other providers in light of this positioning of its science and research activity and in doing so minimise negative reputational impacts.

Commercialisation

In recent years NIWA has introduced a small number of commercial applications of its climate and atmospheric forecasting research. Whilst differentiated from other commercial offerings, these are inherently competing with other commercial products if/when they complete their development. It's uncertain to the Panel what NIWA's intention for these products is in the medium term. This raises broader questions about whether MBIE wishes CRIs to be developing diversified revenue streams to reduce reliance on Government funding of science and research; if so on what basis; and how does it avoid crowding out the private sector.

Expansion of aquaculture research into fin fish farming is rightly targeting a commercial outcome through the sale or licensing of intellectual property or some other appropriate participation in future revenue streams. This will be reliant on the programme's success and ultimate uptake by industry participants.

Responsiveness and acumen

In recent years, the nature of decision making in relation to the use and management of natural resources (e.g. water, minerals) has moved to more collaborative processes of structured discussion and debate in mandated forums, informed by science and other considerations (e.g. cultural, social and economic). NIWA science is increasingly playing a critical role in such forums and allowing informed debate and consensus to be pursued. These processes are placing pressure on NIWA to undertake and deliver high-quality relevant independent science in accordance with community forum timeframes. These Forums are only likely to become more dominant in terms of decision making processes.

From NIWA's perspective this means that areas of its research are gaining in relevance and significance to the public. NIWA has made significant commitments to participating in such forum and made valuable contributions to outcomes and impacts as a result.

Debates about climate change and fresh water use in particular are leading the way but the new collaborative models for natural resource decision making and debate appear set to be more widely adopted which will impact on the balance, structure and customers for NIWA's science. As a consequence NIWA will need to consider and agree how it "monetises" its science in the future if it is to continue to collaborate for impact in this way.

Partnering with other Research Organisations

NIWA has a number of relationships with other research organisations across the spectrum. It is a net outbound sub-contractor of research and the Panel observes NIWA is a conscious and active manager of its sub-contracting arrangements with very clear expectations regarding performance and quality of science outputs.

Research organisations NIWA work with report mixed views of NIWA's partnering approach with some seeing NIWA as a good collaboration partner while others report it being difficult to build an enduring and committed collaborative relationship. The Panel has not been able to discern any clear basis for the varied feedback but is inclined to conclude that NIWA works harder to manage relationships it values more highly. While this is understandable it does have a degree of risk associated with it given the uncertain and diffuse nature of the science funding system. The size and diversity of NIWA science means that it is important as a partner for other research organisations. At the same time NIWA's tendency to try and develop capability and solutions in-house (within its scope) may limit its ability to build the connections and flexibility for higher value co-developed solutions.

While NIWA is working within the boundaries of its SCP and its memorandums of understanding, the Panel is concerned that it is on a possible collision course with the Met Service with respect to forecasting and with Landcare Research (and perhaps AgResearch and Plant and Food Research) with respect to the interface of land and water research and its application. There are no current issues but over the next several years efforts will need to be made by all parties to ensure that competition does not override the need for publicly owned companies to ensure benefit to New Zealand and that the Crown derives optimal benefit from all parties in its position as owner.

Data Access

An area of tension for NIWA results from its policy on access and supply of its data to others. It appears to the Panel that NIWA's policy results in apparently inconsistent outcomes for stakeholders. Contributing factors to this issue are:

- the commercial contractual arrangements under which some data is captured limits NIWA's ability to supply to others; and
- data from some of NIWA's more intensive computing technology takes considerable work (and associated cost) to supply into a useable form for external users.

The Panel understands this has been an issue surrounding NIWA for some time and observes it remains the case.

At a wider science policy level there is no express framework for supply of data other than that publicly funded data collected by a CRI should be freely available to other New Zealand users. There is no issue with this basic premise. The issue appears to arise where the costs of research associated with interpretation or analysis of that data are required to be met resulting in complexity of application of the basic premise. Based on the 2015/16 SCI, the Panel understands work on this matter is underway within NIWA to address some of the apparent inconsistencies. The Panel encourages NIWA to meet its SCI targets sooner than the targeted dates and that the term 'relevant stakeholders' to be interpreted as inclusively as possible.

Opportunities for enhancement

- NIWA is aware that it has some reputational risk around the perception of its 'elitist' partnering behaviours and still has some issues with timeliness of contract delivery. It has worked hard in the last 2 years to improve in this area and initiatives such as formal progress reviews with customers at fixed points of project delivery should continue to be embedded so as to be business as usual across the organisation. The Panel encourages NIWA to continue to work on the development of a more customer and partner centric culture;
- continuing to broaden the base of management commercial acumen and communication capability will assist with further enhancing the level of professionalism attaching to customer relationship management and project development;
- access to data remains a problem and the Panel would like to see the improvements outlined in the 2015 SCI delivered sooner than the dates proposed.

6. NIWA'S FUTURE CHALLENGE

The Panel concludes NIWA is a professionally managed, efficient and thoughtful steward of its science and research responsibilities. It operates to all intent and purposes in accordance with the principles and philosophy of a professional services consultancy. While it takes seriously its responsibilities: 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 safety and wellbeing of New Zealanders; it has brought a dual focus to the efficiency of its management and planning and in doing so delivers value for the shareholder and wider New Zealand.

The Panel has made a number of observations that may assist NIWA to 'fine-tune' its already strong organisational performance, however, with a few exceptions, these are relatively small in quantum and emphasis compared to the challenge the Panel observes for NIWA for the future.

In the past decade, the areas of science in which NIWA operates have become increasingly relevant and significant to New Zealand and New Zealanders. NIWA has been able to capitalise on its existing science to be able to bring research credibility to the debates surrounding key topics such as climate change and variability, use of the freshwater and marine environments. While the majority of NIWA's science and research is used by central and local government to inform policy and regulatory settings, it has managed through sound planning and management to maintain good levels of financial performance in recent years and to strengthen its delivery of applied research to industry.

Looking ahead, in many ways NIWA's biggest challenge is how it successfully moves onto the next organisational development curve and takes on the leadership responsibilities associated with its areas of science excellence to support in a timely and considered way public debate and decision making regarding New Zealand's climatic, atmospheric and aquatic systems. This will require NIWA to continue to prioritise and increase its investment in its early stage science to align with the future debate, questions and opportunities facing New Zealand and to accelerate the achievement of high quality science outcomes.

The model for the future will require NIWA to be a persuasive and inclusive leader, bringing science and research to the fore of public debate, partnering more strongly, inclusively and readily with wider groups of research and industry stakeholders while delivering against ever shortening time horizons without compromising the integrity of its work.

It will require new profile for science, repositioning science leadership as a critical and accessible aspect of public dialogue. It will need to build upon its already strong performance in communicating its science to making its and other's science at the heart of New Zealand's debate as a critical enabler of informed, responsible and credible decision making. Furthermore it will require transparent business models that allow the monetisation of NIWA's science work in ways that support collaboration and partnering rather than creating tension.

To achieve this NIWA will need to redefine its operating model and find new revenue streams to support investment in critical New Zealand impact science aligned with Public Good without crowding out the private sector.

The Panel accepts that NIWA cannot do this on its own and requires support and partnership from the central agencies if it is to play this role in New Zealand's debate.

If NIWA is to play this role it needs all of (relevant) Government alignment on science requirements to provide clarity on the priorities for science and research as it relates to NIWA's SCP. Co-ordination and support for integrated programme of research work (building on other programmes such as NSC, etc.) will need to be developed across agencies and agreed. The Panel understands there is growing appetite for this approach amongst key central agencies.

New models for Strategic Partnering will need to become a reality with both NIWA and the central agency partners working to agree strategic, transparent and accountable models that provide long-term certainty and confidence for investment in science and research programmes for impact. This will require all the parties to be prepared to try new partnering approaches, make long-term co-ordinated funding commitments and work in different ways.

The Panel considers NIWA is well-positioned to take this next step and encourages the organisation to be bold in how it approaches its strategic thinking. NIWA needs to understand what its maximum strategic contribution will look like and develop strategies to monetise its strategic leadership. If it does this successfully the Panel considers it can be assured of having a significant impact on informing New Zealand's future.

APPENDICES

APPENDIX 1 - REVIEW TERMS OF REFERENCE

Terms of Reference Version 2

August 2014

Background

The 2010 CRI Taskforce reforms are an integrated suite of changes designed to increase the economic impact and benefit from the Crown Research Institutes (CRIs) for New Zealand. Central to the reforms is the intention to increase the CRIs' focus on collaboration and efficient technology transfer and adoption with the sectors and key stakeholders it serves.

Each CRI has adopted a Cabinet approved Statement of Core Purpose which reflects this focus and clearly articulates the purpose, outcomes and strategic role for their organisation.

To ensure CRIs continue to increase their contribution to New Zealand's economic and social and environmental well-being, the CRI Taskforce also recommended, and Cabinet agreed [CAB Min (10)43/5C refers], that government evaluates the performance of each CRI against its Statement of Core Purpose through a process of independent rolling reviews.

It has been agreed with the Minister that since two reviews will be undertaken each year and the cycle of reviewing the seven CRIs will be completed every four years, these reviews will be known as the Four Year Rolling Reviews.

These reviews are described as rolling for two reasons: firstly, because they are designed to review each CRI regularly and secondly, because they will draw on an aggregation of performance-related information that is already routinely generated to inform the matrix of monitoring and evaluation processes established around the CRIs.

Some early design principles and ideas for the project scope were drafted in May 2011, but in light of the volume of work associated with the CRI Taskforce Reforms at the time, these were put on hold.

Purpose and Principles

Purpose

Cabinet agreed that shareholding Ministers evaluate the performance of each CRI against its Statement of Core Purpose through a process of independent rolling reviews. The purpose of the

four year rolling reviews is to provide shareholding Ministers with an independent assessment of each CRI's current effectiveness and future potential in delivering on the purpose and outcomes set out in its Statement of Core Purpose (SCP).

The reviews will provide shareholding Ministers with insights on where performance can be improved and assurance on where the CRI is operating effectively in contributing to outcomes that support New Zealand's economic, social and environmental well-being. The reviews will include an assessment of governance effectiveness, financial viability and sustainability as well as the identification of opportunities and barriers to success and alignment to government priorities. Findings from the reviews will also support CRI Boards in their governance role.

Principles

It is proposed that the design and undertaking of the four year rolling reviews will be informed by the following principles that were previously consulted on in July 2011.

The four year rolling reviews will be:

- future focused - drawing on past performance and an assessment of current strategic intentions to inform the evaluation of future potential and opportunities
- open and transparent – ensuring that there are “no surprises” for either CRIs, their key stakeholders or the Science and Innovation Group
- based on effective stakeholder engagement – ensuring engagement ‘fatigue’ is minimised
- efficient – ensuring compliance costs for gathering information is minimised
- independent – ensuring the panel of experts bring a deep and balanced knowledge of science, economics and commercial imperatives
- sensitive to the need to ensure appropriate protection of commercially sensitive information.

Process for Reviews

The Terms of Reference for the CRI four year rolling reviews were evaluated by a wide range of stakeholders in mid-2014 as agreed at the outset of the process. The document was modified in August 2014, prior to the 4th rolling review.

The rationale for this approach was to maximise the effectiveness of the review process by identifying opportunities for improvement in the design and process from the first three reviews that could be incorporated into the subsequent reviews.

There are four project phases associated with the implementation and evaluation of the reviews as follows:

1. Design evaluation methodology:
 - a. Draft terms of reference, evaluation framework and implementation plan.
2. Preparation of implementation for review:

- a. Minister decides CRI,
 - b. Panel appointed by MBIE.
- 3. Implementation of review:
 - a. Panel conducts review
 - i. Reads background documents
 - ii. Interview CRI staff and stakeholders/end users
 - iii. Present findings to Board
 - iv. Review/feedback from MBIE/CRI prior to final report.
- 4. Process evaluated, redesign of review:
 - a. Feedback on process of the four year rolling review, incorporate into next review.

Process roles

The four year rolling reviews are being undertaken on behalf of the shareholding Ministers, who are the owners and recipients of the review reports.

The reviews will be undertaken by independent panels – one for each review. It is anticipated one/two individual(s) will be appointed to both panels to ensure consistency across both reviews.

The Deputy Chief Executive of the Science, Skills and Innovation Group will have oversight of the reviews on behalf of the shareholding Ministers and the Manager, Institutional Performance has responsibility for the day-to-day management of the review process.

Administration

As outlined in the principles above, the Science, Skills and Innovation Group will ensure compliance costs for gathering information for the review panels is minimised. The Institutional Performance team has responsibility for collating preparatory information for the review panel in collaboration with the CRI. This will comprise information already available to the Institutional Performance team as well as any relevant existing information identified through discussion with the CRI. The Institutional Performance team will ensure that the review panels utilise all existing monitoring and performance reports where possible, including reports and assessments from industry user groups, science panels and sector strategy groups as well as stakeholder surveys to inform the review. In the event additional information may be required, the Institutional Performance team will agree expectations for this with the CRI in advance. A key contact person for the review should be selected from the CRI and the Institutional Performance team.

Scope

Each CRI's Statement of Core Purpose (SCP) provides the scope of enquiry for the four year rolling reviews². The review will evaluate each CRI's performance and progress in achieving the SCP, outcomes, scope of operation and operating principles. There will also be some consideration of the

² Reference to the term "social" outcomes in the CRIs' Statements of Core Purpose includes health and cultural outcomes.

endurance of outcomes in the current economic and environmental context. The reviews will evaluate factors that influence CRIs' overall success in contributing to their SCP outcomes now and into the future.

Out of Scope

Every year each CRI, in collaboration with key stakeholders, measure and evaluate impact on their respective sectors. The independent panel undertaking the four year rolling reviews will not duplicate this work. However, based on the measures and evaluation generated by the CRI, the panel will assess how well the CRI is contributing to the outcomes in its SCP and will assess the quality of the CRI's measures used to inform that assessment.

The following is also out of scope:

- How science reviews are undertaken by the Science, Skills and Innovation Group; rather the reviews themselves may be sourced as an informational input into this project.
- Measuring performance of the CRI's delivery against individual contracts; rather the panel will evaluate how the CRI manages contracts overall.
- Measurement of CRI's science quality; rather the panel will evaluate how well the CRI is monitoring, measuring and improving science quality through interactions with the Science Advisory Panel.

Review Process

The process for undertaking the four year rolling reviews is as follows:

Order and timing of reviews

The reviews will be conducted every four years. The order in which CRIs are reviewed will be determined by the shareholding Ministers. The reviews are likely to involve the independent panel for up to 15 days of document examination, interviews with the CRIs, key end-users and stakeholders. The Institutional Performance team (IP team) will ensure early communication with the CRIs to agree expectations around documentation provision and interviews.

Panel membership

The panel will comprise the minimum number of individuals necessary to ensure the appropriate mix of experience and knowledge is represented. It is anticipated that a panel size of three-five will likely meet this requirement. Review panel membership is not likely to be common for all reviews, however, panel members will be individuals recognised as distinguished members of their professional community. The IP team will ensure appropriate steps are taken to manage any potential conflicts of interest.

Preparatory information for the review panel

The IP team has responsibility for collating preparatory information for the review panel. This will comprise information already available to the IP team as well as any relevant existing information identified through discussion with the CRI. The IP team will ensure that the review panels utilise all existing monitoring and performance reports, including reports and assessments from industry user groups, IP team, science panels and sector strategy groups as well as stakeholder surveys to inform the review, where possible. In the event any additional information may be required, the IP team will agree expectations for this with the CRI.

Cost

The IP team will pay the review panels for their work and associated expenses incurred by them. The IP team will also cover the cost of the secretariat to support the panel.

Interviews by the review panel

After reading the preparatory information, it is expected that the review panel will visit the CRI to conduct interviews with the CRI Board and key staff as well as key external stakeholders (stakeholder list will be tested with the Board Chair in advance). The aim of the interviews will be to verify and explore the degree to which the CRI has performed against its SCP. It is also an opportunity for the panel to discuss and understand the CRI's strategic response to challenges and opportunities.

Report draft and release

The review panel will draft a succinct written report, which will be sent to the CRI to identify errors of fact and omissions. Following this, the panel will finalise their report.

The CRI Board will be provided a copy of the final report before it is submitted to shareholding Ministers and requested to provide an action plan (with timelines) in response to the final report. Then the final report together with the action plan from the Board will be submitted to the shareholding Ministers by the IP team. The Institutional Performance Team will monitor the CRI's progress against the action plan for the next 12 months.

The four year rolling reviews are subject to requests under the Official Information Act (1982). The panel's final report and the CRI's action plan will be released publicly <http://www.msi.govt.nz/get-connected/crown-research-institutes/>, although any commercial-in-confidence material will be withheld.

CRI's – 4 YEAR ROLLING REVIEWS – Review Framework

Statement of Core Purpose

How well is the CRI set up to deliver on its Statement of Core Purpose?

Governance/ leadership

Purpose

The Board responds to direction from government priorities, sets clear strategy and provides effective governance and monitoring of the organisational performance in delivery of the strategy

The Leadership Team provides clarity of purpose, vision and strategy to the organisation and ensures delivery on the strategy

Delivery

Scope of Operation

Demonstrates leadership in designated areas of science and to the relevant sectors

Provides leadership through science quality and capability

Seeks collaboration with national and international partners to deliver quality products

Delivers knowledge to end users through technology/ knowledge transfer and commercialisation

Effective guardian of New Zealand's resources e.g. collections and databases

Operating Principles

Effective use of robust evidence-based data and measures of performance

Effective engagement with end users including Māori

Seeks balance of short and long term vision

Works collaboratively with other organisations to achieve results

Works within government priorities e.g. NZ GOAL

Outcomes

Clear articulation of the strategy by the staff, stakeholders and end users

Visible impacts on sectors and areas of research

Excellence in engagement with stakeholders and end users

Effective collaboration with national and international organisations

Viability

Organisational sustainability

Effective practices, processes and policies

Plans encompass future organisational capability requirements

Manages tangible and intangible assets sustainably

Responsibly manages data

Proactively manages IP/ commercialisation

Financial sustainability

Effectively and efficiently manages financial resources for the short and long term.

Responsive to system/environment and changes the business model to maximise sustainability.

Manages with respect to government guidance

Governance/ leadership

PURPOSE

- How well do the Board and Senior Team provide collective leadership and direction to the CRI?
- How well has the CRI contributed to New Zealand's economic, social and environmental well-being?
- How well does the CRI ensure that all parts of the organisation are strategically aligned in delivering its purpose?

Delivery

SCOPE OF OPERATION

- How well does the CRI demonstrate that its leadership and contribution is underpinned by scientific and technological advances, and leading science capability and techniques?
- How does the CRI monitor the impact of its work and reprioritise to reflect this?
- How well does the CRI encourage high performance and continuous improvement among its workforce?

OPERATING PRINCIPLES

- How effective is the CRI in technology and knowledge transfer from domestic and international sources for the benefit of New Zealand
- How effective is the CRI in the mechanisms that it uses to engage with and distribute benefits to Maori stakeholders nationwide?
- How effective is the CRI at balancing research provision for the near term requirements of its sectors and visionary research for longer term benefit?
- How well does the CRI ensure the long-term sustainability and integrity of its scientific research data and data collections, and ensure access and usability?

OUTCOMES

- How well does the CRI partner effectively with key stakeholders to deliver the outcomes?
- How well does the CRI ensure that its organisational planning, systems, structures and practices support delivery of the outcomes in the SCP?
- How well does the CRI get feedback from end users on their technology and knowledge transfer activities?

Viability

ORGANISATIONAL SUSTAINABILITY

- How proactively is the CRI reviewing its capability both for current work and building resources for future needs?
- How well does the CRI actively manage its IP – to ensure tech transfer, patenting or commercialisation is providing the greatest impact for NZs economic development
- How well does the CRI identify the assets it needs now and in the future to support delivery on its SCP?

FINANCIAL SUSTAINABILITY

- How effectively does the CRI manage its financial viability to ensure it is able to deliver on its SCP in the short and long term?
- How well does the CRI plan, direct and control financial resources to drive efficient and effective delivery?

APPENDIX 2 - BRIEF BIOGRAPHIES OF PANEL MEMBERS

Jenn Bestwick

Jenn's skills include organisational responsiveness; customer and shareholder focused management; working with effective operating models; systems thinking; and setting and delivering strategy. Jenn has experience working with CRIs both as a client commissioning research work and as a consultant advisor and reviewer. During 2013, Jenn worked extensively with Callaghan Innovation to review its science and research capability. Jenn is currently working with three CRIs as well as Lincoln University and Dairy NZ to develop science collaboration opportunities and specifications for the Lincoln Hub.

Jenn has held Board positions at the New Zealand Qualifications Authority, Southern Response Earthquake Services, Tourism New Zealand and Learning Media Limited as well as Board Chair for the Christchurch Polytechnic Institute of Technology. Jenn spent a number of years as Director of Strategic Consulting for KPMG and was also a contractor and General Manager of Strategy for Ngai Tahu Holdings Corporation.

Jenn holds a Bachelor of Laws with Honours from the University of Trent.

Tricia Harris

Tricia was the Chief Science Advisor at the Foundation for Research Science and Technology (2004 – 2008). Since then she has worked as a consultant in a range of consultancy roles, including work on the IRL stocktake, the CRI Balance Sheet Review, and as Chair of Partnership Proposal review Panels for MBIE.

Tricia completed her PhD in Animal Nutrition at Cambridge University and returned to New Zealand at DSIR (later AgResearch) and for 20 years was a research scientist, then research group leader. In 1997 she was appointed Group Manager, Science at AgResearch where she had responsibility for strategic planning, together with implementation and review of company innovation policy. In 2005 Tricia was awarded the ONZM (Officer of the New Zealand Order of Merit) for Services to Science.

Tricia served on the Panel for the first three 4YRRs.

David O'Reilly

David offers experience in a wide range of areas derived from a successful commercial finance and general management career including financial management, corporate finance, treasury and operational risk management, information technology and corporate strategy development. Roles have also involved leadership positions in a number of successful merger and acquisition transactions and the change management processes arising from subsequent business integration.

A senior leadership executive position with Ballance Agri-Nutrients Ltd provided a strong insight into New Zealand's agricultural industry, its environmental challenges and R&D programmes to address these or to deliver operational or product performance improvement. This role also brought engagement with advanced health and safety programmes, manufacturing, importing and distribution activities, the petrochemical industry and agricultural aviation both domestic and overseas. Other senior appointments have added the international perspectives gained from BASF AG, a multi-national chemical corporation and the interesting elements of New Zealand's hotel, wholesale travel and fashion industries.

Governance appointments have included a captive insurance company, a R&D joint venture, a web based agricultural information-services company and a member representative aviation industry association.

David holds a BCA in accounting from Victoria University, a CA (retired) qualification with CAANZ and is a member of INFINZ and the NZIOD.

Paul Morgan

Paul Te Poa Karoro has served as Chair of Kono NZ LLP since 2011, and as a Director and Chair of Kono's owner, Wakatu Incorporation, since 1986. Paul's career has been at the forefront of economic development for the Māori community for nearly 30 years, during this time he has had many directorships and roles with Government, Public and Private entities across agribusiness, science and business. Paul served as Chief Executive of the Federation of Māori Authorities, representing the interests of Māori business from 1996 to 2007. He was awarded a QSO for services to Māori business in the New Years' Honours in 2010.

Paul as Chair of Wakatu Inc. has lead the evolution of the whanau business Kono NZ LLP a fully integrated business which, markets seafood, wine, horticultural produce and fruit leather from its lands and aquaculture farms in Te Tau Ihu, top South Island. Kono employs over 500 people with sales to 40 plus countries in the Kono family of brands.

Paul in his capacity of Managing Director, Fomana Capital Ltd is currently involved with a range of other businesses and organisations spanning the nutraceutical, food ingredient, functional foods, cosmetics, aquaculture, food & beverage sectors and financial services.

APPENDIX 3 - LIST OF INFORMATION REVIEWED BY THE PANEL

DOCUMENT / INFORMATION	
A. Understanding the business	
1. Statement of Core Purpose	
2. Statement of Corporate Intent	
3. Copies of the detailed workings for the 5 year SCI Budget	
4. Annual Reports	
5. Quarterly and six-monthly reports	
6. YE management accounts for the past 3 years and any reconciliation to the year-end financial statements.	
7. NIWA Balance Sheet Review	
8. NIWA Stakeholder Survey 2011, 2013, 2014	
9. Key Stakeholders list	
10. NIWA Organisation Charts	
B. Business structure overview	
1. A brief memo providing an overview of each of NIWA's business units, the activities undertaken, their capabilities (including technological platforms and R&D specialisations) and the market(s) that they serve.	
2. A brief memo providing an overview of each of NIWA's subsidiaries, associates and JVs with a brief description of the activities undertaken, NIWA's equity stake (%), revenue (\$) and assets (\$) and governance.	
3. For each business unit, subsidiary, associate and JV a brief memo on:	
a. what resources are engaged in core science?	
b. what resources are engaged in applied research? and	
c. an estimate of the % of the entity's resources devoted to each of the above two categories.	
C. Management accounting process	
1. A copy of the last review of the company's financial systems	
2. A copy of the latest review of the company's computer systems.	
D. Historic management accounts	
1. A breakdown of NIWA revenue for the last 5 years by business unit and location including the following revenue categories.	
i. from non-MBIE Central Govt	
ii. from other CRI / Universities / Local Govt	
iii. commercial (NZ) [please provide a breakdown by customer and location	

DOCUMENT / INFORMATION	
iv. commercial (int'l) [please provide a breakdown by customer and location]	
v. IP income [with additional notes breaking this down as appropriate]	
vi. other [with additional notes breaking this down as appropriate]	
2. A contracted revenue maturity profile breakdown.	
3. Expenditure trends for the last 5 years by major categories of expenditure.	
4. Detail of capital injections from and distributions to the Crown have been made over NIWA life (dates and \$ amounts).	
5. Details on the realignment of NIWA core funding.	
E. Forecasts	
1. Latest forecasts of revenue for the next 5 years broken down into the categories in D1 above.	
2. What are the key assumptions underlying the above forecasts?	
F. Investments	
1. A list of planned Capex and other investments (type and \$ amount) for each of the next five years.	
2. IP Register & valuations	
3. Current value of assets	
G. Key governance documents	
1. A copy of any strategic reviews undertaken of NIWA in the last five years.	
2. A copy of the risk register.	
3. A copy of the legal register.	
4. Details of the Board self-assessment process.	
5. Details of strategic planning days.	
H. Personnel	
1. A headcount breakdown by location and type (management, basic science, engineering, support staff).	
2. Detail of areas of science and engineering specialisation and excellence.	
3. The annual turnover rate of professional staff for the last 5 years by group.	
4. A bell curve of the years since graduation for all professional staff.	
5. A breakdown of the term (years) to retirement of professional staff.	
6. Information on current industrial disputes if any.	
7. Information on redundancy agreements.	
8. Succession planning documents.	
9. Details of the processes in place within universities in regards to recruiting PhDs and how these are managed.	

DOCUMENT / INFORMATION	
10. Staff satisfaction survey results.	
11. Benchmarks of NIWA salaries against comparable institutions.	
12. Staff management strategies around managing changing priorities and staff development.	
13. Utilisation rates of staff across the organisation	
I. Outcomes	
1. Paper stating the key desired outcomes of the government that NIWA is contributing to and the evidence available that NIWA outputs are having a significant effect on the desired outcomes.	
2. Documents reporting on the assessment of outcomes; reviews or evaluations of outcomes.	
3. Reviews evaluating how contracts are managed overall both internally and externally.	
4. Senior management response to reviews undertaking – including details of what management has learnt from these reviews and taken forward.	
5. Measurements of how well NIWA is monitoring, measuring and improving its science quality.	
6. Case studies of NIWA projects.	
7. End of programme reviews (and mid-programme reviews).	
J. KPIs	
1. Internal KPIs that are not published but provided internally to the Board and senior management.	
2. Studies around NIWA's contribution to economic growth.	
3. Time series of KPIs	
K. MBIE documents	
1. Report of the CRI Taskforce	
2. MBIE Vision Mātauranga	
3. NIWA bidding history	
4. 2015 Letter of expectation from Minister	
L. Additional documents requested by the panel	
1. Presentation from the Board	
2. NIWA overview	
3. NIWA values	
4. A3 – 2015 NIWA AGM financial overview	
5. KPMG – RVT future commercial model	
6. RVT cost analysis final	
7. TDB overhead funding report final	

DOCUMENT / INFORMATION	
8. Customer surveys	
9. Stakeholder Advisory Group Terms of Reference	
10. Vision Mātauranga	
11. Board papers	
12. Audit Committee papers	
13. NIWA MetService strategic integration report 2007	
14. MetService NIWA officials final report 2006	
15. Core Funding realignment overview	
16. Core Funding recommendations to the Board	
17. Sector reports	
18. Science benchmarking	
19. Summary of insurance policies	
20. 2012 management accounts	
21. Projected versus actual revenue	
22. Internal audit plan	
23. Financial sustainability questions	
24. IT questions	
25. NIWA science plans	

APPENDIX 4 - LIST OF INDIVIDUALS WHO THE PANEL MET OR SPOKE TO

Meeting	Position
M. 30 September (Board meeting) and 8-9 October 2015 at NIWA, Auckland*	
s9 (2)(a)	Chair
	Board Member
	Board Member
	Board Member
	Board Member
	Board Member
	CEO
	General Manager Strategy
	General Manager Research
	General Manager Operations
	General Manager Marketing & Communications
	Chief Financial Officer
	General Manager Information Technology
	Māori researchers – NIWA Te Kuwaha staff
Team leaders (Regional Managers, Chief Scientists, Functional Managers)	
Young scientists	
*The panel also attended the NIWA Leaders Forum and the Excellence Awards Dinner on 7 October	
N. 19-21 October 2015 at MBIE Wellington (meeting or by phone)	
s9 (2)(a)	Director AgResearch, Deputy Chair Landcare Research
	CE, Irrigation NZ
	CE-Director General, Department of Conservation Chief Science Advisor Chief Science Advisor
	CE, AFL (Aotearoa Fisheries Limited)

Meeting	Position
s9 (2)(a)	CE, Antarctica NZ
	Environment Policy Manager, Dairy NZ
	Contracts Manager, Contracts and Procurement Unit, GeoScience Australia
	Planning and Policy Manager, Mighty River Power
	Chair Land and Water Forum
	GM Science, Innovation & International, MBIE Senior Policy Advisor, Science Policy
	CE, Cawthron
	Venture Support Integration Manager, Shell NZ Exploration
	CE, G2G
	Director Science Group, Environment Canterbury
	CE, Plant & Food Research Chief Operating Officer
	CE, Waikato River Authority
	Manager, Science Policy, MPI Principal Science Advisor Deputy Director General – Regulation and Assurance
	Manager Information Services, NZ Petroleum & Minerals, MBIE
	Director NZ eScience Infrastructure
	VC, University of Waikato
	CE, MetService Chief Forecaster
	Environmental Compliance Manager, King Salmon
	Project Director/ Trustee, Te Ohu Tiaki o Rangitāne Te Ika a Māui Trust
	GM Science Investments, MBIE National Manager Environment & Society National Science Challenges Coordinator
Manager Evidence & Policy Support (Water), Ministry for the Environment Deputy Secretary Sector Strategy	
VC, Victoria University of Wellington Pro Vice-Chancellor, Science Faculty Office	