MINISTRY OF RESEARCH SCIENCE + TECHNOLOGY

TE MANATŪ PŪTAIAO

Briefing to the Incoming Minister of Research, Science and Technology

2008

MINISTRY OF RESEARCH SCIENCE + TECHNOLOGY

TE MANATŪ PŪTAIAO

Opportunities in Research Science and Technology

Part I of III

BRIEFING TO THE INCOMING MINISTER 2008

INTRODUCTION

This paper provides a brief outline of opportunities and issues within the research, science and technology (RS&T) portfolio. Further information on items of specific interest will be provided through subsequent briefings.

This outline discusses the important contribution RS&T make across the economy, environment and society and how this contribution can be most effectively supported and progressed. It highlights strengths of the New Zealand RS&T system and how these can be further developed alongside areas we believe need changing.

DELIVERING ACROSS BOUNDARIES

Research, science and technology will help drive New Zealand's future success. Nations that do more than survive– that prosper this century – will be those that succeed in creating and utilising knowledge. This means being able to draw upon a vibrant RS&T system.

New Zealand's economic health is under immediate threat. Whilst many commentators believe that the New Zealand economy is limited by its existing industrial structure, the current global economic climate highlights the urgency of this challenge. RS&T have an important role to play. To achieve an economy based on higher-value, export-oriented, industries New Zealand needs a well connected and high performing RS&T sector.

RS&T span a wide territory, ranging from the areas of engineering and medicine through to the social sciences and humanities. This breadth means that RS&T has the ability to impact on just about all areas of human endeavour.

It also means that the benefits that can flow from RS&T are more readily realised when CRIs, universities and private sector researchers are able to easily work together.

Building these connections across the boundaries has been much of the focus of the Chief Executives of RS&T, Education and Economic Development during the past 18 months; and was a core message in the OECD's review of New Zealand's Innovation Policy, a pivotal review document launched in late 2007.

It is also important to recognise that RS&T have a major impact in delivering on environmental, health and social objectives as well as economic outcomes. The investments made through your portfolio reflect this. Such investments address the unique aspects of the New Zealand environmental, health and social context and increasingly involve many necessary interconnections across disciplines and agencies, locally and internationally.

THE OPPORTUNITY FOR IMPACT IN RS&T

Within the RS&T portfolio there are two broad areas where we see the greatest potential for impact.

We believe these areas are ripe for action. In a nutshell we believe New Zealand should:

- complement a strong bio-economy sector by building, alongside this, an equally strong technology sector
- get better at utilising the benefits of investments in public-good research.

Continuing to deliver for the bio-economy

There is a long history of RS&T delivering productivity improvements in New Zealand's on-farm and primary sector sectors. This has ensured that our primary industries have remained competitive, over decades, in tough international markets. Given the primary sector's dominance in the economy and New Zealand's research strengths, support for RS&T in the primary sector should clearly continue.

Advances in bio-sciences generate increased opportunities to develop higher value products from our primary sector. Many examples of this, particularly in the area of food, are emerging from New Zealand research organisations, and we believe this will also continue to be an important focus for RS&T.

Growing a vibrant technology sector

Alongside these existing strengths we believe there are actions to take to ensure RS&T can deliver in developing a high value technology sector – niche New Zealand products such as software design tools, advanced materials technology and navigational devices incorporating sophisticated engineering.

There are a number of excellent models overseas, pertinent to New Zealand that illustrate the success of such diversification for traditionally agriculturally based economies. Most countries in the Nordic region, for example, have successfully complemented their bio-economies by fuelling up their technology sectors.

Steps to take in New Zealand include establishing structures and funding that support the links between the business sector and RS&T organisations, and encourage more emphasis on RS&T to support the needs of business.

Getting greater impact from the investment in public good research

New Zealand does excellent public-good research. This includes environmental, health and social research. Whilst this work is often acclaimed internationally and cited by research peers, the challenge remains that the knowledge acquired can remain an untapped resource. Seemingly intractable problems that reduce the quality of the lives of many New Zealanders – diabetes, obesity, water pollution, – can benefit from improved links between researchers and those who can interpret translate and apply research to real life issues. Although much has been done already to improve such links there are further gains to be made. Those working at the frontline of problem solving, particularly government departments, regional councils and health providers, are asking if they can help influence RS&T investments decisions, and we believe their involvement can be increased.

STARTING FROM A POSITION OF STRENGTH

New Zealand's existing funding system was established in the early 1990s on a strong theoretical basis that saw the separation of the purchase of research from the providers or organisations carrying out the research. Funds became highly contestable and fiercely competed for, and there is no doubt that quality has improved as a result.

Flexible and efficient

The competitive funding model has been successful in its ability to fund fresh ideas and encourage new entrants into the RS&T system. It has also been efficient in producing RS&T outputs, as demonstrated by New Zealand's high ranking in terms of publications produced per dollar of investment. It introduced a flexibility and efficiency needed by the system at the time.

However, as with all restructures, there have been weaknesses which have become increasingly more apparent. These strengths and weaknesses were usefully encompassed in the OECD 2007 review of New Zealand's Innovation Policy.

More stable and focused government investment

Recent changes to the RS&T system have taken a pragmatic approach to investment to provide a better balance between certainty and contestability within the funding system. These include changes to processes to allow for greater stability of funding.

There have also been changes to focus the government's RS&T investment into areas of highest priority.

This has most recently been outlined in *From Strength to Strength: The Government's Agenda from RS&T*, included in your background reading. One of the benefits of the direction setting outlined in the Agenda has been to provide greater certainty about long term priorities – something the RS&T sector has been seeking for some time.

A culture of looking outwards

A particular strength of the New Zealand research community is the high proportion of researchers involved in international collaborations as part of their work. This is important – 99.8 percent of the world's RS&T is done outside of New Zealand and it helps that New Zealand researchers are held in high regard internationally. These global research networks will continue to be important for RS&T as borderless research grows around the world and we expect this to remain a particular strength for New Zealand to support.

UNLOCKING THE BEST OF RS&T

A vibrant RS&T system is made up of a number of components. What bind these components together are creative and innovative people surrounded by the right incentives and accountabilities.

There is huge competition internationally for top talent. To succeed New Zealand needs an RS&T environment that attracts people and encourages them to deliver results.

Although a number of changes aimed at improving the system in New Zealand have been introduced of late, there is more to do. Below are areas where we believe further advances can be made.

The role of the private sector

The very low level of private sector R&D investment continues to be a serious weakness in New Zealand's RS&T system. Levels of business R&D are only one third of the OECD average. This not only impacts on the amount of RS&T undertaken but reduces the extent and speed with which technology is transferred from research organisations to businesses.

The current economic climate will not be conducive to lifting private sector investment. It also threatens research organisations dependent on private sector investment. CRIs, for example, earn a significant proportion of their income from the private sector.

Regardless of the short-term situation, we believe there are actions for government to take to increase the role of the private sector in the RS&T system.

Effective investment structures and systems

The way the government invests in RS&T needs to be uncomplicated, while remaining effective in delivering value for money.

As noted above, changes are underway to ensure greater stability within the RS&T funding system.

We have encouraged the Foundation for Research, Science and Technology (the Foundation) for example, to simplify its funding processes. It has begun this work by reducing the complexity of current mechanisms and is also seeking greater involvement of research organisations in streamlining investment processes.

However, we believe these changes to the funding system are still a work in progress and further improvements are desirable.

High-performing public research organisations

Universities and Crown Research Institutes (CRIs) dominate the New Zealand RS&T system.

CRIs carry out applied research focused on traditional areas of importance to New Zealand. They have an essential role in transforming the New Zealand economy, particularly in our primary sectors, and in safeguarding our unique environment. We believe there is potential for CRIs to have greater impact.

Universities have a broader research focus. Although research underpins their educational role, they are increasingly building relationships with other sectors such as business. The universities have therefore established themselves as significant participants within the RS&T sector, and this is reflected in the growing share of the government's RS&T investment funds that they receive.

Efficient and state-of-the-art infrastructure

World-class RS&T can only be done with quality facilities. The relatively small size of New Zealand's research organisations, coupled with the nature of the RS&T funding system, make the provision of research infrastructure a particular challenge for New Zealand.

There are examples where national-scale facilities have been put in place, such as the high-capacity computing network KAREN (Kiwi Advanced Research and Education Network).

While the list of potential facilities that could be centrally funded is long, the Ministry has worked with research organisations on establishing infrastructure investment priorities through the Research Infrastructure Advisory Group (RIAG). This group is proving to be an effective tool in identifying an investment agenda for national-scale RS&T infrastructure.

CONTINUING THE CONVERSATION

The purpose of this paper has been to provide you with an overview of the RS&T portfolio you are now leading. It will invite you to influence the future through the extraordinary work of New Zealand's research achievers, while simultaneously guiding the process for investing the $727 million in Vote RS&T in 2008/09.

The next steps we would like to discuss with you are:

- your priorities and what we can do to help put them into action
- your requirements for further information and analysis on any points raised in this briefing, particularly the goals of:
    - complementing our bio-economy by growing a vibrant technology sector, and
    - getting greater impact from the investment in public good research.
- co-ordination of a programme of introductory meetings across the RS&T system, including visits to research organisations, industry groups, R&D focused businesses and meetings with key individuals
- planning to address overseas opportunities to examine other countries' RS&T systems and meet with some of New Zealand's international RS&T partners.

Dr Helen Anderson
Chief Executive
Withheld under section S9(02)(a) of the Official Information Act

MINISTRY OF RESEARCH SCIENCE + TECHNOLOGY

TE MANATŪ PŪTAIAO

Immediate Issues

Part II of III

BRIEFING TO THE INCOMING MINISTER 2008

Introduction

These are the immediate issues that you need to be aware of in the early days of assuming the RS&T portfolio. We will provide you with specific briefings on subjects where appropriate. The information is set out under four topic headings:

A. Priority Issues
B. Upcoming Cabinet papers
C. Upcoming Ministerial appointments
D. Key RS&T meetings and events

A. Priority issues

We can provide you with early advice on the following issues.

Topic	Description
R&D tax credit	The R&D tax credit came into effect on 1 April 2008. Inland Revenue is administering the tax credit. The policy rationale for the credit is based on the need to significantly enhance firm innovation and competitiveness and to encourage world-class R&D. In OECD terms, New Zealand firms rate very poorly in terms of investment in R&D which is one of the main drivers of innovation. Work in connection with the tax credit has now ceased pending a discussion with you on its future. This is a priority issue, which we would like to raise with you soon after you assume office. A briefing paper outlining the issues and alternatives to improve firm innovation will be available in advance of this discussion.
Budget 2009	MoRST has begun to prepare material for Budget 2009, focusing on areas of savings, reprioritisations and possible new initiatives within Vote RS&T in line with the government's priorities and the recently-published *From Strength to Strength: Government's Agenda for Research, Science and Technology*. MoRST has been working towards a more strategic approach to Budget investments in Vote RS&T. In the 2008 Budget, a package of RS&T investments was included within an overall innovation package. We will engage with you further on your requirements once budget processes are clarified.

Topic	Description
New Zealand Fast Forward (NZFF)	MoRST has been working closely with MAF and other agencies on the initiative aimed at transforming the pastoral and food sectors. In the event that Fast Forward is disestablished, we believe there is still value in building on the principles and strategy that have been developed in partnership between industry and government. We currently have a number of mechanisms for delivering funding which would meet the principles. We will provide you with a briefing describing potential ways of boosting innovation in the food and pastoral sectors. We are also developing a Food Research Roadmap which will provide directions for government research investment. The Roadmap is currently scheduled to go to Cabinet in March.
Prime Minister's Science Adviser	The creation of a Prime Minister's Science Adviser is likely to be a topical issue in the RS&T sector. We can provide you with advice on how this role could complement advice provided by MoRST. There are different scenarios depending on whether this role is placed in the Prime Minister's office or the Department of Prime Minister and Cabinet.
REANNZ	The Crown-owned company Research and Education Advanced Network New Zealand (REANNZ) Ltd has indicated that new investment is required for upgrading and renewal of its international connectivity capability. The new investment will keep the Kiwi Advanced Research and Education Network (KAREN), a high-speed broadband network for the research and education sectors, viable until 2015. KAREN is an essential piece of communications infrastructure for New Zealand to maintain internationally competitive in these sectors. We will provide you with options for supporting KAREN to continue its role underpinning modern research and education. *Withheld under section S9(02)(a)(ii) of the Official Information Act* We are also working with other agencies to ensure KAREN remains an integrated part of the government's overall broadband infrastructure.

Topic	Description
Research Infrastructure – Investment	An inaugural report on a scan of New Zealand's large-scale research infrastructure (LSRI) needs was published by the Research Infrastructure Advisory Group (RIAG) in August 2006. This identified several areas as priority infrastructure needs, including research infrastructure for genomics, and high performance computing (HPC). **Genomics** In September 2008, Cabinet approved funding of $40.693 million over nine years for a national facility for genomics research. Collaborating co-investors are the University of Otago, the University of Auckland, Massey University and AgResearch. The co-investors have entered into an agreement setting out the individual and shared responsibilities and commitments to progress the project. MoRST is negotiating an agreement with the co-investors prior to the government's investment being drawn-down. **High Performance Computing** The question of how to structure nationally accessible high performance computing facility is an issue within the science community at present. *Withheld under section S9(02)(a)(ii) of the Official Information Act* We expect more clarity in the coming months and will advise you accordingly. **Other projects** A group of senior officials is considering how New Zealand can best participate in the design and establishment of a radio telescope – the Square Kilometre Array (SKA) – a major international science project Australia is seeking to host. There may be economic advantages to New Zealand participating in the project given the high level of technology, spillover opportunities and bilateral relations with Australia. However, we see relatively little merit for New Zealand in the project from a research perspective.
International Research Staff Exchange Scheme (IRSES)	The European Union established the International Research Staff Exchange Scheme (IRSES) in 2007. IRSES is a competitive fund that funds the travel and accommodation costs of researchers from EU research organisations to embed in

Topic	Description
	partnership research organisations. Six research proposals with New Zealand partners were selected by the EU in the 2008/2009 IRSES selection round. The previous Minister agreed to fund these six proposals to a total of $820,000 over the three year duration of the IRSES. If you agree, MoRST then intends to sign individual contracts with the successful New Zealand research organisations in accordance with which the NZ-EU Counterpart funding will be delivered. The successful New Zealand research organisations will be ready to sign cooperation agreements with their European partner organisations from late November. If the New Zealand organisations do not receive the committed funding from the NZ-EU Counterpart Fund, it is highly likely that some or all of the collaborative partnerships will not proceed.
Foundation for Research, Science, and Technology Act 1990 Review	MoRST and the Foundation for Research, Science and Technology (the Foundation) are required by legislation to each: 1. Review the Foundation for Research, Science and Technology Act 1990. 2. Consider whether the Foundation should be retained or abolished. 3. Consider whether any amendments to this Act are necessary or desirable, and; 4. Report their findings to you. Both agencies have commenced this work. MoRST work extends beyond a review of the Foundation's operations and includes a focus on what type of agency or agencies would achieve the best results within the New Zealand RS&T system. Both MoRST and the Foundation are required to report their findings to you by 30 June 2009.

Topic	Description
Foundation for Research, Science and Technology investment rounds	The Foundation will be investing $125m (GST excl) of Vote RS&T during 2009. The Foundation Board makes the decisions, following a rigorous process. The Foundation is also investing $6m of Vote Agriculture and Forestry monies in climate change research, related to the Sustainable Land Management and Climate Change Plan of Action. Decisions on this investment will be announced in December 2008. We anticipate further discussions with you on the Foundation's role and investment processes.
Foundation for Research, Science and Technology annual report	Under the Crown Entities Act you table the Foundation's annual report in Parliament. As Parliament has not been sitting, this needs to be done on the second sitting date of the new Parliament. Prior to Parliament resuming we will brief on the Foundation's annual report and deliver copies to the Bills Office to allow you to table it.

B. Upcoming Cabinet papers

Topic	Description
Stable funding environment	The stable funding environment is a set of initiatives aimed at providing greater security and lower compliance for some science and technology investments. MoRST is currently undertaking an early stage evaluation on the first two years (phase one) of the initiative. We will brief you on the results of the evaluation early next year. We have background material available on the range of initiatives, including the CRI Capability Fund, and can provide advice on how the initiatives can assist you in achieving your policy objectives. **A report back to Cabinet on the evaluation is scheduled to occur by the end of March 2009.**
Repeal of the Carter Observatory Act 1938	In September 2008, Cabinet agreed to repeal the Carter Observatory Act 1938. The repeal of the Act will sever the relationship between the Crown and the Carter Observatory and transfer the assets and liabilities of the Carter Observatory Board to the Wellington City Council (WCC). The WCC has taken over the management of the Observatory, subject to repeal of the Act; however, they plan to review this at the end of 2009 if the Act has not been repealed. Four of the board members' terms expired on 30 June 2008. There is also currently one vacancy on the board for a ministerial representative. We will be providing you with advice on appointments before Christmas. **A draft bill for Cabinet approval will be ready by February next year.**
Other papers of note	**Food Research Roadmap** Roadmaps are strategies which guide RS&T activity and investments in areas of key capability for New Zealand. MoRST is currently drafting a Food Research Roadmap, one of the key actions in response to the recommendations of the Food and Beverage Taskforce. **A final version of the Roadmap is currently scheduled for you to present to Cabinet in April 2009.**

C. Upcoming Ministerial appointments

Issue	Description
Appointments to FRST (the Foundation) Board	The terms of two Foundation board members – Dr Diana Hill and Dr Bronwen Connor – expire on 30 April 2009. We will begin the nominations process before Christmas, and will seek your views. We will follow this with advice for either reappointing or replacing Dr Hill and Dr Connor. Both have served only one term on the board. **You are required to have your board candidates approved by Cabinet.**
Appointments to the Marsden Fund Council	The terms of three members of the Marsden Fund Council expire on 30 November, although these have been extended until 28 February 2009. The chair, Dr Garth Carnaby, has also advised that he will be stepping down, as he has accepted the position of President of the RSNZ. We would like to have an early discussion with you on appointing the chair first, with the other members to follow once the chair is in place. **You are responsible for approving the Council appointments.**

D. RS&T meetings including international opportunities

Topic	Description
Visits to Crown Research Institutes	We recommend you meet with the boards of CRIs between the end of January and April each year. These visits are usually an opportunity to discuss strategic issues with the board and to get to know each company's areas of science. We consider that your early engagement with each CRI is important. CCMAU and MoRST will provide you with a joint briefing for each of these meetings.
Capitalising on Research & Development Action Group (CRAG)	The Capitalising on Research & Development Action Group (CRAG) is a joint initiative of Business NZ and MoRST established in early 2007, following the Capitalising on Research Summit held in Auckland. It is chaired by Phil O'Reilly. We recommend you meet with CRAG because it provides a perspective from the business sector on RS&T. CRAG's purpose is to tackle issues that inhibit research commercialisation by universities, Crown research institutes and other research organisations, and examine issues that inhibit increased R&D investment by firms. These issues tend to be not amenable to resolution by policy discussion; CRAG therefore has a practical focus.
Growth and Innovation Advisory Board (GIAB)	GIAB is made up of senior people in business and related areas who are leaders in their respective fields. GIAB is administered by the Ministry of Economic Development, but there are strong links with the RS&T portfolio, particularly GIAB's innovation sub-group which is chaired by Phil O'Reilly. We understand GIAB may propose a review of the New Zealand innovation system, something the OECD did last year.
EDIN partnership	The International Partnership for Energy Development in Island Nations (EDIN) is a partnership between the United States, Iceland and New Zealand, due to be officially launched in January 2009. EDIN is a forum to organise, evaluate and co-ordinate the development and deployment of renewable energy in island nations or territories within their jurisdiction. It has

Topic	Description
	a strong RS&T component. EDIN has already been discussed at very high levels between the United States and New Zealand. EDIN is likely to continue to be a discussion point in high level NZ-US meetings and in relation to Pacific issues. As Minister of RS&T you may be invited to present New Zealand's view on energy research to these discussions. MED is the lead agency for the EDIN steering group.
Sustainability workshop with Business NZ	MoRST is hosting a workshop with Business NZ to explore how the business and science sectors can work together more effectively on sustainability issues. The workshop will be held in March. You may wish to attend the opening or closing. Business NZ may raise this with you when you meet with them.
China/NZ Joint Commission on Science and Technology (Wellington)	MoRST will be hosting the second China-New Zealand Joint Commission on Science and Technology (JCST) in the week of 16 February 2009. The JCST is led by the Chief Executive of MoRST and a vice minister of Science and Technology from China, and involves relevant government and funding investment agencies from both countries. The purpose of the JCST is to set strategy and guidelines for developing the bilateral relationship, and to review existing activities and discuss potential areas of research collaboration. You will not need to be involved in the JCST meeting itself, but we suggest you meet with the Chinese Vice Minister either side of the JCST.
EU/NZ Joint Commission on Science and Technology (Brussels, Belgium)	A Science and Technology Cooperation Agreement was signed between the European Union and New Zealand on 16 July in Brussels. The EU is now New Zealand's most important RS&T partner. The first Joint Commission, developing the strategy and guidelines for the implementation of this agreement, will be held in Brussels starting on 31 March 2009. This will be a good opportunity for you to be introduced to our counterpart organisation, the Direction Generale-Research (European Commission) in Brussels, and learn about comparable policies in European countries.

MINISTRY OF RESEARCH SCIENCE + TECHNOLOGY

TE MANATŪ PŪTAIAO

Your guide to the Ministry of Research, Science and Technology

Part III of III

BRIEFING TO THE INCOMING MINISTER 2008

Contents

1. Introduction

Welcome to the Ministry of Research, Science and Technology (MoRST).

Part III of your briefing contains information on MoRST's structure; outlines the nature of the key responsibilities and relationships you have; and summarises how we can support you as Minister of Research, Science and Technology.

2. Who we are

Currently, MoRST has a staff of 72 FTEs and up to 17 staff covering maternity leave and leave without pay. It is organised into four groups and an Office of the Chief Executive. Senior leadership roles in MoRST are provided by the senior management team, who you will meet with regularly.

Senior management team

Dr Helen Anderson – Chief Executive

Helen was appointed Chief Executive in 2004 after five and a half years as Chief Scientific Adviser at MoRST. She was previously the Director of Earth and Ocean Sciences in Dunedin, a collaboration between the Institute of Geological and Nuclear Sciences and the University of Otago.

Withheld under section S9(02)(a) of the Official Information Act

Cath Robinson – Director, Office of the Chief Executive

Cath joined MoRST early in 2005 and brings over 20 years experience of working in senior management in government and the arts sector. She has worked as a cultural planner and practising artist; in leadership development; post secondary education, communications and government strategy in New Zealand, Australia and Canada.

Withheld under section S9(02)(a) of the Official Information Act

Dr Roger Ridley – General Manager, Investment & Performance

Roger joined MoRST in 2003. He brings to MoRST a mix of research and public sector experience as well as quantitative analysis skills and economics and management experience. Roger's career started in weather forecasting and research within the Meteorological Service and the National Institute of Water and Atmospheric Research. He spent seven years at The Treasury prior to joining MoRST.

Withheld under section S9(02)(a) of the Official Information Act

Lesley Middleton – General Manager, Science & Technology

Lesley joined MoRST in 1997 and has been a General Manager since 2004. Prior to MoRST she was at the Ministry of Health, where she worked as a researcher and adviser on health research policy. Lesley worked as a health services researcher both here and in the United Kingdom, evaluating the delivery of health services.

Withheld under section S9(02)(a) of the Official Information Act

John Baillie – General Manager, Organisational Development & Support

John was appointed Group Manager in 2005. Prior to joining MoRST he was at the Ministry of Economic Development where he held the roles of Director of Human Resources and Director of Strategic Management. Prior to that he worked in Australia the UK and started his career as a psychologist and commissioned officer in the RNZAF.

Withheld under section S9(02)(a) of the Official Information Act

Dr Wynn Ingram – General Manager, Innovation Networks

Wynn joined MoRST in 2001. His career spans the private and public sectors. He has held various senior management positions in a range of large firms and Crown agencies, including AgResearch and the NZ Trade Development Board, where he served in East Asia. Wynn brings extensive hands-on experience in business and research and operational agencies to his role.

Withheld under section S9(02)(a) of the Official Information Act

The MoRST structure

Office of the Chief Executive	The Chief Executive provides leadership and direction to staff within MoRST and represents MoRST in interactions across all RS&T and government agencies. The Office of the Chief Executive, led by Cath Robinson, supports both the Chief Executive and the leadership team in ministerial interaction, provides guidance on key stakeholder relationships, and supports ministry-wide project development. It is a key point of contact for your office.
Investment & Performance Group	The Investment & Performance group provides services and advice around the efficient and effective investment of public money into the RS&T system. This includes the Budget process for Vote RS&T, managing contracts with research Funding and Investment Agents (FIAs), evaluating the public value obtained from RS&T investments and advising on RS&T system issues that affect performance. The group also manages your interests in and relationship with the Foundation for Research, Science and Technology (the Foundation).
Innovation Networks Group	The Innovation Networks group provides MoRST's interface with businesses, and international science agencies. It has a leading role in communicating the benefits of R&D to business leaders and encouraging and supporting international contacts between researchers. The group also provides strategic advice and support for investment in large-scale scientific infrastructure.

Science Group	The Science group provides high-quality scientific and technical advice and develops high-level science directions. It also identifies and monitors current and emerging science issues, both domestically and internationally, and advises on their implications for the whole-of-government policy.
Organisational Development & Support Group	The Organisational Development & Support group develops MoRST's people, infrastructure and environment to enable the organisation's business and help realise our mission. The group has a lead role in shaping MoRST for the future as well as delivering the core services of human resources, finance, communications, legal, knowledge management and office services.

Links with the Ministry

Ministerial Services

The Office of the Chief Executive (OCE) supports you and your staff through the coordination of all Ministerial correspondence. The OCE team oversees the provision of briefings, draft Cabinet papers, written advice on parliamentary questions, draft answers to your correspondence and draft speeches. OCE works to ensure helpful, efficient interaction between your office and the team at MoRST.

Advice

We advise you on policy relating to the effective operation of the RS&T system in areas such as:

- the overall structure and settings of New Zealand's RS&T system
- the roles of institutes and agencies and supporting legislation
- investment mechanisms and investment processes
- recommendations arising from reviews such as the OECD's 2007 review of the New Zealand innovation system
- recent initiatives to introduce greater stability and performance review into the public RS&T funding system
- initiatives to lift private sector R&D performance, such as tax credits and grants
- developing the talent base for research and innovation
- accessing global science and technology
- links with other sectors, e.g. tertiary education, economic development and the labour market.

Scientific and technical advice

We provide you with scientific advice on current and emerging issues that challenge existing public policy. This advice is based on an overview of science issues that are emerging, important, or of particular public interest in New Zealand and overseas.

We also help you to promote the development of policy across government where it needs to be based on sound science. For example, we have:

- contributed to energy policy development, particularly through advice on the technical opportunities and challenges related to biofuels
- developed advice on emerging areas of health technologies such as stem cells and neuroscience
- maintained a watching brief on developments in nanotechnologies and coordinated policy discussions on the opportunities and challenges arising.

We are also supporting the Royal Society of New Zealand to contribute to the science and technical advice needs of government, as it is well placed to coordinate science expertise and provide independent advice where this may be required.

Managing investment

Managing Vote RS&T

A key part of our role is the planning and prioritisation process for investment in Vote RS&T. We help you to prepare material relating to this process (including input into the government budget process), advising you on possible funding allocations within the Vote and new areas of potential expenditure.

Budget processes

From October to May, a key focus in the area of Vote RS&T management is the government Budget.

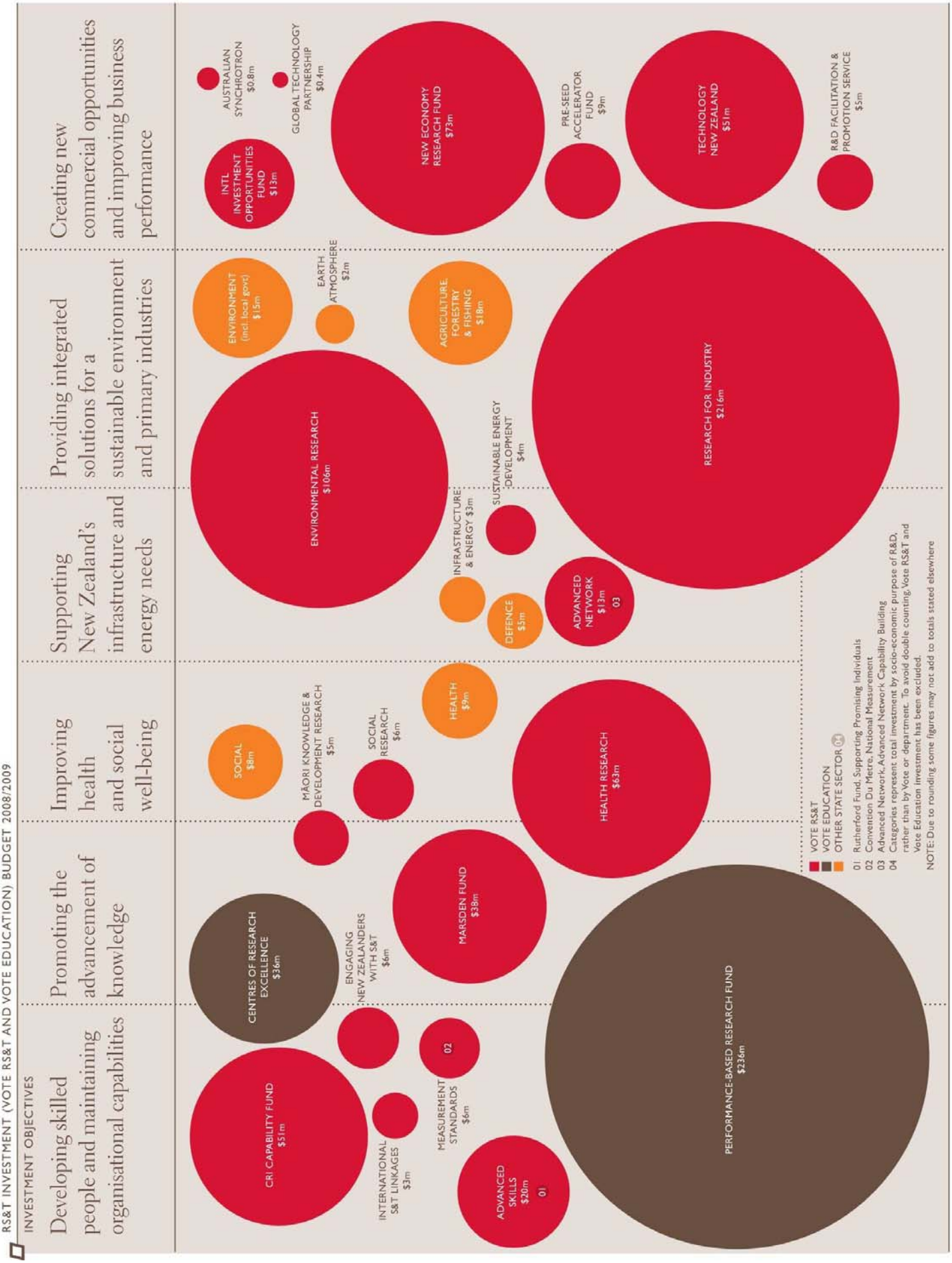
Our Budget development is driven by the Government's objectives and informed by advice and evaluations from funding and investment agents and discussions with other government departments.

We advise you on options for budget bids in October. From October to December we negotiate the area for funding and levels of funding with you and other government departments. The full suite of budget bids for Vote RS&T is then submitted to the Minister of Finance, usually in December each year.

The final Budget is usually signed off by Cabinet in early April.

Government investment in research, science and technology

The diagram on the next page outlines the current investment objectives and major funds within Vote RS&T. It also includes the two main research funds (Performance-Based Research Fund and Centres of Research Excellence) within Vote Education. All figures are GST exclusive.


RS&T INVESTMENT (VOTE RS&T AND VOTE EDUCATION) BUDGET 2008/2009
INVESTMENT OBJECTIVES
Developing skilled people and maintaining organisational capabilities
Promoting the advancement of knowledge
Improving health and social well-being
Supporting New Zealand's infrastructure and energy needs
Providing integrated solutions for a sustainable environment and primary industries
Creating new commercial opportunities and improving business performance
CRI CAPABILITY FUND $51m
CENTRES OF RESEARCH EXCELLENCE $36m
ENGAGING NEW ZEALANDERS WITH S&T $6m
INTERNATIONAL S&T LINKAGES $3m
MEASUREMENT STANDARDS $6m
02
ADVANCED SKILLS $20m
01
MARSDEN FUND $38m
PERFORMANCE-BASED RESEARCH FUND $236m
SOCIAL $8m
MÄORI KNOWLEDGE & DEVELOPMENT RESEARCH $5m
SOCIAL RESEARCH $6m
HEALTH $9m
HEALTH RESEARCH $63m
ENVIRONMENTAL RESEARCH $106m
ENVIRONMENT (incl. local govt) $15m
EARTH ATMOSPHERE $2m
INFRASTRUCTURE & ENERGY $3m
SUSTAINABLE ENERGY DEVELOPMENT $4m
DEFENCE $5m
AGRICULTURE, FORESTRY & FISHING $18m
ADVANCED NETWORK $13m
03
RESEARCH FOR INDUSTRY $216m
INTL INVESTMENT OPPORTUNITIES FUND $13m
AUSTRALIAN SYNCHROTRON $0.8m
GLOBAL TECHNOLOGY PARTNERSHIP $0.4m
NEW ECONOMY RESEARCH FUND $73m
PRE-SEED ACCELERATOR FUND $9m
TECHNOLOGY NEW ZEALAND $51m
R&D FACILITATION & PROMOTION SERVICE $5m
VOTE RS&T
VOTE EDUCATION
OTHER STATE SECTOR 04
01 Rutherford Fund, Supporting Promising Individuals
02 Convention Du Metre, National Measurement
03 Advanced Network, Advanced Network Capability Building
04 Categories represent total investment by socio-economic purpose of R&D, rather than by Vote or department. To avoid double counting, Vote RS&T and Vote Education investment has been excluded.
NOTE: Due to rounding some figures may not add to totals stated elsewhere

Structure of Vote RS&T

Vote RS&T is comprised of departmental output expenses, non-departmental output expenses, non-departmental 'other expenses', departmental capital expenditure and non-departmental capital expenditure.

Departmental output expenses are allocated by MoRST directly to the policy advice, contract management and services we provide to the science sector.

The majority of Vote RS&T is comprised of non-departmental output expenses. Non-departmental output expenses are invested by funding and investment agents in basic and applied research carried out in New Zealand's research organisations.

Non-departmental 'other expenses' are primarily grant schemes to assist individuals or organisations with their research and development aspirations.

Contract management

We act as your agent in negotiating, managing and monitoring contracts with RS&T funding and investment agencies and service providers. This involves overseeing a contract management process with funding and investment agents that includes output agreements, Budget recommendations and progress and achievement reports.

Evaluation

We gather and publish evidence about the performance of the RS&T system and RS&T policy and publish this through regular surveys and one-off evaluation projects.

4. How we interact with you

We look forward to discussing how we can best meet your requirements to work with you on a regular basis. The following mechanisms are currently in place to support your office and our interactions with you:

Regular meetings and reports

We believe it would be productive for MoRST representatives (the Chief Executive, general managers and others as required) to have regular meetings with you based on an agenda developed in consultation with your office.

We can also provide you with a regular periodic briefing that provides:

- a 'no surprises' summary of issues in the portfolio
- advice on the progress of our work programme
- an activity report on Ministerial correspondence, Cabinet paper status and portfolio-related public engagements you may have.

Briefings and policy papers

We develop briefings and policy advice papers in response to requests from you; to support meetings you host; or to provide information or a heads-up on upcoming issues. In the case of Cabinet papers, formal reports and published documents, we ensure you are able to engage early in the drafting process and are kept informed on progress using the above processes.

Private Secretary (Science) – a MoRST secondee to your office

We second an experienced MoRST official to your office as Private Secretary (Science), with the role of supporting you in your RS&T portfolio. We currently have an arrangement with the Crown Company Monitoring Advisory Unit (CCMAU) in which the Private Secretary (Science) also advises on the Crown research institutes (CRIs) portfolio.

We look forward to discussing your requirements for support and preferred arrangements for ongoing interaction.

5. Directing us

In addition to giving us day-to-day direction through our weekly meetings, outlined below are Public Finance Act requirements which provide ongoing opportunities to set the overall shape of our work programme.

Statement of intent (SOI)

Every year, we seek your contribution to shaping our SOI, which sets out our direction for the next three years. The SOI is produced each year to allow us to reassess our strategy in terms of achievement to date and government objectives. The SOI is released on the same day as the Government's Budget.

Output Plan – also known as the Statement of Forecast Service Performance

This is the agreement between you, as Minister, and us, as a Ministry, outlining our work for the coming year. The work is organised under output expenses and broken down into strategic priorities, each with specific annual deliverables, and other significant deliverables.

Six-monthly reports

We report on our progress towards the output plan deliverables in January (first six months), and July (second six months). These reports keep you up-to-date on our work and offer the opportunity to review priorities if issues arise during the year.

Information Supporting the Estimates of Appropriations for the Education and Science Sector

This publication released on Budget day each year contains the forecast financial and service performance for MoRST for the forthcoming year and for each departmental and non-departmental appropriation administered by MoRST.

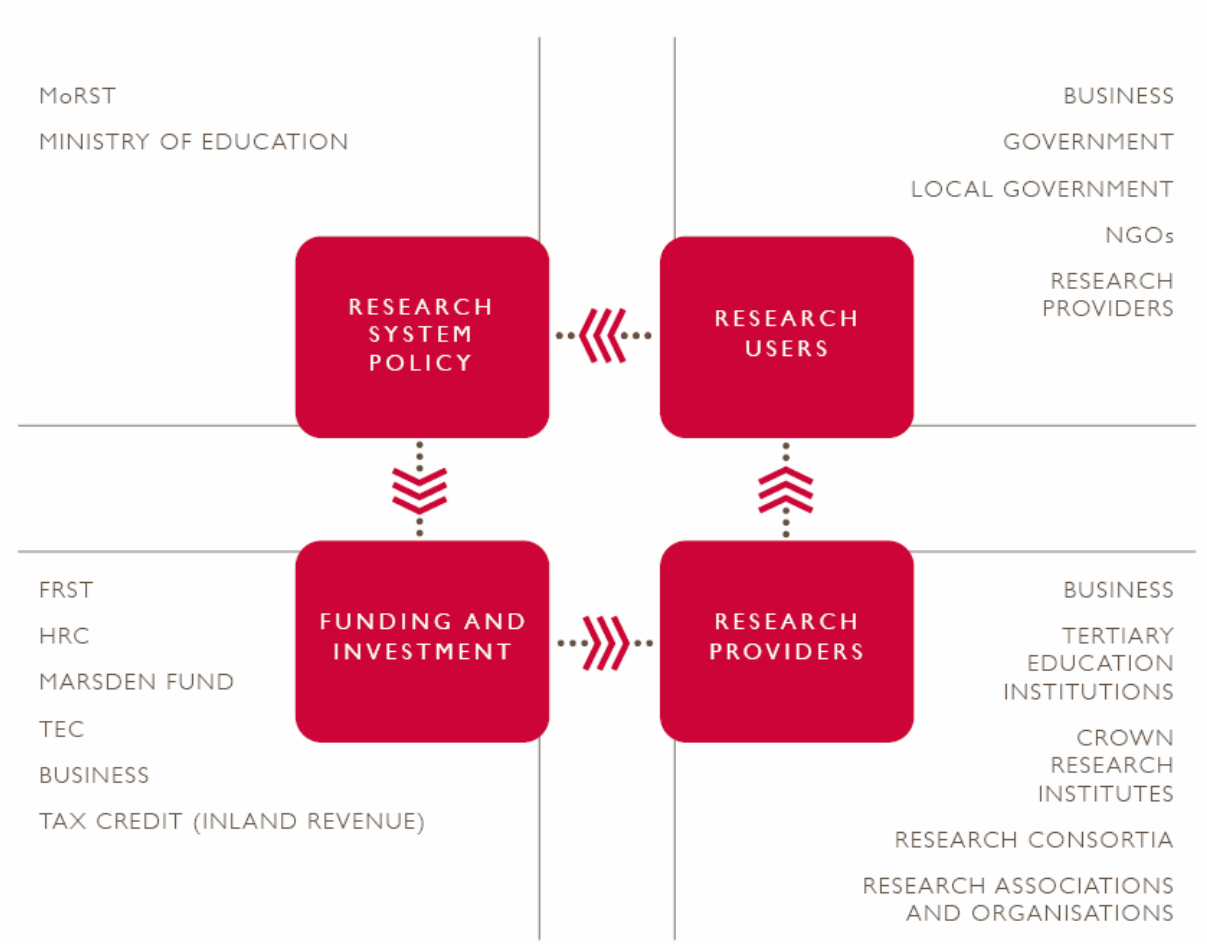
Further sources of information:

Statement of Intent 2008-2011

Statement of Forecast Service Performance (Output Plan) for 2008-09

Supplementary Information to the Main Estimates of Expenditure for the Education and Science Sector

6. The RS&T system



Key players

The following organisations are involved in either purchasing research on your behalf (funding and investment agents) or undertaking the research or related RS&T services.

We have provided more information on the organisations for which you have statutory responsibility in section 10 on page 51. This includes information such as each organisation's role, responsibilities and board membership.

Foundation for Research, Science and Technology (the Foundation or FRST)

The Foundation is a body corporate established under the Foundation for Research, Science and Technology Act 1990. It is a Crown entity for the purposes of section 7 of the Crown Entities Act 2004 – a Crown agent which, in general terms, must give effect to government policy when directed by you (its 'responsible Minister').

The Foundation's functions are to allocate funds for the production of outputs relating to public good science and technology, to allocate funds pursuant to ministerial schemes and to provide you with independent policy advice on matters relating to RS&T.

The Foundation manages $477m (GST excl) per annum. Most of this is invested in public science and technology research through contestable and negotiated investment processes. This includes $45m (GST excl) per annum in industry and firms through contestable and on-demand processes.

You appoint the Foundation board and table both its statement of intent and annual report in Parliament. The Foundation is also responsible to you through its annual output agreement and reports to MoRST quarterly on its performance.

The Foundation chair is Professor Bryan Gould and the Chief Executive is Murray Bain.

Health Research Council of New Zealand (HRC)

HRC is a body corporate created under the Health Research Council Act 1990. It is a Crown entity for the purposes of section 7 of the Crown Entities Act (Crown agent).

The HRC is primarily funded through Vote RS&T, although it is accountable to the Minister of Health. It supports a range of investigator research, including basic biomedical, clinical, public health and health services research.

Based in Auckland, the HRC runs an annual contestable funding process for its grants – for research projects (one-to three-year contracts) and programmes (three-to six-year contracts). The HRC also awards a range of scholarships and fellowships throughout the year. In total, the HRC manages $72m (GST excl) per annum.

The HRC chair is Professor Graeme Fraser and the Chief Executive is Dr Robin Olds.

Marsden Fund Council (MFC)

The MFC comprises up to ten eminent researchers spanning a range of disciplines who work under terms of reference set by you. The MFC makes investment recommendations for 'blue skies research'. Those recommendations are managed by the Royal Society of New Zealand (see page 15). As part of its role, the MFC also advises you on the Marsden Fund.

The Marsden Fund runs an annual contestable funding process and currently manages $38m (GST excl) per annum.

Crown Research Institutes (CRIs)

CRIs are Crown entity companies formed under the Crown Entities Act 2004. A CRI's constitution will state that the company is a CRI for the purposes of the Crown Research Institutes Act 1992. Under that Act, CRIs are to undertake high quality and ethical research for the benefit of New Zealand, while running a sound business and exhibiting a sense of social responsibility.

The CRIs' shareholding Ministers are the Minister of Finance and 'the responsible Minister' (currently the Minister for Research, Science and Technology). Each CRI has its own board of up to nine directors, which are appointed by and accountable to the shareholding Ministers.

Each CRI is based around a productive sector of the economy or a grouping of natural resources, enabling each to have a clearly defined purpose and customer base. There are currently nine CRIs, although HortResearch and Crop and Food are in the process of merging and will be known as Plant and Food Research. The merged company commences business 1 December 2008.

The CRIs are:

- Scion (New Zealand Forest Research Institute Ltd)
- AgResearch (AgResearch Ltd)
- Landcare (Manaaki Whenua Landcare Research New Zealand Ltd)
- GNS Science (Institute of Geological and Nuclear Sciences Ltd)
- IRL (Industrial Research Ltd)
- NIWA (National Institute of Water and Atmospheric Research Ltd)
- ESR (Institute of Environmental Science and Research Ltd)
- Plant and Food Research – (The New Zealand Institute for Plant and Food Research Ltd – the company being formed by the merger of HortResearch and Crop & Food)

Royal Society of New Zealand (Royal Society or RSNZ)

The Royal Society is a non-government organisation with a unique role in the science system. The Royal Society represents the individual scientists and their professional societies who make up the science community.

The Royal Society was formally established as a Society of Fellows by the Royal Society Act in 1933, with a revision in 1965 and a new Act in 1997. Its object is to advance and promote science and technology in New Zealand. Its functions include fostering a culture supportive of science and technology, and providing expert advice on important public issues to the government and the community.

New funding has recently been provided to support the RSNZ's core functions. Funding has also been provided to the newly established Rutherford Foundation to support top RS&T talent. The RSNZ provides secretariat services to the Rutherford Foundation.

The president of the Royal Society is Neville Jordan and the Chief Executive is Dr Di McCarthy.

Tertiary Education Organisations (TEOs)

TEOs are governed by the Education Act 1989 and are administered by their respective councils. Each TEO is required to develop an investment plan that outlines how it will respond to government directions outlined in the Tertiary Education Strategy as well as to the needs of its own stakeholders – students, employers and communities on a regional and national basis. This includes how it will improve research connections and linkages to create economic opportunities.

All eight universities, ten institutes of technology and polytechnics, and two wananga are currently designated "research active" (Performance Based Research Fund [PBRF] Quality Evaluation 2006) in science and technology areas.

The eight universities are the major TEOs, and the main organisations you will interact with:

- University of Otago
- University of Auckland
- University of Canterbury
- Victoria University of Wellington
- University of Waikato
- Massey University
- Lincoln University
- Auckland University of Technology.

Independent research organisations

There are a number of independent research organisations that rely upon government support for their activities. The Malaghan Institute (medical research) and the Cawthron Institute (marine science) are the two largest independent research organisations.

Industry-linked research associations

Research associations are primarily non-governmental, industry-linked research providers. They have capabilities in research and technology transfer that individual companies may not be able to manage. They receive funding from a number of sources, including industry levies, commercial income and some Foundation income.

Your main contact with this group is through the levy funding received under legislation. These include the Building Research Association of New Zealand (BRANZ) (the Building Research Levy Act 1969), the Heavy Engineering Research Association (the Heavy Engineering Research Levy Act 1978) and to a lesser degree a group of entities funded by the Wheat Industry Research Levies Act 1989.

Other levy funded organisations such as Meat and Wool New Zealand (MWNZ) and DairyNZ also fund a considerable amount of research, on their own and in partnership with the Foundation. Both MWNZ and DairyNZ participate in research at CRIs, particularly with AgResearch. DairyNZ has its own research centre in Hamilton.

Together with the Cawthron Institute, this group of research organisations has formed an organising body – the Independent Research Associations of New Zealand (IRANZ).

Centres of Research Excellence (CoREs)

CoREs are inter-institutional research networks where researchers jointly agree on work programmes. Each CoRE is hosted by a university and comprises a number of partner organisations, including other universities, CRIs and wananga.

The first CoREs were established in 2002/03. They are funded through Vote Education and encouraged to develop excellent and focused research, and to develop and strengthen research with other research organisations, enterprises and the communities they serve.

In 2007, the Government announced a funding commitment for seven CoREs. There are currently eight CoREs:

- The Allan Wilson Centre for Molecular Ecology and Evolution
- The Maurice Wilkins Centre for Molecular Biodiversity
- The MacDiarmid Institute for Advanced Material and Nanotechnology
- The National Centre for the Advanced Bio-Protection Technologies
- The National Centre for Growth and Development
- Nga Pae o te Maramatanga (Horizons of Insight) – The National Institute of Research Excellence for Maori Development and Advancement
- The Riddet Centre (research into foods and human nutrition)
- New Zealand Institute of Mathematics and its Applications (NZIMA) – will only receive funding until 2011.

Other RS&T sector organisations

Other organisations that you may have links with include:

Science New Zealand

Formerly known as the Association of Crown Research Institutes (ACRI), Science New Zealand was established in 2008. The CRI equivalent of an industry association, Science New Zealand aims to grow the business of its respective CRIs through effective collaboration on key issues. It is run by a board comprising the chief executives of all nine CRIs. The board meets in Wellington every two months.

Capitalising on Research Action Group (CRAG)

CRAG is a joint business, science and government action group established by MoRST in December 2006. It is chaired by Phil O'Reilly, Chief Executive of Business New Zealand.

CRAG focuses on issues that hinder greater business investment in R&D and collaboration between businesses and research institutions. In doing so CRAG has an action focus, testing initiatives to overcome intractable issues. MoRST provides secretariat support for CRAG.

Oxygen Group

A forum of future science leaders, the Oxygen Group provides independent advice to the government on emerging science and technology issues. The role of the group is to:

- inspire its peers and younger scientists to become leaders both in and beyond the science sector, and to involve themselves in mapping the future of science in this country
- explore and improve the links between science disciplines
- track current trends in science and technology both here and internationally, consider any implications for this country, and advise MoRST on them
- stimulate debate and new ideas about how we 'do' science in New Zealand.

The group members come from a wide range of science disciplines, including the biosciences, social science, the information technology sector, chemical and physical sciences, geosciences and Mātauranga Māori.

Group members are mentored by Professor Peter Hunter of the University of Auckland and Dr Di McCarthy, Chief Executive of the RSNZ.

He Waka Tāngata (Social Science Oxygen Group)

He Waka Tāngata is a forum of researchers who are among the emerging leaders in the social science community. The group was set up by MoRST to foster leadership in the social sciences and to find new ways to increase the impact of social research.

He Waka Tāngata goals are to:

- inspire social scientists to shape the future of social science in New Zealand
- stimulate debate on how social science can better contribute to New Zealand society, environment and economy
- foster community amongst early career researchers, and
- tap into thriving areas of social science research to invigorate broader science and innovation policy.

Mentors for He Waka Tāngata are Professor Richard Bedford, University of Waikato, and Bryan Gould, current chair of the Foundation and former vice-chancellor of the University of Waikato.

He Waka Tāngata and the Oxygen Group jointly hosted the Running Hot conference Interconnection: NZ Science in the 21st Century, held in late October 2008.

New Zealand Vice-Chancellors' Committee (NZVCC)

NZVCC is made up of university vice-chancellors and meets periodically to discuss matters of mutual interest to universities. You may meet with NZVCC occasionally – typically at least once a year with its research committee, which consists of designated research representatives from each university. The chair of the research committee is usually a member of NZVCC.

Public Service Association (PSA)

The PSA represents a large proportion of the staff who work in CRIs. As part of its role of supporting its members, the PSA takes an active role within the RS&T sector, engaging collaboratively on issues ranging from employment conditions, human resources development, and funding policy. For example, the PSA played an important consultative role in the design of the CRI Capability Fund (funding for CRIs to undertake public-good research independent of government priorities). The PSA also has a national science committee.

Research and Education Advanced Network New Zealand Limited (REANNZ)

REANNZ was established in 2005 to operate the Kiwi Advanced Research and Education Network (KAREN). KAREN is a high-capacity, ultra high-speed connectivity between New Zealand's tertiary institutions, research organisations, libraries, wānanga, schools, and the rest of the world. The network went live in November 2006 and now connects 71 sites at 32 institutions including all the universities and CRIs.

REANNZ is a Crown-owned company based in Wellington and managed by a board of directors. The chair is Dr Jim Watson and the Chief Executive is Donald Clark. Its current shareholders are the Minister of Finance and the Minister of Research, Science and Technology. CCMAU provide you with advice on the appointment of members to this board.

Shareholding Ministers should consult with the Ministers for Economic Development, Communications and Information Technology, and Education regarding future investment decisions.

New Zealand Synchrotron Group Ltd (NZSG)

Synchrotrons are very large and expensive research facilities that create an intense beam of light that can be used for a range of scientific applications. Australia has built a synchrotron near Melbourne.

New Zealand holds shares in the Australian synchrotron holding company and is providing ongoing funding to help meet operating costs.

Half of New Zealand's investment has come from government and half from New Zealand research institutions. The other investors in the synchrotron are Australian state governments and Australian universities. New Zealand investment is structured through New Zealand Synchrotron Group Ltd (NZSG), a company formed by certain New Zealand universities and Crown research institutes. The Government is not a shareholder in NZSG. NZSG is governed by a board nominated by company shareholders, and is currently chaired by Dr Garth Carnaby. Day-to-day management of NZSG is handled under contract by the RSNZ.

Research Infrastructure Advisory Group (RIAG)

RIAG was established in June 2005 as an external advisory group to MoRST.

RIAG is chaired by Professor Jim Metson. The group comprises three scientists with diverse scientific expertise, and an economist. It provides expert advice to MoRST on the scientific case and strategic relevance of high-cost, large-scale research infrastructure of strategic importance for New Zealand in terms of government investment. RIAG reports to the MoRST chief executive.

Vision Mātauranga Advisory Group (VMAG)

Vision Mātauranga is a policy framework that aims to unlock the innovation potential of Māori knowledge, resources and people, for the benefit of all New Zealanders. The focus of the policy is innovation, opportunity and the creation of knowledge.

VMAG is appointed by and reports to the chief executive of MoRST and acts as an external advisory group. The role of VMAG is:

- to provide advice to MoRST on the ongoing development and strategic direction of Vision Mātauranga
- to act as advocates for Vision Mātauranga in discussions with government and the broader interest groups across Vote RS&T
- to act as advocates and 'champions' for Vision Mātauranga by giving expression to it in their work, where relevant.

The Carter Observatory

Currently you are the Minister responsible for the Carter Observatory, under the Carter Observatory Act 1938.

In September 2008, Cabinet agreed that the assets and certain liabilities of the Carter Observatory board be transferred to the Wellington City Council. MoRST is now working with the Carter Observatory board, Wellington City Council and the Parliamentary Counsel Office to repeal the Carter Observatory Act as soon as practicable to bring that agreement into effect.

7. Directing other agencies

Output agreements and funding agreements

MoRST prepares output agreements with the Foundation, HRC and Industrial Research Ltd (for measurement standards). Output agreements are also established with each CRI to cover CRI capability funding.

These agreements are monitored regularly throughout the year through quarterly and six-monthly reports. MoRST will advise you on their content of these reports and any areas of outstanding performance or areas of concern. CRI Capability Fund agreements are monitored by both CCMAU and MoRST.

Statements of intent (SOI)

In February, you write to the Foundation outlining your expectations for the coming year. This letter informs the development of the Foundation's SOI, which you table in the House of Representatives on Budget day.

We contribute to the HRC's SOI on your behalf through the Ministry of Health.

Statement of Science Priorities

Under the Foundation for Research, Science and Technology Act 1990 you need to advise the Foundation, by notice in writing, of the priorities that the Foundation shall adhere to in carrying out its functions to allocate funds for the production of outputs relating to public good science and technology. This needs to be done at intervals of not more than three years. The output expenses covered by the Statement of Science Priorities are Research for Industry, Environmental Research, Maori Knowledge and Development Research, and Social Research. The Statement of Science Priorities was last updated in 2008.

Ministerial directions and Ministerial terms of reference

You instruct the Foundation and the Marsden Fund Council of the objectives for their investment schemes that are not included in the Statement of Science Priorities via Ministerial directions and Ministerial terms of reference. You may revise Ministerial directions and terms of reference at any time of the year.

Annual reports and the section 32A report

Under the Crown Entities Act 2004, you are required to table the Foundation's annual report within the timeframe calculated under that Act. Typically this will be in early November. We advise you on whether the content of the annual report is an accurate account of the performance of the Foundation and whether you should accept the report and table it in the House.

Under the Public Finance Act 1989, you are required to supply a separate report on outputs purchased by the Crown from non-Crown-owned organisations such as the RSNZ. The output relating to national measurement standards is also reported on through this mechanism. MoRST prepares this report on your behalf and you must table it in Parliament by the end of September.

Under the Carter Observatory Act 1938, you are required to present a copy of the Carter Observatory annual report to the House of Representatives within 28 days of receiving it. With the planned repeal of the Carter Observatory Act, the 2007/08 annual report is expected to be the final annual report for the Carter Observatory.

The table below summarises the most significant research-related organisations you can influence and the mechanisms for doing so. The extent of your influence depends on their structures and funding methods.

Agency	Institutional control	Funding directions
The Foundation for Research, Science and Technology	• Letter of Expectations • SOI • Appointment of board • Ministerial Directions, which enable you to set the objectives for the Foundation's investment programmes • Statement of Science Priorities – the Foundation must adhere to government priorities as set by you no less often than every three years	Output agreement – $477 million (GST excl) in 2008/09 Around half the total government RS&T spend is administered through the Foundation
Health Research Council of New Zealand	• Input into SOI, board appointments and priority setting • The Minister of Health has governance control	• Output agreement – $72 million (GST excl) in 2008/09 • You can direct health-related RS&T funding through your output agreement with the HRC

Agency	Institutional control	Funding directions
Crown research institutes	• The Minister of Finance and the 'responsible Minister' (currently the Minister of Research, Science and Technology) are the shareholding ministers of CRIs	• Output agreements – $51 million (GST excl) total • The CRI Capability Fund allows CRIs to develop and retain significant research capabilities.
Marsden Fund Council	• Appointment of members • Setting terms of reference	• Output agreement with the RSNZ – $38 million (GST excl)
Royal Society of New Zealand	• This is a non-government organisation (NGO) governed by a private Act	• Several funding contracts for $10 million (GST excl) to administer several programmes including science promotion and fellowships. • The RSNZ also provides secretariat services and support to the Marsden Fund Council
REANNZ	• Crown-owned company that operates KAREN • Managed by a board of (seven) appointed directors • The Minister of Finance and the Minister of Research, Science and Technology are the shareholding ministers	• Annual output agreements for the provision of the KAREN network and for capability building

8. Influencing the system

You have an important role in influencing RS&T activity in New Zealand more indirectly, primarily through your stewardship of Vote RS&T.

High level directions for RS&T are developed through consultative processes and signalled through a number of mechanisms, including:

From Strength to Strength: Government's Agenda for New Zealand RS&T **(the RS&T Agenda)**

This document sets the overall direction for public investment in RS&T and was published in July 2008. It lays out a set of investment objectives and policy actions toward four challenges:

- to sustain our science base
- to focus new science
- to propel business R&D
- to connect New Zealanders with science.

Roadmaps for science

These documents provide directions for FRST and HRC investment to support the alignment of existing RS&T investment toward national and sector goals. The roadmaps are each agreed by Cabinet. They have been developed with considerable sector consultation and by utilising our connections with other parts of government.

Roadmaps have so far been published for 'Environment Research', 'Energy Research', 'Biotechnology Research' and 'Nanoscience and Nanotechnologies', with 'Food Research' in development.

Transformational RS&T (TRST) opportunities

These are areas where new and focused investment can accelerate progress toward important outcomes for New Zealand. Six TRSTs are signalled in the RS&T Agenda in the areas of renewable energy, high-tech, health delivery, environmental sensing, cities and future foods.

9. RS&T linkages

RS&T has an important role in supporting a number of the Government's goals. This means that our work links into a wide range of policy areas, often with other departments.

The quality and effectiveness of our science is often enhanced by linking with science in other countries. Science is increasingly being seen as a component in building country-to-country relationships and a 'New Zealand Inc' approach is taken to international science relations. For example, New Zealand's partnership with the United States on Antarctic research is a long-standing and widely-valued part of our wider bilateral relationship.

Linking across government

Below are some of these areas and organisations we work with.

Innovation

RS&T is an important contributor to innovation and the increased uptake of knowledge-intensive technology across the economy. We work in a number of ways to amplify the impact of RS&T across the economy as well as contributing a strong RS&T influence to other agencies' work. Prominent amongst these partnerships is MoRST's work with the Ministry of Economic Development (MED) on innovation and productivity. Our focus includes:

- Connecting key RS&T strategies like the transformational RS&T areas (TRSTs) and the stable funding initiative to other government initiatives
- Improving linkages between public research agencies and the private sector
- Increasing global connectedness across the innovation system and international knowledge transfer
- Ensuring cross-government alignment of resources, for example around RS&T-intensive industry development priorities, TRSTs and roadmaps.

MoRST also chairs the inter-agency Innovation Working Group. This is a broad-based policy group involving senior staff from government agencies working on the New Zealand innovation system.

Emerging technologies

We have a team of people working across government on policy issues surrounding emerging technologies such as biotechnology, nanotechnology, and e-Science. In consultation with the relevant departments, research roadmaps are being developed that set medium-term directions for the government's RS&T investment in areas like these.

Much of MoRST's work in biotechnology stems primarily from the Biotechnology Strategy published in 2003, which itself was developed in response to the Royal Commission on Genetic Modification (reported to Government in July 2001).

MoRST also maintains a Futurewatch work programme to alert government to new scientific knowledge and technologies and the opportunities and risks that they present.

The use of high-speed broadband connections and high-performance computing (eScience and Research) is having a major impact on the way research is being carried out across the globe. Research is increasingly being conducted in larger collaborative teams working across international boundaries that require high-speed broadband to share and analyse information.

Science broadband infrastructure makes a major contribution to the government's wider broadband infrastructure and MoRST's emerging technologies team works with other agencies to ensure coordination.

Crown research institutes

We work closely with the Crown Company Monitoring Advisory Unit's science and innovation team on issues relating to CRIs. This includes the monitoring of the CRI Capability Fund and the impact of Vote RS&T initiatives on the CRIs.

Education

There are strong links between Vote RS&T and tertiary education and we have strong connections with the Ministry of Education and the Tertiary Education Commission. This is to ensure that there are clear links between tertiary sector research funded via Vote RS&T and research-focused funding, such as the Performance Based Research Fund and Centres of Research Excellence, which are part of Vote Education.

MoRST and the education sector also share common interests in:

- the way science and technology are taught in schools
- the uptake of science and technology subjects at tertiary level
- scholarship support to those who go on to develop research careers
- the web-based Science Learning Hub.

Health

The Minister of Health is the 'responsible Minister' for the Health Research Council of New Zealand (HRC) although most of HRC's funding comes from Vote RS&T. This means there is close collaboration to ensure consistency between direction set by the Minister of Health and research funded through Vote RS&T. A memorandum of understanding (MoU) exists between you and the Minister of Health (signed 2001). The MoU outlines the ownership and purchase arrangements of the HRC; it also outlines a number of principles by which both agencies abide.

MoRST also works with the Ministry of Health in areas such as opportunities to develop and apply technology that can improve productivity in the health sector.

Environmental policy

We have close links with departments working in environmental policy including climate change and sustainable energy.

Demand for scientific knowledge in the climate change and sustainability areas has increased significantly in recent years. New Zealand has a strong capacity in climate science and biophysical aspects of sustainability, such as freshwater science. New capability is also being built in sustainable energy, particularly in biofuels.

In addition to climate change and sustainability, New Zealand's strong capability in the biological sciences contributes to biodiversity, biosecurity and many other aspects of environmental policy. MoRST plays a key role in helping to ensure that sound science contributes to policy development and decision-making in environmental areas.

Social policy

Evidence-based social policy is a large focus of government's investment in social research. Most departments commission research from independent contractors including the tertiary sector. More than half of government departments use social research as an evidence base in some way, ranging from the Ministries of Education, Social Development (MSD), Justice, MoH, and Department of Labour to the Ministry of Foreign Affairs and Trade, MED and The Treasury.

Vote RS&T funds social research through the HRC and a small, but important, allocation through the Foundation. This research is intended to inform social outcomes of benefit to central and local government, the non-government sector and business.

MoRST maintains close links with MSD and through the Social Policy Evaluation and Research (SPEaR) interdepartmental committee. This committee comprises 22 social policy departments and several Crown entities.

Linking internationally

The rapidly evolving landscape of international science poses both opportunities and challenges for New Zealand as small country carrying out 0.2 percent of the world's research and development.

Other factors which influence MoRST's international linkages work are:

- government-to-government agreements where science and technology is a component (science diplomacy)
- global issues such as climate change and sustainability, which are influencing the way in which governments and research organisations do research
- the need to support researchers and research organisations in their own international collaborations
- our existing bilateral and multilateral science and technology relationships
- emerging opportunities in international science relationships.

In carrying out this work MoRST is putting an increased focused on more of a 'New Zealand Inc' approach by working closely with MFAT, NZTE, MoE and MED.

MoRST maintains a number of partnerships with countries and confederations where our science sectors are already successfully engaged, such as the United States, the European Union, Australia, Germany, France and the United Kingdom.

Supporting two of our key strategic partnerships, MoRST has a full-time science and technology counsellor in the European Union and in the United States. The main focus of the counsellors is to create an environment that assists New Zealand researchers to cooperate with researchers in those territories.

Increased emphasis is being placed upon relationships with North Asia, in particular, the Republic of Korea, Japan, China and Chinese-Taipei (Taiwan).

MoRST also provides New Zealand representation at relevant multilateral bodies, particularly the OECD, and the Industrial Science and Technology Working Group of APEC.

10. Your statutory responsibilities

Under several Acts of Parliament you, as Minister of Research, Science and Technology, have certain responsibilities including administering boards and councils, setting levies and monitoring industry associations. These do not usually require your daily attention and we will brief you on them as they fall due.

Overview

MoRST exists by virtue of a Cabinet Minute and under the State Sector Act 1988.

You have responsibilities under the following Acts:

1. Atomic Energy Act 1945.
2. Building Research Levy Act 1969.
3. Carter Observatory Act 1938.
4. Foundation for Research, Science and Technology Act 1990.
5. Heavy Engineering Research Levy Act 1978.
6. Measurement Standards Act 1992 (and National Standards Regulations 1976).
7. Land Transport Act 1998.
8. Weights and Measures Act 1987.
9. Wheat Industry Research Levies Act 1989.

CCMAU (a unit attached to The Treasury) and The Treasury provide administrative support in respect of your responsibilities under the Crown Research Institutes Act 1992.

As a Minister of the Crown, you also have responsibilities under several other Acts, the main ones being:

1. Crown Entities Act 2004
2. Official Information Act 1982
3. Ombudsmen Act 1975
4. Privacy Act 1993
5. Public Finance Act 1989
6. State Sector Act 1988

11. Boards and councils

You have relationships with several boards, councils and panels in the RS&T sector:

- The board of the Foundation for Research, Science and Technology
- Health Research Council of New Zealand
- Marsden Fund Council
- The board of Research and Education Advanced Network of New Zealand Limited
- Bovine Spongiform Encephalopathy (BSE) Expert Science Panel
- Carter Observatory Board
- Measurement Standards Laboratory of New Zealand.

The boards, councils, and panels are both statutory and non-statutory. Of the statutory bodies, you are mostly closely connected with the Foundation board of directors. You are responsible for overseeing and managing the Crown's interests in and relationship with the Foundation. You are also responsible for exercising the statutory responsibilities given to you as 'responsible Minister' under the Foundation for Research, Science and Technology Act 1990. You also have an output agreement with the Foundation to undertake investment services on your behalf.

You have a relationship with the HRC which receives core funding through Vote RS&T. The Minister of Health is the 'responsible Minister' for the HRC and appoints its board in consultation with you. We work closely with the Ministry of Health to align HRC's outputs to meet relevant goals in Votes RS&T and Health.

Foundation for Research, Science and Technology (the Foundation)

1. Legislative authority and date established

   Foundation for Research, Science and Technology Act 1990.

2. Role and functions

   The Foundation is responsible for around half of the public investment in RS&T in New Zealand, in accordance with the government's policies and priorities. Its statutory functions are to:

   - allocate funds for the production of outputs relating to public good science and technology
   - allocate funds pursuant to ministerial schemes, and

- provide independent policy advice to the Minister on matters relating to RS&T including advice on national priorities for those matters.

3. Accountability

The Foundation is a Crown entity (Crown agent) for the purposes of the Crown Entities Act 2004 and is accountable to Parliament through the accountability measures contained in that Act. As such, it prepares an annual statement of intent (SOI) and an annual report – both of which you table in Parliament. The Foundation is also responsible to you through the annual output agreement. The Foundation reports to you through MoRST quarterly on its performance against the Output Agreement, and six-monthly against its SOI.

4. Funding sources

The Foundation is funded through appropriations from Vote RS&T.

5. Constitution of board

The Foundation board comprises between five and nine members appointed by you.

6. Current status

Meets every two months.

7. Board membership

Member	Position	Term started	Term expires
Mr Bryan Gould	Chair	May 2008	April 2011
Mr Jim McLean	Deputy Chair	May 2004	April 2010
Assoc Professor Pare Keiha	Member	July 2002	April 2011
Dr Diana Hill	Member	July 2006	April 2009
Dr Bronwen Connor	Member	July 2006	April 2009
Mr Warren Larsen	Member	May 2007	April 2010
Dr Tom Richardson	Member	July 2007	April 2010
Professor Roberta Farrell	Member	May 2008	April 2011
Ms Denise Church	Member	May 2008	April 2011

Health Research Council of New Zealand (HRC)

8. Legislative authority and date established

   Health Research Council Act 1990.

9. Role and functions

   The functions of the Council are to:

   - Advise the Minister of Health and undertake consultation on health research policy
   - Administer the health research funds available to the HRC, and negotiate with government the appropriations made to the HRC for the funding of health research
   - Initiate and support health research, promote and disseminate results, and foster the recruitment, education and retention of health researchers
   - Appoint the members of the Biomedical Research Committee, the Public Health Research Committee, the Māori Health Committee and the Ethics Committee, and
   - Ensure the development and application of appropriate assessment standards by committees or subcommittees that assess health research proposals.

10. Accountability

    The HRC is a Crown entity (Crown agent) and is responsible to the Minister of Health, but has annual output agreements with both you and the Minister of Health.

11. Funding sources

    The HRC is funded through appropriations from Vote RS&T and has a small contract with the Ministry of Health for delivering policy advice.

    The HRC also receives funding from the operation of the Partnership Programme. The HRC leverages five dollars from partners for each dollar invested through the Programme.

12. Constitution of HRC

    The HRC comprises ten members – five researchers and five non-researchers – appointed by the Minister of Health, in consultation with you.

13. Membership

Member	Position	Term started	Term expires
Professor Graeme Fraser	Chair	December 2002	June 2009
Dr John Hay	Deputy chair	March 2003	June 2009
Professor Richie Poulton	Member	March 2003	July 2009
Professor Anthony Reeve	Member	October 1999	June 2009
Professor Alistair Woodward	Member	March 2003	June 2009
Mrs Judy Keall	Member	March 2003	June 2009
Ms Esther Cowley-Malcolm	Member	July 2006	June 2009
Ms Kath Fox	Member	December 2007	December 2010
Associate Professor Susan Stott	Member	December 2007	December 2010
Ms Linda Smith	Member	August 2008	August 2011

Marsden Fund Council (MFC)

14. Legislative authority and date established

No statute. Established in 1996 by the Minister of Research, Science and Technology.

15. Role and functions

The MFC's functions are to:

- advise you on the policies and procedures it considers appropriate and necessary for implementing the terms of reference for the Marsden Fund
- recommend to RSNZ each year those proposals to the Marsden Fund that should be funded and the funding to be awarded, and
- monitor the progress of research and researchers funded by the Marsden Fund.

16. Accountability

The MFC is accountable to you. You contract RSNZ, through the annual output agreement, to administer the Marsden Fund and provide secretariat services to the MFC.

17. Funding sources

The MFC is funded through an annual funding agreement.

18. Constitution of MFC

The MFC comprises up to ten eminent researchers spanning the range of disciplines. You appoint them, with individual members appointed for terms and with conditions that you determine. In making appointments and setting terms and conditions of membership, you will be advised by RSNZ, existing members of MFC and others in the research community.

19. Current status

Meets regularly.

20. Membership

Member	Position	Term started	Term expires
Dr Garth Carnaby	Chair	January 2002	November 2010
Dr Rupert Sutherland	Earth Sciences and Astronomy Panel	May 2005	November 2010
Professor Lydia Wevers	Humanities Panel	May 2005	November 2010
Professor Peter Bergquist	Cellular, Molecular and Physiological Biology Panel	June 2003	February 2009
Professor Harlene Hayne	Economics and Human & Behavioural Sciences Panel	January 2006	February 2009
Professor Peter Hunter	Mathematical and Information Sciences Panel	January 2006	February 2009
Professor Roger Morris	Ecology, Evolution and Behaviour Panel	February 2007	November 2009
Professor Margaret Brimble	Physical Science and Engineering Panel	December 2007	November 2010
Dr Diana Martin	Biomedical Panel	December 2007	November 2010
Professor Richard Bedford	Social Sciences Panel	August 2008	November 2010

Bovine Spongiform Encephalopathy (BSE) Expert Science Panel

21. Legislative authority and date established

    Established by Cabinet Minute in March 1996. Ministerial Advisory Committee.

22. Role and functions

    The panel was set up as a result of concerns about Bovine Spongiform Encephalopathy (BSE) in cattle in the UK, and Creutzfeld-Jacob Disease (CJD) in humans. It is an independent review panel that advises on the scientific issues of BSE and its possible link to CJD.

23. Accountability

    Reports to the Ministers of Agriculture and Forestry, and Research, Science and Technology.

24. Funding sources

    The BSE Expert Science Panel is funded solely through appropriations from Vote RS&T.

25. Constitution of panel

    The panel comprises experts in the BSE field.

26. Current status

    Since the panel was established in 1996 the risks and knowledge relating to BSE have changed substantially. The panel has not met since 2006 and is essentially in abeyance but has not been formally disestablished.

27. Membership

Member	Position
Professor David Skegg	Chair
Dr Paul Atkinson	Member
Dr Peter Fennessy	Member
Professor Colin Wilks	Member

Carter Observatory Board

28. Legislative authority and date established

    Carter Observatory Act 1938.

29. Role and functions

    The Carter Observatory was once New Zealand's national astronomical observatory. The Board was responsible for operating, maintaining and controlling the Carter Observatory and Planetarium in Wellington, which promotes the study and understanding of astronomy. The observatory closed for refurbishment in December 2007. The Wellington City Council has taken over the management of the Observatory, subject to the repeal of the Carter Observatory Act 1938.

30. Accountability

    The Board is accountable to you through its annual report until the Carter Observatory Act is repealed.

31. Constitution of Board

    Seven members are appointed by the Minister of Research, Science and Technology. Four are Ministerial appointments and the other three are nominated by the Royal Astronomical Society of New Zealand, Wellington Regional Council and Wellington City Council, and approved by you. Board members elect the Chair.

32. Current status and future

    The status of the Carter Observatory is currently under review. In September 2008, Cabinet agreed to repeal the Carter Observatory Act 1938. The repeal of the Act will sever the relationship between the Crown and the Carter Observatory and transfer the assets and (certain) liabilities of the Carter Observatory Board to the Wellington City Council. The redeveloped Observatory is expected to reopen in March 2009.

33. Membership

Member	Position	Term started	Tem expires	Appointed by
Mr Duncan Hall	Chair	July 2007	June 2008	Royal Astronomical Society nominee
Mr Richard Bentley	Member	September 1998	June 2008	Ministerial representative
Councillor Judith Aitken	Member	January 2005	November 2010	Wellington Regional Council nominee
Councillor Jo Coughlan	Member	November 2007	November 2010	Wellington City Council nominee
Dr Matt Visser	Member	September 2005	June 2008	Ministerial representative
Vacant	Member			Ministerial representative
Mr Peter Graham	Member	September 2005	June 2008	Ministerial representative

12. Glossary – jargon buster

Listed here are definitions of terms frequently used within the RS&T sector.

ACRI	Association of Crown Research Institutes (renamed Science New Zealand in February 2008)
AgResearch	AgResearch Limited
AHRT	Assisted human reproductive technologies
ANZCCART	Australia & NZ Council for Care of Animals in Research and Teaching
APEC	Asia Pacific Economic Cooperation Forum
Basic research	Research that allows the researcher to explore new areas and increase the level of knowledge in that area, rather than pursuing a specific application.
BERD	Business Expenditure on Research and Development (a formal OECD definition)
Biodiversity	Biological diversity, or 'biodiversity' for short, describes the variety of all biological life – plants, animals, fungi, and micro-organisms – the genes they contain and the ecosystems on land or in water where they live.
Biosecurity	Protection from the risks posed by pests and diseases to the economy, environment and people's health through exclusion, eradication, containment and management.
Biotechnology	Broad term for a group of technologies that are based on applying biological processes. It includes a range of techniques from DNA technology, molecular and cellular biochemistry through to gene technology.
BRANZ	Building Research Association of New Zealand
BRCSS	Building Research Capability in Social Science
C&F	A CRI: Crop & Food Research (also Crop and Food). Merging with HortResearch on 1 December 2008.

Capability Fund	A non-departmental output class (also known as the CRI Capability Fund) – funding for CRIs to undertake public-good research that is independent of government priorities in order to maintain viability and capacity. The non-specific output fund (NSOF) previously performed a similar role.
CCMAU	Crown Company Monitoring Advisory Unit
CDRP	Cross Departmental Research Pool
CoREs	Centres of Research Excellence
CRAG	Capitalising on Research and Development Action Group
CRI	Crown research institute
Crown entity	Includes statutory entities, crown entity companies, crown entity subsidiaries, school boards of trustees and tertiary education institutions as set out in section 7 of the Crown Entities Act.
Crown-owned company	Generally Crown entities that are companies. State-owned enterprises are not Crown entities. Note that REANNZ, a Crown-owned company, is not a Crown entity for the purpose of the Crown Entities Act 2004.
DOC	Departmental output class. The funding a department receives for the goods or services which it supplies is called a departmental expense. An output is the good or service delivered.
E-government	E-government delivers better results by adapting government to the environment of the information age and the Internet.
EIF	Equity Investment Fund. Capital for CRIs to support larger-scale commercialisation operations. Managed by MoRST.
End-users	The purchasers of the research and innovation the New Zealand science system creates.
Envirolink	Envirolink is a fund for regional councils, to help improve their linkages with the science system and assist good environmental management.
ESR	A CRI: Institute of Environmental Science and Research Limited
ET	Economic transformation
EU	European Union
FIAs	Funding and investment agents. Agents that contract with research providers, e.g. the Foundation, HRC, etc.

Forest Research	See Scion
FRST, the Foundation	Foundation for Research, Science and Technology. The primary funding body for Vote RS&T.
future watch	A programme to systematically scan the external S&T environment to signal the new, the unexpected, the major, and the minor. Run by MoRST.
GERD	Gross Expenditure on Research and Development (a formal OECD definition)
GIAB	Growth and Innovation Advisory Board. A high-level board advising government on progressing the Growth and Innovation Framework released in February 2002. Originally administered by MoRST, now part of MED.
GM	Genetic modification also referred to as GE or genetic engineering.
GMO	Genetically modified organism
GNS Science	A CRI: Institute of Geological and Nuclear Sciences, otherwise known as GNS Science
GOVERD	Government Expenditure on Research and Development (a formal OECD definition)
GPSRD	Grants for Private Sector Research & Development. This scheme is no longer available and has been replaced by schemes available through TechNZ.
HART	Human assisted reproductive technologies
HERA	Heavy Engineering Research Association
HERD	Higher Education Expenditure on Research and Development (a formal OECD definition)
HortResearch	A CRI: Horticulture and Food Research Institute
HRC	Health Research Council of New Zealand
ICT	Information and communication technologies
IIOF	International Investment Opportunities Fund. A non-departmental output class in Vote RS&T.

Innovation	The solution of problems through discovery and creation. Innovation is driven by need and curiosity and occurs at individual, organisational, sector, regional, and national level. It occurs for the purposes of social, economic, environmental or health ends and is found in products, processes, practices and systems. Innovation can be non-technological or technological and includes organisational and management innovation.
Innovation system	The set of distinct institutions which jointly and individually contribute to the development and diffusion of new technologies, and which provide the framework within which governments form and implement policies to influence the innovation process. As such, it is a system of interconnected institutions to create, store and transfer the knowledge, skills and artefacts which define new technologies.
IP	Intellectual property
IPCC	International Panel on Climate Change
IRL	A CRI: Industrial Research Limited
ISAT	International Science and Technology Linkages Fund. A non-department output class in Vote RS&T.
IWG	Innovation Working Group. A senior officials working group on innovation issues.
KAREN	Kiwi Advanced Research and Education Network
Landcare	A CRI: Landcare Research New Zealand Ltd. Also known as Landcare Research Manaaki Whenua.
Lincoln	Lincoln University
Manaaki Whenua	A CRI: Landcare Research New Zealand Ltd
Mātauranga Māori	A knowledge base and framework consisting of traditional and cultural knowledge, which has been created, inherited and innovated upon by Māori people for their social, economic and health well-being.
MCDEM	Ministry of Civil Defence and Emergency Management
MFC	Marsden Fund Council
MSL	Measurement Standards Laboratory, part of IRL.
NAEAC	National Animal Ethics Advisory Committee

Nanotechnology	The study of things smaller than 100 nanometers (especially with the manipulation of individual molecules).
NERF	New Economy Research Fund. A non-departmental output class that funds researcher-led science and technology aimed at developing knowledge and capability in areas where new industries and enterprises are emerging or yet to emerge.
NIWA	A CRI: National Institute of Water and Atmospheric Research
NON DOC	Non-departmental output class. The funding a department receives to pay for goods or services which are not produced by any department or parliamentary office.
NSOF	Non-specific Output Funding. A non-departmental output class, now renamed the CRI Capability Fund.
NZAS	New Zealand Association of Scientists
NZBio	NZBio is an incorporated society representing the New Zealand biotechnology sector.
NZTE	New Zealand Trade and Enterprise (Also NZT&E)
NZVCC	New Zealand Vice-Chancellors' Committee
NZVIF	New Zealand Venture Investment Fund Ltd. The company responsible for managing the government's Venture Investment Fund (see VIF).
OBI	Outcome based investment. A form of long-term investment piloted by the Foundation in 2005.
OECD	Organisation for Economic Cooperation and Development
Operational research	Research that underpins the statutory, regulatory or operational responsibilities of a government department, where that department is the major user of that research. For example, research undertaken by MSD with funding from the Cross Departmental Research Pool will study household energy use and poverty and possible policy responses.
OS 20/20	Ocean Survey 20/20 – a project to completely map the seabed in New Zealand's Exclusive Economic Zone.
Outcomes	Effects in the community, such as 'high health status'. Outcomes are defined for the purposes of the Public Finance Act 1989 as 'the impacts on, or the consequences for, the community of the outputs or activities of the government'. Outcomes are influenced but not controlled by government agencies.

Output	Outputs are the goods and services purchased by Ministers from public and private sector producers. Outputs may include the supply of policy advice, enforcement of regulations, such as speed limits, and administration of benefits. Providers must be able to define their outputs in terms of quantity, quality, delivery time and cost.
Output plan	A contract between the government, as the purchaser of outputs (goods and services), and the supplier. Along the lines of a private sector sales contract, the output agreement defines boundaries in areas such as the output's quantity, quality, time and place of delivery and price.
Output classes	The groups or classes that individual outputs are combined into to form a common set of goods and/or services. Output classes are the level at which Parliament authorises output purchase through the appropriation process.
Oxygen Group	A group of leading young scientists who MoRST consult to keep a watching brief on the future of science and research.
PBRF	Performance Based Research Fund. Part of Vote Education.
PCE	Parliamentary Counsel for the Environment
PfX	Partnerships for Excellence (a TEC-funded scheme)
PGSF	Public Good Science Fund (no longer used)
PGST	Public good science and technology. Defined in the Foundation Act 1990 as science or technology – (a) that is likely to increase knowledge or understanding of the physical, biological, or social environment; or (b) that is likely to develop, maintain, or increase skills or scientific or technological expertise that is of particular importance to New Zealand; or (c) that may be of benefit to New Zealand, but is unlikely to be funded, or adequately funded, from non-governmental sources.
Plant and Food Research	The CRI being formed from the merger of Crop and Food Research and HortResearch. Will commence business 1 December 2008.
Provider	An organisation or individual in the public or private sector who carries out scientific and technological activities.

PSAF	Pre-Seed Accelerator Fund. A non-departmental output class. A fund to increase the rate of commercialisation of innovations from publicly funded research. Managed by the Foundation.
Purchase agent	An agency that allocates public funds for the purchase of research outputs as contracted through an output agreement with a responsible Minister. Examples are the Foundation and HRC.
R&D	Research and development
REANNZ	Research and Education Advanced Network New Zealand Limited established in 2005 to operate the high-capacity, high-speed broadband Kiwi Advanced Research and Education Network (KAREN). REANNZ is a Crown-owned company.
Research consortia	Partnerships between two or more of companies, research organisations, or government agencies. Designed to bring researchers and end-users closer together and promote collaboration between universities, CRIs and businesses.
RFI	Research for Industry. A non-departmental output class. Aims to increase the global competitiveness of New Zealand industries and sectors through strategic research, supporting research that underpins the development of new products, processes and services of use to New Zealand industries and sectors.
RIAG	Research Infrastructure Advisory Group. Established to provide advice to the Government for high-cost facilities or equipment needed to support the country's research and science capability.
Roadmap	A type of strategy, providing broad context and high-level directions on a particular area of science from a New Zealand perspective, and how our science capabilities should be developed.
RS&T	Research, science and technology
RSNZ	Royal Society of New Zealand
S&T counsellors	MoRST employees who advocate for New Zealand's science and technology overseas. We currently have two, based in Brussels and Washington.
SCI	Statement of Corporate Intent
Science New Zealand	Science New Zealand is a board comprising the chief executives of the CRIs. It aims to grow the business of its respective CRIs through effective collaboration on key issues.
Scion	A CRI: New Zealand Forest Research Institute

Seed capital	Seed capital is a form of venture capital funding, and is used for the initial investment in a project or start-up company, for proof-of-concept, market research or initial product development.
SFE	Stable funding environment. A policy that reduces the level of competition in the funding system in order to provide greater certainty for research organisations.
SOI	Statement of intent
SPEaR	Social Policy Evaluation & Research Committee
stem cells	A stem cell is an undifferentiated cell that has the potential to give rise to daughter cells of other cell types (such as blood cells).
Synchrotron	A large machine (about the size of a football field) that provides tightly focused beams of high-intensity electromagnetic radiation to assist with a wide range of experiments.
TBG	Technology for Business Growth. A Technology New Zealand (see below) scheme that is targeted towards projects that move companies towards high added-value, high-margin, technology-based products. Under TBG funding the company receives up to 50 percent of eligible project costs.
Tech NZ	The Foundation's business investment programme. Designed to support companies and people undertaking research and development projects that result in new products, processes or services.
Technology New Zealand	See TechNZ
TIF	Technology Industry Fellowship. A Technology New Zealand (see above) scheme that enables students and experienced researchers to complete R&D projects in companies.
TRST	Transformational research science and technology. TRSTs are areas of RS&T that MoRST has identified as being important to New Zealand's future and in which RS&T can play a crucial role in accelerating transformation of New Zealand's economy, environment and society. Six TRSTs have been outlined.
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
VC	Venture capital or vice-chancellor

VIF	A capital fund undertaking co-operative investment with the private sector to develop high-technology business. Managed by NZVIF (see NZVIF).
Vision Mātauranga	Framework for Māori Development (see Mātauranga Māori)

13. Further information

Provided with this guide are:

Policy documents

- From Strength to Strength – Government's Agenda for New Zealand Research, Science and Technology
- OECD Reviews of Innovation Policy: New Zealand
- RS&T Scorecard
- Science for New Zealand: An Overview of the RS&T System
- An Advanced Skills Action Plan
- Research and Development in New Zealand: A Decade in Review.

Accountability documents

- MoRST Annual Report 2007–2008
- Our Strategy 2008–2011 – *a summary of the MoRST statement of intent 2008–2011*
- Statement of Forecast Service Performance (Output Plan) for 2008/09

We can provide additional material on request.