VOTE *Research, Science and Technology*

Research, Science and Technology

Overview

Appropriations sought for Vote Research, Science and Technology in 2006/07 total $ 646.269 million. These appropriations will be applied as follows:

- $260.516 million (40% of the Vote) to purchase outputs that create value from science by increasing productivity in existing economic sectors and increasing commercialisation of public sector research.
- $90.226 million (14% of the Vote) to purchase outputs to increase understanding of our environment and enhance linkages between environmental researchers and the end users of research.
- $66.161 million (10% of the Vote) to purchase outputs to improve the capacity and capability of CRIs. This includes the CRI Capability Fund, Equity Investment Fund, REANNZ funding and for the establishment of the Advanced Network.
- $64.161 million (11% of the Vote) to purchase outputs that increase knowledge of New Zealand society, including the health and well-being of New Zealanders and Vision Mātauranga themes.
- $33.878 million (5% of the Vote) to purchase outputs that fund investigator-led research projects.
- $18.291 million (3% of the Vote) to support the development and retention of scientists.
- $49.848 million (8% of the Vote) to purchase outputs that support private sector innovation through investment in research, science and technology in firms and its commercialisation by them.
- $13.293 million (2% of the Vote) to purchase outputs to fund the establishment, development and maintenance of international relationships including investment in the Australian Synchrotron.
- $4.592 million (1% of the Vote) to increase the profile of research science and technology, and improve New Zealanders' understanding of the value of RS&T.
- $35.873 million (5% of the Vote) to purchase advice on research and innovation policies and manage contracts with funding and investment agents and research providers.
- $5.909 million (1% of the Vote) to purchase services from National Measurements Standards Limited, and the New Zealand government’s subscription to the Convention du Metre.

Details of how the appropriations are to be applied appear in parts A, B and C of this Vote.

Terms and Definitions Used

APEC	Asia Pacific Economic Co-operation
CRI	Crown Research Institute
DTI	Danish Technical Institute
EI&RD	Economic, Industry and Regional Development
FRST	Foundation for Research, Science and Technology
GIF	Growth and Innovation Framework
HRC	Health Research Council of New Zealand
IIOF	International Investment Opportunities Fund
IRL	Industrial Research Limited
MoRST	Ministry of Research, Science and Technology
NERF	New Economy Research Fund
NZVIF	New Zealand Venture Investment Fund Limited
R&D	Research and Development
REANNZ	Research and Education Advanced Network of New Zealand
RS&T	Research, Science and Technology
RSNZ	The Royal Society of New Zealand
TechNZ	Technology New Zealand
TEI	Tertiary Education Institute
TIF	Technology for Industry Fellowships
TPNZ	Technology Partnerships New Zealand

Minister Portfolio Table

56	Minister of Research, Science and Technology

Research, Science and Technology

VOTE MINISTER: Minister of Research, Science and Technology
ADMINISTERING DEPARTMENT: The Ministry of Research, Science and Technology
The Minister of Research, Science and Technology is the Responsible Minister for the Ministry of Research, Science and Technology

Part A - Statement of Objectives and Trends

Part A1 - Objectives for Vote

The Government's role in Research, Science and Technology

Research, science and technology (RS&T) are important to New Zealand's quality of life and has a key role to play in government's goals to progress New Zealand's economic transformation to a high income, knowledge-based market economy. Research and science create new knowledge. It is the application of this, often through technology, that leads to innovation and the positive changes required for improving well-being and economic growth. RS&T supports such improvements through:

- creating new products, processes and services to increase innovation, improve productivity and global competitiveness in existing businesses and creating new industries that lead to faster sustainable economic growth and a better standard of living
- encouraging stronger linkages between public sector research organisations, firms and other innovation system stakeholders
- developing and testing new ways of enhancing and protecting the environment
- increasing our understanding of how society functions and how best to create healthy and sustainable communities
- building our knowledge of the factors influencing health status and developing new medical therapies and health strategies
- helping to understand and manage risks in areas such as geological hazards, climate change and pest management
- adapting ideas from overseas to produce benefits to New Zealand, and
- generating new knowledge to improve our understanding of the world around us, including particular knowledge unique to New Zealand.

The government is a significant player in New Zealand's RS&T system. It finances around half New Zealand's investment in RS&T, owns significant science infrastructure, notably the Crown Research Institutes (CRIs), and in some cases government departments also carry out science and research activity.

The government invests in RS&T for several reasons. First, public investment in RS&T transforms New Zealand's economy to produce long-term economic value. While private sector RS&T provides direct benefits to those undertaking it, there are often broader 'spillover' benefits that occur in the wider community. These benefits allow other businesses to be more productive and can also lead to better services and products for New Zealanders. By supporting private sector R&D, the government can help ensure that these spillovers occur and the maximum public benefit for New Zealand from RS&T is achieved.

Second, the government invests to support the well-being of New Zealanders. RS&T makes a significant contribution to maintaining and improving services such as healthcare, environmental protection and management, education and social services. In these areas, government funds the sort of science and research activity that it needs, and that will not be met by private investment.

The nature of our economy also influences government investment in RS&T; important factors are the dominance of primary industry, with its reliance on publicly funded research, together with the limited size and number of private RS&T-intensive firms. Consequently, government investment is crucial to maintaining a 'critical mass' of research capability and science infrastructure in publicly owned research organisations. This critical mass not only allows New Zealand to develop and diffuse technologies that are specific to our needs and comparative advantages but also to absorb, adapt and diffuse technologies developed offshore.

The government's role in science and research extends beyond providing resources for science and research. The government is also involved in building capability in the science system so that it can produce and diffuse new knowledge and technology. It supports the development of links between the science system and with community, business or global partners. This includes developing robust policy advice and supporting our science-related regulatory arrangements.

New Zealand's science system is connected to a vast global network of RS&T. This global science system is an important source of new knowledge and technologies that we draw on and adapt for our own needs and benefits. Our science system plays an important role in helping New Zealand to access this knowledge through international science linkages and collaborations at country, regional or research institute level.

All Vote RS&T investments support one or more of the government's knowledge, economic, environmental and social goals. The structure ensures government makes better investment decisions across all the outputs purchased through Vote RS&T. Output expenses can contribute more strongly to a specific goal but there are often secondary effects across other goals as well.

- The Economic goal seeks to increase the contribution knowledge makes to the creation and value of new and improved products, processes, systems and services, in order to enhance the global competitiveness of New Zealand enterprises.
- The Environmental goalseeks to increase understanding of the environment, including the biological, physical, social, economic and cultural factors that affect it.
- The Social goal seeks to increase understanding of the social, biological, environmental, cultural, economic and physical determinants of wellbeing in order to build a society in which all New Zealanders enjoy health and independence and have a sense of belonging, identity and partnership.
- The Knowledge goal seeks to accelerate knowledge creation and develop people, learning systems and networks in order to enhance New Zealand's capacity to innovate.

In addition to the four science goals, the government has the wider goal of influencing the overall shape of New Zealand's innovation system through RS&T.

The Ministry of Research, Science and Technology's (MoRST's) role is as the sector leader - initiating, sustaining, and evaluating changes to the way RS&T is undertaken to ensure that the RS&T sector is able to deliver on the goals of the government. To do this, MoRST works in partnership with all those involved in the sector, including RS&T funding and investment agents, to bring about the changes that are required.

Progress towards higher-level government goals and strategies is monitored through an evaluation programme looking at the short, medium and long-term outcomes of RS&T investments. Monitoring and evaluation identifies areas for reprioritisation and makes an important and increasing contribution to evidence-based policy development.

The Research, Science and Technology Investment Framework

Vote RS&T contributes to the Government's role in RS&T through ensuring that key capabilities are maintained in areas of importance to New Zealand. In 2006/07, there are five themes under which new investments in RS&T are being made. These are:

- *Increasing private sector productivity and international competitiveness* - This theme will create value from science by increasing productivity in existing sectors and increasing science and technology use and commercialisation in firms. It also encourages international linkages and connections with research organisations and researchers will be expanded to enhance New Zealand's competitiveness. This is the main area where the majority of new investment has been targeted in the 2006 Budget, and aligns with the government's economic transformation theme.
- *Environmental and social wellbeing* - This theme recognises that government is a key user of science in areas of sustainable development, environment, and social wellbeing.
- *Build a knowledge base* - This theme ensures that New Zealand has a strong base of knowledge to feed the innovation pipeline in the longer term. The focus on excellence and investigator-led innovative science will keep us linked with cutting edge research undertaken globally and will contribute to building a knowledge society.
- *Strengthen the capability of our RS&T system* - This theme provides long term support for skills and resources essential for a robust RS&T system positioning it to anticipate and respond to the needs of the future. It reduces reliance on contestability in funding processes and introduces increased accountability for delivering outcomes.
- *Engage New Zealanders with RS&T* - This theme increases the profile of New Zealand science (particularly in schools), and improves the quality of communications so that New Zealanders understand the value of RS&T.

Significant New Initiatives for 2006/07

The *Pre-Seed Accelerator Fund* will increase accelerate the commercialisation of innovations from publicly funded research by public sector research providers.

Increases in the *Research for Industry* non-departmental output expense will contribute to two initiatives – pastoral research and energy research. Increases targeted at the pastoral sector will improve productivity and innovation to boost economic prosperity and improve sustainable production. Increases targeted at energy research will contribute to New Zealand being able to more effectively respond to pressures on energy supplies and security. This will reduce the risk of economic shocks, help retain economic margins, and underpin sustainable production and export industries.

The research capability in New Zealand's CRIs is supported through increases in the *CRI Capability Fund*.

Increases in the *Environmental Research* non-departmental output expense will be directed towards protecting biodiversity and enhancing biosecurity.

National Measurements Standards is receiving additional funding to enhance measurement capacity to complement growth in their technological capacity and to meet rising overseas standards that are crucial for export industries and primary producers.

New investment in *Developing International Linkages* will support strategic relations with bilateral partners and other overseas-based research entities, and provide funds for scientists to engage in global response forums.

The non-departmental output expense *Research Contract Management* is increasing to reflect the cost of managing additional research funding. Targeted increases will cover the introduction of technical review in FRST and increases in administration and publication costs for RSNZ journals.

Part A2 - Trends in Vote

The Direction for Vote Research, Science and Technology

Total appropriations for Vote RS&T have increased from $421.733 million in 2001/02 to $646.269 million in 2006/07.

Output trends 2001/02 to 2006/07

Departmental output expenses

The table below illustrates the trends in Vote RS&T departmental output expenses from 2001/02 to 2006/07.

	2001/02 $000	2002/03 $000	2003/04 $000	2004/05 $000	2005/06 $000	2006/07 $000
Departmental Output Expense						
Policy Advice	5,479	6,470	8,215	11,372	12,275	
Contract Management	514	509	481	529	1,089	
Growth and Innovation Advisory Board	189	1,094	1,226	1,442		
APEC Science Ministers' Meeting		285	2,244			
Advice on Shaping the Science System						13,406

Appropriations for departmental output expenses have risen from $8.843 million in 2001/02 to $13.406 million in 2006/07. Most of this increase occurred in the *Policy Advice* output expense which has been used by MoRST to support its leadership role in the science system, increase evaluation, and to support new strategies such as the Government's Biotechnology Strategy and the RS&T International Linkages Strategy.

In 2005/06 the *Growth and Innovation Advisory Board* departmental output expense was $1.442 million. There is no appropriation for this in 2006/07, as it has been transferred from Vote RS&T to Vote Economic, Industry & Regional Development.

In 2006/07 the *Policy Advice* and *Contract Management* output expenses have been combined into a multi-class output appropriation *Advice on Shaping the Science System.* This multi-class output appropriation has been appropriated $13.406 million in 2006/07.

Between 2001/02 and 2006/07, three departmental output expenses have been discontinued or transferred to other Votes:

The *NZVIF governance and operations* output expense was established in 2001/02 with an appropriation of $1.899 million, decreasing to $1.531 million in 2002/03, when it was transferred to a non-departmental output expense. This was transferred to Vote Economic, Industry & Regional Development in October 2005.

The *Growth and Innovation Advisory Board* output expense was established in 2001/02. This was transferred to Vote Economic, Industry & Regional Development in 2005.

The output expense *APEC Science Ministers' Meeting* existed over the period 2002/03 and 2003/04 to provide for the meeting held in Christchurch in March 2004. The final year for this output expense was 2004/05.

Trends in non-departmental output expenses from 2001/02 to 2006/07

The table below illustrates key changes in appropriations for Vote RS&T funds for the period 2001/02 which were created before 2001/02.

	2001/02 $000	2002/03 $000	2003/04 $000	2004/05 $000	2005/06 $000	2006/07 $000
Non-Departmental Output Expense:						
Marsden Fund	24,746	27,412	29,146	30,479	33,878	33,878
Research for Industry	151,830	157,438	164,476	177,228	186,619	190,663
Health Research	35,319	35,319	37,541	42,430	54,066	58,955
Technology New Zealand	14,524	22,341	32,050	40,605	54,404	47,908
New Economy Research Fund	47,186	48,964	56,786	62,564	62,641	61,586
National Measurements Standards	4,228	4,228	4,513	4,904	4,904	5,504
Research Contract Management	11,072	13,446	15,446	17,344	18,853	20,467

The *Marsden Fund* has increased by more than $9 million over the period, from $24.746 million in 2001/02 to $33.878 million in 2006/07.

Research for Industry has increased by $38.833 million over the period, from $151.830 million in 2001/02 to $190.663 million in 2006/07. Research Consortia were introduced in this output expense in 2002/03.

The *Health Research* non-departmental output expense has grown from $35.319 million in 2001/02 to $58.955 million in 2006/07. The increases in 2005/06 completed the move to full cost funding for health research contracts funded through the HRC and funded new research in priority health areas.

The *Technology New Zealand* non-departmental output expense has grown from $14.524 million in 2001/02 to $47.908 million in 2006/07. The steady growth in the output expense over the past five years reflects increased investment in research and development in business via the adoption of advanced technologies and technological development projects.

The *New Economy Research Fund* non-departmental output expense has increase from $47.816 million in 2001/02 to $61.586 million in 2006/07. This fund is used for research capability and knowledge development in areas of science with the potential to support new and emerging industries that create wealth for New Zealand.

National Measurements Standards non-departmental output expense has increased from $4.228 million in 2001/02 to $5.504 million in 2006/07. It received increased funding in the 2003, 2004 and 2006 Budgets for the establishment of a virtual centre for chemical metrology and enhanced measurements standards, which allows New Zealand firms to compete in international markets.

The *Research Contract Management* non-departmental output expense funds the purchase of administrative services from four purchase agents: FRST, HRC, RSNZ and Fulbright New Zealand. This administration activity covers the investment in and management of scholarships and contracts on behalf of the government. FRST and the HRC also invest strategically through portfolios of research designed to deliver on government outcomes. This has increased from $11.072 million in 2001/02 to $20.467 million in 2006/07.

Trends in non-departmental output expenses established between 2001/02 and 2006/07

The table below illustrates the trends in non-departmental output expenses which have been created between 2001/02 and 2006/07.

	2001/02 $000	2002/03 $000	2003/04 $000	2004/05 $000	2005/06 $000	2006/07 $000
Non-Departmental Output Expense						
Pre-Seed Accelerator Fund			4,267	4,267	4,267	8,267
Development of International Linkages			2,435	2,335	2,360	2,527
International Investment Opportunities Fund				2,560	5,546	9,600
Non-Specific Output Fund / CRI Capability Fund	24,850	24,917	25,406	28,779	38,112	46,612

The Development of International Linkages non-departmental output expense ($2.527 million in 2006/07) was established in 2002/03. The *Pre-seed Accelerator Fund* ($8.267 million in 2006/07) was established in 2003/04.

The *International Investment Opportunities Fund (IIOF)* ($9.600 million in 2006/07) was established in the 2004/05 with $2.560 million.

In 2005/06, the *Non-Specific Output Fund* non-departmental output expense has been refocused and renamed the *CRI Capability Fund*. The CRI Capability Fund provides CRIs with untargeted research funding. It has been increased from $38.112 million in 2005/06 to $46.612 million in 2006/07.

New Policy Initiatives by Appropriation

		$000 increase/(decrease)				
Initiative	Appropriation as shown in Part B	2005/06	2006/07	2007/08	2008/09	2009/10
Pre-Seed Accelerator Fund	Non-Departmental Output Expense - Pre-Seed Accelerator Fund		4,000	4,000	4,000	1,000
	Non-Departmental Output Expense - Technology New Zealand		(3,000)	(3,000)	(3,000)	
Pastoral Research	Non-Departmental Output Expense - Research for Industry		3,900	3,900	3,900	3,900
Energy Research	Non-Departmental Output Expense - Research for Industry		2,925	2,925	2,925	2,925
Supporting research capability in New Zealand's CRI's	Non-Departmental Output Expense - CRI Capability Fund		8,500	8,500	8,500	8,500
Environmental Research	Non-Departmental Output Expense - Environmental Research		3,900	3,900	3,900	3,900
Technology Partnership Programme	Non-Departmental Output expense - Technology Partnership Programme		1,320	564	401	
Extending Measurement Standards (operating)	Non-Departmental Output Expense - National Measurement Standards		600	860	860	860
Extending Measurement Standards (capital)	Capital Expenditure - Industrial Research Limited		310	280	530	-
Increased access to global science	Non-Departmental Output Expense - Development of International Linkages		500	500	500	500
Introducing technical review into FRST's investment process	Non-Departmental Output Expense - Research Contract Management		750	750	750	750
Commercialisation Summit	Departmental Output Expense - Policy Advice		250			
Counsellor Activity	Departmental Output Expense - Policy Advice		258	258	258	258
	Non-Departmental Output Expense - Development of International Linkages		(258)	(258)	(258)	(258)
Linking Schools and Research Organisations (pilot)	Non-Departmental Output Expense - Promoting an Innovation Culture		1,000	1,000	1,000	1,000
New Information Technology System for FRST	Capital Expenditure - Foundation for Research Science and Technology		2,000			
Supporting existing infrastructure - Synchrotron	Non-Departmental Other Expense - Australian Synchrotron	1,047	1,166	609	808	644
	Non-Departmental Output Expense - New Economy Research Fund			(438)	(808)	(644)

		$000 increase/(decrease)				
Initiative	Appropriation as shown in Part B	2005/06	2006/07	2007/08	2008/09	2009/10
RSNZ - Administration expenses and publication costs	Non-Departmental Output Expense - Research Contract Management		345	345	345	345
	Non-Departmental Output Expense - Promoting an Innovation Culture		155	155	155	155
FRST - Research Contract Management - energy research, pastoral research, and environmental research.	Non-Departmental Output Expense - Research Contract Management		275	275	275	275
Promote innovation and commercialisation in CRIs through shareholder equity investments	Capital Expenditure - Equity Investment Fund		3,000			
MoRST Capability - Science Capability Assessment	Non-Departmental Output Expense - Research for Industry	(200)				
	Departmental Output Expense - Policy Advice	200				
Advanced Network	Non-Departmental Output Expense - Advanced Network	20,155	10,360	247	26	7,747
Advanced Network Capability Building	Non-Departmental Other Expense - Advanced Network Capability Building	1,221	1,221	1,221	1,221	
Advanced Network CRI Tariffs			968			
REANNZ Capital	Capital Expenditure - Research and Education Advanced Network of New Zealand	1				
Total Initiatives		22,424	44,445	26,593	26,288	31,857

Part B - Statement of Appropriations

Summary of Financial Activity

	2001/02	2002/03	2003/04	2004/05	2005/06		2006/07 Appropriations to be Used					2007/08	2008/09	2009/10
							By the Department Administering the Vote		For Non-Departmental Transactions					
	Actual $000	Actual $000	Actual $000	Actual $000	Budget $000	Estimated Actual $000	Annual $000	Other $000	Annual $000	Other $000	Total $000	Estimated $000	Estimated $000	Estimated $000
Appropriations														
Output Expenses	421,350	440,532	489,901	541,026	616,823	616,823	13,406	-	622,103	-	635,509	627,694	629,730	642,768
Benefits and Other Unrequited Expenses	-	-	-	-	-	-	N/A	N/A	-	-	-	-	-	-
Borrowing Expenses	-	-	-	-	-	-	N/A	N/A	-	-	-	-	-	-
Other Expenses	93	90	86	454	3,117	3,117	-	-	3,450	-	3,450	1,925	2,124	739
Capital Expenditure	-	4,737	7,920	15,029	6,932	6,932	N/A	N/A	7,310	-	7,310	280	530	-
Intelligence and Security Department Expenses and Capital Expenditure	-	-	-	-	-	-	-	-	N/A	N/A	-	-	-	-
Total Appropriations	421,443	445,359	497,907	556,509	626,872	626,872	13,406	-	632,863	-	646,269	629,899	632,384	643,507
Crown Revenue and Receipts														
Tax Revenue	-	-	-	-	-	-	N/A	N/A	N/A	N/A	-	-	-	-
Non-Tax Revenue	-	-	-	-	-	-	N/A	N/A	N/A	N/A	620	891	1,002	1,361
Capital Receipts	-	-	-	-	-	-	N/A	N/A	N/A	N/A	-	-	-	-
Total Crown Revenue and Receipts	-	-	-	-	-	-	N/A	N/A	N/A	N/A	620	891	1,002	1,361

Part B1 - Details of Appropriations

	2005/06				2006/07		
	Budget		Estimated Actual		Vote		
Appropriations	Annual $000	Other $000	Annual $000	Other $000	Annual $000	Other $000	Scope of 2006/07 Appropriations
Departmental Output Expenses (General)							
Advice on Shaping the Science System MCOA							Basis: Alignment of the output activity of two existing appropriations to outcomes within one appropriation
Contract Management	-	-	-	-	1,089	-	Negotiating, managing and monitoring contracts with the Crown's funding and investment agents and with other specific science and technology service providers.
Policy Advice	-	-	-	-	12,317	-	Policy advice on research, science and technology. This includes investment strategies, the performance and integration of the innovation system, scientific technical advice and ministerial services.
Advice on Shaping the Science System (M56)	-	-	-	-	**13,406**	-	
Contract Management (M56)	1,089	-	1,089	-	**-**	-	Negotiating, managing and monitoring contracts with the Crown's purchase agents and other specific science and technology service providers.
Policy Advice (M56)	12,275	-	12,275	-	**-**	-	Policy advice on research, science and technology. This includes investment strategies, the performance and integration of the innovation system, scientific technical advice and ministerial services.
Total Departmental Output Expenses (General)	13,364	-	13,364	-	13,406	-	
Non-Departmental Output Expenses							
Advanced Network (M56)	20,155	-	20,155	-	**10,360**	-	Establishing and operating a high-speed research and education data network connecting education and science institutions throughout New Zealand in accordance with the objectives outlined in the relevant output agreement.
CRI Capability Fund (M56)	38,112	-	38,112	-	**46,612**	-	Maintaining the scientific capabilities in CRIs required for the provision of public good science in New Zealand, in accordance with the objectives set out in the relevant output agreement. Reason for Change: Increased funding for the development of long-term RS&T platforms and teams.
Development of International Linkages (M56)	2,360	-	2,360	-	**2,527**	-	Promoting and supporting New Zealand research internationally, in accordance with the relevant terms of reference. Reason for Change: Increased investment in international science connections to lever the capacity of the New Zealand RS&T system.

	2005/06				2006/07		
	Budget		Estimated Actual		Vote		
Appropriations	Annual $000	Other $000	Annual $000	Other $000	Annual $000	Other $000	Scope of 2006/07 Appropriations
Non-Departmental Output Expenses - cont'd							
Environmental Research (M56)	86,326	-	86,326	-	**90,226**	-	Public good science and technology that enhances the understanding and management of our environment, in accordance with the objectives and criteria in the Main Estimates. Reason for Change: Increased investment in research to protect biodiversity and enhance biosecurity.
Health Research (M56)	54,066	-	54,066	-	**58,955**	-	Public good science and technology that improves the health status of New Zealanders, in accordance with the objectives and criteria in the Main Estimates.
International Investment Opportunities Fund (M56)	5,546	-	5,546	-	**9,600**	-	Supporting the ability of research providers to participate in international research collaborations and to recruit highly experienced researchers from overseas as set out in the relevant Ministerial Direction. Reason for Change: 2005 Budget decision to increase appropriation and a transfer from 2005/06 of $1.067 million.
Māori Knowledge and Development Research (M56)	4,867	-	4,867	-	**4,867**	-	Public good science and technology that unlocks the innovation potential of Māori knowledge, resources and people, in accordance with the objectives and criteria in the Main Estimates.
Marsden Fund (M56)	33,878	-	33,878	-	**33,878**	-	Excellent basic research that broadens and deepens the research skill base in New Zealand, regardless of whether the research contributes to the Government's socio-economic priorities, in accordance with the relevant terms of reference.
National Measurement Standards (M56)	4,904	-	4,904	-	**5,504**	-	Provision of specified standards to satisfy the needs for traceable physical measurement in New Zealand, provided by Measurements Standards Limited, in accordance with the relevant output agreement. Reason for Change: Increased funding for enhanced measurement capacity.
New Economy Research Fund (M56)	62,641	-	62,641	-	**61,586**	-	Investigator-initiated research that stimulates the emergence and growth of new knowledge-intensive enterprises, in accordance with the relevant Ministerial Direction.
Pre-Seed Accelerator Fund (M56)	4,267	-	4,267	-	**8,267**	-	Accelerating the rate of commercialisation of research developed through publicly funded research, in accordance with the relevant Ministerial Direction. Reason for Change: Increased support for the development and potential flow of intellectual property from research organisations to New Zealand-based businesses.

	2005/06				2006/07		
	Budget		Estimated Actual		Vote		
Appropriations	Annual $000	Other $000	Annual $000	Other $000	Annual $000	Other $000	Scope of 2006/07 Appropriations
Promoting an Innovation Culture (M56)	3,437	-	3,437	-	**4,592**	-	Development of activities that engage with New Zealanders over the role of science and technology in supporting innovation. International links will be developed to access the best international research and researchers, and to promote New Zealand research overseas, in accordance with the relevant agreements. Reason for Change: A pilot initiative to deliver a programme that will support school students' science learning.
Research Contract Management (M56)	18,853	-	18,853	-	**20,467**	-	Negotiating, managing and monitoring research contracts, and providing operational advice to the Minister, in accordance with the relevant output agreement. Reason for Change: Introduction of technical review of projects in FRST.
Research for Industry (M56)	186,619	-	186,619	-	**190,663**	-	Public good science and technology that improves the competitiveness of the industrial sector. Reason for Change: Increased level of end-user involvement in RS&T through large-scale public-private partnerships, strategic research and capability funding, in accordance with the objectives and criteria in the Main Estimates.
Social Research (M56)	5,860	-	5,860	-	**5,860**	-	Public good science and technology that improves social well being, in accordance with the objectives and criteria in the Main Estimates.
Supporting Promising Individuals (M56)	16,791	-	16,791	-	**18,291**	-	Development of human resources in research, science and technology through awards and fellowships. The recipients include post-doctoral researchers, teachers, and technologists. Awards and fellowships are allocated in accordance with the relevant Ministerial Directions, Terms of Reference and agreements. Reason for Change: Increased investment from Budget 2004 and 2005.
Technology New Zealand (M56)	54,404	-	54,404	-	**47,908**	-	Enhancing the technological capability of businesses to grow through the development and adoption of new technologies. Reason for Change: The decrease in 2006/07 is due to the completion of rephasing of appropriations from 2001/02.
Technology Partnership Programme (M56)	-	-	-	-	**1,940**	-	Provides a mechanism for New Zealand firms, and organisations with technical and research capability to access information about international markets and expertise.
Venture Investment Fund - Governance and Operation (M56)	373	-	373	-	**-**	-	Operational costs of the Venture Investment Fund, which co-invests with the private sector to commercialise innovation in New Zealand. Reason for Change: Transfer to Vote Economic, Industry & Regional Development.
Total Non-Departmental Output Expenses	603,459	-	603,459	-	622,103	-	

	2005/06				2006/07		
	Budget		Estimated Actual		Vote		
Appropriations	Annual $000	Other $000	Annual $000	Other $000	Annual $000	Other $000	Scope of 2006/07 Appropriations
Other Expenses to be Incurred by the Crown							
Advanced Network Capability Building (M56)	1,221	-	1,221	-	**1,221**	-	Development of capability within the Advanced Network user group (TEIs and CRIs) to make effective use of the Advanced Network.
Advanced Network CRI Tariffs (M56)	-	-	-	-	**968**	-	Payment of Advanced Network tariffs incurred by some CRIs. These CRIs fund the Crown by way of special dividend.
Australian Synchrotron (M56)	1,806	-	1,806	-	**1,166**	-	New Zealand contribution to the establishment and operation of a synchrotron located in Victoria, Australia.
Convention Du Metre (M56)	90	-	90	-	**95**	-	Payment of New Zealand's annual subscription to the Convention du Metre.
Total Other Expenses to be Incurred by the Crown	3,117	-	3,117	-	3,450	-	
Capital Expenditure							
Equity Investment Fund (M56)	3,000	-	3,000	-	**5,000**	-	Targeted equity investments into publicly funded research institutes to develop commercial prospects.
Foundation for Research Science and Technology (M56)	-	-	-	-	**2,000**	-	Investment in information technology for FRST.
Industrial Research Limited (M56)	-	-	-	-	**310**	-	Investment in the technological coverage of the Measurements Standards Laboratory at IRL.
New Zealand Venture Investment Fund (M56)	3,931	-	3,931	-	**-**	-	Capital investment to accelerate the development of the New Zealand venture capital market. Public funds will be co-invested with the private sector to increase the rate of formation of new businesses based on high added value goods and services.
Research and Education Advanced Network New Zealand (M56)	1	-	1	-	**-**	-	Equity investment in Research and Education Advanced Network New Zealand Ltd, to support the company's operations in establishing and operating the Advanced Network.
Total Capital Expenditure	6,932	-	6,932	-	7,310	-	
Total Appropriations	626,872	-	626,872	-	646,269	-	

Part C - Explanation of Appropriations for Output Expenses

Part C1 - Departmental Output Expenses

Advice on Shaping the Science System

The *Advice on Shaping the Science System* multi class output appropriation consists of two separate outputs. *Policy Advice* which provides advice on science and innovation to support New Zealand's knowledge base and its capacity to innovate and *Contract Management* which administers Vote RS&T contracts.

Under the Policy Advice output the MoRST will:

- Provide advice that identifies policy needs and develops understanding of research, science and technology issues that affect New Zealand's social, environmental and economic wellbeing.
- Identify, evaluate and recommend solutions involving science and innovation.
- Implement policy and evaluate its impact on New Zealanders' lives, environment and enterprises, and enable and facilitate global, community and governmental partnerships.

The *Contract Management* output administers Vote RS&T contracts. It covers services provided on behalf of the Crown through the negotiation, management and monitoring of contracts.

Agreements are managed with the following agents and providers:

- Foundation for Research, Science and Technology
- Health Research Council of New Zealand
- Royal Society of New Zealand
- Industrial Research Limited
- Carter Observatory Board
- Crown Research Institutes
- Research and Education Advanced Network of New Zealand Limited
- Fulbright New Zealand
- NZAID
- Other providers of research, science and technology services.

Delivery of this output expense is negotiated with each agent or providers through an Output Agreement and monitored through regular Progress Reports.

Part C2 - Non-Departmental Output Expenses

These are listed in alphabetical order.

Advanced Network

The Advanced Network output expense funds the establishment and operation of a high-speed research and education data network connecting education and science institutions throughout New Zealand with each other and internationally.

This output consists of the governance and operation of REANNZ on behalf of the Minister including payments to telecommunications network service providers contracted to build the Advanced Network for REANNZ.

Funding and investment agent

REANNZ.

Providers

Open to Crown Research Institutes and Tertiary Education Institutes plus other similar organisations as approved by the Minister.

Quantity, quality and timeliness

Performance Measures	2006/07 Performance Standards
Governance	Good governance of REANNZ in accordance with its Constitution, Statement of Intent and the expectations of the shareholding Ministers.
Administration	Sounds administration practices are maintained to support the core business and staff.
Supply contracts with key vendors	Administer contracts with vendors.
Membership Agreement	Administer membership agreements with 17 user institutions.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	20,155	10,360
Total output class revenues	20,155	10,360

CRI Capability Fund

A large proportion of New Zealand's RS&T capability resides in CRIs. The key to the actual and potential social, economic and environmental impact of CRIs is their ability to foster highly specialised teams of experienced and talented scientists.

The *CRI Capability Fund* reinforces and supports the distinctive role of CRIs to maintain the scientific capabilities required for the provision of public good science in New Zealand. It strengthens CRIs' ability to:

- focus on organisational capability in order to retain and develop RS&T capability for the benefit of New Zealand
- enhance and complement capability being developed in the system through a range of government RS&T related contracts.

The *CRI Capability Fund* is allocated to each CRI using a formula based on the value of RS&T contracts that it receives from central and local government sources, averaged over the last three years.

Investment decisions will be devolved to CRIs. The suitability of investments made using the fund will be assessed against both the government's expectations and the strategic goals of each CRI. CRIs will need to meet two requirements:

- to clearly state the key RS&T capabilities which their organisations are responsible for, and to report on progress within these areas in their strategic plans
- to produce a long-term plan for the maintenance of its key capabilities, including a plan for discovering and exploring promising new developments in those areas.

Funding and investment agent

Ministry of Research, Science and Technology.

Providers

Crown Research Institutes.

Quantity, quality, timeliness and cost

Quantity

Crown Research Institute	2005/06 $000	2006/07 $000
Industrial Research Limited	3,942	4,895
Institute of Environmental Science and Research Limited	3,556	4,318
Institute of Geological and Nuclear Science Limited	3,052	3,687
Landcare Research New Zealand Limited	3,825	4,480
National Institute of Water and Atmospheric Research Limited	7,479	9,094
New Zealand Forest Research Institute Limited	2,785	3,398
New Zealand Institute for Crop and Food Research Limited	2,480	3,391
New Zealand Pastoral Agriculture Research Institute Limited	7,169	8,682
The Horticulture and Food Research Institute of New Zealand Limited	3,824	4,667
Total	**38,112**	**46,612**

The amounts for individual CRIs are indicative and are subject to change.

Quality and timeliness

Performance Measures	2006/07 Performance Standards
Contracts meet the criteria set out in the relevant agreement.	100%
Annual reports show extent of progress towards objectives and milestones, consistent with the plans stated by CRIs in their Statements of Corporate Intent.	100% of reports.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	38,112	46,612
Total output class revenues	38,112	46,612

Development of International Linkages

The *Development of International Linkages* output expense promotes and supports New Zealand RS&T internationally. Under this output expense, funding and investment agents will fund programmes that develop and enhance the New Zealand innovation sector's global connectivity by:

- supporting access and utilising the best global ideas
- encouraging New Zealanders to use international research, science and technology linkages to enhance our knowledge base and innovative capacity.

Criteria for the purchase of outputs will be:

- contribution to the development of international opportunities and utilisation of overseas advances in science and technology
- dissemination of science and technology knowledge as a contribution to global knowledge
- contribution to New Zealand's Research, Science and Technology strategic objectives.

Funding and investment agents

Ministry of Research, Science and Technology, Royal Society of New Zealand.

Providers

Open to all research providers.

Quality, quantity and timeliness

Performance Measures	2006/07 Performance Standards
Bilateral Cooperation Programme	
The total dollar value of new, active and completed contracts.	100% of contracts – for information.
The percentage of ISAT contracts that have led to bids for funding from other funding instruments.	Reported in the six monthly reports.
The collaborative partners of recipients awarded.	Performance measures reported in six monthly reports.
The total number of new international collaborations that have been formed.	Reported in the six monthly reports.
International Conference Fund	
Conferences funded to promote New Zealand as a centre of innovation.	International S&T Conferences hosted in New Zealand are supported.
International Committees	
High standing of the scientists, technologists and educationalists that participate in international committees.	Reported in the six monthly reports.
International Membership	
Effective membership and participation in international non-governmental academies and similar organisations concerned with the promotion and advancement of science and technology.	Active membership of relevant international science societies to New Zealand science. Subscriptions are paid on time.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	2,360	2,527
Total output class revenues	2,360	2,527

Environmental Research

The *Environmental Research* output expense supports public good research, science and technology that enhance the understanding and management of our environment.

Under this output expense, FRST will fund research, science and technology that contributes to the understanding of species, habitats and ecosystems, and the human, pest and other influences to which they are exposed.

Research outputs provide the knowledge that underpins the management, protection and enhancement of natural ecosystems. Research on sustainable use of ecosystems and the productive sector's environment is also included, as is the attention to the social impacts of new technologies.

These outputs contribute to an understanding and management of the global biophysical environment and the impact of atmospheric, climatic and other changes to natural, agricultural and other human ecosystems.

This output expense has five outputs:

- Increasing knowledge and awareness of the state of New Zealand's ecosystems and improving their health, diversity and resilience.
- Increasing understanding of the global biophysical environment.
- Improving the quality of human environments and enhancing the capacity to use and manage ecosystems efficiently and sustainably.
- Sustainable management of the productive sector's environment.
- Increasing uptake of research by regional councils through the Envirolink scheme.

Criteria for the purchase of the first four outputs will be:

- benefit to New Zealand through contributions to the understanding and management of natural and human induced environmental systems
- scientific and technological quality
- develop the national RS&T capability to be able to anticipate the environmental issues of the future
- focus investment on New Zealand's key national environmental strategies and priorities, including innovative thinking on how to integrate the economic, social, and environmental components.

The objectives of Envirolink are to:

- improve science input to the environmental management activities of regional councils
- increase the engagement of regional councils with the environmental RS&T sector
- contribute to greater collective engagement between councils and the science system generally.

Funding and investment agent

Foundation for Research, Science and Technology

Providers

Open to all science and technology providers or as specified in the relevant Ministerial Direction.

Quantity, quality and timeliness

Performance Measures	2006/07 Performance Standards
Number and total dollar value of new and active contracts.	Performance measure reported in all quarterly reports for 2006/07.
Contracts meet the criteria set out in the Estimates of Appropriations or Ministerial Direction.	100% of contracts.
Number of reported relationships that involve research users per $ 1 million invested by FRST.	Performance measure will be reported in the 2006/07 annual report.
Amount of reported revenue related to a new or improved service per $1 million invested by FRST.	Performance measures will be reported in the 2006/07 annual report.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	86,326	90,226
NZ Ecosystems	30,185	34,085
Global biophysical environment	22,813	22,813
Human environments	4,620	4,620
Sustainable production	27,108	27,108
Envirolink	1,600	1,600
Total output class revenues	86,326	90,226

The amounts for these outputs are indicative and subject to change.

Health Research

The *Health Research* output expense supports public good research, science and technology that contributes to improvement in the health status of New Zealanders.

Under this output expense, the HRC will fund research that has the greatest potential to improve the health and quality of life of New Zealanders.

This output expense will support research that provides:

- knowledge and understanding of the factors influencing health status, including health disparities between New Zealanders
- technology, products and services for improving health status and reducing health inequalities.

Criteria for the purchase of outputs will be:

- scientific and technological quality
- relevance to improving health and social wellbeing.

This output expense has three outputs:

- Contestable Funding Round: strategic, investigator-led research that contributes to the social, economic and knowledge goals for Vote RS&T.
- Partnership Programme: research with a focus on building the evidence base for public sector policy and practice relevant to health outcomes.
- Targeted Research for Health: targeted research addressing identified national health priorities.

Purchase agents

Health Research Council of New Zealand.

Providers

Open to all science and technology providers.

Quantity, quality and timeliness

Performance Measures	2006/07 Performance Standards
Contracts are awarded in line with the process and criteria set out for each output in the relevant output agreement.	100% of contracts.
Annual analysis of the extent to which research conducted through the Contestable Funding Round has contributed to one or more of the following objectives: • developing novel treatment strategies • informing health care delivery and/or policy • forming collaborations and partnerships across the health sector • developing new methodologies and techniques • understanding diseases of particular importance to the New Zealand population • dissemination to target audiences • public health intervention and health promotion strategies • engagement of researchers with policy and decision makers • relevance to priority population groups.	Analysis required as specified in the output agreement.
Annual analysis of the HRC-funded workforce, including information on numbers of contract FTEs, workforce across portfolios and workforce in priority population areas, emerging researchers and senior researchers.	Analysis required as specified in the output agreement.
Annual analysis of Partnership Programme investment, including: • details and $ values of new and current contracts • analysis of the extent to which the research has contributed to the milestones identified for the joint venture and met the requirements of the funding partners, and • identification of instances where successful uptake of research into policy and practice has occurred	Analysis required as specified in the output agreement.
Annual analysis of the investment in Targeted Research for Health, including: • details and $ values of new and existing contracts • analysis of the extent to which the research has contributed to the priority areas identified in the HRC's Statement of Intent, and • identification of instances where successful uptake of research into policy and practice has occurred.	Analysis required as specified in the output agreement.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	54,066	58,955
Contestable Funding Round		52,291
Partnership Programme		1,778
Targeted Research for Health		4,886
Total output class revenues	54,066	58,955

The amounts for these outputs are indicative and subject to change.

International Investment Opportunities Fund

The *International Investment Opportunities Fund* supports the ability of research providers to participate in research collaborations that attract international co-funding, to recruit highly experienced researchers from overseas and to support participation in international research programmes with a high relevance to New Zealand's economic, social and/or environmental development. The fund will be used to secure benefit for New Zealand in terms of bridging research funding, access to equipment or technologies not available in New Zealand, and building human capital.

The purpose of the fund is to expand New Zealand's knowledge base and capability through three objectives:

- providing funding to enable New Zealand researchers to respond to opportunities for international collaboration that arise out-of-cycle
- co-investing with international partners in research programmes of joint interest that will involve researchers based in New Zealand
- assisting world-leading researchers to establish research programmes in New Zealand in key areas of strategic interest to New Zealand.

All objectives are contingent on the demonstration of a clear potential benefit to New Zealand.

Criteria for the investment in research will be:

- scientific and technological quality
- potential benefit to New Zealand, including the ability to utilise overseas expertise and advances in science and technology, and the contribution to New Zealand's research, science and technology goals.

Criteria for the investment in assisting researchers to relocate to New Zealand will be:

- international leadership and strength of research group
- fit with New Zealand's strategic research interests
- potential contribution to building a critical mass of research expertise in New Zealand and complementarity with host institution
- host funding and support from a New Zealand research organisation
- contribution of incoming research groups.

Funding and investment agents

Ministry of Research, Science and Technology, Foundation for Research, Science and Technology, Health Research Council of New Zealand and Royal Society of New Zealand.

Providers

Support for overseas research collaborations will be open to all science and technology providers based in New Zealand. Support to bring outstanding researchers to New Zealand will be open to eligible researchers from other countries, as specified in the relevant Ministerial Direction or Terms of Reference.

Quantity, quality and timeliness

Performance Measures	2006/07 Performance Standards
Number and total dollar value of new and active contracts.	Performance measure reported in all quarterly or six monthly reports for 2006/07.
Contracts are awarded according to the terms of the Ministerial Direction or Terms of Reference.	100%.
Objective One	
Value of international funding leveraged.	Performance measure reported in the 2006/07 annual report.
Objective Two	
Progress of funder to funder relationships and co-funded projects	Progress reported in all six monthly or quarterly reports.
Objective Three	
Progress of team selection process reported.	Progress reported in all six monthly reports.
Selected team meets set milestones.	As defined in the relevant agreement.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	5,546	9,600
Total output class revenues	5,546	9,600

Māori Knowledge and Development Research

The *Māori Knowledge and Development Research Output Expense* provides funding to develop research capacity and capability across the themes of the *Vision Mātauranga* framework:

- Indigenous Innovation: contributing to economic growth through distinctive research and development
- Taiao: achieving environmental sustainability through Iwi and Hapū relationships with land and sea
- Hauora/Oranga: improving Māori health and social well-being, and
- Mātauranga: exploring the interface between indigenous knowledge and RS&T, or
- any combination of these themes.

Criteria for the investment in research will be:

- scientific and technological quality
- potential benefit to New Zealand through unlocking the innovation potential of Māori knowledge, resources and people
- development of research capability relevant to one or more of the *Vision Mātauranga* themes.

In building research capacity and capability, funding and investment agents will seek to develop a distinct set of skills and body of knowledge. A range of people (Māori and non-Māori) and organisations will be involved in the creation of knowledge funded through this output expense.

Funding and investment agents

Foundation for Research, Science and Technology, Health Research Council of New Zealand.

Providers

Open to all research providers.

Quantity, quality and timeliness

Performance Measures	2006/07 Performance Standards
Existing Contracts	
Number and total dollar value of existing contracts.	Performance measure reported in all quarterly or six monthly reports for 2006/07.
Contracts meet the criteria set out in the relevant Output Agreement.	100% of contracts.
Vision Mātauranga Contracts	
Funding and Investment Agents contribute to the development of a performance measurement framework for Vision Mātauranga and report on agreed measurements as available.	Progress/measures reported in all quarterly and six monthly reports for 2006/07.
Total dollar value of new and active contracts.	Performance measure reported in all quarterly or six monthly reports for 2006/07.
Number and total dollar value of new and active contracts reported by Vision Mātauranga themes.	Performance measure reported in all quarterly or six monthly reports for 2006/07.
Contracts meet the criteria set out in the output agreement / Estimates of Appropriations.	100% of contracts.
Number of FTEs supported through contracts within this output expense.	Performance measure reported in all quarterly or six monthly reports for 2006/07.
Number of students undertaking undergraduate, Masters, PhD and post-doctoral training through contracts within this output expense.	Number of active and completed qualification for each qualification type, reported in all quarterly and six monthly reports.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	4,867	4,867
Total output class revenues	4,867	4,867

Marsden Fund

The *Marsden Fund* output expense supports research that encourages excellence in the advancement of knowledge, expands the knowledge base and supports people with knowledge, skills and ideas.

Under this output expense, the RSNZ invests in investigator-initiated research aimed at exploring the frontiers of new knowledge. Marsden Fund research benefits society as a whole by contributing to the development of researchers with knowledge, skills and ideas. The research is not subject to government's socio-economic priorities, and may lead to unexpected or unintended discoveries of international significance.

Criteria for the purchase of outputs will be:

- research excellence
- contribution to the development of new knowledge, human skills and expertise.

Funding and investment agent

Royal Society of New Zealand.

Providers

Open to all research providers.

Quantity, quality and timeliness

Performance Measures	2006/07 Performance Standards
Contracts will be awarded on the basis of research excellence.	Performance measure reported in all six monthly reports for 2006/07.
The research will contribute to the development of new knowledge, human skills and expertise.	Performance measure reported in all six monthly reports for 2006/07.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	33,878	33,878
Total output class revenues	33,878	33,878

National Measurement Standards

The *National Measurement Standards* output expense provides specified national measurement standards and related services to satisfy the need for accurate measurement and the Minister's obligations under the Measurement Standards Act 1992.

Provider

The Measurement Standards Laboratory, a part of Industrial Research Ltd.

Quantity, quality and timeliness

Performance Measures	2006/07 Performance Standards
Provision of national measurement standards and related services	In accordance with the requirements specified in the output agreement with the Minister, or with agreed variations.
The measurement standards will be maintained in accordance with the resolutions and recommendations of the Metric Treaty Organisation.	All technical procedures related to the measurement standards will be validated.
Delivery of outputs in accordance with time lines specified in the output agreement between the Minister and provider.	97% of activities.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	4,904	5,504
Total output class revenues	4,904	5,504

New Economy Research Fund

The *New Economy Research Fund* output expense supports researcher-led innovation that develops capability and knowledge in new areas, or applications where industries are emerging or yet to emerge.

The objective of the scheme is to underpin new or emerging knowledge-based enterprises in New Zealand through:

- Supporting investigator-initiated basic research that has the potential to create the advanced technological platforms that will underpin new and emerging industries.
- Building a critical mass of research capability and new knowledge in emerging science and technology areas.
- Developing advanced human capital and skills that draw from rapidly advancing international science and technology.
- Developing new areas of knowledge to a point where they may be further developed, sustained and/or exploited through other public or private investments.

The scheme will support research proposals that:

- meet international standards of excellence
- seek to build new areas of knowledge and research groupings in areas extending beyond existing industry boundaries
- build human capital in advanced areas of science and technology that may underpin the emergence of new industries
- are initiated as a basic research concept or idea, and develop towards a research-led commercial opportunity
- involve research based in New Zealand, but which may include appropriate international collaboration to maximise the benefit to New Zealand.

Funding and investment agent

Foundation for Research, Science and Technology.

Providers

Open to all science and technology providers.

Quantity, quality and timeliness

Performance Measures	2006/07 Performance Standards
Number and total dollar value of new and active contracts.	Performance measure reported in all quarterly reports for 2006/07.
Contracts meet the criteria set out in the Ministerial Direction.	100% of contracts.
Number of reported patents per $1 million invested by FRST.	At least 0.32 patents.
Number of reported relationships which involve research users per $1 million invested by FRST.	Performance measure reported in the 2006/07 annual report.
Number of reported peer reviewed publications per $1 million invested by FRST.	Greater than 4 peer reviewed publications and presentations.
Number of reported research collaborations with New Zealand research organisations per $1 million invested by FRST.	Performance measure reported in the 2006/07 annual report.
Number of reported research collaborations with overseas research organisations per $1 million invested by FRST.	Performance measure reported in the 2006/07 annual report.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	62,641	61,586
Total output class revenues	62,641	61,586

Pre-Seed Accelerator Fund

The *Pre-Seed Accelerator Fund* output expense aims to increase the rate of commercialisation of innovations from publicly funded research by public sector research providers.

Under this output expense, the funding and investment agent will invest in entities governed by the Education Act 1989, the Crown Research Institutes Act 1992, Te Papa, Cawthron Institute and any New Zealand-based not-for-profit research associations, or subsidiaries owned more than 50% by such an entity, to fund experimental development and other pre-seed activities that can be shown to fit the overall objective of the output expense.

Criteria for the purchase of outputs will be:

- an approved business case for the proposed funding
- potential to contribute strongly to New Zealand's growth and technological capability.

Funding and investment agent

Foundation for Research, Science and Technology.

Providers

Open to entities governed by the Education Act 1989, the Crown Research Institutes Act 1992, Te Papa, Cawthron Institute and any New Zealand-based not-for-profit research associations, or subsidiaries owned more than 50% by such an entity.

Quantity, quality and timeliness

Performance Measures	2006/07 Performance Standards
Number and total dollar value of new and active contracts (including by type of provider).	Performance measure reported in all quarterly reports for 2006/07.
Contracts meet the criteria set out in the relevant Ministerial Direction.	100% of contracts.
Percentage of contracts that produce investor-ready milestones.	At least 75% of contracts.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	4,267	8,267
Total output class revenues	4,267	8,267

Promoting an Innovation Culture

The *Promoting an Innovation Culture* output expense develops New Zealanders' awareness of the importance and value of science and technology to themselves and New Zealand, by:

- Delivering on the need to engage with New Zealanders on Biotechnology as identified in the New *Zealand Biotechnology Strategy*.
- Supporting activities that promote the value of research, science and technology to New Zealanders. ·
- Linking school students and their families with the RS&T sector in New Zealand. ·
- Transition support for Carter Observatory. ·
- Funding Smash Palace. ·
- Publishing the New Zealand Science and Technology Journals.

Providers will include:

Royal Society of New Zealand, Joule and Carter Observatory.

Providers

Open to all providers of science and technology services.

Performance Measures	2006/07 Performance Standards
New Zealand Science Journals	
Eight journals will be published in electronic and/or paper forms.	Four issues (maximum).
The average turnaround time from submission to publication.	45 weeks (or less).
The publication of accepted papers.	Within 24 weeks of acceptance subject to available journal space.
Information will be provided on: • The extent to which the journals contribute to the dissemination of science and technology knowledge as a contribution to global knowledge. • The number of papers submitted for publication. • Number of subscriptions (including online subscriptions).	For information.

Performance Measures	2006/07 Performance Standards
Alpha and Gamma Series	
The *Alpha* and *Gamma* series will be published.	Provide evidence that at least six (maximum number) have been published each year.
Provide information on the dissemination of the publications.	
Promoting awareness of RS&T	
Present the NZS&T Medals	As per contracts.
Manage a national promotional programme.	
Support talented S&T school students.	
Develop new promotional activities.	
Engaging New Zealanders on Biotechnology	
New Zealand schools are using Biotechnology information on the Biotechnology Learning Hub	As per contracts.
Develop a programme to give rural New Zealanders an awareness of the role of biotechnology in their sector.	
Linking school students with RS&T research	
Linking school students with RS&T research	As per contracts.
Set up a process to increase the number of interactions between school students and RS&T research.	
Support for Smash Palace	
Four projects to build links between scientists and artists are supported.	As per contracts.
Carter Observatory	
The preparation of distance learning programmes and public presentations about astronomical events.	As specified in the relevant agreement.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	3,437	4,592
Total output class revenues	3,437	4,592

Research Contract Management

The *Research Contract Management* output expense provides for funding and investment agents to manage contracts with a range of science, research and technology providers. Funding and investment agents monitor the delivery of these contracts to ensure the effective operation of the research, science and technology system. Funding and investment agents also evaluate the effectiveness of their purchase decisions through an annual report of progress and achievements.

Under this output expense the Minister has agreements with Funding and Investment Agents to fund research on behalf of the Crown.

Funding and investment agents

Health Research Council of New Zealand, Foundation for Research, Science and Technology, Royal Society of New Zealand, Fulbright New Zealand.

Quantity, quality, timeliness and cost

Performance Measures	2006/07 Performance Standards
Achievement reports from research providers are produced in accordance with timelines and content guidelines specified in contracts between the funding and investment agent and providers.	All achievement reports are collected from providers, with 95% of reports being in accordance with specified contractual timelines and contain the specified content.
Number of contracts monitored on the achievement of their performance objectives.	As specified in the Output Agreement.
Contracts are awarded in accordance with assessment processes outlined in annually updated documents.	100% of contracts awarded in accordance with processes set out in the documents identified in the relevant output agreement.
Research contract payments are made at the agreed sum to the correct providers and no payments are made in excess of the agreed sums.	100% of contracts.
Where appropriate, contracts require research providers to obtain ethical approvals, and satisfy government regulatory requirements before the research can be undertaken.	100% of contracts.
Funding and investment agents deliver key accountability reports in accordance with timelines specified in their contracts with the Minister.	100% of reports.
Each non-departmental output expense being managed under this non-departmental output expense is supported by evaluation evidence.	Evaluation plans/activities are coordinated with MoRST and delivered against the relevant agreement.
Provision of advice to the Minister as required, via the Ministry as required.	Any requested advice will be delivered within 15 working days of the formal request and will be of a standard acceptable to the Minister.
Staff ratio (FTE's / investment funds).	Performance measure reported in the 4th quarter or 2nd six monthly reports for 2006/07.
Investment efficiency ($ contract management budget / $ investment funds).	Performance measure reported in the 4th quarter or 2nd six monthly reports for 2006/07.
Contracts ($ contract management budget / no. of contracts let).	Performance measure reported in the 4th quarter or 2nd six monthly reports for 2006/07.
Overbidding ($ applied for / $ available per investment round), split by relevant output expense (defined in the output agreement).	Performance measure reported in the 4th quarter or 2nd six monthly report for 2006/07.
Overbidding (number of applications / number of contracts issued), split by relevant output expense (defined in the output agreement).	Performance measure reported in the 4th quarter or 2nd six monthly report for 2006/07.
Processing time (Date of application / date of contracting) split be relevant output expenses (defined in the output agreement).	Performance measure reported in the 4th quarter or 2nd six monthly report for 2006/07.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	18,853	20,467
Total output class revenues	18,853	20,467

Research for Industry

The *Research for Industry* output expense aims to increase the competitiveness of New Zealand industries and sectors through strategic research.

Under this output expense, FRST will fund research that underpins development of new products, processes and services of use to New Zealand industries and sectors.

This output expense has four outputs:

- Research whose primary objective is to advance food and fibre-based industries and related sectors through innovation. Research portfolios will lead to new products, processes and services that enhance the competitiveness of these industries and sectors.
- Research whose primary objective is to advance manufacturing and services industries and sectors through innovation. Assists manufacturing and services industries and sectors to innovate, and includes research on the broad factors affecting business and economic life.
- Research for the development of infrastructure to underpin economic development. Assists infrastructure services, such as communications, energy, water and waste, to innovate cost-effectively. It also includes research on New Zealand's mineral wealth and understanding of, and responses to risks faced from New Zealand's physical hazards.
- Research consortia to facilitate public/private research partnerships that provide early user engagement and increase private investment in New Zealand. Research investment will be made through user-led research consortia in partnership with research providers.

Criteria for the purchase of outputs will be:

- potential benefit to New Zealand through innovation
- scientific and technological quality of the research
- potential to build RS&T capability and to increase the level of innovation within user groups
- clearly defined partnerships and pathways to the implementation of the research outcomes
- fit-for-purpose science track record.

Funding and investment agent

Foundation for Research, Science and Technology.

Providers

Open to all science and technology providers.

Quantity, quality and timeliness

Performance Measures	2006/07 Performance Standards
Number and total dollar value of new and active contracts.	Performance measure reported in all quarterly reports for 2006/07.
Contracts meet the criteria set out in the output agreement / Estimates of Appropriations.	100% of contracts.
The reported amount of co-funding and revenue from sale or use of research outputs received by research organisations per $1 million invested by FRST.	Performance measure reported in the 2006/07 annual report.
Percentage of contracts reporting co-funding greater than 5% of each contract's value.	At least 50% of contracts.

Performance Measures	2006/07 Performance Standards
Research Consortia used to leverage private sector investment.	At least 50% planned cash co-funding contributed to consortia by the private sector. At least 50% reported co-funding accumulated over the life of the contract.
Amount of reported revenue related to a new or improved product, process or service per $1 million invested by FRST.	Performance measure reported in the 2006/07 annual report.
Number of reported relationships which involve research users per $1 million invested by FRST.	Performance measure reported in the 2006/07 annual report.
Number of reported research collaborations with research organisations per $1 million invested by FRST.	Performance measure reported in the 2006/07 annual report.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	186,619	190,663
Food and Fibre	106,114	110,015
Manufacturing	27,184	27,184
Infrastructure	29,955	32,880
Research Consortia	23,366	20,584
Total output class revenues	186,619	190,663

The amounts for these outputs are indicative and subject to change.

Social Research

The *Social Research* output expense supports public good research, science and technology that improves social wellbeing and cohesion and economic wealth.

Under this output expense, FRST will fund science and research programmes that have the greatest potential to improve New Zealanders' quality of life for individuals, families and communities, foster social cohesion, sustain culture and identity, and improve economic performance.

Research contracts should provide underpinning new knowledge, understanding and insights into longer term social issues and trends of importance to improving the well being of New Zealanders.

This output expense has three outputs:

- Children and young people participating and succeeding.
- Participation in employment.
- Positive ageing.

Criteria for the purchase of outputs will be:

- benefit to New Zealand through improved social well being
- science quality
- develop the RS&T to be able to anticipate the social issues of the future

- promoting new alliances and partnerships between researchers and the diverse users of social research
- developing new skills and techniques, in describing and collecting information and how this knowledge can contribute to enhancing the lives of New Zealanders.

Funding and investment agent

Foundation for Research, Science and Technology.

Providers

Open to all science and technology providers.

Quantity, quality and timeliness

Performance Measures	2006/07 Performance Standards
Number and total dollar value of new and active contracts.	Performance measure reported in all quarterly reports for 2006/07.
Contracts meet the criteria set out in the Estimates of Appropriations.	100% of contracts.
Number of reported peer reviewed publications and presentations per $1 million invested.	Greater than five peer reviewed publications and presentations.
The amount of reported revenue related to a new or improved service per $1 million invested.	Performance measure will be reported in the 2006/07 annual report.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	5,860	5,860
Total output class revenues	5,860	5,860

Supporting Promising Individuals

The *Supporting Promising Individuals* output expense supports human resources in research, science, and technology and contributes to the development of people with knowledge, skills and ideas.

Under this output expense, funding and investment agents will invest in awards and fellowships that support the development of human capital in research, science and technology, including:

- New Zealand Science and Technology Post-Doctoral Fellowships Scheme. Fellowships develop and enhance science and technology skills and knowledge in researchers who are of outstanding talent, and who apply the benefits to New Zealand.
- Health Research Council of New Zealand Career Development Awards. Awards support the recruitment, education, training and retention of health researchers.
- Science, Mathematics and Technology Teacher Fellowships. Fellowships provide excellent science and technology teachers with the opportunity to broaden their experience by placing them in organisations where research, science and technology are used and valued.
- Talented Secondary School Science Students Travel Award: Provides funds to help cover the direct costs of attending science and technology based events and learning opportunities.

- James Cook Research Fellowships. Fellowships are awarded to researchers who are recognised leaders in their respective fields.
- Te Tipu Putaiao Fellowships. Fellowships that enhance the distinct innovation potential of Māori knowledge, resources and people to benefit New Zealand.
- Fulbright Scholarships. Scholarships to increase the depth and quality of researchers working in New Zealand in areas that support growth and innovation.

Funding and investment agents

Foundation for Research, Science and Technology, Health Research Council of New Zealand, Ministry of Research, Science and Technology, Royal Society of New Zealand, Fulbright New Zealand.

Quantity, quality, timeliness and cost

Performance Measures	2006/07 Performance Standards
All awards	
Number and total dollar value of new and active contracts.	Performance measure reported in all quarterly or six monthly reports for 2006/07.
Science and Technology Post-Doctoral Fellowships	At least 80 active fellowships.
Contracts meet the criteria set out in the relevant Ministerial Direction.	The process and criteria used to select contracts are consistent with the relevant Ministerial Notice.
Health Research Council awards	50-70 active fellowships and scholarships.
Awards are made on the basis of the quality of the applicants and the relevance of their training programme to building New Zealand's health research capacity.	100% of awards.
Number and success rate of applications within each award category.	Reported as specified in the relevant agreement.
Analysis of the progression of past fellowship holders into research careers or other destinations.	Reported as available under the HRC's Evaluation Framework.
Science, Mathematics and Technology Teacher Fellowships	Number of active fellowships defined in the output agreement.
The number of teacher fellows who have enhanced their understanding, in the area of science, mathematics, social sciences or technology, including the: • applications to provide valuable products and services, and • career options available for students.	Reported in six monthly reports.
The spread of Fellowships across the four disciplines (science, mathematics, technology and social sciences).	Reported in six monthly reports.
The communication of the Fellowship Scheme by Teacher Fellowships • the total number of presentations • method of communication, and • range of audiences.	Reported in six monthly reports.
Statistical information will be provided on: • Decile distribution • School type (primary, secondary, private) • Years of teaching experience in New Zealand • Gender • Ethnic distribution.	100% of contracts - reported in six monthly reports.

Performance Measures	2006/07 Performance Standards
Talented School Students Travel Award	Number of awards defined in the output agreement.
The number of students who have positive experience by: • An increase in knowledge of research and technological practice • An awareness and appreciation of other cultures and their differences • An increased network of contacts, and • A change in attitude towards careers in science and technology.	Reported in six monthly reports.
Statistical information will be provided on decile distribution of recipients.	Reported in six monthly reports.
Number and type of international events.	Reported in six monthly reports.
James Cook Research Fellowships	Five active fellowships.
The number of publications, patents and software per completed fellowship.	Reported in six monthly reports.
The number of conference talks (both domestic and international) per completed fellowship.	Reported in six monthly reports.
The number of public talks per completed fellowship.	Reported in six monthly reports.
The number of national and international research collaborations per completed fellowship.	Reported in six monthly reports.
Te Tipu Putaiao Fellowships	At least 40 active fellowships.
Contracts meet the criteria set out in the relevant Ministerial Direction.	The process and criteria used to select contracts are consistent with the relevant Ministerial Direction.
Fulbright Scholarships	At least ten scholarships awarded per annum subject to agreement with Minister.
Candidates meet the criteria set out in relevant agreement.	The process and criteria used to select candidates are consistent with the relevant agreement.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	16,791	18,291
New Zealand Science and technology Post-Doctoral Fellowships	6,535	6,535
Health Research Council of New Zealand Career Development Awards	3,720	4,720
Science, Mathematics and Technology Teacher Fellowships	4,061	4,472
Talented Secondary School Science Students Travel Awards	42	131
James Cook Research Fellowships	720	720
Te Tipu Putaiao Fellowships	1,180	1,180
Fulbright Scholarships	533	533
Total output class revenues	16,791	18,291

The amounts for these outputs are indicative and subject to change.

Technology New Zealand

The *Technology New Zealand* output expense aims to increase the ability of firms to adopt new technology and to apply technological learning and technological innovation for business growth.

The output expense comprises four schemes:

- Technology for Business Growth: fosters research and development, technological learning and technological innovation by part funding projects that enhance firms' technological capabilities and enable technologically capable firms to move towards high-value, technology-based products, processes or services.
- Grants for Private Sector Research and Development: increases the level of private sector investment in research and development in New Zealand by providing grant assistance to primarily small and medium-sized technologically aware firms to undertake R&D projects that have the potential to stretch a firm's technological capability, improve their ability to apply technological innovation for business growth and create an enduring increase in their R&D investment.
- Technology for Industry Fellowships: supports the placement of researchers or technologists in firms or research providers to build linkages and enhance understanding of technological innovation in a commercial R&D environment.
- TechLink: stimulates awareness of, and facilitates access to, new technologies and technological capabilities in firms, by providing a range of promotion and technology guidance services.

Funding and investment agent

Foundation for Research, Science and Technology.

Providers

Open to New Zealand firms, business service organisations, and researchers and technologists.

Quantity, quality, timeliness and cost

Performance Measure	2006/07 Performance Standards
Contracts meet the criteria set out in the relevant Ministerial Direction.	The process and criteria used to select contracts are consistent with the relevant Ministerial Direction.
The funding and investment agent provides a quality service to participants in the Technology New Zealand Schemes.	At least 85% of biennially surveyed participants indicate satisfaction with the standard of delivery.
The funding and investment agent attracts new participants to the Technology New Zealand schemes.	At least 15% of participants have not previously had assistance from Technology New Zealand schemes.
Technology for Business Growth	
Number and total dollar value of new and active contracts.	Performance measure reported in all quarterly reports during 2006/07.
Percentage of reports submitted 18 months after contract completion, which report Intellectual Property items generated.	Performance measure reported in the 4th quarter report.
Percentage of reports submitted 18 months after contract completion which report new or improved products, processes or services.	Performance measure reported in the 4th quarter report.
Percentage of new contracts which show partnerships with each of CRIs, Universities and Research Associations.	Performance measure reported in the 4th quarter report.
Grants for Private Sector Research and Development	
Number and total dollar value of new and active contracts.	Performance measure reported in all quarterly reports.

Performance Measure	2006/07 Performance Standards
Technology for Industry Fellowships	
Number and total dollar value of new and active contracts (split out by type of Fellowship).	Performance measure reported in all quarterly reports for 2006/07.
TechLink	
Number and total dollar value of new and active contracts, (split out by sub scheme).	Performance measure reported in all quarterly reports for 2006/07.

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	54,404	47,908
Technology for Business Growth		30,175
Grants for Private Sector Research and Development		7,778
Technology for Industry Fellowships		7,938
Techlink		2,017
Total output class revenues	54,404	47,908

The amounts for these outputs are indicative and subject to change.

Technology Partnership Programme

The scheme provides a mechanism for New Zealand firms, and organisations with technical and research capability, to access information about international markets and expertise through the Danish Technology Institute's Technology Partnership Programme.

The intended outcome of the scheme is to improve the technological capability and international connectedness of firms by:

- Facilitating domestic and international knowledge and technology transfer
- Lifting the quality and quantity of private sector research and development, and
- Increasing connections and collaborations between businesses and domestic and international knowledge institutions.

Quantity, quality and timeliness

Performance Measures	2006/07 Performance Standards
Performance measures will be agreed to in the relevant agreement.	

Cost

	2005/06 $000	2006/07 $000
Total output class expenses	-	1,940
Total output class revenues	-	1,940

Part D - Explanation of Appropriations for Other Operating Flows

Part D3 - Other Expenses

Convention du Metre

New Zealand contributes annually to the Convention du Metre, an international convention that supports the national measurement standards applied in New Zealand.

The Convention du Metre is supported by 52 member states through the Bureau International Des Poids et Mesures (BPIM) based in France.

Australian Synchrotron

New Zealand is contributing to the construction to and to the later operation of a synchrotron by the Victorian State Government in Australia.

The Australian facility provides security and convenience of access, furthering scientific discovery, educating and growing the user base, strengthening New Zealand's competitive position and influencing the direction of synchrotron science.

Advanced Network Capability Building

The Advanced Network will supply very high capacity, very high speed interconnections between TEIs and CRIs in New Zealand and with overseas counterparts, as well as providing connection to organisations engaged in research-based collaborations with these users and libraries, archives and museums.

The Network will enable scientific and tertiary educational institutions throughout New Zealand to participate in global advances and carry out leading-edge research that will enhance innovation in New Zealand.

This appropriation will provide for development of capability within the user group to make effective use of the Advanced Network.

Advanced Network CRI Tariffs

This appropriation will provide for CRI obligations to REANNZ Limited for their use of the Advanced Network. This appropriation will be covered by special dividends paid by CRIs.

Part E - Explanation of Capital Flows

Part E1 - Explanation of Movements in Departmental Net Asset Schedules

Details of Net Asset Schedule for Ministry of Research, Science and Technology	Estimated Actual 2005/06 $000	Projected 2006/07 $000	Explanation of Projected Movements in 2006/07
Opening Balance	2,416	2,416	
Capital Injections	-	-	
Capital Withdrawals	-	-	
Surplus to be Retained (Deficit Incurred)	-	-	
Other Movements	-	-	
Closing Balance	2,416	2,416	

Part E2 - Statement of Estimated and Forecast Net Worth of Entities Owned

	Balance Date	Estimated Net Worth 2006 $000	Forecast Net Worth 2007 $000
Crown Entities:			
Foundation for Research, Science and Technology	30 June	1,200	3,200
Research and Education Advanced Network of New Zealand Ltd	30 June	1	1

Changes in net worth result from the net effects of profit (after tax), dividends paid and capital injections or withdrawals. Data for these organisations are based on forecasts provided for inclusion in the 2005 Budget.

Part E3 - Explanation of Appropriations for Capital Expenditure

Equity Investment Fund

The Equity Investment Fund (formerly named the "Investment in Commercialisation of Publicly Funded Research and Development") was established in 2003/04 to provide for targeted equity investments into CRIs that have the capability to develop commercial prospects but are unable to find suitable commercial partners or to borrow the necessary funds. This will assist with the acceleration of activities that increase the rate of commercialisation of innovations from Crown-owned research providers.

New Zealand Venture Investment Fund

Cabinet agreed in 2000/01 to establish a Crown Seed Capital Fund. This has been renamed the New Zealand Venture Investment Fund (VIF). This fund has been designed so that the Crown and private sector investors co-invest in early stage ventures that show potential to create high value-added goods and services. The purpose of VIF is to:

- accelerate development of the New Zealand venture-capital industry by increasing the level of seed, start-up and early expansion investment activity in the New Zealand market
- develop a larger pool of people in New Zealand's venture capital market with skills and expertise in seed and start-up investment
- facilitate the commercialisation of innovations from Crown Research Institutes, universities and the private sector
- get more New Zealand businesses on paths to global success by increasing their access to international experts, networks and market knowledge.

The Crown's overall contribution to the Fund is $100 million. A greater contribution will be made by private sector partners.

Summary information regarding these appropriations is provided in Part B1. This appropriation has been transferred to Vote Economic, Industry & Regional Development

Foundation for Research, Science and Technology

This appropriation will provide for an upgraded information technology system for FRST to increase the efficiency of the research funding process.

Industrial Research Limited

This appropriation will provide for capital equipment to extend the services provided by the Measurement Standards Laboratory, a unit of Industrial Research Limited.

Research and Education Advanced Network New Zealand

Research and Education Advanced Network of New Zealand Limited (REANNZ) is the company formed to implement the Advanced Network.

This appropriation will provide for the establishment capital of the company.

Part F - Crown Revenue and Receipts

Part F1 - Current and Capital Revenue and Capital Receipts

	2005/06		2006/07	
	Budgeted $000	Estimated Actual $000	Budget $000	Description of 2006/07 Crown Revenue
Non-Tax Revenue				
Technology Partnership Programme Revenue	-	-	620	Payment by NZ firms of charges related to the formation of technology partnerships with technical advisers to develop technology based commercialisation opportunities.
Total Non-Tax Revenue	-	-	620	
Total Crown Revenue and Receipts	-	-	620	