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MoRST

TE MANATŪ PŪTAIAO

Public Sector Financing of Research 2008/09

APRIL 2009

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Executive summary

1.1 This report presents statistics about planned public sector funding of research-related activities for 2008/09. Research-related activities include "research and experimental development (R&D)," "policy-related studies," "general purpose data collection," and "other research-related activities."

1.2 Data was collected by a survey of public sector agencies (in both central and local government), and analysis of selected budget votes. This data collection followed the internationally accepted methodology.

1.3 Public sector agencies plan to invest $1.315 billion in research-related activities in 2008/09. This figure comprises $1.020 billion of R&D, $87 million of policy-related studies, $156 million of general purpose data collection, and $51 million of other research activities.

1.4 Of the $1.020 billion public sector agencies plan to invest in R&D, the majority ($650 million) is from Vote Research, Science and Technology (Vote RS&T), and a substantial portion ($280 million) is from general university funding through Vote Education. In addition to this, central government agencies plan investment of $85 million and local government plan investment of $5 million.

1.5 Excluding Vote RS&T and general university funds, most of the R&D funded by the public sector will be performed within the public sector: either in-house ($25 million), by Crown research institutes ($18 million), by tertiary education institutions ($18 million), or by other government agencies ($0.5 million). $11 million was unallocated at the time of the survey.

1.6 Excluding Vote RS&T and general university funds, most of the R&D funded by the public sector is targeted at the environment ($31 million) or health ($27 million). Substantial amounts are also spent on R&D into education, transport, economics, agriculture and horticulture.

Introduction

This report is the third in an annual series that presents statistics about planned public sector investment in research-related activities for the 2008/09 financial year. The activities covered by the report include:

- The amounts allocated for R&D, policy-related studies, general purpose data collection and other research activities;
- The type of research organisation that would carry out planned R&D;
- The socio-economic objective of planned R&D.

The resulting statistics form essential background tools for government advisers who develop science, environmental, economic and social policy. The statistics also inform the public and their representatives about the purpose of public sector financed research.

The report differs from the biennial Research and Development in New Zealand survey, in that it seeks to capture information about a range of research-related activities that are precursors to, and applications of, more narrowly defined R&D.

These research-related activities are defined as follows:

- **Research and experimental development (R&D)** Creative work undertaken on a systematic basis in order to increase the stock of knowledge. It includes all original research work in the biological, physical and social sciences (including economic, cultural, educational and sociological research) and the humanities.
- **Policy-related studies** Local or national government or business enterprise policy work.
- **General purpose data collection** Routine sampling or monitoring. Includes routine water or level or air quality monitoring; routine topographical, hydrological, or meteorological mapping and surveying; censuses or routine social and economic surveys (i.e. quarterly sampling of unemployment).
- **Other research-related activities** Including routine software development; scientific and technical information services; testing and standardisation; and feasibility studies.

The definitions of these terms are derived from the OECD Frascati Manual to ensure findings comparable with both international and domestic data.

METHODOLOGY

The OECD has an established methodology that many countries follow to gather and report their government budget appropriations or outlays for R&D (GBAORD). The methodology is set out in the Frascati Manual.

To ensure consistency with similar studies- both domestic and international- we developed the survey following the guidelines of this manual. This chapter presents a description of the methodology used.

DATA SOURCES

MoRST sought information about research activities from a survey of:

- 39 government departments (this includes all Public Service Departments listed in Schedule 1 of State Sector Act 1988, as well as The Police, the New Zealand Defence Force; the New Zealand Security Intelligence Service, and the Parliamentary Counsel Office);
- 69 other central government agencies (including Crown Entities; Public Finance Act 4th Schedule Organisations; Offices of Parliament and the Reserve Bank of New Zealand);
- All 85 local authorities (city, district and regional councils and unitary authorities).

The survey sample was developed to align with the definition of the government sector used by the Frascati Manual. Public enterprises are excluded, as they are considered part of the business enterprise sector. Agencies that had previously indicated that they cannot, by their nature, fund or conduct research activities were excluded from the survey.

MoRST also reviewed selected budget votes for information about research funding.

SURVEY FRAMEWORK

The survey asked agencies to self-report:

- Types of research activities they fund;
- Amounts budgeted for R&D, policy-related studies, general purpose data collection and other research activities in 2008/09;
- Type of research organisation that would carry out this R&D;
- Socio-economic purpose of this R&D.

The survey form is attached in Annex 3.

SURVEY RETURN RATE

The return rate for the survey was 62%- a slight decrease on the previous year. This decrease is attributable to two factors: a substantial decrease in responses from local government, and 'survey fatigue' caused by the concurrent posting of the Research and Development in New Zealand survey. A breakdown of response rates in shown in Table 1.

Table 1 Survey return rate by class of public sector agency

CLASS OF PUBLIC SECTOR AGENCY	NUMBER IN CLASS	NUMBER OF RETURNS*	RESPONSE RATE
Government departments	39	32	82%
Other central government	69	52	75%
Local government	85	36	42%

*Returns include phone messages confirming that the agency did no R&D

CONSTRAINTS AND QUALITY ASSURANCE

Public sector agencies seldom prepare budgets using the categories described in the survey, and often find it difficult to determine where particular projects or activities best fit. While every effort was made to ensure clear definitions were provided, respondents still differ in their understanding and interpretation of the terms used.

However, there has been an ongoing improvement in public sector understanding of the purpose and structure of this survey. Some noted they were in the process of reorganising the way in which they classify their research activities, which should make future data collection easier.

The introduction of the ANZSRC coding proved popular, with many commenting that it made classifying socio-economic objectives much easier. Public sector agencies also felt the new categories will make the findings of the report more useful and relevant to their own work.

The figures provided are based on the best estimates of the reporting agencies. Where these figures seemed unusual, or differed significantly from previous estimates, MoRST sought clarification.

The survey only reports on planned expenditure for the 2008/09 financial year. Actual expenditure may be different. The survey does not comment on the quality of budget decisions, or on any outcomes that may result from them.

All dollar values in this report are in New Zealand dollars, and are exclusive of GST.

Findings

TOTAL PUBLIC SECTOR FINANCING OF RESEARCH-RELATED ACTIVITIES

In the 2008/09 financial year, public sector agencies plan to invest $1.315 billion in research-related activities. Of this investment, 78% ($1.020 billion) is budgeted for R&D (Chart 1, Table 2).

12% ($156 million) is budgeted for general purpose data collection, such as topographic and hydrographical surveying and mapping; monitoring plant and animal stocks and other environmental indicators; and collecting social statistics. While these activities are not considered to be R&D by Frascati definitions, they are often a precursor to R&D, and a key element in expanding knowledge. Of the remaining investment $87 million (7%) is budgeted for policy-related studies, and $51 million (4%) for other research-related activities.

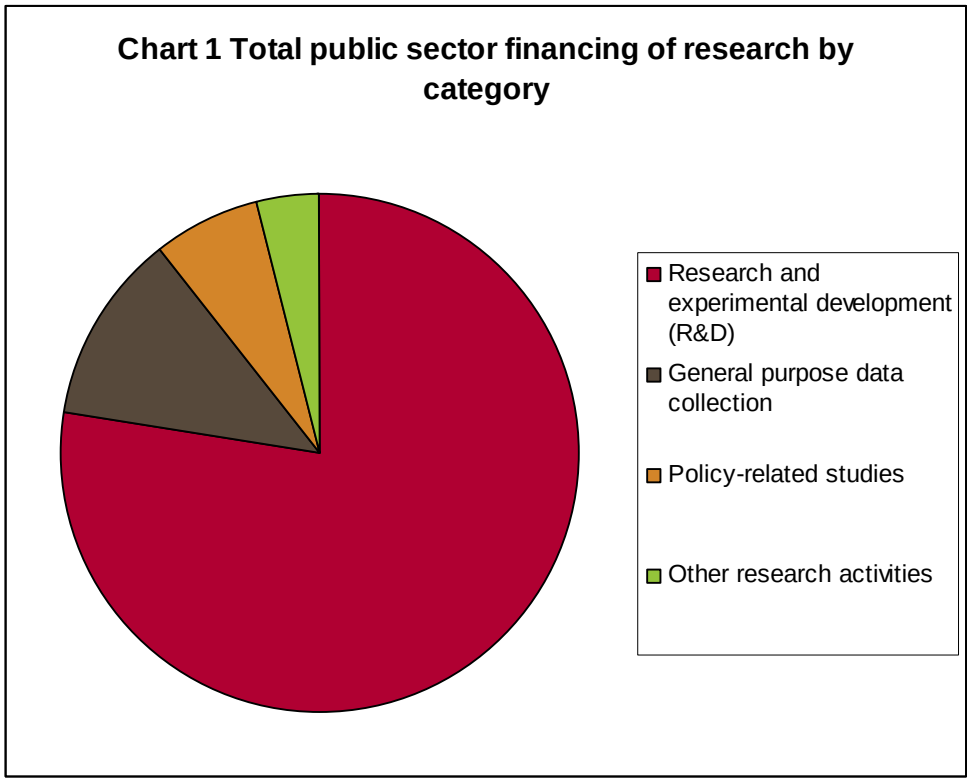


Table 2 Total public sector financing of research activities by category

CATEGORY OF RESEARCH	PLANNED INVESTMENT ($ MILLION)	PER CENT OF TOTAL PLANNED INVESTMENT
Research and experimental development (R&D)	1,020	78
General purpose data collection	156	12
Policy-related studies	87	7
Other research activities	51	4
TOTAL	1,315	100

PUBLIC SECTOR FINANCING OF RESEARCH ACTIVITIES (BY SOURCE OF FUNDS)

Almost half of the government sector's support of research activities is funded through Vote RS&T, and invested by Crown Agents and other statutory entities (Chart 2, Table 3). 22% is general university funding through Vote Education, which is administered by the Tertiary Education Commission. In addition to this, government departments and other central government agencies contribute over one quarter of the planned research investment. Local government is responsible for the remaining 2%.

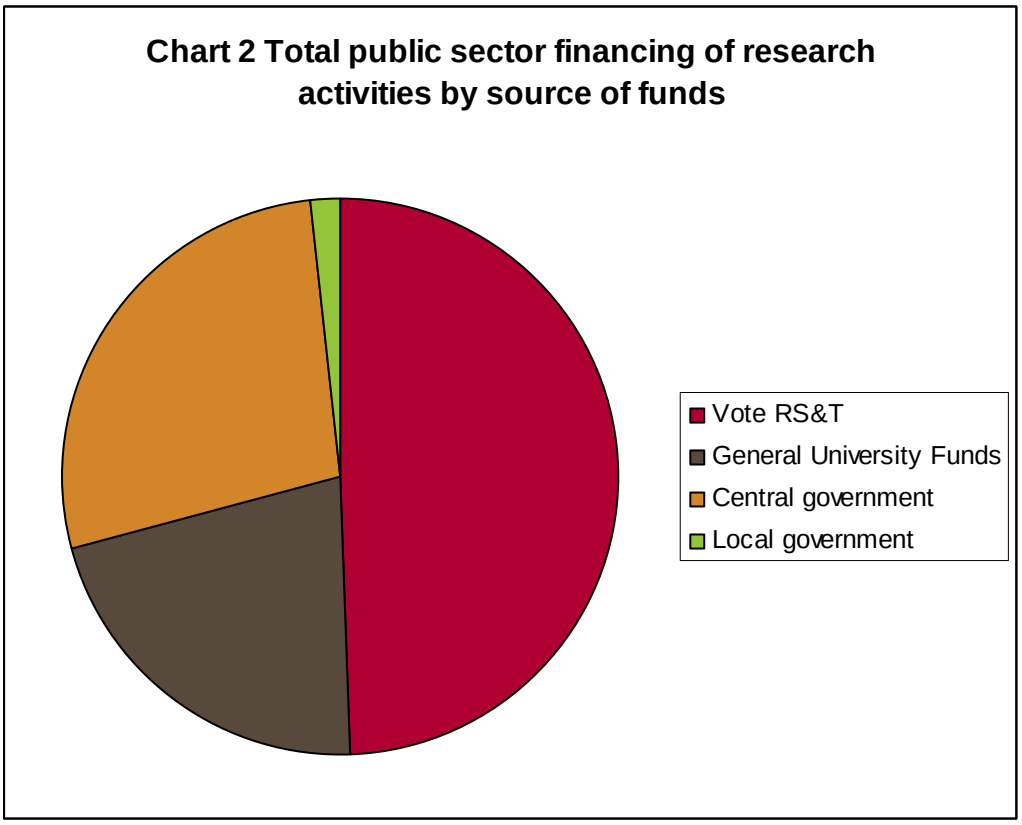


Table 3 Total public sector financing of research activities by source of funds

SOURCE OF FUNDS	PLANNED INVESTMENT ($ MILLION)	PER CENT OF TOTAL PLANNED INVESTMENT
Vote RS&T	650	49
General University Funds	280	21
Central government	364	28
Local government	21	2
TOTAL	1,315	100

PUBLIC SECTOR FINANCING OF R&D

Total planned public sector investment in R&D is $1.020 billion. This figure is $74 million dollars greater than that recorded in the 2007/08 report. The change comes from three sources:

- A **$49 million increase** in R&D funded through Vote RS&T. A detailed overview of Vote RS&T support for R&D is provided in Annex 1.

- An **$11 million decrease** in R&D funded through general university funds (GUF). This does not imply a decline in government support for universities, but is the result of classification changes MoRST made to ensure a better alignment with OECD guidelines for GBAORD statistics. A detailed overview of general university funds is provided in Annex 2.

- A **$36 million increase** in R&D reported by other public sector agencies. Some of this change is a result of increased survey response rate among government departments- several departments that did not respond to the 2007 survey provided large estimates this year. In addition, almost all central government agencies that previously reported budgetary appropriations for R&D have increased those appropriations since last year. These increases range from a few thousand dollars, up to $6.8 million in the largest instance.

Almost two-thirds of public support for R&D comes from Vote RS&T and over a quarter from general university funds (Table 4). The rest of central government accounts for about 8% of the overall R&D investment. Local government support is comparatively very small, representing less than 0.5% of public sector financing of R&D.

Table 4 Total public sector financing of R&D by source of funds

SOURCE OF FUNDS	PLANNED INVESTMENT ($ MILLION)	PER CENT OF TOTAL PLANNED INVESTMENT
Vote RS&T	650	64
General University Funds	280	27
Central government	85	8
Local government	5	<1
TOTAL	1,020	100

PROVIDERS OF R&D

Most budgeted funding for R&D has not yet been allocated to a research provider (Chart 3, Table 5). This reflects the fact that nearly all funds allocated through Vote RS&T are open to a range of research organisations on a contestable basis.

Almost a third of the public sector's investment in R&D will go to tertiary education institutes: nearly all of this will be through general university funds.

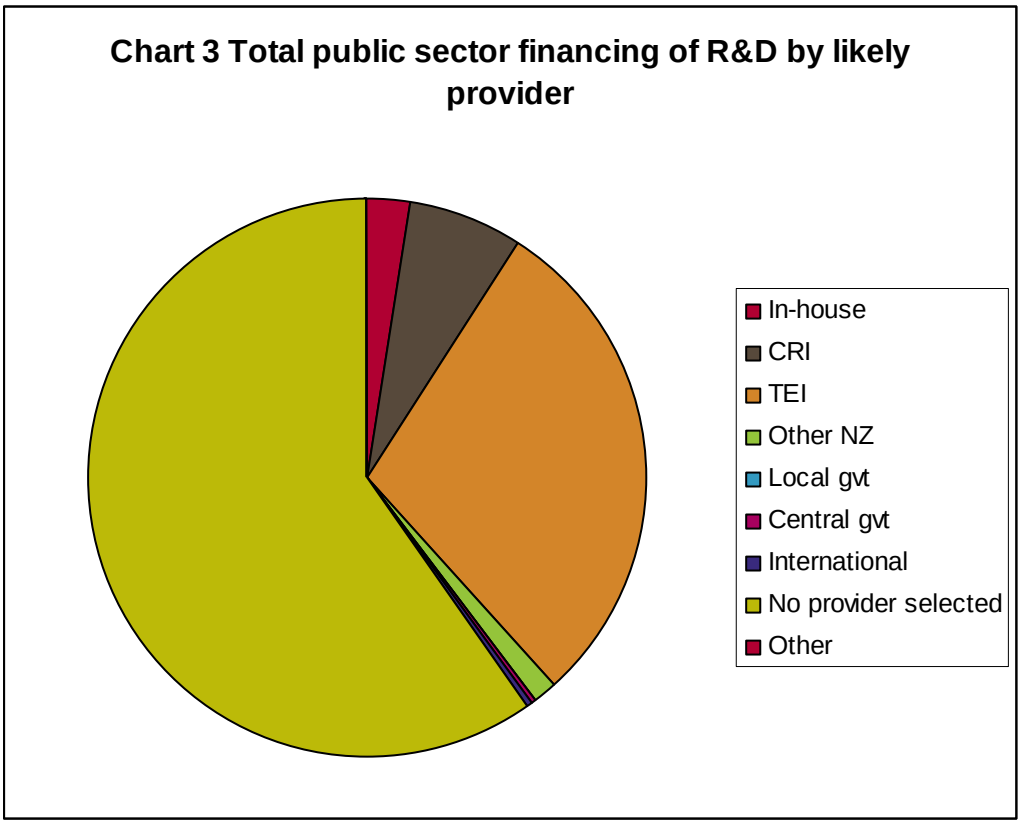


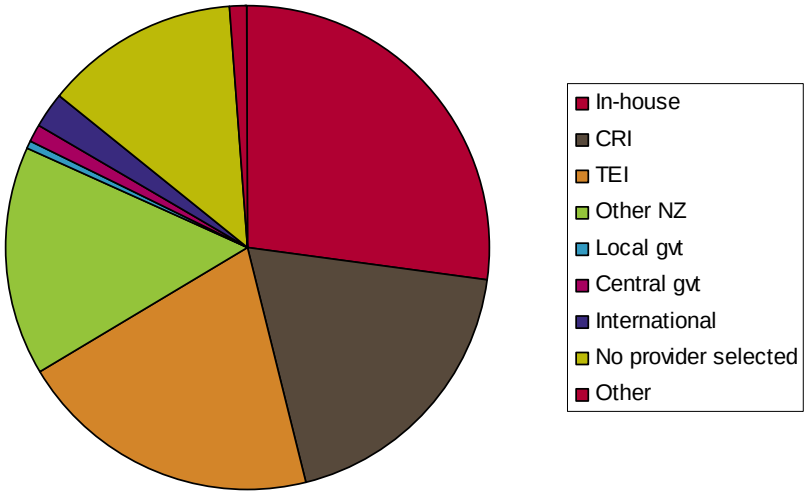
Table 5 Total public sector financing of R&D by likely provider

LIKELY PROVIDER OF R&D	PLANNED INVESTMENT ($ MILLION)	PER CENT OF TOTAL PLANNED INVESTMENT
In-house	25	2
Crown research institute	69	7
Tertiary education institute	298	29
Other New Zealand based research organisation	14	1
Local government (not in-house)	<1	<1
Central government (not in-house)	1	<1
International research organisation	3	<1
No provider selected at this time	610	60
Other	1	<1
TOTAL	1,020	100

PROVIDERS OF R&D (EXCLUDING VOTE RS&T AND GUF)

Excluding Vote RS&T and general university funds, most of the R&D funded by central government will be performed within the public sector (Chart 4, Table 6): either in-house ($23 million), by Crown research institutes ($16 million), by tertiary education institutions ($17 million), or by other government agencies ($0.5 million). $11 million is currently unallocated.

Chart 4 Central government financing of R&D by likely provider (excluding Vote RS&T and GUF)



Almost a third of local government's budget for R&D will be invested in-house, while a similar portion will go to CRIs (Chart 5, Table 6). Tertiary education institutes and other New Zealand research organisations account for the remainder.

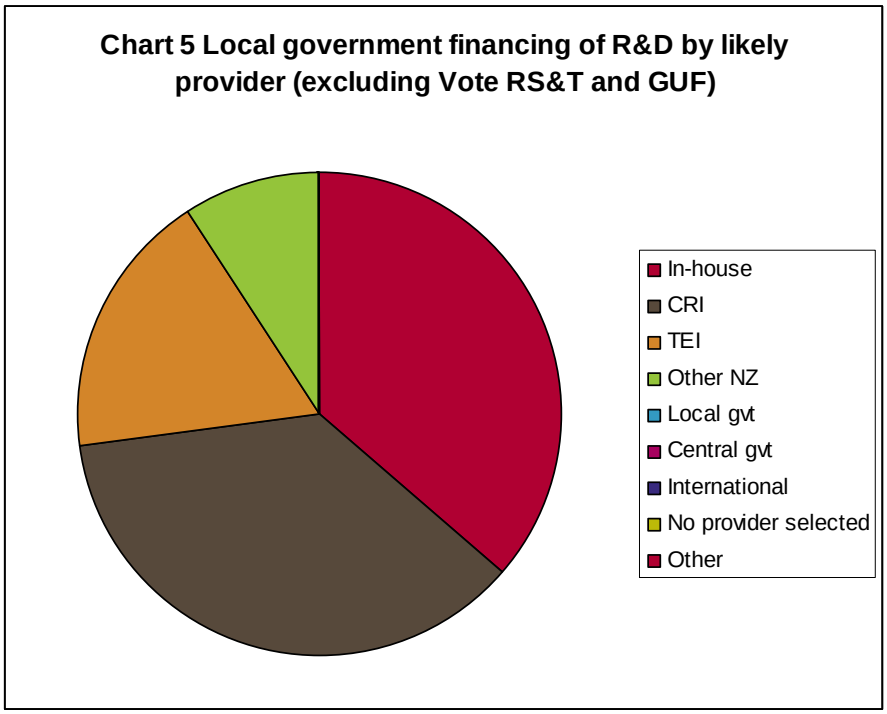


Table 6 Public sector financing of R&D by likely provider (excluding Vote RS&T and GUF)

LIKELY PROVIDER OF R&D	CENTRAL GOVERNMENT INVESTMENT ($ MILLION)	LOCAL GOVERNMENT INVESTMENT ($ MILLION)
In-house	23	2
Crown research institute	16	2
Tertiary education institute	17	1
Other New Zealand based research organisation	13	<1
Local government (not in-house)	<1	0
Central government (not in-house)	1	0
International research organisation	2	0
No provider selected at this time	11	0
Other	1	0
TOTAL	85	5

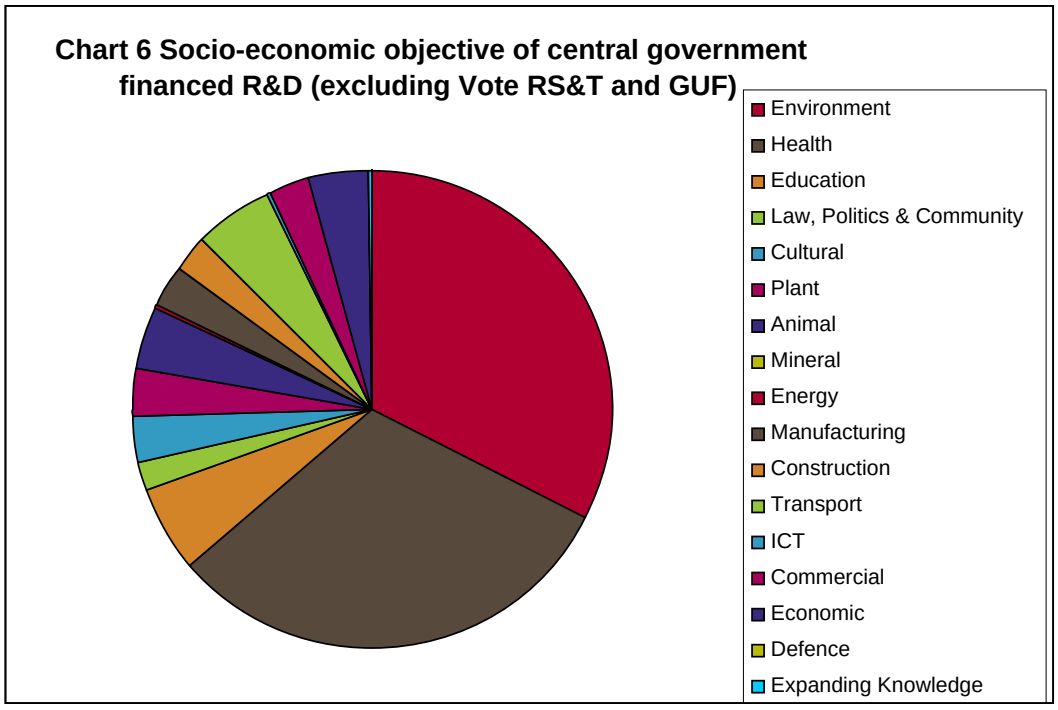
SOCIO-ECONOMIC OBJECTIVE OF R&D

The socio-economic objective of R&D is the purpose or outcome of the research as perceived by the funder. It is different from the field of research, which is determined with reference to the methodology employed by the researcher.

For this study, we have classified socio-economic objectives using the Australia and New Zealand Standard Research Classification (ANZSRC) 2008. Previous reports have used OECD classifications which differ from ANZSRC in a number of ways, especially in relation to social research. Caution should be used when comparing 2008 figures with those of previous years.

The socio-economic objective of most R&D funded through Vote RS&T and general university funds are extremely difficult to categorise from budget information. With much of this investment, the precise socio-economic objective of R&D is often defined by researchers, and unknown until the research has been contracted. For that reason, we do not include Vote RS&T and GUF in this section.

Excluding Vote RS&T and general university funds, most of the R&D funded by central government is targeted at the environment ($28 million) or health ($27 million). Substantial amounts are also spent on education, economics, agriculture and horticulture (Chart 6, Table 7).



In local government, financing of environmental research is even more pronounced, accounting for two-thirds of their total investment (Chart 7, Table 7). Energy is the second-largest purpose given for research, with small but significant amounts being invested in economic framework, transport, and plant research.

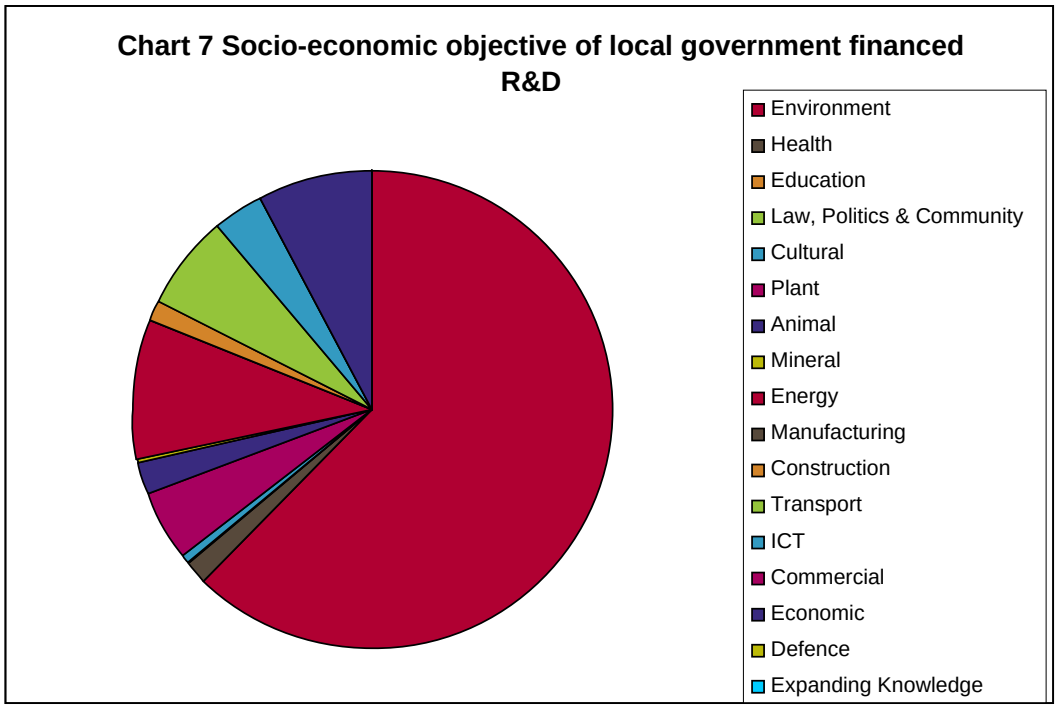


Table 7 Socio-Economic Objective of public sector financed R&D (excluding Vote RS&T and GUF)

LIKELY PROVIDER OF R&D	CENTRAL GOVERNMENT INVESTMENT ($ MILLION)	LOCAL GOVERNMENT INVESTMENT ($ MILLION)
Environment	28	3
Health	27	<1
Education	5	0
Law, Politics and Community	2	0
Cultural Understanding	3	<1
Plant	3	<1
Animal	3	<1
Mineral	0	<1
Energy	<1	1
Manufacturing	2	<1
Construction	2	<1
Transport	5	<1
ICT	<1	<1
Commercial Services	2	0
Economic Framework	3	<1
Defence	0	0
Expanding Knowledge	0	0
TOTAL	85	5

Conclusion

Public sector investment in R&D has increased considerably during the three years in which the survey has been conducted: $881 million in 2006, $946 million in 2007, and $1020 million in 2008.

Compared with last year's survey, there has been a decline in the proportion of public sector spending going to CRIs. In 2007 CRIs accounted for one-third of central government investment in R&D (excluding Vote RS&T and GUF). This figure has dropped to just 18% this year. This change comes while central government is increasing the portion of R&D it conducts in-house (from 15% to 27%) and contracts to universities (from 15% to 20%). While some of this decline can be attributed to improved respondent understanding of the survey, it still represents a significant change.

The other apparent change has been an increase in environmental research. In 2007, reported expenditure on R&D aimed at environmental purposes (excluding Vote RS&T) was small- about 7% of central government R&D expenditure. This year it accounts for 33%, and is the most common socio-economic objective of both central and local government R&D. However, most of this change is the result of the ANZSRC classification system, which includes R&D aimed at natural hazard prevention, climate change and biosecurity as environmental research. Previously, these areas were much harder to classify. For this reason, the change should not be considered significant.

This survey has been successful in making estimates of planned financing of research activities by the public sector for 2008/09 financial year. Apart from the changes noted above, the findings are broadly consistent with those of previous years.

Annex 1: Vote Research, Science and Technology

Vote RS&T contains a number of appropriations. Those that were counted as R&D expenditure for this survey are shown in the table below. CDRP (Cross Departmental Research Pool) funds are accounted for by the government department receiving them and are consequently excluded from the table.

VOTE RS&T OUTPUT CLASS	R&D FUNDING 2008/09
Research for Industry	215,818,000
Environmental Research	106,125,000
New Economy Research Fund	73,033,000
Health Research	62,955,000
Technology New Zealand	50,934,000
CRI Capability Fund	50,612,000
Marsden Fund	37,878,000
Supporting Promising Individuals	19,082,000
International Investment Opportunities Fund	12,977,000
Pre-Seed Accelerator Fund	9,156,000
Social Research	5,860,000
Māori Knowledge and Development Research	4,867,000
Australian Synchrotron	808,000
TOTAL	**650,105,000**

Annex 2: General University Funds

To fund R&D, universities draw on three main types of funding. The type of fund and the treatment given in this survey are:

- R&D contracts and earmarked grants received from government sources. These funds are recorded at their agency source.
- Own income from endowments, shareholdings and property; and surplus from sale of non-R&D services such as fees from individual students, subscriptions to journals, and sale of serum or agricultural produce. These are universities' 'own funds' and are excluded from this survey.
- The general grant they receive from the government through Vote Education. These funds are detailed below.

VOTE EDUCATION OUTPUT CLASS	R&D FUNDING 08/09
Tertiary Education Organisation Component- Performance Based Research Fund (PBRF)	236,114,000
Centres of Research Excellence (CoRE)	35,295,000
University of Auckland Starpath Project	3,900,000
National Institute of Innovation in ICT	3,700,000
University of Auckland Institute for Innovation in Biotechnology	1,000,000
TOTAL	**280,009,000**

Annex 3: Survey Form

Public Sector Financing of Research 2008/09 Survey

RETURN DATE 12 September 2008

For help or information please contact:
Stuart King
Ministry of Research, Science and Technology
PO Box 5336
Wellington 6145.
statistics@morst.govt.nz
Phone (04) 917 2943 or (04) 917 2900

Your Contact Details: Please Complete

Name of your organisation	
Your name (or contact person in case we need to clarify a response)	
Position	
Address	
Phone	Email

Purpose of this survey:

The purpose of this survey is to gather information about the level and nature of research financed by the public sector. The information will inform:

- interested parties about how the public sector funds research; and
- Ministry of Research, Science and Technology policy development.

Confidentiality

All responses will be treated in confidence, subject to the Official Information Act 1992. MoRST will use only aggregate data by sector in the public report.

How to answer:

- Save this file to your computer system, then print it for your records.
- Either complete a paper copy of the survey and post it to MoRST, or open the saved survey file, complete the survey on your computer, save it and then email the saved file to statistics@morst.govt.nz.
- Please use data for the financial year **1 July 2008** to **30 June 2009**.
- Supply GST EXCLUSIVE dollar values only.
- Enter zero when the answer to the question is zero.
- Leave answer boxes blank where there is no response.
- For yes/no responses, write yes or no; or if unsure, add a comment.

QUESTION 1

Does your organisation routinely or occasionally carry out or fund any of the following?

Type of activity	Explanation	Yes/No
Research and experimental development (R&D)	Creative work undertaken on a systematic basis in order to increase the stock of knowledge. Any activity classified as R&D is characterised by originality. It includes all original research work in the biological, physical and social sciences (including economic, cultural, educational and sociological research) and the humanities. It excludes: • Education and training of personnel (research conducted by students at the PhD level is included as R&D) • Any research activity that fits in the below categories	
Policy-related studies	Local or national government or business enterprise policy work. It includes: • analysis and assessment of existing programmes, policies and operations • defence and security analysis • legislative commissions of inquiry concerned with general government, departmental policy or operations	
General purpose data collection	Routine sampling or monitoring. Examples include • routine water level or air quality monitoring • routine topographical, hydrological or meteorological mapping and surveying • censuses or routine social and economic surveys (i.e. quarterly sampling of unemployment) If data is collected specially for the purpose of research it should be classified as R&D.	
Routine software development	Work on system-specific or programme-specific advances on publicly available software; and solving technical problems that have been overcome before.	
Scientific and technical information services	For example coding, recording, classifying, disseminating, translating, analysing and evaluating scientific and technical information. If these services are provided solely or primarily for the purpose of R&D support they should be classified as R&D	
Testing and standardisation	Maintenance of national standards, calibration of secondary standards and routine testing and analysis of materials, components, products, processes, soils, atmosphere, etc.	
Feasibility studies	Feasibility studies for proposed engineering projects, including socio-economic impact assessments. Feasibility studies on research projects should be classified as R&D.	

QUESTION 2

In the 2008/09 financial year, what funds have been, or are likely to be allocated to the following?

Type of Activity*	**Budget (GST exclusive)**	**Comments**
Research and experimental development		
Policy-related studies		
General purpose data collection		
Routine software development, scientific and technical information services, testing and standardisation or feasibility studies		

* Definitions of these types of activities are given in Question 1

QUESTION 3

Looking only at **research and experimental development** projects planned for the 2008/09 financial year; who is likely to carry out this work?

Provider of research and experimental development	**Proportion of funded R&D as %**
Your organisation (in-house)	
Crown Research Institute	
Tertiary Education Institution (university and polytechnic)	
Other New Zealand based research organisation (private or publicly listed enterprises; state-owned enterprises; producer boards; research associations)	
Local government sector (not in-house)	
New Zealand central government sector (not in-house)	
International research organisation	
No provider selected at this time	
Other – please specify	
TOTAL should be 100%	

QUESTION 4

Looking only at **research and experimental development** projects planned for the 2008/09 financial year; what is the socio-economic objective of this work?

Appendix one contains more detailed definitions of the categories used.

Please enter percent of total R&D budget allocated to each purpose.
Enter 0 where no work for this purpose is likely to be funded.

ECONOMIC DEVELOPMENT	
Plant Production and Plant Primary Products	**%**
Animal Production and Animal Primary Products	**%**
Mineral Resources (excluding energy resources)	**%**
Energy	**%**
Manufacturing	**%**
Construction	**%**
Transport	**%**
Information and Communication Services	**%**
Commercial Services and Tourism	**%**
Economic Framework	**%**
SOCIETY	
Health	**%**
Education and Training	**%**
Law, Politics and Community Services	**%**
Cultural Understanding	**%**
ENVIRONMENT	**%**
DEFENCE	**%**
EXPANDING KNOWLEDGE	**%**
Total	**100%**

Thank you very much for completing this survey.

MoRST is committed to keeping our surveys short. How long did you take to do this survey?	

MoRST is committed to making its survey reports more useful. What aggregated data from this survey would be most useful to your organisation?	

Please add any comments about this survey or accompanying information.

For help or information please contact:
Ministry of Research, Science and Technology,
PO Box 5336,
Wellington 6145.

statistics@morst.govt.nz
Phone (04) 917 2943 or (04) 917 2900

Appendix One: Definitions of Socio-Economic Objectives listed in Question 4

Developed using the Australia and New Zealand Standard Research Classification (ANZSRC), 2008

Category	Include	Exclude
Plant Production and Plant Primary Products	R&D directed towards improving • forestry • horticulture, grain and oilseed crops • industrial crops • post harvest processing, preparation, handling and storage of primary plant products • environmental sustainability of plant production	R&D directed towards improving • biosecurity and the control of pests, plant diseases and exotic species (include in environment) • biofuels (include in energy) • growing of pastures, browse or fodder crops (include in animal production and animal primary products) • irrigation or waste water systems (include in commercial services and tourism) • transportation of plants other than forestry (include in transport)
Animal Production and Animal Primary Products	R&D directed towards improving • breeding and farming of livestock • commercial and recreational fishing • pasture, browse or fodder crops • preparation of primary livestock products • environmental sustainability of animal production	R&D directed towards improving • biosecurity and the control of pests, animal diseases and exotic species (include in environment) • manufacture of processed animal products (include in manufacturing) • irrigation or waste water systems (include in commercial services and tourism) • transportation of live animals or animal products (include in transport)
Mineral Resources (excluding energy resources)	R&D directed towards improving • exploration, mining, extraction and processing of mineral resources (other than energy resources) • environmental sustainability of exploration, extraction and processing of mineral resources	R&D directed towards improving • exploration, mining, extraction and processing of energy mineral resources (include in energy)

Category	Include	Exclude
Energy	R&D directed towards improving • exploration, mining, extraction and processing of energy mineral resources • energy production, transformation, storage, distribution and supply • environmental sustainability of energy activities	R&D directed towards improving • design of building to improve energy efficiency (include in construction)
Manufacturing	R&D directed towards improving • processes or strategies for transforming processed or unprocessed materials or components into new products	
Construction	R&D directed towards improving • engineering, planning, design, and management of construction activities • use and performance of building materials • environmental sustainability of construction activities	R&D directed towards improving • construction related environmental health issues (include in health)
Transport	R&D directed towards improving • land, sea and air transport systems • transport safety • oceanic currents and navigation • transport infrastructure • environmental sustainability of transport activities	R&D directed towards improving • transport of forestry products (include in plant production and plant primary products) • improving energy efficiency of transport (include in energy) • transport systems as an integral part of urban planning (include in construction)
Information and Communication Services	R&D directed towards improving • telecommunication systems • computer programming or software services • library and library database services, educational displays for museums etc • printing and publishing • environmental sustainability of information and communication activities	R&D directed towards improving • manufacturing of computer hardware and telecommunication equipment (include in manufacturing)

Category	Include	Exclude
Commercial Services and Tourism	R&D directed towards improving • financial services (such as banking and insurance) • property, business support and commercial services • water and waste services • environmental sustainability of commercial services and tourism	R&D directed towards improving • international trade (include in economic framework) • management and productivity (include in economic framework)
Economic Framework	R&D directed towards improving • understanding of microeconomics and macroeconomics • the application of economic theory • international trade • management, productivity and industrial relations • measurement standards and calibrations services • carbon and emissions trading schemes	R&D directed towards improving • domestic trade (include in commercial services and tourism) • economics of health policy outcomes (include in health) • employment and workplace safety issues (include in law, politics and community services) • environmental aspects of resource consumption and international trade (include in environment) • manufacture of scientific, industrial and medical instruments (include in manufacturing)
Health	R&D directed towards improving • understanding and treatment of clinical diseases and conditions • provision of public health and associated services	R&D directed towards improving • the development of pharmaceutical products (include in manufacturing) • workplace safety (include in law, politics and community services) • biosecurity and quarantine (include in environment)
Education and Training	R&D directed towards improving • education and training	
Law, Politics and Community Services	R&D directed towards improving • work and employment • provision of community and services • social justice and general equity • government and politics • international relations	R&D directed towards improving • provision of community health services (include in health) • ethical standards (include in cultural understanding)

Category	Include	Exclude
Cultural Understanding	R&D directed towards improving • understanding of art and leisure activities • understanding of religion and ethics • understanding of history and heritage • understanding social and cultural aspects of communication	R&D directed towards improving • understanding of current social, political and economic aspects of other countries (include in law, politics and community services) • understanding moral developments in individuals (include in education)
Environment	R&D directed towards improving • the physical environment • understanding of climate change • control of pests, animal and plant diseases, and exotic species • biodiversity • understanding of natural hazards Such improvements may have wider benefits, but they are not the principle objectives of the R&D	R&D directed towards improving • Carbon and emissions trading schemes (include in economic framework) • Efficient use of energy (include in energy) • Economic aspects of resource consumption and the environment (include in economic framework) • Control and treatment of human diseases within the country's border (include in health) • Environmental ethics (include in cultural understanding)
Defence	R&D directed towards improving defence or national security It includes all R&D undertaken for military reasons regardless of secondary civil applications	
Expanding Knowledge	R&D directed towards the general advancement of knowledge This category should only be used when no specific purpose under the other categories can be identified	