



Vision Mātauranga
Unlocking the Innovation Potential of
Māori Knowledge, Resources and People

Vision – to envisage, to look forward, to consider new possibilities

Mātauranga – knowledge, to know, a knowledgeable person

Vision Mātauranga – to envision knowledge, to think about new ways of doing things, to find answers, to solve problems

The Mission Statement of Vote Research, Science and Technology

To inspire and assist New Zealanders to create a better future through research and innovation.

The Mission Statement of *Vision Mātauranga*

To unlock the innovation potential of Māori knowledge, resources and people to assist New Zealanders to create a better future.

We are a nation with huge potential. We recognise that potential in Māori. We are committed to a bold agenda and working with you to realise that potential.

Rt Hon. Helen Clark, Prime Minister

Hui Taumata, 1 March 2005

Summary

All New Zealanders wish to live in healthy and sustainable communities and in harmony with our environments. We seek a good standard of living and hope that we may pass on a healthy and vibrant Aotearoa New Zealand to succeeding generations.

Research, Science and Technology (RS&T) is a set of knowledge creation and application activities which address the needs of our nation. RS&T also makes important contributions to national economic growth and sustainable environmental outcomes.

There are many opportunities for Māori communities to make distinctive contributions to Research, Science and Technology. These opportunities lie in the innovation potential of Māori knowledge, people and resources. *Vision Mātauranga* is a policy framework whose mission is:

to unlock the innovation potential of Māori knowledge, resources and people to assist New Zealanders to create a better future.

It was created to provide strategic direction for research of relevance to Maori funded through Vote RS&T. *Vision Mātauranga: Unlocking the Innovation Potential of Māori Knowledge, Resources and People:*

- is a creative and exciting thread that will be woven into Vote Research, Science and Technology over a period of some years.
- is concerned with discovering the *distinctive* contribution that Māori knowledge, resources and people can make to RS&T
- is a policy framework which provides strategic direction for research of relevance to Māori, funded through Vote Research, Science and Technology.
- describes four distinctive research themes of importance to our nation.
- advocates for innovation potential and opportunity. Many people will be involved in the research designed to produce and apply the knowledge envisaged by *Vision Mātauranga*.
- is about creating an environment in which distinctive activities and products of which the nation can be proud are fashioned from the materials of the Māori world – its knowledge, resources and people.

Vision Mātauranga has relevance for all New Zealanders. Whilst this framework concerns distinctive issues, challenges and opportunities arising within Māori communities, *Vision Mātauranga* encourages research whose outcomes make contributions to New Zealand as a whole.

Vision Mātauranga is about innovation, opportunity and the creation of knowledge.

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1.0 Vision Mātauranga: An Overview

Vision Mātauranga: Unlocking the Innovation Potential of Māori Knowledge, Resources and People is a policy framework that will be implemented into Vote Research, Science and Technology from July 2005. It was developed by the Ministry for Research, Science and Technology in consultation with research funders, researchers and research users including Māori communities. The framework is designed to assist research funders, researchers and research users, when they consider research of relevance to Māori – particularly its distinctive aspects and how this might be supported through Vote Research, Science and Technology.

This policy framework will guide research investment decisions made by Vote RS&T Funding and Investment Agents.

Mission Statement: To unlock the innovation potential of Māori knowledge, resources and people to assist New Zealanders to create a better future.

Purpose: To provide strategic direction for Vote RS&T funding for research of relevance to four themes:

- *Indigenous Innovation: Contributing to Economic Growth through Distinctive R&D.* New Zealand needs its businesses and for-profit enterprises to perform at an optimum level and contribute to economic growth. This theme concerns the development of distinctive products, processes, systems and services from Māori knowledge, resources and people. Of particular interest are products that may be distinctive in the international marketplace.
- *Taiao: Achieving Environmental Sustainability through Iwi and Hapū relationships with land and sea.* Like all communities, Māori communities aspire to live in sustainable communities dwelling in healthy environments. Much general environmental research is relevant to Māori. Distinctive environmental research arising in Māori communities relates to the expression of iwi and hapū knowledge, culture and experience – including *Kaitiakitanga* - in New Zealand land and seascapes.
- *Hauora/Oranga: Improving Health and Social Well-being* Distinctive challenges to Māori health and social well-being continue to arise within Māori communities. Research is needed to meet these ongoing needs.
- *Mātauranga: Exploring Indigenous Knowledge and RS&T* This exploratory theme aims to develop a body of knowledge, as a contribution to RS&T, at the interface between indigenous knowledge including mātauranga Māori – and research, science and technology.

The Creation and Application of Knowledge

Vision Mātauranga focuses on the *creation and application of knowledge*. It identifies a range of needs and opportunities, and seeks to inspire researchers and research providers to respond to them.

Culture should not be left to remain static. We enjoy the many advances that progress into the 21st century has offered us. We live in a modern democratic society where there is every opportunity within our grasp. We must take up these opportunities.

Hon. Parekura Horomia

Hui Taumata, 1 March 2005

Innovation Potential

The concept of Innovation potential has three facets:

- *Vision Mātauranga* aims to discover the *distinctive* contributions and creations relevant to RS&T that may arise from Māori knowledge, resources and people.
- We wish to form good relationships between Vote RS&T and Māori communities which emphasise their creativity and innovation potential
- We envisage that many diverse individuals and groups will be involved in the themes of *Vision Mātauranga*. We encourage innovation in all relationships. *Vision Mātauranga* is designed to inspire researchers to find innovative responses and solutions to the opportunities, issues and needs facing our nation.

Realising the Innovation Potential

Like all communities, Māori communities possess creativity and innovation potential. Māori wish to contribute to their nation in ways that are distinctive and meaningful to them. The Ministry recognises the distinctive innovation potential within Māori communities and wishes to respond to this appropriately, particularly where it is relevant to research, science and technology. This will involve a diverse range of research scenarios and research providers, both organisations and individuals. *Vision Mātauranga* research involves any combination of Māori knowledge, resources and people that generates distinctive contributions to RS&T.

In building and maintaining capacity and capability in relation to these research themes, *Vision Mātauranga* takes a broad view of who might conduct relevant research and where that research might take place. The framework envisages diverse research scenarios. Many people will be involved in the production of this knowledge including, of course, Māori individuals, organisations and communities. The Ministry encourages the innovation potential of all those involved.

1.1 What are we trying to achieve?

The Ministry for Research, Science and Technology is articulating a number of research goals relevant to Māori as *matters of national significance*. We advocate research priorities which contribute to the national interest and invest in research activities that benefit New Zealand.

Responding to Distinctive Needs, Issues and Challenges

Like all communities, Māori communities have their own issues, challenges and needs. They share some of these with their fellow New Zealanders, and some appear in Māori communities in distinctive ways. The Ministry wishes to support research which concerns distinctive issues and needs arising within Māori communities.

Research is a Creative Activity

We see research as a creative activity which helps make New Zealand a creative and innovative nation. We wish to instil a spirit of innovation, creativity and opportunity with respect to research of relevance to Māori, and to present research themes that are important to our nation. We want the nation to embrace these goals because of the potential and actual contribution that these activities can make to New Zealand.

We want our research to discover:

- *distinctive products, processes, systems and services* arising from Māori knowledge, resources and people
- *distinctive and successful approaches to environmental sustainability* through an exploration of iwi and hapū relationships with land and sea and *Kaitiakitanga* – an emerging approach to environmental management
- *successful, including distinctive, approaches and solutions* to Māori health and social needs, issues and priorities
- *and develop a distinctive body of knowledge* at the interface between indigenous knowledge and RS&T, which is applied within RS&T.

We are geared toward innovative and revolutionary thinking and practical and sustainable solutions.

Sir Paul Reeves
Hui Taumata, 1 March 2005

As outcomes of these research activities, we wish to see:

- R&D activities assisting Māori businesses and other enterprises to uplift productivity and performance, enabling them to *make real and sustainable contributions to national economic growth*
- increased understanding of how the New Zealand land and seascape is distinctively experienced and explained in iwi and hapū, and of the contribution this can make to *achieving sustainable environmental outcomes and healthy communities*
- *real gains in health and social well-being* for Māori from investments in a range of researchers and scientists, including Māori
- a deep exploration of indigenous knowledge – both its traditional applications and its epistemology – in order to understand how *indigenous knowledge can add value to RS&T*.

Māori Responsiveness – Māori participation and outcomes for Māori

Māori responsiveness has been a policy designed to increase Māori participation within Vote RS&T and ensure that it responds to Māori issues, needs and aspirations (outcomes for Māori). Vote RS&T will remain

responsive to Māori particularly where there are distinctive issues, needs and challenges that must be addressed.

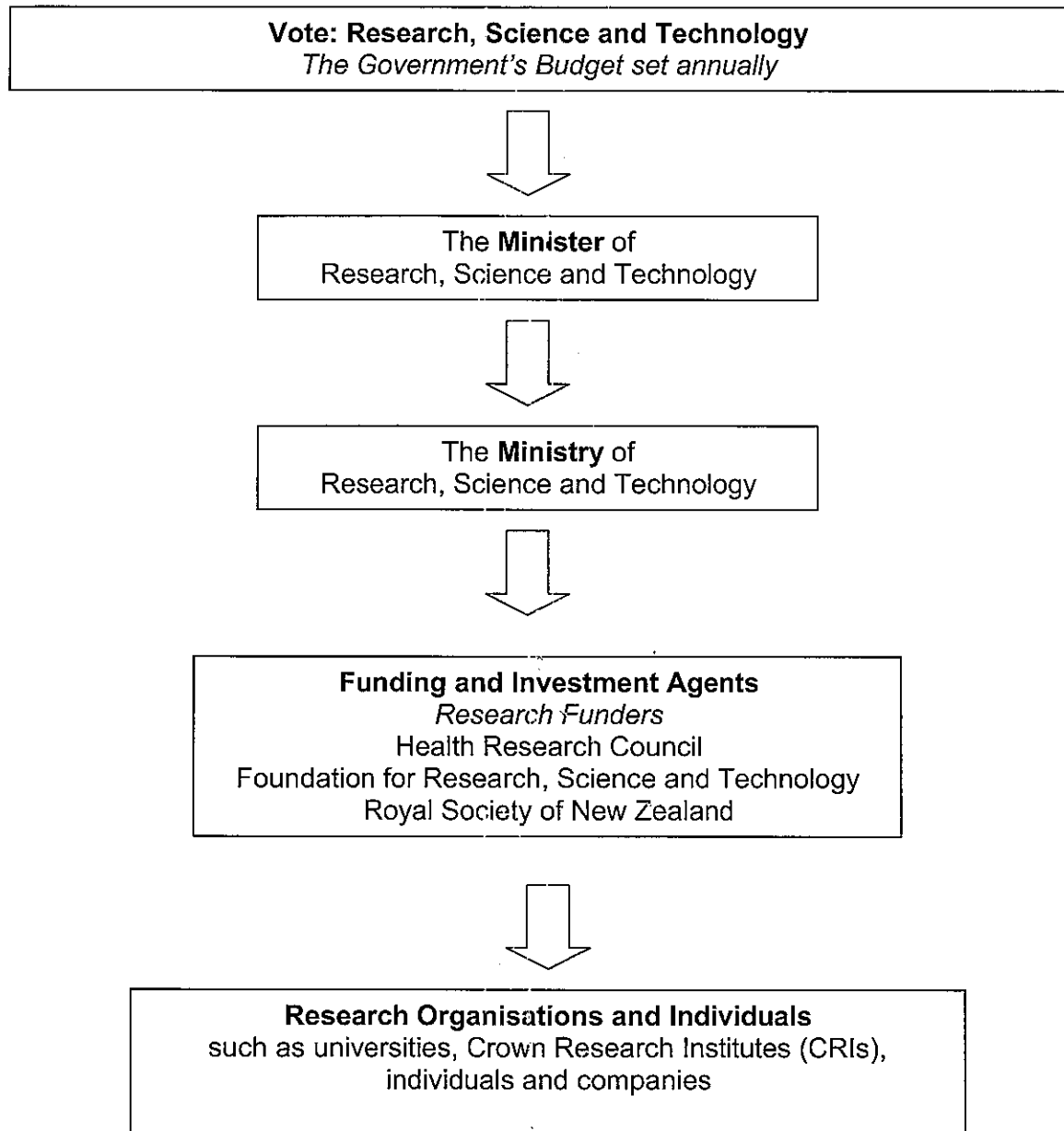
Vision Mātauranga supplements this approach by exploring the contribution that Māori knowledge, resources and people might make to Vote RS&T as a whole. Māori knowledge, people and resources have much to offer New Zealand, and *Vision Mātauranga* is concerned to realise this innovation potential.

Hui Taumata 2005

With the settlement of Treaty of Waitangi claims – together with other investments and management – new capital is flowing into Māori organisations and businesses, including iwi entities such as *rūnanga*. In recent times, Māori have made important entries into the fishing, forestry and farming industries, and many initiatives are in place to improve the performance of these bodies. The recent *Hui Taumata* (2005) issued a number of challenges to expand Māori enterprises in a range of business sectors, such as the creative industries. The theme of diminishing dependence upon the Government was made clear alongside calls to create a culture of success and the need to continue to upskill Māori in a range of disciplines and fields of study. The *Hui Taumata* was a watershed event. *Vision Mātauranga* explores its themes of creativity and independence in the context of Vote RS&T.

1.2 What is Vote Research, Science and Technology?

Vote Research, Science and Technology is the share of the Government's annual Budget that is dedicated to supporting research. Whilst research is also conducted through other parts of the government, this framework concerns Vote RS&T only. The ***Minister of Research, Science and Technology*** is the Government Minister (member of Cabinet) with overall responsibility for the operations of the Vote. The ***Ministry of Research, Science and Technology*** is a Government department which works with the Minister to oversee these operations. The Ministry *develops and sets policies for research, science and technology*. The ***Funding and Investment Agents*** are organisations which *invest in research*. They request proposals for research and enter into contracts with research organisations.



The Goals of Vote Research, Science and Technology

Research, Science and Technology is a complex and evolving set of knowledge creation and application activities designed to address real world issues, problems and opportunities. It is where knowledge creators make discoveries, fashion innovations and create inventions which contribute to the achievement of four kinds of national goals:

- Economic
- Environmental
- Social
- Knowledge

A number of Output Classes support the achievement of these goals. These pools of research funding are allocated to the Funding and Investment Agents which fund research. The current Output Classes are:

- Supporting Promising Individuals
- International Investment Opportunities Fund
- Development of International Linkages
- New Economy Research Fund
- Māori Knowledge and Development Research
- Promoting an Innovation Culture
- Marsden Fund
- Research for Industry
- Technology NZ
- Venture Investment Fund
- Pre-Seed Fund
- Health Research
- Social Research
- Environmental Research

Research funding is administered by the Foundation for Research, Science and Technology, the Health Research Council and the Royal Society of New Zealand. (See Appendix 4.3 for contact details for research funders.)

2.0 Vision Mātauranga: Four Research Themes

Vision Mātauranga presents four research themes, one for each RS&T goal:

- *Indigenous Innovation*: Contributing to Economic Growth through Distinctive R&D
- *Taiao*: Achieving Environmental Sustainability through Iwi and Hapū Relationships with Land and Sea
- *Hauora/Oranga*: Improving Health and Social Well-being
- *Mātauranga*: Exploring Indigenous Knowledge and RS&T.

Research conducted within these themes may be supported through Vote Research, Science and Technology. In presenting these themes, the Ministry suggests these should be areas of future research investment for the RS&T system. The Ministry is not proposing discrete funding mechanisms for each theme.

Distinctiveness

The Ministry recognises that much general New Zealand research is as relevant to Māori as it is to other New Zealanders. For example, all New Zealanders benefit from general research into health problems such as cancers, heart disease and diabetes. Similarly, all New Zealanders benefit from the research and development activities in Crown Research Institutes which lead to technological innovations in a variety of fields.

In presenting these research themes, the Ministry wishes to describe distinctive themes which are not only about how the RS&T system might

respond to distinctive issues and needs for Māori (outcomes for Māori), but also about how Māori communities in partnership with Vote RS&T might make contributions to the nation as a whole. *Vision Mātauranga* focuses on the *distinctive* contributions that might arise from the innovation potential of Māori knowledge, resources and people (any combination) as well as responding to needs and issues that are distinctive to the Māori community.

Research of relevance to more than one theme

In presenting these four themes, the Ministry recognises that many research projects will be of relevance to more than one of them.

2.1 Indigenous Innovation: Contributing to Economic Growth through distinctive R&D

Towards distinctive R&D, distinctive innovation

RS&T Economic Goal

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 competitiveness of New Zealand enterprises.

Theme Purpose

To realise the contribution of Māori knowledge, resources and people to economic growth through distinctive R&D activities.

Theme Objective

To create *distinctive products, processes, systems and services* from Māori knowledge, resources and people through distinctive R&D activities.

Towards Distinctive R&D Activity

Many Māori businesses and enterprises are located within conventional sectors of the New Zealand economy, such as agriculture, fisheries and forestry. These entities are eligible to apply for support for R&D activities in the usual manner and these research investments may yield innovations within these sectors.

Here, we are concerned with the *distinctive* contribution that Māori knowledge, people and resources might make to the economy. Of particular interest is the discovery of *distinctive products, processes, systems and services* that might arise from the innovation potential of Māori knowledge, people and resources.

Where might opportunities for innovation be found?

Māori Knowledge-Mātauranga Māori

Contained within iwi and hapū pools of knowledge and experience are themes, concepts, ideas and materials that could be used to fashion distinctive products, processes, systems and services. Some of this knowledge concerns tangible *objects* such as fabrics, perfumes, cosmetics, building materials, cuisine, art objects, medicinal plants and marine engineering. Researchers could explore the traditional technologies of iwi and hapū communities and make this knowledge and experience the starting point for new discoveries.

Traditional knowledge also includes conceptual knowledge which might inform the *design* of products, processes, systems and services. For example, principles for building and landscape are represented by traditional Māori buildings and built heritage. Design principles drawn from traditional knowledge might be applied to R&D activities using a range of resources. The adaptation of these principles to newer resources might be a source of innovation.

Research and development activities might also be conducted in new ways. Many Māori businesses and for-profit enterprises operate in unique and distinctive circumstances (see Section 3.6 below). Hence, R&D activities may

take place in distinctive ways. In addition, traditional knowledge contains unique perspectives on aspects of knowledge creation such as posing questions, solving problems, the creative moment in which a realisation or understanding takes place, the way in which research is communicated, and the very concept of knowledge itself.

The Innovation Potential of Māori-owned Resources

Many iwi and hapū based entities own and manage a range of resources, including those of the market economy – pastoral farming, forestry, fishing. Indigenous biodiversity might also be utilised to create distinctive products. The distinctive set of resources potentially available to a Māori enterprise might encourage innovation. These include:

- Indigenous resources such as mineral deposits, natural gas, geothermal fields
- Unique land features or qualities (eg. micro-climate, soil types)
- Lakes, rivers, coastlines and seabed
- Native flora & fauna
- Traditional knowledge, intellectual or cultural property
- Customary rights (eg. seasonal access to muttonbird)

A key issue for Māori economic development is how to ensure that innovation becomes a pervasive feature of all Māori institutions, while protecting the base of traditional cultural values.

Māori Economic Development: Te Ōhanga Whanaketanga Māori, New Zealand Institute of Economic Research, 2003

2.2 *Taiao*: Achieving Environmental Sustainability through Iwi and Hapu Relationships with Land and Sea

Towards distinctive approaches to sustainability

RS&T Environmental Goal

To increase understanding of the environment, including the biological, physical, social, economic and cultural factors that affect it.

Theme Purpose

To discover the potential contribution of iwi and hapū relationships with land and sea to environmental sustainability.

Theme Objective

To discover distinctive and successful approaches to environmental sustainability by exploring iwi and hapū relationships with land and sea and *Kaitiakitanga* – an emerging approach to environmental management on the basis of traditional values, principles and concepts.

Discussion

The state of the environment has concerned Māori for many years. From actions taken in the 19th century – such as protests over the felling of forests and the extinction of the huia – to late 20th century claims to the Waitangi Tribunal, Māori have been prominent in advancing issues designed to ameliorate environmental degradation and resource management.

Like all New Zealanders, Māori aspire to live in sustainable communities located in healthy environments. This requires quality urban and rural planning, sound and sustainable resource management practices, flood protection, the protection of endangered biodiversity, and more. Because so many Māori live in cities and towns, many of their aspirations are similar to those of all New Zealanders.

The Ministry for the Environment believes that:

Many of the big environmental issues for New Zealand in the first decade of the 21st century are also economic and public health issues. More sustainable use of water, managing marine resources, reducing waste, and improving our energy efficiency are all essential for creating wealth and quality of life as well as for environmental sustainability. However, the decline of our unique plants, animals and ecosystems is New Zealand's most pervasive environmental issue.

New Zealand's low population and limited industrial base means that our environmental issues are generally less severe than those in many other industrialised countries. However, we need to make progress with these issues if New Zealanders are to have the healthy environment and quality of life they want.¹

This research theme aims to discover the potential relevance of iwi and hapū relationships with land and sea to the issues discussed by the Ministry for the Environment.

¹ <http://www.mfe.govt.nz/issues/>

Distinctive Iwi and Hapū Environmental Research

Because of the length of tenure of iwi and hapū in New Zealand, the 'footprint' of Māori culture on the New Zealand landscape is both broad and substantial. This 'footprint' includes both naturally occurring features – such as forests and waterways – and built features such as pā sites, canoe landing areas, *urupā* (graveyards), astronomical sites, locations for higher learning (*wānanga*), gardens and, of course, marae. Such sites reflect and express a unique perspective on the nature of New Zealand's landscape and thus inform Māori notions of environmental sustainability.

Furthermore, living heritage areas such as forests, waterways, mountains and caves of particular significance to iwi and hapū, also offer a view of the landscape and inform views on environmental sustainability. Iwi and Hapū seek to protect and perpetuate the historical 'footprint' through:

- heritage protection
- indigenous biodiversity
- ecosystem restoration
- sustainable resource management
- urban and rural planning.

Kaitiakitanga

Iwi and Hapū envision the environment through indigenous knowledge – *mātauranga Māori*. This way of seeing and experiencing the environment has given rise to the concept of *Kaitiakitanga*, an emerging approach to environmental management arising from traditional principles, perspectives and worldviews. The concept has captured attention in a variety of quarters, including the Resource Management Act 1991 which makes provision for *Kaitiakitanga*, which it defines as 'the exercise of guardianship'. It is the combination of Māori communities and *Kaitiakitanga* protection and enhancement that makes this 'space' distinctive.

2.3 *Hauora/Oranga*: Improving Health and Social Well-being

Responding to distinctive needs; developing successful-including distinctive-approaches

RS&T Social Goal

To increase understanding of the social, biological, environmental, cultural, economic and physical determinants of well-being in order to build a society in which all New Zealanders enjoy health and independence and have a sense of belonging, identity and partnership.

Theme Purpose

To increase understanding of the determinants of health and well-being by exploring distinctive challenges to health and social well-being arising in Māori communities.

As part of this theme, MoRST is interested in building a research community capable of undertaking research that will help to address the abovementioned challenges to health and social well-being. The Vision Matauranga framework acknowledges that both Maori and non-Maori researchers will contribute to delivering the outcomes sought.

Theme Objective

To discover successful - including distinctive - approaches and solutions to Māori health and social needs, issues and priorities.

Māori Health Research Strategies

In 2002, the Ministry of Health published *He Korowai Oranga: Māori Health Strategy* with the overall aim of achieving *whānau ora*: 'Māori families supported to achieve their maximum health and wellbeing.' In 2005, the Ministry of Health published a *Strategic Research Agenda for He Korowai* which again emphasises *whānau ora*. This agenda outlines three objectives which will contribute to the achievement of *whānau ora*:

- Ongoing building of an evidence base
- Investments in high quality research and evaluation
- Building of Māori health research capacity.

Each objective includes the development of 'more effective service delivery for Māori and improved healthy and disability outcomes for whānau.'

The Health Research Council has published *Ngā Pou Rangahau Hauora kia Whakapiki Ake Te Hauora Māori: The Health Research Strategy to Improve Māori Health and Well-being 2004-2008*. The aim of this plan is:

to invest in a range of research activities which will enhance the ability of the health sector to:

- (1) extend the life span and increase the quality of life for Māori;
- (2) improve tangata whenua access to quality health services;
- (3) improve health service provisions to tangata whenua, and
- (4) decrease morbidity and mortality of Māori from preventable diseases and health conditions.

This strategy includes the following Mission Statement:

To improve Māori health through funding and supporting high quality health research which is driven by Māori health priorities and needs, consistent with tikanga Māori, and which generates mātauranga that is highly valued and used by tangata whenua and government agencies.

Vision Mātauranga supports *whānau ora* as the overall goal for Māori health and the aims articulated by the HRC for Māori health research. *Whānau ora* is in harmony with the 'health and independence' aspects of the Social Goal of Vote RS&T.

A Developmental response

There is substantial evidence for disparities between the health status of Māori and that of the general population. These disparities represent a national need that must be addressed by a distinctive and sustainable response – Māori health research. The strategies of the Ministry of Health and the Health Research Council are developmental responses in that they articulate aims for whānau and Māori communities and position Māori health research within them.

In supporting Māori health research, *Vision Mātauranga* also looks for distinctive contributions that might arise from the innovation potential of Māori knowledge, resources and people.

Māori Social Research

In 2004, the Ministry of Social Development published *Opportunity for All New Zealanders*, described as the 'first time any New Zealand Government has sought to develop and publish a summary statement of its strategies to improve social outcomes.' This substantial document articulates a range of issues and concerns. The Government's vision for social policy is:

An inclusive New Zealand where all people enjoy opportunity to fulfil their potential, prosper and participate in the social, economic, political and cultural life of their communities and nation.

In pursuit of this vision, the Government has two overarching goals:

- achieving and sustaining improvements in social wellbeing for all New Zealanders
- reducing disadvantage and promoting equality of opportunity for all New Zealanders.

Opportunity for All New Zealanders identifies five critical issues:

- improving educational achievement among low socio-economic groups
- increasing opportunities for people to participate in sustainable employment
- promoting healthy eating and healthy activity
- reducing tobacco, alcohol and other drug abuse

- minimising family violence, and abuse and neglect of children and older persons.

With respect to Māori and social policy, *Opportunity for All New Zealanders* makes the following statement:

The disproportionate levels of unemployment, poor health, low educational attainment and poor housing among Māori must be of concern to any government. Making life better for all New Zealanders can never be achieved if New Zealand's indigenous people are left behind as a marginalised community, permanently worse off than everyone else.

Important outcomes for Māori include what everyone else values as well, like good health and a high standard of living. A further outcome for Māori is to be able to live as Māori. Beyond physical needs, Māori need their culture to survive and develop. Māori culture and language has no home other than New Zealand. If Māori culture dies here, it dies everywhere. It is in this sense that Māori are tangata whenua. And for these reasons government has policies and programmes that explicitly address the needs of Māori as people who are indigenous to New Zealand.

Vision Mātauranga supports these statements by encouraging research in these broad areas which can contribute to the outcomes articulated in these documents. In addition, *Vision Mātauranga* suggests that important contributions to these goals can be made through the innovation potential of Māori knowledge, resources and people.

2.4 *Mātauranga*: Exploring Indigenous Knowledge and RS&T

<i>Towards distinctive knowledge</i>

RS&T Knowledge Goal

To accelerate knowledge creation and develop people, learning systems and networks in order to enhance New Zealand's capacity to innovate. Inventive and entrepreneurial people with the ability to create new knowledge are needed to respond to New Zealand's changing needs, and support our capacity to innovate.

Theme Purpose

To discover the distinctive contribution that indigenous knowledge can make to RS&T - particularly its potential to create knowledge and help develop inventive and entrepreneurial people.

Theme Objective

To develop a distinctive body of knowledge at the interface between indigenous knowledge and RS&T that can be applied to aspects of RS&T. This theme will explore ways to accelerate the creation of knowledge and the development of people, learning, systems and networks.

Discussion

The concept of indigenous knowledge has been incorporated into RS&T systems around the world.² It arises from a recognition that many indigenous communities are seeking to restore their traditional knowledge bases as a dimension of their ongoing development. Further, some RS&T systems recognise that indigenous and traditional knowledge may be able to contribute to the economic development of those communities and the nations within which they dwell. The World Intellectual Property Organisation has established a standing committee to explore intellectual property mechanisms relating to the use of traditional knowledge and indigenous biodiversity for commercial purposes.³

This theme will explore the nature of indigenous knowledge in the New Zealand setting, and how this body of knowledge may contribute to research, science and technology. *Mātauranga Māori* - distinctive knowledge traditionally held within Māori communities - has developed in New Zealand over at least 600 years. Brought here by Polynesian ancestors, this oral based knowledge responded to life in these islands. It changed during encounters with European in the 19th and 20th centuries when colonisation endangered *mātauranga Māori* in many substantial ways. However, all was not lost. Remnants of *mātauranga Māori* - notably the Māori language - remain today, and these *mōrehu* are catalysing a new creativity in Māori communities and beyond. Scientific knowledge has superseded traditional Māori knowledge in many ways, however, yet its remnants contain

² See, for example, 'Indigenous Knowledge Systems',
Website: <http://www.nrf.ac.za/focusareas/iks/>

³ See 'Traditional Knowledge, Genetic Resources and Folklore', World Intellectual Property Organisation. Website: <http://www.wipo.int/tk/en/>

suggestions and ideas that may yet make a contribution to RS&T. Indigenous knowledge includes three themes that are woven together:

Better Relationships with the Natural World

The quest for better relationships between human societies and the natural environments in which they exist

Knowledge Weaving

The weaving of knowledge across different domains, in a cross-disciplinary and cross-cultural style

Revitalisation of the traditional knowledge bases of formal indigenous cultures

The quest to revitalise the traditional knowledge bases, values and worldviews of formal indigenous cultures.

In advancing this theme, the Ministry is encouraging the positioning of mātauranga Māori within the international cross-cultural theme in knowledge and philosophy known as indigenous knowledge. The Ministry is also encouraging study of the way in which mātauranga Māori explains the world. This will include the development of models of analysis drawn from pre-existing mātauranga Māori, and a discussion of how these models might be applied to real-world issues.

In presenting this theme, we are enlarging a partially established space within Vote RS&T whereby the RS&T system may engage in an appropriate way the cultural knowledge of iwi, hapū and whānau. We seek to create the circumstances whereby the RS&T system can support researchers who are attempting to further aspects of the traditional knowledge bases of those communities.

What is meant by the 'Interface'?

The idea of an 'interface' was suggested by Professor Mason Durie of Massey University. This is a space in which mātauranga Māori (in relation to indigenous knowledge) and RS&T may come together to explore matters of mutual interest. The 'interface' enables investment in research which involves mātauranga Māori. It does not seek to appropriate mātauranga Māori in its entirety but rather those aspects of it that scientists and practitioners of mātauranga Māori are comfortable with exploring and advancing in this way, and which are relevant to RS&T. The 'interface' respects the integrity of each knowledge system and allows for appropriate cross-over discussions.

Principles of the 'Interface'

1. The Integrity of Traditions

This activity does not water down science or develop pseudo-science. The 'interface' space respects the integrity of the two knowledge traditions.

2. Creative Possibilities: Synergies

An 'interface' space exists to *create* knowledge, not merely to describe pre-existing knowledge.

3. Divergence and Diversity

It is recognised that there are differences between science and mātauranga Māori.

3.0 Innovation Potential: Building and Maintaining Research Capacity and Capability

We must work with others rather than in isolation. Partnerships, collaboration and networking are going to be critical to our development in the future. There is considerable room for partnerships and other forms of collaboration with local government and businesses, with private and voluntary sector organisations and with international organisations and businesses.

Hon Parekura Horomia

Hui Taumata, 1 March 2005

Vision Mātauranga presents four research themes as ways of thinking about the distinctive contribution that Māori knowledge, resources and people might make to RS&T. In doing so, the Ministry recognises that research relevant to Māori is already taking place within the RS&T system. In implementing *Vision Mātauranga*, the Ministry recognises the research and related activities currently taking place on which it wishes to build.

3.1 Excellence

The Ministry aspires to develop and maintain the 'best small country RS&T system in the world'. To achieve this goal, all parts of the system must perform to their potential, including those areas relevant to the innovation potential of Māori knowledge, resources and people. The Ministry recognises that New Zealanders are capable of world-class research and encourages all sectors of the RS&T system to achieve excellence whenever possible. *Vision Mātauranga* is about achieving the best possible outcomes for all through research which unlocks the innovation potential of Māori knowledge, resources and people.

3.2 Outcomes Sought for the RS&T System

To help achieve the goal of becoming the 'best small country RS&T system in the world', the Ministry has articulated the following outcomes:

- Increased and more effective investment that optimises opportunities for and from RS&T in New Zealand
- A vibrant RS&T environment with the capability to attract and develop exceptional people
- An 'excellent' RS&T knowledge base that supports the requirements of our national goals
- Effective diffusion of RS&T knowledge that increases innovative potential across industry and government
- Greater awareness and understanding of and confidence in RS&T within our various stakeholder communities including the general public
- Well-established international RS&T connections that foster increased knowledge sharing and global collaborations.

Vision Mātauranga seeks to make contributions to each of these outcomes.

3.3 Diverse Research Scenarios

Vision Mātauranga presents four research themes which enable a wide range of research. The Ministry envisages that many different kinds of researchers, scientists, research organisations and providers – Māori and non-Māori – will be engaged to conduct research of relevance to these themes. Whilst much research throughout RS&T is of general relevance to Māori, *Vision Mātauranga* is focused on particular and distinctive opportunities that we suggest reside within the innovation potential of Māori knowledge, resources and people.

Research of relevance to the themes articulated in *Vision Mātauranga* is conducted by a range of research providers, including universities and Crown Research Institutes. However, it also includes emerging research conducted by iwi entities such as trust boards and *rūnanga*, private sector providers as well as the three Crown funded *wānanga*. These are locations in which an engagement with the 'innovation potential of Māori knowledge, resources and people' is likely to occur.

3.4 Māori-Relevant Research Centres, Programmes and Organisations

A range of Māori-relevant centres, programmes and organisations exist within CRIs and the tertiary sector. *Vision Mātauranga* research already takes place within some publicly funded entities. They include:

- Māori health and other research centres within universities
- *Ngā Pae o te Māramatanga: National Institute of Research Excellence for Māori Development and Advancement* (a Centre of Research Excellence located at the University of Auckland)
- Māori research programmes within the Crown Research Institutes
- Research activities within the three Crown-funded *wānanga*.

The Ministry envisages that *Vision Mātauranga* will find expression in the activities of these research providers. Where *Vision Mātauranga* research is taking place, the Ministry seeks the following outcomes:

- Greater synergy, connection and coordination among these sites of research activity
- Greater synergy, connection and coordination between these sites and the wider RS&T system.

3.5 New and Emerging Capacities and Capabilities: Research Conducted by Māori Organisations.

Recently, Māori communities, businesses and other organisations have commenced research activities based on the basis of a desire for Māori to be involved in research, particularly, research of relevance to Māori. This includes iwi-based research and research conducted by the three Crown-funded *wānanga*. *Vision Mātauranga* envisages that Māori participation in research will grow as research themes with particular relevance to the innovation potential of Māori knowledge, resources and people emerge. *Vision Mātauranga* research conducted by Māori communities and

organisations (including iwi, hapū and whānau) will flourish because this is where the innovation potential of Māori knowledge, resources and people is most likely to reside.

3.6 The Circumstances of Māori Enterprises

Numerous enterprises exist within Māori communities for various economic and social purposes. Examples include iwi based rūnanga, and trust boards. More recently, for-profit enterprises have been established following, for example, the settlement of Treaty of Waitangi claims. Many of these enterprises – which are critical to Māori economic and social development – operate in specific circumstances that include iwi expectations, relationships and accountabilities, the legislative framework, the kinds of resources available to them, and the cultural dimensions – tikanga Māori – to which they seek to give expression.

It is people – whether they are employees, owners, governors, managers or kaumātua – and whether they act individually or collectively – who are the cornerstone of Māori economic development. The most significant contribution to Māori economic development is likely to come from improving the education and skills of Māori people.

John Whitehead and Barbara Annesley, New Zealand Treasury, 'The Context for Māori Economic Development'

There are, however, some institutions that are unique to Māori, or which have a particular effect on Māori...For example, tikanga Māori provides a set of norms and values that organise and structure the relationships and behaviours of Māori people and their organisations in particular contexts. Iwi and hapū are important structures for many Māori... the momentum is clearly towards using these structures as ways to engage collectively with Māori, and as vehicles of economic participation and development. The Treaty of Waitangi... affects Māori in particular ways. The settlement of historical Treaty claims, for example, can provide a useful gateway to Māori economic development.

John Whitehead and Barbara Annesley, New Zealand Treasury, 'The Context for Māori Economic Development'

Some Māori for-profit enterprises operate in unique circumstances. Iwi based enterprises maybe asset-rich but cash-poor because they possess collectively owned and inalienable assets. They have difficulty raising investment capital and loans against assets that cannot be sold, or sometimes because of their ownership structure.

The Government has placed an emphasis upon exploring ways in which research and development activities can assist the growth of New Zealand industries and business sectors. The Ministry is interested in encouraging R&D within Māori-owned enterprises, including creating the preconditions where these enterprises invest their own resources into R&D activities.

Vision Mātauranga recognises that iwi-based enterprises already undertake R&D activities of the type envisioned by this framework. These enterprises are well placed to realise and act upon the innovation potential of Māori knowledge, resources and people. *Vision Mātauranga* encourages:

- the creation of distinctive products, processes, services and systems through R&D activities

- the discovery of distinctive approaches to environmental sustainability
- the development of successful and distinctive approaches to Māori health needs and issues
- the development of a distinctive body of knowledge which rises at the interface between indigenous knowledge (including mātauranga Māori) and RS&T.

In addition, *Vision Mātauranga* seeks:

- an increase in R&D activities within Māori-owned for-profit enterprises, particularly iwi rūnanga, trust boards and their companies
- an understanding of how R&D can add value to a for-profit enterprise and why it should invest funds to support R&D.

Appendices

4.1 Research and Development (R&D)

Research and development is a set of activities in which science intersects with business enterprise. R&D is the place where creative thinkers focus on key issues, problems and creative possibilities. It is here that the researcher locates sites of innovation – how to turn a raw resource such as a fibre or a fluid into something that can then be used to create a product. How to create a better software product, or fashion a cleansing agent from fish oil. This is the domain of research in R&D. At a key point in the process an idea emerges which leads to a product or a process that may have commercial potential. This is where entrepreneurial and business minds intersect with the research process.

The benefits of investing in R&D include:

- It encourages a spirit of creativity and enterprise by seeking to understand present circumstances in order to discover what might be possible in the future (rather than merely understanding the present for its own sake).
- It encourages an investment ethos
- It expands a notion of investment beyond merely financial implications to include investments in knowledge and people
- It expands and deepens notions of time in relation to investment and planning processes.
- It encourages a different approach to 'risk'. (Many organisations approach risk primarily through fiscal obligations and a concept of what they have now. R&D activity is forward-looking, enabling a balancing of present risk against future gains in knowledge and productivity.)
- It enables clearer intellectual property arrangements.

4.2 Funding and Investment Agents: The Funders of Research

Research funding from Vote RS&T is administered by the following funding and investment agents.

Foundation for Research, Science and Technology

15 - 17 Murphy Street
Level 11, Clear Centre
PO Box 12-240
Wellington
New Zealand
Phone: 64 (0)4 917 7800
Fax: 64 (0)4 917 7850
Web: www.frst.govt.nz

Health Research Council of New Zealand

Te Kaunihera Rangahau Hauora o Aotearoa
Level 3, 110 Stanley Street, Auckland, New Zealand
PO Box 5541, Wellesley Street, Auckland, New Zealand
Phone: 64 (0)9 303 5200
Fax: 64 (0)9 377 9988
Web: www.hrc.govt.nz

Royal Society of New Zealand

4 Halswell Street, Thorndon, Wellington, New Zealand
PO Box 598, Wellington, New Zealand
Phone: 64 (0)4 472 7421
Fax: 64 (0)4 473 1841
Web: www.rsnz.org

4.3 Distinctive Aspects of 'Māori' Research

The notion that Māori involvement in research has distinctive features has recently been explored in discussions about research of relevance to Māori (and research generally). What is the nature of 'Māori research' and how does it differ from research conducted by others? Questions of distinctiveness are complex but can be grouped into two themes:

- Applications and Use of Research
- Methodology.

Discussions about distinctiveness focus on both the nature and the usage of the tool (research). The applications and use of research involve:

- Setting research priorities (Who gets to say what is researched? What is the purpose of the research?)
- The location of the research (Where is the research being conducted?)
- The environment in which the research takes place (The conditions in which the research is carried out)
- The use of research outcomes (Who gets to use the research outcomes? Who benefits from them? How are these outcomes accessed?).

Recent initiatives to increase Māori involvement in research have usually centred upon these kinds of questions. Māori recognise that research is a powerful tool, that can be wielded for a variety of purposes. As with all tools, its users are empowered through its use.

Recently, however, deeper discussions about the tool itself have commenced. Attention is now paid to the methodologies by which research is conducted. A methodology is a process which leads to the creation and application of knowledge by:

- Posing research questions (By what process is a question or problem posed as the topic of study or research? How is a question posed?)
- Positing hypotheses
- Testing hypotheses
- Drawing conclusions and fashioning research results.

These are elements of the various processes by which knowledge is created through research. Questions pertaining to the potential contribution of the Māori world to methodology have catalysed discussion and interest in mātauranga Māori – the distinctive knowledge historically present within the Māori world. What might be the mātauranga Māori approach to the creation of knowledge? Here questions of distinctiveness inevitably arise.

Attached to these central issues pertaining to the nature and use of the tool—are a range of other key issues and questions:

- The role of technology in a scientific methodology, and in a mātauranga Māori-inspired methodology
- Contrasting the scepticism of science with the notion that mātauranga Māori is a heritage-inspired knowledge system
- The nature of the individual and the collective in both knowledge systems
- The ownership of knowledge
- The relationship between the workings of the rational and non-rational mind.

There are many more questions. Recent initiatives have recognised the need to create space for these fundamental questions to be addressed. These initiatives include 'The New Frontiers of Knowledge' theme which has been articulated for *Ngā Pae o te Māramatanga: The National Institute for Research Excellence in Māori Development and Māori Advancement*, in which these discussions will take place. In addition, Professor Mason Durie of Massey University delivered a paper on the interface between indigenous knowledge and research, science and technology at the 2004 APEC Science Ministers' conference held in Christchurch.

4.4 Glossary of Terms

Indigenous Knowledge – a term used internationally to denote knowledge traditionally held by indigenous communities. *Mātauranga Māori* is one such body of knowledge that falls within the international theme of indigenous knowledge.

Innovation – the processes by which marketable products are developed through R&D, commercialised and made available to the marketplace. All market economies value *innovation*.

Kaitiakitanga – an emerging approach to environmental management based on traditional Māori principles, concepts, values and views of the environment.

Research capability – the ability of an organisation, group or individual to conduct a research activity, usually in a particular discipline or field of inquiry.

Research capacity – the *amount* of research capability possessed by an individual, group or organisation.

Mātauranga – knowledge in general, as distinct from *mātauranga Māori*.

Mātauranga Māori – a body of knowledge that was first brought to New Zealand by Polynesian ancestors of present-day Māori. It changed and grew with the experience of living in these islands. Following encounter with the European in the late 1700s and early 1800s, it grew and changed again before becoming endangered in many substantial ways in the 19th and 20th centuries. The elements which remain today – including the Māori language – have catalysed a renewed interest in this body of knowledge.

Post-settlement entities – organisations, enterprises and companies established (or already in place) following the settlement of a significant Treaty of Waitangi claim and which are charged with developing commercial activities utilising assets arising from the settlement.

R&D – research and development.

4.5 References

Hui Taumata

References to the *Hui Taumata* were taken from guest presentations and keynote addresses. These can be found at:

www.huitaumata.maori.nz

Further information can be found in:

Hui Taumata 2005: Summary Report, Wellington, 2005
Hui Taumata Steering Committee

Whitehead, John and Barbara Annesley: *The Context for Māori Economic Development: A Background Paper for the 2005 Hui Taumata*
The Treasury, Wellington, 2005

Further references

Durie, Mason: *'Exploring the Interface between Science and Indigenous Knowledge'*

An unpublished paper presented to the 5th APEC Research and Development Leaders Forum, convened during the 4th APEC Ministers' Meeting on Regional Science and Technology Cooperation (10 - 12 March 2004)

He Korowai Oranga: Māori Health Strategy
Ministry of Health, Wellington, 2002

Māori Economic Development: Te Ōhanga Whanaketanga Māori
New Zealand Institute of Economic Research, Wellington, 2003

Ngā Pou Rangahau Hauora kia Whakapiki Ake Te Hauora Māori: The Health Research Strategy to Improve Māori Health and Well-being 2004 - 2008
Health Research Council of New Zealand, Auckland 2004

Opportunity for All New Zealanders
Ministry of Social Development, Wellington, 2004

Strategic Research Agenda for He Korowai Oranga
Ministry of Health, Wellington, 2005