Diversity is the Future of Research

Making the Case for Equity, Diversity and Inclusion

WHY WE ALL STAND TO BENEFIT

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Chief Science Advisor
Hikina Whakatutuki | Ministry of Business, Innovation & Employment
Overview

• MBIE Chief Science Advisor
• URONZ
• A disclaimer
• Some questions
  • What are science advisors
  • What is the case for equity, diversity, and inclusion
Our first questions for today

WHAT DO SCIENCE ADVISORS DO?
Science Advisors

- Provide thought leadership
- Ensure that the sector’s expertise is captured in the development of policy
- Explain MBIE to the science sector and vice versa
- Build internal capability in Vision Mātauranga
- Support access to science for other parts of MBIE
- Part of Science Advisor Network chaired by PMCSA
Both Sides

Field Research vs Open Plan Research
Biomedical research
Business as usual?

- Science board meetings
- Research, science and innovation strategy
- Health research strategy
- Infrastructure
- Provincial growth fund
- Strategic science investment fund
- Standards NZ
- Provide science advice across all of MBIE
What science should be funded

A policy perspective

“Research, science and technology is a set of knowledge creation and application activities that address the needs of our nation.”

Scientists’ perspective

“Scientific progress on a broad front results from the free play of free intellects, working on subjects of their own choice, in the manner dictated by their curiosity for exploration of the unknown. Freedom of inquiry must be preserved under any plan for Government support of science ...” Vannevar Bush, 1945
Total R&D Funding is around 4 billion
Government R&D 1.6 billion
PM’s chief science advisor

- 2009: PM John Key establishes role
- Senior, practising academic scientist
- Use of science in policy making
  - Scientific advice to PM
  - Public understanding of science
  - Promote NZ’s interests through science diplomacy
  - Chair network of science advisors
- Sir Peter Gluckman appointed
- Prof Juliet Gerrard replaces Sir Peter in 2018
NZ departmental science advisors (DSAs)

- Senior, practising scientists, seconded to departments
- Ministry of Business, Innovation & Employment (MBIE)
- Ministries of Social Development, Health, Justice, Education, Environment, Primary industries, Transport,
- Department of Conservation, NZTA, NZ Defence Force
Treasury and appropriations

- The Treasury is the Government’s lead economic and financial adviser
  - Minister of Finance Grant Robertson

- Appropriations are the basis on which Parliament authorises the executive government to incur expenses and capital expenditure.

- Each appropriation made to the Crown;
  - is the responsibility of a Minister (the appropriation Minister), and
  - must be administered by one department (the appropriation administrator) on behalf of the appropriation Minister.

- Vote Business, Science and Innovation
  - Appropriation Administrator: Ministry of Business, Innovation and Employment
  - Responsible Minister for Ministry of Business, Innovation and Employment: Minister for Economic Development
Further questions for today

Why does diversity matter?
WHAT WE STAND TO GAIN?

What we can learn from the current data for Women, Maori & Pasifika as students in our TEOs and in the workforce?
WHERE ARE WE NOW?

What are the challenges?
WHAT CAN BE DONE?

WHAT ARE WE DOING?
The current population of New Zealand and how this may look in the future

Diversity is the future of research

Source: Stats NZ
Equity versus equality

Giving everyone what they need to succeed which may not be the same for everyone
A case for equity, diversity and inclusion

WHY SHOULD WE CARE?
Why should we care?

It makes good economic sense

• Gender equity in leadership could increase our economy by $881m

• Education and income equity for Māori could see:
  - $2.6 billion per year back into Māori households.
  - 22,500 Māori moving from low skilled to high skilled jobs
Why should we care?

It drives excellence

Diversity can be an essential ingredient for research excellence leading to:

- Biases being overcome
- More equal participation
- Views being challenged
- Enhanced perspectives
- New discoveries
Why should we care?

It benefits society

- Knowledge produced by all parts of society improves its relevance to all society
- Work by Māori and Pasifika Researchers will increase community engagement in RSI leading to more positive outcomes for those communities and all of Aotearoa New Zealand
Why should we care?
It’s the right thing to do
A case for equity, diversity and inclusion

HOW DIVERSE IS OUR RESEARCH WORKFORCE?

Our data is not yet perfect; there are a few gaps so we are focusing on the areas where the data is good.
We have made good progress in New Zealand to promote the equality and status of women in research.
How diverse is the New Zealand Research Workforce?

WOMEN STUDENTS

Beginning in 2008 more than half of all students completing doctoral degrees are women.

Source: MBIE Research Science and Innovation System Performance Report 2018
How diverse is the New Zealand Research Workforce?

WOMEN STUDENTS
And since 2016 this is true across most subject areas with the exception of IT and engineering

Source: MBIE Research Science and Innovation System Performance Report 2018
WOMEN IN THE WORKFORCE

From 2017 nearly half of the government funded research workforce are women.

Source: Ministry of Education data for academic staff employed in tertiary organisations 2017. CRI data on ‘females in science roles’ was obtained separately as part of a work-force planning report to MBIE.
How diverse is the New Zealand Research Workforce?

BUT
How diverse is the New Zealand Research Workforce?

WOMEN IN THE WORKFORCE

Women are more likely to remain in junior academic positions.

Average Percentage of Professionals in Each Age Group, 2012-2017

Source: Ministry of Education Universities Workforce data 2012-2017
**WOMEN IN THE WORKFORCE**

Men tend to advance more rapidly especially in leadership roles.

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**Average Percentage of Professionals in Each Age Group, 2012-2017**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-49</td>
<td>6%</td>
<td>11%</td>
</tr>
<tr>
<td>50-59</td>
<td>13%</td>
<td>20%</td>
</tr>
<tr>
<td>60-64</td>
<td>12%</td>
<td>18%</td>
</tr>
<tr>
<td>30-49</td>
<td>2%</td>
<td>7%</td>
</tr>
<tr>
<td>50-59</td>
<td>9%</td>
<td>26%</td>
</tr>
<tr>
<td>60-64</td>
<td>12%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Source: Ministry of Education Universities Workforce data 2012-2017
WOMEN IN THE WORKFORCE

Men tend to advance more rapidly especially in Professor/Dean roles and we are seeing a large increase in men moving into Professor/Dean roles in the 50-59 age bracket.

How diverse is the New Zealand Research Workforce?

Source: Ministry of Education Universities Workforce data 2012-2017
WE WOMEN IN THE WORKFORCE

We project that 2035 is the earliest that women will make up 50% of Professor and Dean roles.

How diverse is the New Zealand Research Workforce?

Source: Ministry of Education Universities Workforce data 2012-2017
There has been an increase in Māori obtaining bachelors and doctorates

BUT

We have a long way to go to make the research workforce more representative, particularly in STEM subjects...
MĀORI STUDENTS

Over the last 9 years, Māori average 11% of all Bachelors students (Māori make-up 15% of the population)
How diverse is the New Zealand Research Workforce?

MĀORI STUDENTS

Over the last 9 years, Māori average 11% of all Bachelors students
And 7% of Doctoral students

Source: Education Counts
MĀORI STUDENTS

However fewer Māori students are pursuing STEM subjects.

How diverse is the New Zealand Research Workforce?

<table>
<thead>
<tr>
<th>Subject</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Technology</td>
<td>1%</td>
</tr>
<tr>
<td>Natural and Physical Sciences</td>
<td>2%</td>
</tr>
<tr>
<td>Architecture and Building</td>
<td>5%</td>
</tr>
<tr>
<td>Engineering and Related Technologies</td>
<td>5%</td>
</tr>
<tr>
<td>Education</td>
<td>6%</td>
</tr>
<tr>
<td>Agriculture, Environmental and Related Studies</td>
<td>6%</td>
</tr>
<tr>
<td>Food, Hospitality and Personal Services</td>
<td>7%</td>
</tr>
<tr>
<td>Health</td>
<td>9%</td>
</tr>
<tr>
<td>Mixed Field Programmes</td>
<td>9%</td>
</tr>
<tr>
<td>Creative Arts</td>
<td>10%</td>
</tr>
<tr>
<td>Management and Commerce</td>
<td>14%</td>
</tr>
<tr>
<td>Society and Culture</td>
<td>36%</td>
</tr>
</tbody>
</table>

Source: Education Counts
How diverse is the New Zealand Research Workforce?

MĀORI IN THE WORKFORCE

Less than 5% of researchers in universities and CRIs are Māori.

Māori Representation in New Zealand Crown Research Institutes

<table>
<thead>
<tr>
<th>Institution</th>
<th>Māori (%)</th>
<th>Non-Māori (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crown Research Institutes</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Wānanga</td>
<td>72%</td>
<td></td>
</tr>
<tr>
<td>Polytechnics</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Universities</td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Ministry of Education data for academic staff employed in tertiary organisations 2017. CRI data on ‘Māori in science roles’ was obtained separately as part of a work-force planning report to MBIE.
MĀORI IN THE WORKFORCE

Less than 5% of researchers in universities and CRIs are Māori.

And there has been no change to this number of Maori academic staff over the last 6 years.

The percentage of Maori academic staff does not reflect our population.

Source: Ministry of Education workforce data 2012-2017
How diverse is the New Zealand Research Workforce?

MĀORI IN THE WORKFORCE
Māori tend to be concentrated in more junior roles and in Māori studies

Source: PBRF 2018 Quality Evaluation
The numbers are worse still for Pacific Peoples who are one of the least represented groups in the research workforce.
How diverse is the New Zealand Research Workforce?

PASIFIKA STUDENTS
Over the last 9 years, Pasifika average 3% of all Doctoral students.
How diverse is the New Zealand Research Workforce?

And only 1% of researchers in universities are Pasifika.

Pasifika Representation in New Zealand Crown Research Institutes

- Wānanga: 5%
- Polytechnics: 3%
- Universities: 1%

Source: Education Counts
How diverse is the New Zealand Research Workforce?

PASIFIKA IN THE WORKFORCE

There has been little change to this 1% Pasifika workforce over the last 6 years.

The percentage of Pasifika academic staff does not reflect our population.

Proportion of Pasifika Researchers Relative to National Population Projections, 2013-2038

Source: Ministry of Education workforce data 2012-2017
How diverse is the New Zealand Research Workforce?

PASIFIKA IN THE WORKFORCE

Pasifika tend to be concentrated in more junior roles and in Pacific research.

Proportion of Pasifika Researchers in PBRF Subjects

- Accounting and Finance
- Agriculture and Other Applied Biological Sciences
- Architecture, Design, Planning, Surveying
- Biomedical
- Chemistry
- Clinical Medicine
- Communications, Journalism and Media Studies
- Computer Science, Information Technology, Information Sciences
- Economics
- Education
- English Language and Literature
- History, History of Art, Classics and Curatorial Studies
- Law
- Marketing and Tourism
- Pacific Research
- Political Science, International Relations and Public Policy
- Psychology
- Public Health
- Pure and Applied Mathematics
- Sociology, Social Policy, Social Work, Criminology & Gender Studies
- Visual Arts and Crafts

Proportion of Researchers

Source: PBRF 2018 Quality Evaluation
A case for equity, diversity and inclusion

WHAT ARE THE CHALLENGES AND WHAT CAN BE DONE?
What are the challenges and what can be done?

Highly complex & different for different groups
Exclusion
Inadequate paid parental leave
Bias
Gendering of subjects
Environment
Stereotype threat
Gendered division of labour
Power imbalance
Marginalisation
Lack of affordable childcare
Deficit theorising
Lack of available talent perception
Undervaluing work
Microaggressions
Caregiving responsibilities
Pay gap
Sexual Harassment
Racism
Hierarchy
Bullying
So what is our focus today?

- Unconscious bias
- Research environment

- Highly complex & different for different groups
- Exclusion
  - Inadequate paid parental leave
- Bias
- Gendering of subjects
- Gendered division of labour
- Stereotype threat
- Power imbalance
- Deficit theorising
- Environment
- Marginalisation
  - Lack of role models
  - Lack of affordable childcare
- Bullying
- Sexual Harassment
- Racism
- Microaggressions
- Caregiving responsibilities
- Pay gap
- Undervaluing work
- Isolation
- Lack of available talent perception
- Hierarchy
Unconscious Bias

Won’t the pipeline sort itself out?

NO

• The increase in the number of woman doctorates has little impact on the number of woman in leadership roles

• There has been little to no growth in the numbers of Māori and Pasifika Researchers
Isn’t it just about merit?

NO

• Merit is judged by people and people have biases
• Not everyone has had the same opportunities
Tackling unconscious bias and inequities in our research environment

• Tackle structural and cultural barriers
• Support organisations to be more inclusive
Tackling unconscious bias and inequities in our research environment

• Tackle structural and cultural barriers
• Support organisations to be more inclusive
• Support early career Māori doctoral scholars
  – Financial support
  – Creation of culturally safe spaces
  – Culturally responsive relationships
Tackling unconscious bias and inequities in our research environment

- Tackle structural and cultural barriers
- Support organisations to be more inclusive
- Support early career Māori doctoral scholars
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  - Creation of culturally safe spaces
  - Culturally responsive relationships
- Continue to improve our data
A case for equity, diversity and inclusion

WHAT ARE WE CURRENTLY DOING IN THE DIVERSITY SPACE?
What are we currently doing in the Diversity space?

- Promote & disseminate best practice
- Shine a light on key issues of inequity in the science system
- Embed diversity across SSIP & SII operations
- Ensure fair and inclusive funding processes
- Create linkages across the science system

Our Current Focus Areas
Identifying, promoting and disseminating examples of best practice across the science system which advances equity, diversity and inclusion

Publication of the GRC Supporting Women in Research booklet

What are we currently doing in the Diversity space?
What are we currently doing in the Diversity space?

We are asking Researchers ...

• What progress do you think has been made to increase equity, diversity and inclusion
• What more needs to be done!
What are we currently doing in the Diversity space?

Connect with other parts of the science system to identify collective goals, promote existing initiatives and identify gaps

- GRC Gender Working Group
- APEC & ANZRICA
- Cross agency/Ministry Working group
What are we currently doing in the Diversity space?

- Challenge bias and ensure fair and inclusive funding processes
- Started collecting diversity data for MBIE funds
- Fund documentation linking to Diversity Statement
- Unconscious bias video provided to Endeavour Assessors
What are we currently doing in the Diversity space?

Embed diversity across internal operations by placing a diversity lens across everything we say and do.

Diversity criteria added to the MBIE science sponsorship process.
And we are excited to now have two Interns to help us on the next steps.

**Ankita Gangotra**
Ankita’s project is looking at policy options for increasing diversity and equity in science in New Zealand.

**Dr Tara McAllister**
Tara’s project will help build a clearer picture of how the Māori science workforce is structured and shed light on potential inequities and barriers for Māori researchers.
AND WHAT’S NEXT FOR US?

• We are now collecting diversity data from our Funding processes: *We can’t fix what is not measured*

• Collating the Diversity data (both qualitative and quantitative) from the wider Research system

• Better understanding the problem: *Finding the root causes*

• Looking at international practice

• Supporting areas where we can make the most difference

• RSI strategy

• Institutional change

• Funding

Mā mahi tahi kā ora, ka puāwai | By working together we will flourish and achieve greatness
Nā mātou, nā Hīkina Whakatutuki | From us, at MBIE