

Background Material for the Review Panel on the Performance-Based Research Fund

This paper is designed to provide a brief overview of relevant background areas for the Performance-Based Research Fund Review. More detailed information on all topics can be made available if requested.

History of the Performance-Based Research Fund

Introduction

The Performance-Based Research Fund (PBRF) was established in 2002 and was progressively introduced between 2004 and 2007. The fund is designed to reward and encourage high-quality tertiary education research and research-led teaching across all subject areas and types of research. It works alongside tuition subsidy funding to enable New Zealand students and international students studying in New Zealand to receive world-class degree and postgraduate qualifications. The PBRF was introduced alongside the Centres of Research Excellence fund, which encourages critical mass and collaboration in areas of research excellence.

Before 2004, tertiary education organisations (TEOs) received funding based on the number of equivalent full-time students (EFTS). This funding covered capital and operating costs, as well as funding for tuition and research. The research component paid for study at degree-level and above was known as a “research top-up”. In the allocation of research top-up funding, no attention was given to the quality or quantity of research produced by TEOs.

The shift from EFTS research top-up funding to the PBRF was based on a recommendation from the Tertiary Education Advisory Commission (TEAC) in 2001, which was set up to advise the government of the day on a long-term strategic direction for tertiary education. TEAC recommended that a performance-based research fund be introduced as there was a strong case for better rewarding and incentivising research excellence in the tertiary sector. The rationale for this was that the EFTS-based system did not provide sufficient security for long term work, rewarded quantity not quality of research, and did not provide robust information on the quality of research.

Purpose

The Performance-Based Research Fund (PBRF) is a performance-based funding system to encourage and reward excellent research in New Zealand's degree-granting organisations. It does not fund research directly but supports research, including post-graduate level teaching support.

The PBRF was first recommended by TEAC, however it was the PBRF Working Group that provided advice on the detailed design and implementation arrangements for the PBRF. They concluded that the focus of the PBRF should be on revealing and rewarding researcher excellence and excellent research, defined in terms of:

- Producing and creating leading-edge knowledge.
- Applying that knowledge; disseminating that knowledge to students and the wider community.

- Supporting current and potential colleagues to create, apply and disseminate knowledge.¹

These focus areas were mainly put in place for the PBRF and objectives were also added. The current objectives of the PBRF are to:

- Increase the quality of basic and applied research at New Zealand's degree-granting tertiary education organisations (TEOs).
- Support world-leading teaching and learning at degree and postgraduate levels.
- Assist New Zealand's TEOs to maintain and lift their competitive rankings relative to their international peers.
- Provide robust public information to stakeholders about research performance within and across TEOs.

In doing so, the PBRF will also:

- Support the development of postgraduate student researchers and new and emerging researchers.
- Support research activities that provide economic, social, cultural, and environmental benefits to New Zealand, including the advancement of Mātauranga Māori.
- Support technology and knowledge transfer to New Zealand businesses, iwi and communities.

To meet these objectives, the main focus of the PBRF is on rewarding and encouraging excellence. Excellence is not just about the production of high-quality research articles, books, exhibitions and other forms of research output. It also includes all of the following:

- the production and creation of leading-edge knowledge
- the application of that knowledge
- the dissemination of that knowledge to students and the wider community, and
- supporting current and potential researchers (e.g. postgraduate students) in the creation, application and dissemination of knowledge.

The PBRF is governed by the following guiding principles:

- **Comprehensiveness:** the PBRF should appropriately measure the quality of the full range of original investigative activity that occurs within the sector, regardless of its type, form, or place of output.
- **Respect for academic traditions:** the PBRF should operate in a manner that is consistent with academic freedom and institutional autonomy.
- **Consistency:** evaluations of quality made through the PBRF should be consistent across the different subject areas and in the calibration of quality ratings against international standards of excellence.
- **Continuity:** changes to the PBRF process should only be made where they can bring demonstrable improvements that outweigh the cost of implementing them.

¹ "Investing in Excellence: The Report of the Performance-Based Research Fund Working Group", Ministry of Education and Transition Tertiary Education Commission: 2002.

- **Differentiation:** the PBRF should allow stakeholders and the Government to differentiate between providers and their units on the basis of their relative quality.
- **Credibility:** the methodology, format and processes employed in the PBRF must be credible to those being assessed.
- **Efficiency:** administrative and compliance costs should be kept to the minimum, consistent with a robust and credible process.
- **Transparency:** decisions and decision-making processes must be explained openly, except where there is a need to preserve confidentiality and privacy.
- **Complementarity:** the PBRF should be integrated with new and existing policies, such as Investment Plans, and quality assurance systems for degrees and degree providers.
- **Cultural inclusiveness:** the PBRF should reflect the bicultural nature of New Zealand and the special role and status of the Treaty of Waitangi (te Tiriti o Waitangi), and should appropriately reflect and include the full diversity of New Zealand's population.

Past Reviews

When the PBRF was first introduced, a three phase review was outlined. The first phase took place in 2004, the second in 2008, and the third in 2012/13.

The first phase in 2004 covered the implementation of the PBRF and looked at if that implementation was aligned with the policy goals and if compliance costs were being minimised. It proposed that the PBRF be kept fundamentally the same, with some recommendations for change around staff participation criteria and the IT infrastructure.

The second phase in 2008 looked at the emerging effects of the PBRF and if there were any unintended consequences. As part of this, issues identified during the original policy development were re-examined. It was carried out by Dr Jonathan Adams, an independent expert from the United Kingdom.

He concluded that the PBRF had been effective and would benefit from further funding. However he did outline some improvements to consider, such as better recognising applied research, restricting staff eligibility, shifting to group assessment after 2012, not providing individual scores to staff, and increasing the weighting for higher funded quality categories. He also reiterated some of the concerns of TEAC and the PBRF Advisory Group, that the PBRF may not be adequately supporting mātauranga Māori research and applied research.

The third phase in 2012/13 was a longer term assessment of outcomes, to look at whether the PBRF had succeeded in lifting research quality. It found that the PBRF has supported a significant increase in the research performance and productivity of TEOs. This included an increase in the average quality of research, higher qualification completion rates for postgraduate research degrees, and growth in the share of world-indexed publications and citations.

Following this review, some changes were made to the PBRF, such as changing the proportion of funding allocated to each component, simplifying the assessment process (for example reducing the number of research outputs submitted), increasing the weighting for new and emerging researchers, the establishment of the Pacific Research panel to recognise Pacific-centred research methodologies and topics, and

revising the Quality Evaluation measures that are published to provide more meaningful comparisons.

Current Operation of the Performance-Based Research Fund

Overview

The PBRF does not fund research directly but supports research, including post-graduate level teaching support. The main focus of the PBRF is on rewarding and encouraging excellence.

All of New Zealand's TEOs are eligible to participate in the PBRF – universities, wānanga, Institutes of Technology and Polytechnics (ITPs) and Private Training Establishments (PTEs).

New Zealand's eight universities dominate the PBRF and will receive the bulk of the funding under the PBRF in 2019 (96.7%), with 14 of our 16 ITPs receiving funding, two of our three wānanga receiving funding and 11 PTEs receiving funding.

The PBRF is a capped pool (currently \$315 million per year) that can only be increased by a Government decision as part of the Budget. The PBRF is the second largest fund administered by the Tertiary Education Commission, after Student Achievement Component (tuition) funding.

The PBRF is a mixed performance-assessment regime that employs both peer review processes and performance measures. The three different components are the Quality Evaluation Assessment (55% of funding), research degree completions (25% of funding) and external research income (20% of funding).

There are a range of reported issues with the current mechanism, such as the burden placed on researchers, impact on hiring practices at TEOs, whether the process is accurately capturing the value of all forms of research, and the diminishing financial incentives. These will all be explored in further detail where relevant to each issue in the Terms of Reference.

Quality Evaluation

The Quality Evaluation component of the PBRF is based on a periodic assessment of the research performance of staff at eligible TEOs. TEOs present their staff members' research in Evidence Portfolios (EPs) that are assessed for quality by expert peer review panels.

The Quality Evaluation is held periodically (currently every six years). The results are used to allocate the annual funding allocations (ie results are used every year until the next Quality Evaluation is held). There have been four Quality Evaluations since the PBRF was introduced, in 2003, 2006, 2012 and 2018.

Participation in the Quality Evaluation component is mandatory for TEOs seeking funding through the PBRF, they cannot receive funding through the other two components if they have not participated.

Funding for this component is based on:

- The Quality Categories assigned to EPs (a higher weighting is given to higher quality categories, and new and emerging researchers).
- The subject area to which EPs have been assigned (a higher weighting² is given to some subject areas where there is a higher cost to research, ie clinical medicine).
- The full-time-equivalent (FTE) status of the TEO's PBRF-eligible staff.

Research Degree Completions

The research degree completion element of the PBRF is an annual measurement of the number of PBRF-eligible postgraduate research-based degrees completed at participating TEOs. This helps to capture the connection between staff research and research training and also provides a proxy for research quality.

Funding for this component includes weighting for higher cost subject areas (the same weighting as the Quality Evaluation subject areas), Māori and Pacific student completions and the volume of research in the degree programme (ie a higher weighting for a doctorate than a masters).

External Research Income

The external research income element of the PBRF is an annual measurement of the amount and type of income received by participating TEOs from external sources for research purposes. This is also seen as a good proxy for research quality.

Funding for this component includes a higher weighting for overseas research income and non-government income from within New Zealand. A lower weighting is given to funding from governmental contestable funds (such as the funding administered by MBIE outlined below) and public sector contract research.

International Systems for Assessing and Funding Quality Research

This section gives a brief outline of some of the notable ways research excellence is assessed internationally. More detailed information will be provided where relevant to each issue in the Terms of Reference (ie information on how each system assesses research impact will be outlined in the issue paper looking at how we could improve the measurement, assessment and rewards for research with a tangible impact on outcomes).

United Kingdom

The United Kingdom uses the Research Excellence Framework (REF) to assess the quality of research in their higher education institutions. It was first carried out in 2014 (and will next run in 2021), and replaces the previous Research Assessment Exercise (RAE). It aims to secure the continuation of a world-class, dynamic and responsive research base across the full academic spectrum within higher education in the United Kingdom.

² An exception to this is for EPs submitted to the Māori Knowledge and Development (MKD) and the Pacific Research panels, which have the weighting of the underlying subject area applied for the purposes of funding (i.e. an EP submitted to MKD that was heavily focussed on public health would have their subject area changed to public health to calculate funding).

Similar to the PBRF, the REF is also based on a process of expert review, with subject-based peer review panels. However there are two key differences: the REF is assessed at a group, rather than individual level, and the REF looks beyond the quality of outputs, to also assess the impact of research beyond academia, and the environment that supports research.

Professor Jonathon Boston has offered to provide Minister Salesa with a short paper on the REF and if a similar system would work for New Zealand. We anticipate that she may ask you to consider this, likely at your final meeting in November, when we anticipate Professor Boston finishing his paper.

Hong Kong

Hong Kong uses the Research Assessment Exercise (RAE – also the name of the United Kingdom's previous system, which it was modelled on). It has been run five times (in 1993, 1996, 1999, 2006 and 2014). Hong Kong's University Grants Committee has been deliberating on how they will assess research under the RAE in future and the next RAE will be run in 2020.

Following this, it has been announced that the 2020 RAE will include research impact as part of the assessment, with the aim of encouraging research with broader social relevance (ie with high economic and social benefits). The RAE is also similar to the REF, in that it is assessed at a group level, rather than an individual level and deliberate effort is made to reduce the stress on individual researchers (ie it has been emphasised that departments should not impose sanctions on staff members who do not submit research outputs).

Australia

Australia assesses the research of its higher education institutions through two main mechanisms – Excellence in Research for Australia (ERA) and the Engagement and Impact Assessment (EI). It should be noted that neither of these assessment mechanisms are currently linked to funding.

ERA is Australia's national research evaluation framework, which is designed to identify and promote excellent research in Australian higher education institutions. Four rounds have been held (in 2010, 2012, 2015 and 2018 – a much shorter cycle than the PBRF). One of the key aims of ERA is to provide reliable and credible data on the quality of research, to be used by Government, universities, industry and prospective students. It has been tied to funding in the past, but was decoupled for the 2018 round as part of Australia's higher education funding review.

The EI assessment took place for the first time in 2018, and was implemented as a companion exercise to ERA. It is designed to assess how well researchers are engaging with end-users of research, and shows how universities are translating their research into economic, social, environmental, cultural and other impacts.

European Union

Performance-based research funding systems have been implemented in a number of European Union member states. This is in part because one of the main priorities of the European Research Area has been to introduce funding mechanisms linked to performance. Some of these systems are based on bibliometric metrics and some on

peer-review based assessment, with a wide variety in design of the different mechanisms. Some also assess external research income or post-graduate qualification completions (similar to the PBRF).

Research Policy and Funding in New Zealand

Performance-Based Research Fund

The PBRF is designed to encourage and reward excellent research in New Zealand's degree-granting organisations. It supports TEO's capability and ability to maintain a responsive and effective network of provision.

It does not fund research directly, but instead supports research, including post-graduate level teaching support. This makes it quite different to some of our other major ways of funding research in New Zealand which are listed below, they tend to fund future research directly, rather than rewarding TEOs for their past research.

Endeavour Fund

The Endeavour Fund supports research, science or technology with the potential to: positively transform New Zealand's economic performance, the sustainability and integrity of the environment; help strengthen New Zealand society; and to give effect to the Vision Mātauranga policy.

In the 2017 round universities won 59% of the contracts (48% of total funding), and in the 2018 round they won 52% of the contracts (44% of total funding). Universities have tended to be more successful in the Smart Ideas category, which are generally smaller awards than those in the Research Programmes category.

Marsden Fund

The Marsden Fund is New Zealand's premier fund for investigator-led research. It supports excellence in research across the sciences and the humanities. It is administered by the Royal Society Te Apārangi. Universities are awarded almost all of this fund, although other TEOs also participate.

Health Research Council Funding

The Health Research Council provides funding for biomedical, public health, clinical, health services delivery, and Māori and Pacific health research. Universities receive the bulk of this funding.

Centres of Research Excellence

Centres of Research Excellence (CoREs) were established in 2001. They are designed to encourage the development of excellent tertiary education-based research that is collaborative, strategically focused and creates knowledge transfer. The first CoREs were funded in 2002 with further funding rounds in 2006/07 and 2013/14. A further selection round will take place later this year. There are currently 10 CoREs, funded through until the end of 2020, all of which are hosted by a university.

Wānanga Research Capability Fund

In Budget 2007, the Government established the Wānanga Research Capability Fund (WRCF) as a temporary mechanism to support the wānanga to increase postgraduate provision and lift their research capacity and capability. However, by 2012 review of the PBRF, a more permanent remedy had still to be identified. The WRCF has provided \$0.5 million per annum to each of the wānanga since 2008.

In 2014, as part of decisions resulting from the 2012/13 review, it was recognised that the PBRF disadvantaged smaller and new research-based institutions such as wānanga. Cabinet also agreed that the PBRF was not an appropriate mechanism to build research capacity and capability in the wānanga sector and directed the Ministry of Education to work with all three wānanga to “address their research aspirations” [SOC MIN (14) 2/3 refers].

Although two of the three wānanga currently participate in the PBRF, all three have concerns about the ability of the PBRF to adequately assess quality in mātauranga Māori research and the way in which the fund privileges the university sector over other degree-granting TEOs, all of which are required by the Act to provide research-led teaching.

Wānanga Research Aspirations

The Wānanga Research Aspirations (WRA) project began in 2015 with the objective of developing an appropriate funding mechanism to grow research capacity and capability in the wānanga sector. In December 2017, the Government reaffirmed its commitment to the WRA project by setting aside tagged contingency funding in Budget 2018 to give effect to this ongoing work. [CAB-18-MIN-0158.29 refers].

In the meantime, the WRCF has been increased to \$6 million per year for the next three years while officials work with the wānanga sector to co-design a more appropriate and sustainable solution for the wānanga sector.

Surrounding Work Programme and Wider Context

Tertiary Education Strategy

The Tertiary Education Strategy (TES) sets out the Government’s long-term strategic direction and medium-term priorities for tertiary education, to give effect to the Government’s overarching education outcomes. A further major purpose of the TES is to enable reforms, tertiary-facing initiatives, and investment in the tertiary education system, as well as supporting the Tertiary Education Commission to communicate the Government’s tertiary education priorities to providers.

The Ministry is developing a new TES, as the current TES (2014-2019) will expire this year. The draft of the new TES is structured around a small number of main priorities for tertiary education. These will be accompanied by associated actions to be undertaken by both tertiary education providers and responsible government agencies to underpin these priorities.

The drafting of the TES has been informed by an evidence brief, which will be published alongside the strategy. There has also been significant stakeholder

engagement throughout the tertiary sector which has also been used to inform the content of the draft TES. Public consultation on this draft TES is expected to commence in the next few months.

Research, Science and Innovation Strategy

Building and expanding upon the National Statement of Science Investment (NSSI), the Research, Science and Innovation Strategy will maximise the benefits that research, science and innovation can make to the economy, the wellbeing of New Zealanders, and advancing the priorities of this Government.

Officials consulted across government agencies and with stakeholders to assist development of the Research, Science and Innovation (RSI) Strategy.

A draft RSI Strategy will be submitted to Cabinet this year ahead of public consultation. The Ministry of Business, Innovation and Employment will release a final RSI Strategy in the second half of 2019.

Review of Vocational Education

Once Cabinet have made decisions around the Review of Vocational Education (RoVE) we will update the panel, in particular on the implications for the PBRF.