



Tertiary Education Commission
Te Amorangi Mātauranga Matua

Performance-Based Research Fund

Evaluating Research Excellence

The 2006 Assessment

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Foreword



We New Zealanders have always been proud of our innovations, ideas, and ability to scale international heights.

In today's age, it is our research community that provides us with the enormous opportunity to continue this tradition of innovation and creativity – innovation not only in the economic sphere but also in the research excellence that preserves and enhances our culture and our environment. All research contributes to the intrinsic value of intellectual disciplines.

It contributes to new ways of thinking; it provides new ideas for new products or new ways of doing things. It is a means by which we learn more about ourselves, our history, our culture and people, and our surroundings – and thus it enriches our lives socially, culturally and economically. It is a tool by which we create sophisticated high-value concepts and products.

More than four years ago we launched an ambitious scheme to help boost the excellence of the research conducted in our tertiary education organisations, which are responsible for about half of the country's public-sector research output.

This scheme, the Performance-Based Research Fund (PBRF), ensures that excellence in tertiary sector research is encouraged and rewarded. It is an acknowledgement of the importance of

the tertiary education sector to New Zealand's research development, and therefore to our nation's economic and social advancement and environmental sustainability.

The very fact of the PBRF recognises that a vigorous high-quality research culture within an institution underpins and enhances degree-level learning environments, especially at postgraduate level.

This report outlines the results from the second Quality Evaluation round of the PBRF. It heartens me that after only a few years the system is already showing signs of success in encouraging the sector, and universities in particular, to raise the quality of their research. All universities and most other providers participating in the PBRF have shown improvements in research quality between the 2003 and 2006 Quality Evaluations. Most heartening is the marked increase in the numbers of world-class researchers: this confirms that our tertiary education organisations are able to attract and retain staff of the highest quality. In addition, the recognition that has been given to new and emerging researchers, who represent the future of academic research in New Zealand, is extremely welcome.

Overall, these results give the government good grounds for its ongoing commitment to research based in the tertiary education sector. They also give it confidence that the research it funds will contribute to product and technological innovation, to a better understanding of the issues that affect all aspects of life in this country, and to equipping New Zealanders with 21st-century skills.

Hon Dr Michael Cullen
Minister for Tertiary Education

Preface



In the tertiary education sector in New Zealand, 2007 is shaping up to be a watershed year. At the Tertiary Education Commission, we are overseeing a significant change to the way the government invests in tertiary education.

The tertiary education reforms focus on improving the quality and relevance of tertiary education and positioning it as a major force in New Zealand's economic and social transformation.

These reforms are driven by the same impetus that, more than five years ago, sought to improve research quality across the sector and achieve better results for New Zealand through the establishment of the Performance-Based Research Fund (PBRF).

The progress that has been made in those five years can be seen from the PBRF's second Quality Evaluation, undertaken by the TEC in 2006. Its results are presented in this report.

Thank you to everyone who has been involved in making this happen. It is a complex task – and it can be successful only through the significant contributions made by many people in the tertiary education sector.

The sector played a major role in the design of the system; and it had a critical role in refining the PBRF during the preparations for the 2006 Quality Evaluation, through the extensive consultation undertaken by the PBRF Sector Reference Group. In addition, more than 200 individuals made themselves available to be part of the assessment process as panel members or specialist advisers. That's not only a considerable time commitment, but involves the difficult and sometimes unenviable task of passing judgement on the work of peers.

The Quality Evaluation is rigorous and robust, and these qualities ensure the integrity and quality of its assessment process. With such a solid and secure foundation, the PBRF will continue to support research excellence, promote human capital development and contribute to a successful future for all New Zealanders.

Janice Shiner
Chief Executive
Tertiary Education Commission
Te Amorangi Mātauranga Matua

Executive Summary

Key findings

- 1 The results of the 2006 Quality Evaluation show that:
 - a The average FTE-weighted quality score for the 31 participating tertiary education organisations (TEOs) is 2.96 (out of a potential maximum score of 10). This compares to an FTE-weighted quality score of 2.59 reported in 2003.
 - b There are a substantial number of staff in TEOs undertaking research of a world-class standard – of the 8,671 PBRF-eligible staff, the Evidence Portfolios of 7.4% (FTE-weighted) were assigned an “A” Quality Category by a peer review panel. In 2003, the Evidence Portfolios of 5.7% of PBRF-eligible staff were assigned an “A” Quality Category.
 - c There are significant numbers of high-calibre researchers in a broad range of the 42 subject areas. For instance, in nine subject areas the Evidence Portfolios of more than 20 staff (FTE-weighted) were assigned an “A” Quality Category and in 17 subject areas the Evidence Portfolios of more than 50 staff (FTE-weighted) were assigned a “B” Quality Category.
 - d The Evidence Portfolios of a total of 5,763 staff (non-FTE-weighted) were assigned a funded Quality Category (“A”, “B”, “C”, or “C(NE)”) in 2006. This compares to 4,740 staff in 2003.
 - e Almost 2,000 PBRF-eligible staff were reported as having met the eligibility criteria for new and emerging researchers by their TEOs, and the Evidence Portfolios of almost 1,000 of these staff were assigned a funded Quality Category in 2006. The vast majority (84%) were assigned a “C(NE)” Quality Category. In the absence of the specific assessment pathway for new and emerging researchers, it is likely that a large number of these would have been assigned an unfunded Quality Category.
 - f The research performance of PBRF-eligible staff (32.5% FTE-weighted) was deemed to not yet meet the standard required for achieving a funded Quality Category. This compares to almost 40% (FTE-weighted) in 2003. It is important to stress that the assignment of an “R” or “R(NE)” Quality Category does not mean that the staff member in question has produced no research outputs during the six-year assessment period, or that none of the research outputs produced are of a sound (or even very good) quality.
 - g There are major differences in the research performance of the participating TEOs. All eight universities achieved higher quality scores than the other 14 TEOs. The Evidence Portfolios of relatively few researchers outside the university sector secured an “A” or “B” Quality Category, and some TEOs had very few researchers whose Evidence Portfolios were rated “C” or above. This reflects the broad patterns identified in 2003.
 - h The University of Otago achieved the highest quality score of any TEO. The second-ranked TEO, the University of Auckland, achieved only a slightly lower quality score. The universities of Auckland (209 or 33%) and Otago (144 or 23%) have the greatest number of researchers in the country whose Evidence Portfolios were assigned an “A” Quality Category.

- i Research performance within the university sector is very uneven. The difference in quality score between the top-ranked university and the bottom-ranked university (Auckland University of Technology) is 2.37. For instance, the Evidence Portfolios of 42.3% of PBRF-eligible staff (FTE-weighted) in the university sector were assigned an “A” or “B” Quality Category. The range, however, extended from 50.4% for the highest-scoring university to 15.8% for the lowest-scoring university. Likewise, those assigned an “R” (or “R(NE)”) Quality Category varied between 11.4% and almost 42%.
- j More than 5% or 311 of the researchers whose Evidence Portfolios were assigned a funded Quality Category are located in the institutes of technology and polytechnics (ITPs). This is a relatively high number given that these TEOs generally have emerging research cultures. Almost half of these PBRF-funded staff are found in just five subject areas: visual arts and crafts (71), computer science, information technology, information sciences (35), engineering and technology (24), education (22), and management, human resources, industrial relations and other businesses (21).
- k There are marked differences in the research performance of the 42 subject areas. While some subject areas have a substantial proportion of researchers whose Evidence Portfolios were in the “A” and “B” Quality Categories, others have hardly any. Altogether, eight of the 42 subject areas have a quality score of less than 2.0 and thus an average score within the “R” range (0 to 1.99). The relative rankings of subject areas are very similar to those identified in 2003.
- l In general, the best results were achieved by long-established disciplines with strong research cultures, such as earth sciences and philosophy. Many of the subject areas with low quality scores are newer disciplines in New Zealand’s tertiary education sector, such as nursing; design; education; sport and exercise science; and theatre and dance, film and television and multimedia.
- m As in 2003, relatively high quality scores were achieved by subject areas within the biological and physical sciences, the humanities, and the social sciences. Against this, with only a few exceptions, subject areas in the fields of business and the creative and performing arts had below-average quality scores.
- n As with subject areas, there are marked differences in the research performance of the 336 academic units nominated for reporting purposes by participating TEOs. On the one hand, there are 46 nominated academic units with a quality score of at least 5.0. On the other hand, there are 101 units with a quality score of less than 1.0.

Key facts

- 2 Of the 46 PBRF-eligible TEOs, 31 participated in the 2006 Quality Evaluation. The 31 TEOs comprised all eight universities, ten ITPs, two colleges of education, two wānanga, and nine private training establishments. In addition, provision was made for the separate reporting of the former Auckland and Wellington colleges of education.

- 3 The 2006 Quality Evaluation was conducted as a “partial” round. This meant that the preparation and submission of Evidence Portfolios was not required for most PBRF-eligible staff, and the Quality Categories assigned in 2003 could, in most cases, be “carried over” to the 2006 Quality Evaluation. TEOs were also not required to undertake a full internal assessment of the Evidence Portfolios of their PBRF-eligible staff, rather they were simply required to submit Evidence Portfolios that were likely to meet the standards required for the assignment of a funded Quality Category.
- 4 Of the 8,671 PBRF-eligible staff in the participating TEOs, 2,996 had their Quality Categories assigned in 2003 “carried over” to the 2006 Quality Evaluation and automatically reconfirmed. Evidence Portfolios were not submitted for a further 1,143 staff and, in these cases, “R” or “R(NE)” Quality Categories were automatically assigned. A further 4,532 had their Evidence Portfolios assessed by a peer review panel. There were 12 such panels covering 42 designated subject areas. The work of these expert panels was overseen by a Moderation Panel comprising the 12 panel chairs and three moderators. Altogether, there were 175 panel chairs and members, of whom 41 were from overseas. In addition, a total of 51 specialist advisors assisted panels in the assessment of Evidence Portfolios.
- 5 The external research income generated by the TEOs participating in the PBRF totalled around \$286 million in the 2005 calendar year. Overall, reported external research income has increased by 47% (from \$195 million) since 2002.
- 6 Research degree completions reported by the TEOs participating in the PBRF totalled 2,574 in the 2005 calendar year. Overall, PBRF-eligible research degree completions have increased by 49% (from 1,730) since 2002. The majority of the completions were masters courses and approximately one quarter were doctorate completions.

Confidence in the assessment process

- 7 The TEC undertook a series of audits in order to ensure that the Quality Evaluation was conducted in a robust, fair and consistent manner and that the data upon which the 12 peer review panels based their assessments were of the highest possible integrity.
- 8 An audit of research outputs conducted by the TEC identified some ineligible entries in Evidence Portfolios. In addition, an audit of staff eligibility identified a small number of instances where TEOs had incorrectly determined the eligibility of staff, or had incorrectly applied the eligibility criteria for new and emerging researchers. Where appropriate, this information was corrected.
- 9 The TEC’s Internal Audit group provided assurance on the processes followed for the PBRF, and was satisfied that the processes, procedures and practices in relation to the PBRF were consistent with good practice, and were carried out in accordance with the agreed design.
- 10 In summary, the TEC is confident that the peer review panels undertook their assessment of Evidence Portfolios in accordance with the assessment framework. The TEC considers that the results of the 2006 Quality Evaluation provide a fair reflection of the quality of research being undertaken across the tertiary education sector. The TEC is also confident that the data supplied by TEOs in relation to external research income and research degree completions are reliable.

Reporting framework

- 11 The results of the 2006 Quality Evaluation are discussed and analysed in Chapter 5. They are also outlined in detail in Appendix A of this report. The results include:
 - a The overall distribution of Quality Categories (“A”, “B”, “C”, “C(NE)”, “R”, and “R(NE)”) across the tertiary education sector, as well as for each of the 31 participating TEOs, 12 peer review panels, 42 subject areas, and 336 nominated academic units.
 - b The quality scores of the participating TEOs, peer review panels, subject areas, and nominated academic units (the method for calculating the quality scores is explained in Chapter 4);
 - c The number of PBRF-eligible staff for each of the participating TEOs, peer review panels, subject areas and nominated academic units; and
 - d The number of Evidence Portfolios assessed in 2006 for each of the participating TEOs, peer review panels, subject areas, and nominated academic units.
- 12 The results of the 2003 Quality Evaluation, and especially the quality score data, reflect the nature of the assessment methodology that has been employed and the particular weightings applied to the four Quality Categories – ie “A” (10), “B” (6), “C” and “C(NE)” (2), and “R” and “R(NE)” (0). Had the methodology (or weighting regime) been different, so too would the results.
- 13 Under the approach adopted, the maximum quality score that can be achieved by a TEO (subject area or nominated academic unit) is 10. In order to obtain such a score, however, all the PBRF-eligible staff in the relevant TEO would have to receive an “A” Quality Category. With the exception of very small academic units, such an outcome is extremely unlikely (ie given the nature of the assessment methodology adopted under the 2006 Quality Evaluation and the very exacting standards required to secure an “A”). No sizeable academic unit, let alone a large TEO, could reasonably be expected to secure a quality score even close to 10. Much the same applies to quality scores at the subject-area level. Likewise, there is no suggestion that a quality score of less than 5 constitutes a “fail”. These considerations are important to bear in mind when assessing the results reported in this document.
- 14 Several other matters deserve emphasis in this context. The quality scores of particular units are bound to change over time, at least to some degree – reflecting turnover in the staff being assessed and related fluctuations in the quality and quantity of research output. For obvious reasons, smaller academic units and TEOs are likely to experience greater variations in their scores than larger ones.
- 15 The quality score data also provide only one way of depicting the results of the 2006 Quality Evaluation and do not furnish a complete picture. For instance, the subject area of education achieved a relatively low quality score (1.31 FTE-weighted), yet it contains no less than 25.86 A-rated staff and 96.77 B-rated staff (FTE-weighted). The low quality score reflects the very large number of staff whose Evidence Portfolios were assigned an “R” or “R(NE)”.

- 16 For comparative purposes, data are presented using two measures of the number of PBRF-eligible staff: full-time-equivalent (FTE) and non-FTE at the overall TEO, panel and subject area level. In order to reduce the possibility that the results of individuals might be inferred, data are presented only on an FTE basis at other levels.
- 17 There are a number of factors that ought be considered when making intertemporal comparisons with the 2003 Quality Evaluation. These are discussed in detail in Chapters 4 and 5.

History of the PBRF

- 18 The purpose of conducting research in the tertiary education sector is twofold: to advance knowledge and understanding across all fields of human endeavour; and to ensure that learning, and especially research training at the postgraduate level, occurs in an environment characterised by vigorous and high-quality research activity.
- 19 The primary goal of the Performance-Based Research Fund (PBRF) is to ensure that excellent research in the tertiary education sector is encouraged and rewarded. This entails assessing the research performance of tertiary education organisations (TEOs) and then funding them on the basis of their performance.
- 20 The PBRF has three components: a periodic Quality Evaluation using expert panels to assess research quality based on material contained in Evidence Portfolios; a measure for research degree completions; and a measure for external research income. In the PBRF funding formula, the three components are weighted 60/25/15 respectively.
- 21 The PBRF is managed by the Tertiary Education Commission Te Amorangi Mātauranga Matua (TEC).
- 22 The government's decision to implement the PBRF was the product of detailed analysis of the relevant policy issues and options by the Tertiary Education Advisory Commission (2000-01), the Ministry of Education, the Transition Tertiary Education Commission (2001-02), and the PBRF Working Group (2002).
- 23 Following the first Quality Evaluation held in 2003, the TEC undertook extensive consultation with the tertiary education sector through the PBRF Sector Reference Group (2004-2005). This process led to a number of refinements to the PBRF in preparation for the second Quality Evaluation. These refinements included a specific assessment pathway for new and emerging researchers, arrangements for the 2006 Quality Evaluation to be conducted as a "partial" round, and changes to the definition of research to more explicitly recognise research in the creative and performing arts.
- 24 This report presents the results of the second Quality Evaluation, conducted during 2006, together with current information on research degree completions and external research income. It also includes the indicative funding allocations for TEOs for the 2007 calendar year.
- 25 The development and refinement of the PBRF has been characterised by extensive consultation with the tertiary education sector, and this will continue during the ongoing evaluation of the PBRF.

Funding allocations

- 26** In the 2007 funding year, the funding allocated by means of the three PBRF performance measures is almost \$231 million (based on current forecasts) and is derived from 100% of the former degree “top up” funding, together with additional funding from the government totaling \$67 million per annum.
- 27** Performance in the 2006 Quality Evaluation will determine the allocation of 60% of this funding until the next Quality Evaluation (planned for 2012). Overall, the PBRF will determine the allocation of approximately \$1.5 billion over the next six years.

Issues and implications

- 28** The results of the 2006 Quality Evaluation provide further evidence that New Zealand has significant research strength in a substantial number of subject areas and in most of the country's universities. This information will be extremely valuable for stakeholders in the tertiary education sector. For example, information on the distribution of research excellence might be used by TEOs when considering what role they may play in the network of provision of tertiary education.
- 29** The results of the 2006 Quality Evaluation also suggest there has been some degree of improvement in research quality. This reflects the experience in other countries that have conducted periodic evaluations of research performance, such as Britain and Hong Kong, where significant improvements have occurred in the quality of research since the commencement of the assessment regimes.
- 30** The measured improvement in research quality cannot be solely attributed to improvements in actual research quality as there are likely to be a number of factors influencing the results of the 2006 Quality Evaluation. Nevertheless, the increase in average quality scores, and the marked increase in the number of staff whose EPs were assigned a funded Quality Category between 2003 and 2006 suggests that there has been some increase in the actual level of research quality. This is very promising trend and indicates that the PBRF is having its desired effect on the New Zealand tertiary education sector.

Chapter 1

The PBRF assessment and funding regime

Introduction

- 1 The publication of the results of the PBRF's second Quality Evaluation is a significant event for the tertiary education sector. These results update the assessment of research quality in our tertiary education organisations (TEOs) – universities, institutes of technology and polytechnics, colleges of education, wānanga, and private training establishments – that was set out in the report of the 2003 Quality Evaluation.
- 2 The quality of the research produced within the tertiary education sector is vital for at least two reasons. First, TEOs play an important role in the creation, application and dissemination of knowledge – crucial ingredients for a knowledge economy and society, and for understanding the environment on which a developed society depends. If TEOs are not generating high-quality research, this will have a detrimental impact on New Zealand's overall research and innovation system. Second, vigorous and dynamic research cultures underpin and enhance degree-level learning, particularly at the postgraduate level. The quality of research within our TEOs is bound to affect the quality of the education received by many of our tertiary students.

Background

- 3 For many years, research in the tertiary education sector was funded mainly through public tuition subsidies based on the number of equivalent-full-time students (EFTS) and with weightings for different courses based, at least to some degree, on the cost of provision. TEOs are also able to secure research funds from the Foundation for Research, Science and Technology, the Health Research Council, the Marsden Fund (managed by the Royal Society of New Zealand), government departments, and the private sector.
- 4 The implementation of the Performance-Based Research Fund (PBRF) acknowledged that TEOs had been heavily dependent upon EFTS funding in order to support their research activities. This meant that certain research programmes were vulnerable to large shifts in student demand. It also meant that the volume of research in particular subject areas was determined more by the pattern of student demand than by the quality of research being undertaken. In the late 1990s, a portion of the EFTS subsidies for degree-level programmes was notionally designated for research in the form of degree "top ups" and the subsidy rates for different course categories were adjusted. This did not, however, alter the fundamental nature of the research funding system in the tertiary education sector; nor did it address the underlying weaknesses.
- 5 From 1999 onwards, significant efforts have been made to improve the tertiary funding regime in the interests of encouraging and rewarding excellence. The first major step in this process was the government's decision in 2001 to fund the creation of a number of centres of research excellence (COREs) within the tertiary sector. To date, seven COREs have been established; a further selection round is in progress.

- 6 A second key step was the establishment of the PBRF as a funding programme that entails the periodic assessment of research quality together with the use of two performance measures. All the funding that earlier had been distributed via the degree “top ups” has now been transferred to the PBRF; and, in 2007, more than \$67 million (including GST) additional funding will be available. On current forecasts, it is estimated that in 2007 approximately \$231 million (including GST) will be allocated through the PBRF to participating TEOs. This makes the PBRF the largest single source of research funding for the tertiary education sector.

Implications of the PBRF

- 7 The data in this report, along with the data contained in the report of the 2003 Quality Evaluation, provide an important source of information on the research performance of participating TEOs, subject areas and nominated academic units. This information enables interested parties to make meaningful and accurate comparisons between the current research performance of different TEOs (and types of TEOs) and between the quality of research in different subject areas. This should assist stakeholders in the tertiary education sector (including current and prospective students, research funders, providers, the government, and business) in making better-informed decisions. It should also serve to enhance accountability, both at the organisational and sub-organisational levels.
- 8 From the results of the first two Quality Evaluations, together with the annual results of the external research income (ERI) and research degree completions (RDC) performance measures, it is evident that the PBRF has provided a strong impetus for TEOs to review their research plans and strategies. While the process of change that the PBRF has engendered is ongoing, it is apparent from the results that there has been an increase in measured research quality overall in the tertiary system.

The genesis and development of the PBRF

The government's decision in mid 2002 to introduce the PBRF marked the culmination of many years of vigorous debate over the best way of funding research in the country's tertiary education sector. In 1997, the previous National-led government proposed a new system for research funding and subsequently appointed a team of experts to consider the options. For various reasons, little progress was made. In 2001, the Tertiary Education Advisory Commission (TEAC), which was appointed by the Labour-Alliance government, recommended the introduction of the PBRF as a central component of a new funding regime for the tertiary sector.

The TEAC proposal was the product of detailed consultation with the tertiary education sector and comparative analysis of various overseas approaches to the funding of research. In essence, TEAC recommended a mixed model for assessing and funding research: on the one hand, the proposed model incorporated an element of peer review (as used in the British and Hong Kong research assessment exercises [RAEs]); on the other hand, it incorporated several performance measures (as used in the Australian and Israeli research funding models). The proposed measures were external research income and research degree completions.

In response to the TEAC report, the government established a working group of sector experts in mid 2002, chaired by Professor Marston Conder. This group worked with the Transition Tertiary Education Commission and the Ministry of Education to develop the detailed design of a new research assessment and funding model for the tertiary sector. The Report of the Working Group on the PBRF – *Investing in Excellence* – was published in December 2002 and approved by the Cabinet.

In brief, the working group endorsed the key elements of the funding model proposed by TEAC, including the periodic assessment of research quality by expert panels and the use of two performance measures. It also supported TEAC's idea of using individuals as the unit of assessment, rather than academic units as in Britain. It did, however, recommend that the funding formula have different weightings from those proposed by TEAC – and it developed a comprehensive framework for assessing the research performance of individual staff.

The Tertiary Education Commission was given the responsibility for overseeing the introduction of the PBRF; and the new funding regime was implemented in accordance with the agreed timetable.

Following the 2003 Quality Evaluation, the TEC began a process of refining the PBRF in preparation for the 2006 Quality Evaluation. The principal mechanism for this was the establishment of a Sector Reference Group (SRG) chaired by Professor Paul Callaghan, the Moderator of the 2003 Quality Evaluation.

The SRG undertook extensive consultation with the sector and made a large number of recommendations for refinement of the PBRF. These recommendations included a specific assessment pathway for new and emerging researchers, arrangements for the 2006 Quality Evaluation to be conducted as a "partial" round, and changes to the definition of research to more explicitly recognise research in the creative and performing arts.

The TEC broadly endorsed the changes proposed by the SRG and these were reflected in the PBRF assessment framework for the 2006 Quality Evaluation.

- 9 The considerable incentives provided by the PBRF can be expected to continue to underpin an improvement in the overall research performance of the tertiary education sector, in line with the goals of the government's *Tertiary Education Strategy 2007/12 incorporating the Statement of Tertiary Education Priorities 2008/10*.
- 10 The full implementation of the PBRF should ensure that compliance costs as a proportion of total funding over the next six years will drop markedly compared with those associated with the 2003 Quality Evaluation. In addition, most of the TEOs with the highest levels of measured research quality will receive considerably more funding through the PBRF than would have been the case had the PBRF not been implemented.
- 11 At the same time, the TEC recognises that some of the results will be disappointing for some TEOs (particularly those participating for the first time) and for some staff. For instance, the funding that certain TEOs receive through the PBRF between 2007 and 2012 may fall short of the costs of participation. More significantly, some staff are likely to feel that their research efforts have not been properly recognised.
- 12 In this context, the TEC is aware that aspects of the PBRF remain controversial. The results contained in this report will fuel discussion and debate, particularly in relation to the overall assessment framework or about particular aspects of the methodology used to evaluate evidence portfolios (EPs). Questions are also likely to be raised, given the low quality scores of certain TEOs and subject areas, about the quality of particular undergraduate and postgraduate programmes.

Evaluation of the PBRF

- 13 As stated in the report of the 2003 Quality Evaluation, the TEC is committed to a three-phase evaluation strategy for the PBRF (see Appendix E). The Phase I evaluation, covering the implementation of the PBRF and the conduct of the 2003 Quality Evaluation, was released in July 2004. The results of that evaluation informed the refinements undertaken in preparation for the 2006 Quality Evaluation.
- 14 The Phase II evaluation of the PBRF has commenced and is intended to identify any emerging impacts of the PBRF on the tertiary education sector.
- 15 The Phase III evaluation of the PBRF is scheduled to occur after the completion of the third Quality Evaluation (scheduled for 2012). It will examine whether the PBRF has achieved its longer term objectives.

More detailed information in the rest of the report

- 16 The remaining chapters in this report detail the processes and methodology that underlie the PBRF and discuss the key findings from the 2006 Quality Evaluation.
- 17 Chapter 2 outlines the aims and key elements of the PBRF, including the PBRF definition of research. Chapter 3 provides a brief description of how the 2006 Quality Evaluation was conducted, and outlines some of the key facts and timelines of the assessment process. Chapter 4 explains the decisions of the TEC in presenting the results of the 2006 Quality Evaluation and discusses how the assessment framework has affected the overall results. It also highlights some of the limitations of the data and provides guidance on interpreting the results.
- 18 The results of the 2006 Quality Evaluation are explored in detail in Chapter 5. Drawing upon the detailed statistical information provided in Appendix A, this chapter compares the relative research performance of the 31 participating TEOs¹, and outlines the results reported at the level of the 12 peer review panels, 42 subject areas, and 336 units nominated for reporting purposes by TEOs.
- 19 The report then turns, in Chapters 6 and 7, to consider the other two performance measures that form part of the PBRF – namely, ERI and RDC. This is followed, in Chapter 8, by an outline of the PBRF funding formula and the indicative funding allocations to participating TEOs for 2007.
- 20 Finally, Chapter 9 draws together some of the key themes and issues arising from the results of the 2006 Quality Evaluation, and looks ahead to what can be learned for the 2012 Quality Evaluation.
- 21 Additional information and analyses are provided in the appendices, including a description of the various audits undertaken in relation to the 2006 Quality Evaluation.

Confidentiality issues

Confidentiality of the Quality Categories assigned to individuals

The TEC has undertaken to protect the confidentiality of the Quality Categories assigned to individual staff. To ensure that this principle is adhered to, the TEC will not release publicly the Quality Categories assigned to individual staff. The TEC has, however, made such information available to the TEOs of the staff concerned.

EPs will not be published on the TEC website

The TEC has confirmed that EPs from the 2003 and the 2006 Quality Evaluations will not be published on the TEC website.

Reporting thresholds

In order to minimise the possibility that the results of individuals may be inferred, the TEC has agreed that data for nominated academic units and subject areas at TEO level with fewer than five PBRF-eligible FTE staff will be reported under the category of “other”. These thresholds are outlined in the *PBRF Guidelines 2006* and their implications are discussed in Chapter 4

¹ This figure excludes the former Auckland and Wellington colleges of education, which merged respectively with the University of Auckland and Victoria University of Wellington before Census date and therefore are not included in the TEO “headcount”. The results for the EPs of staff in the two former colleges of education as at the date of the merger are, however, reported separately from those of the two universities.

Chapter 2

The aims and key elements of the PBRF

Introduction

22 This chapter outlines the aims of the PBRF, the principles governing its implementation, the key elements of the assessment framework, and the PBRF definition of research.²

Aims of the PBRF

- 23 The government's main aims for the PBRF are to:
- a increase the average quality of research;
 - b ensure that research continues to support degree and postgraduate teaching;
 - c ensure that funding is available for postgraduate students and new researchers;
 - d improve the quality of public information about research output;
 - e prevent undue concentration of funding that would undermine research support for all degrees or prevent access to the system by new researchers; and
 - f underpin the existing research strengths in the tertiary education sector.

Principles of the PBRF

- 24 The PBRF is governed by the following set of principles from *Investing in Excellence*:³
- **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;
 - **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;

² More comprehensive details regarding the overall aims, structure and key elements of the PBRF are contained within the *2006 PBRF Guidelines* available online at <<http://www.tec.govt.nz>>

³ These principles were first enunciated by the Working Group on the PBRF. See *Investing in Excellence*, pp.8-9.

- **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 charters and profiles, and quality assurance systems for degrees and degree providers; and
- **Cultural inclusiveness:** the PBRF should reflect the bicultural nature of New Zealand and the special role and status of the Treaty of Waitangi, and should appropriately reflect and include the full diversity of New Zealand's population.

Key elements of the PBRF

- 25** The PBRF is a "mixed" performance-assessment regime in the sense that it employs both peer-review processes and performance measures. There are three elements to its assessment:
- a periodic Quality Evaluations: the assessment of the research performance of eligible TEO staff, undertaken by expert peer review panels;
 - b a postgraduate "research degree completions" (RDC) measure: the number of postgraduate research-based degrees completed in participating TEOs, assessed on an annual basis; and
 - c an "external research income" (ERI) measure: the amount of income for research purposes received by participating TEOs from external sources, assessed on an annual basis.
- 26** For funding purposes, the weightings given to these three elements are: 60% for the Quality Evaluation; 25% for RDC; and 15% for ERI. The details of the funding formula and the allocations to TEOs for 2007 are set out in Chapter 8.

The Quality Evaluation

- 27** The Quality Evaluation is a periodic assessment of research quality across the tertiary education sector. While the timing of the next Quality Evaluation (scheduled for 2012) is yet to be confirmed, it is envisaged that further assessments will be conducted every six years.
- 28** Unlike the research assessment exercise (RAE) in Britain, but in keeping with the Hong Kong RAE, the Quality Evaluation involves the direct assessment of individual staff rather than academic units. As in Britain, however, the field of research has been divided for assessment and reporting purposes into a large number of separate subject areas. For the 2006 Quality Evaluation, 42 subject areas were identified (see also Chapter 4).

The role and structure of peer review panels

- 29** The assessment of research quality is undertaken by interdisciplinary peer review panels consisting of disciplinary experts from both within New Zealand and overseas. As for the 2003 Quality Evaluation, 12 peer review panels were established. These panels comprised between nine and 21 members selected to provide expert coverage of the subject areas within each panel's respective field of responsibility (see Table 2.1).

- 30** Altogether, there were 175 panel chairs and members, of whom 41 (23%) were from overseas. In addition, a total of 51 specialist advisers assisted panels in the assessment of EPs. The names and institutional affiliations of all panel chairs, members, and specialist advisers are set out in Appendix B.
- 31** The panels were advised by a PBRF Project Team within the TEC that provided policy, technical and administrative support.

Table 2.1: Panels and Subject Areas

Panel	Subject Area
Biological Sciences	Agriculture and other applied biological sciences
	Ecology, evolution and behaviour
	Molecular, cellular and whole organism biology
Business and Economics	Accounting and finance
	Economics
	Management, human resources, industrial relations, international business and other business
	Marketing and tourism
Creative and Performing Arts	Design
	Music, literary arts and other arts
	Theatre and dance, film and television and multimedia
	Visual arts and crafts
Education	Education
Engineering, Technology and Architecture	Architecture, design, planning, surveying
	Engineering and technology
Health	Dentistry
	Nursing
	Other health studies (including rehabilitation therapies)
	Pharmacy
	Sport and exercise science
	Veterinary studies and large animal science
Humanities and Law	English language and literature
	Foreign languages and linguistics
	History, history of art, classics and curatorial studies
	Law
	Philosophy
	Religious studies and theology
Māori Knowledge and Development	Māori knowledge and development
Mathematical and Information Sciences and Technology	Computer science, information technology, information sciences
	Pure and applied mathematics
	Statistics

Panel	Subject Area
Medicine and Public Health	Biomedical
	Clinical medicine
	Public health
Physical Sciences	Chemistry
	Earth sciences
	Physics
Social Sciences and Other Cultural/ Social Studies	Anthropology and archaeology
	Communications, journalism and media studies
	Human geography
	Political science, international relations and public policy
	Psychology
	Sociology, social policy, social work, criminology and gender studies

Eligibility criteria

- 32** All New Zealand TEOs with quality-assured degree programmes were entitled to submit evidence portfolios (EPs) of staff for assessment by a peer review panel.
- 33** Two key principles governed the eligibility of staff to participate in the 2006 Quality Evaluation:
- the individual must be an academic staff member (ie they are expected to make a contribution to the learning environment); and
 - the individual is expected to make a significant contribution to research activity and/or degree teaching in a TEO.
- 34** Detailed staff-eligibility criteria were also set out in the *PBRF Guidelines 2006*.

Changes to the assessment framework for the 2006 Quality Evaluation

- 35** The refinement of the PBRF in preparation for the 2006 Quality Evaluation resulted in a number of changes to the Quality Evaluation measure. The most significant of these changes included:
- the “partial” round provision;
 - more detailed information on special circumstances;
 - changes to the definition of research;
 - a specific assessment pathway for new and emerging researchers;
 - changes to the moderation arrangements; and
 - closer definition of the process for scoring EPs.
- 36** The “partial” round meant that in most cases the Quality Categories assigned to the EPs of staff assessed as part of the 2003 Quality Evaluation could be “carried over” to the 2006 Quality Evaluation, assuming that they remained PBRF eligible. This decision meant that, for many PBRF-eligible staff, the preparation and submission of EPs was not required. This also enabled TEOs to avoid the costs of a full internal assessment of the EPs of their PBRF-eligible staff.

- 37** EPs submitted for assessment by the peer review panels were required to include structured information on special circumstances (if these were being claimed). This requirement was intended to simplify the process of assessing EPs and to minimise the number of EPs inappropriately claiming special circumstances. This reduced the proportion of EPs that claimed special circumstances from 75% to 60%.
- 38** Any changes to the definition of research are significant, because the definition underpins the entire assessment framework. The changes made in preparation for the 2006 Quality Evaluation clarified what constitutes research in the creative and performing arts. (For the PBRF definition of research, see box at the end of this chapter.)
- 39** The assessment pathway for new and emerging researchers made provision for such researchers to be assessed against specific criteria. These criteria recognised that new and emerging researchers were unlikely to have had an opportunity to develop extensive evidence of peer esteem (PE) or contribution to the research environment (CRE), and so made it possible for panels to assign a funded Quality Category to the EPs of a significant number of new and emerging researchers.
- 40** Changes to the processes relating to moderation were also instituted. These changes included the appointment of three moderators including one as Principal Moderator who would also chair the Moderation Panel. The appointment of three individuals separate from the assessment process was designed to enable additional consideration to be given to the analysis arising out of the assessment process, and to enable moderators to attend significant proportions of each panel meeting.
- 41** Closer definitions of the process for pre-meeting and panel assessment were also developed. The assessment process defined clear steps for each panel member to follow when engaged in pre-meeting assessment and for panels to follow during their meetings.
- 42** For pre-meeting assessment, the most significant of these developments were the provisions for preparatory and preliminary scoring. Preparatory scores were the “initial” scores assigned to an EP by each member of the panel pair (working independently). Where special circumstances had been claimed, the EPs had two sets of preparatory scores assigned – once disregarding the special circumstances, and once taking them into account. Preliminary scoring was the process of assigning a “final” pre-meeting score. This was done by the panel pair working together. The preliminary scores took account of the preparatory scores and any cross-referral scoring; it also took special circumstances (where relevant) into account.
- 43** The scoring processes for the panel assessments were also carefully defined in the 2006 Quality Evaluation. The most significant developments were the panel calibration of the pre-meeting assessments that had been undertaken by the panel pairs, and the consideration of the Final Quality Categories assigned as part of the 2003 Quality Evaluation (where these were available).
- 44** During the panel meetings, the scoring processes were also carefully defined. These processes provided for several features including the calibration of the pre-meeting assessments undertaken by panel pairs, and consideration of the Final Quality Categories (where available) assigned as part of the 2003 Quality Evaluation.

EPs and the assessment framework

- 45** The evaluation of a staff member's research performance was based on information contained within an EP, which had three components:
- The "research output" (RO) component. This comprised up to four "nominated research outputs" (NROs),⁴ as well as up to 30 "other" research outputs. The RO component had a 70% weighting. For a research output to be eligible for inclusion, it had to have been produced (ie published, publicly disseminated, presented, performed, or exhibited) within the assessment period. For the 2006 Quality Evaluation the period in question was 1 January 2000 to 31 December 2005. Research outputs were also required to satisfy the PBRF definition of research (see box at the end of this chapter).
 - The "peer esteem" (PE) component. This comprised the recognition of a staff member's research by her or his peers (eg prizes, awards, invitations to speak at conferences) and had a 15% weighting.
 - The "contribution to the research environment" (CRE) component. This comprised a staff member's contribution to a vital high-quality research environment (eg the supervision of research students, the receipt of research grants) and had a 15% weighting.
- 46** The assessment of an EP involved scoring each of its three components. In determining the appropriate score, the panels drew upon generic descriptors and tie-points (encapsulating the standard expected for a particular score) that applied to every panel, together with certain panel-specific guidelines.
- 47** The rating scale had the following characteristics:
- The scale for each component had eight steps (0-7), with "7" being the highest point on the scale and "0" being the lowest.
 - A score of "0" indicated that no evidence had been provided in the EP for that component.
 - Only whole scores were allocated (ie the use of fractions was not permitted).
 - The descriptors and tie-points for each of the three components were used to assist with the scoring. The tie-points at 2, 4 and 6 were used to distinguish between different descriptions of quality for each of the components.
- 48** Having agreed on the appropriate scores for each of the three components, panels were required to assign a Quality Category to the EP – and in doing this they were required to make a "holistic judgement"⁵ (which was based only on the information contained in the EP).
- 49** Following the deliberation of the Holistic Quality Category, the Quality Category assigned in 2003 (where appropriate) was revealed to the panels. The panels then assigned a Final Quality Category. The scoring system was an important aid in assigning a Final Quality Category but did not determine it.

⁴ It was expected that staff would nominate their (up to) four "best" pieces of research carried out during the eligible assessment period.

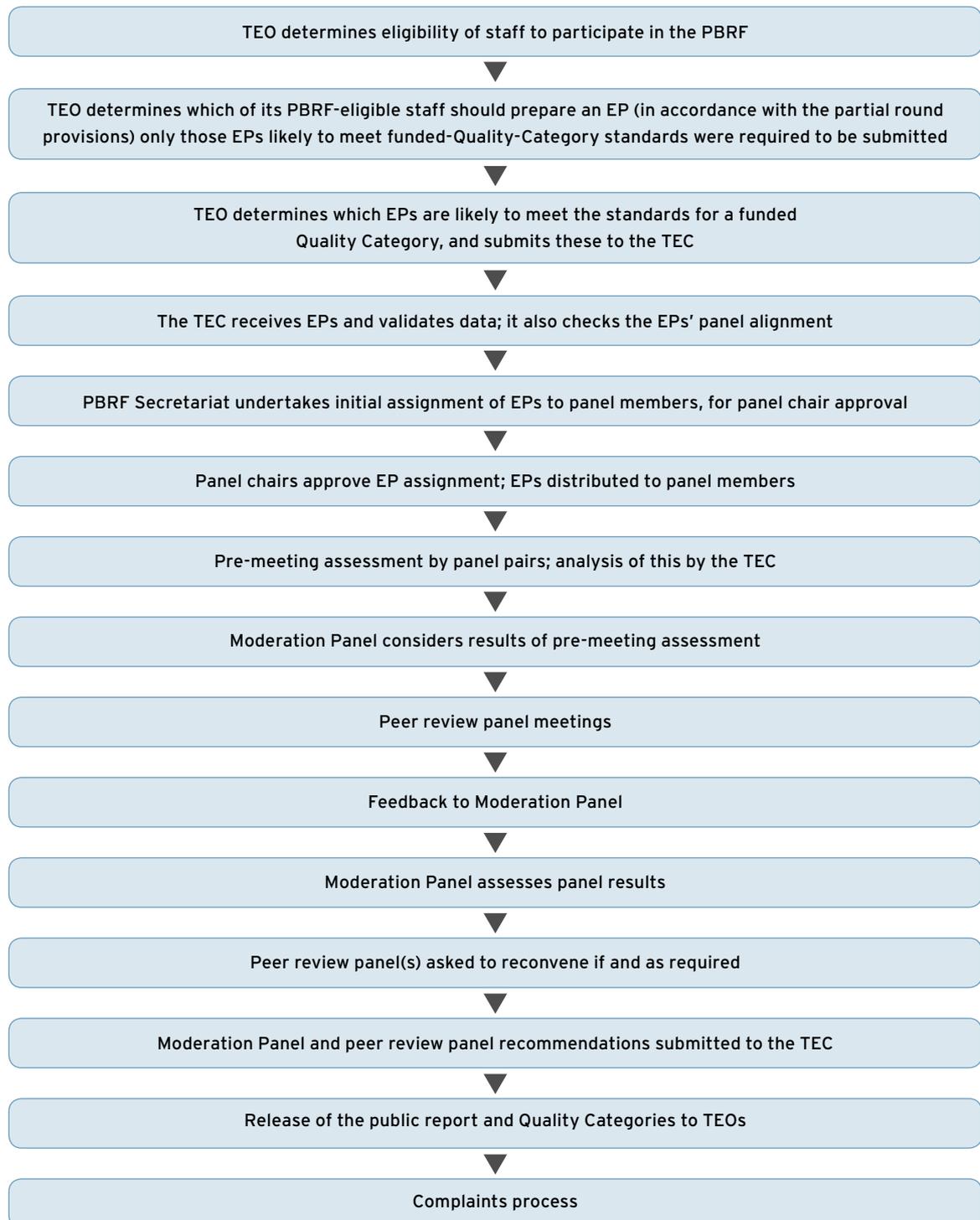
⁵ The purpose of the holistic assessment is to ascertain which of the available Quality Categories is most appropriate for an EP, taking all relevant factors into consideration. Comprehensive details for determining *Holistic* Quality Categories can be found on p.146 of the *2006 PBRF Guidelines* available online at <<http://www.tec.govt.nz>>

- 50** The following example illustrates how the scoring system worked in practice. Consider an EP that was rated 5 for RO, 4 for PE and 3 for CRE. RO had a weighting of 70 (out of 100), so a score of 5 generated a total score of 350 (5 x 70). PE had a weighting of 15 (out of 100), so a score of 4 generated a total score of 60 (4 x 15). CRE had a weighting of 15 (out of 100), so a score of 3 generated a total score of 45 (3 x 15). Thus the EP in question would have achieved an aggregate score of 455.
- 51** For the 2006 Quality Evaluation, there were six Quality Categories: "A", "B", "C", "C(NE)", "R", and "R(NE)".
- 52** The EPs of staff who did not meet the criteria of "new and emerging researcher" were assigned one of the following Quality Categories:
- "A" (indicative of a total weighted score of 600-700);
 - "B" (indicative of a total weighted score of 400-599);
 - "C" (indicative of a total weighted score of 200-399); and
 - "R" (indicative of a total weighted score of less than 200).
- 53** The EPs of staff who did meet the eligibility criteria of "new and emerging researcher" were assigned one of the following Quality Categories:
- "A" (indicative of a total weighted score of 600-700);
 - "B" (indicative of a total weighted score of 400-599);
 - "C(NE)" (indicative of a total weighted score of 200-399); and
 - "R(NE)" (indicative of a total weighted score of less than 200).

Moderation Panel

- 54** The assessments conducted by the 12 peer review panels were subject to the oversight of a Moderation Panel which was composed of the panel chairs and three moderators. The role of the Moderation Panel was to:
- a ensure that the assessment framework was applied consistently across the panels, while at the same time avoiding a situation in which the judgements of the panels were reduced to a mechanistic application of the assessment criteria;
 - b provide an opportunity to review the standards and processes being applied by the panels;
 - c establish mechanisms and processes by which material differences or apparent inconsistencies in standards and processes could be addressed by the panels; and
 - d advise the TEC on any issues regarding consistency of standards across panels.
- 55** Figure 2.1 provides an overview of the key phases in the 2006 Quality Evaluation.

Figure 2.1: Key Phases of the 2006 Quality Evaluation



Recognition of Māori and Pacific research

- 56** The PBRF has been designed to ensure that proper recognition is given to: research by Māori and Pacific researchers; research into Māori and Pacific matters; and research that employs distinctive Māori and Pacific methodologies.
- 57** With respect to Māori research, a number of mechanisms were instituted:
- a the formation of a Māori Knowledge and Development Panel, to evaluate research into distinctly Māori matters such as aspects of Māori development, te reo Māori, and tikanga Māori;
 - b the provision of advice from the Māori Knowledge and Development Panel on research that had a significant Māori component but was being assessed by other panels;
 - c the inclusion of Māori researchers on other panels; and
 - d the encouragement of growth in Māori research capability through an equity weighting for research degree completions by Māori students during the first two evaluation rounds of the PBRF.
- 58** With respect to Pacific research, the following mechanisms were instituted:
- a the appointment of panel members and specialist advisers with expertise in Pacific research; and
 - b an equity weighting for research degree completions by Pacific students during the first two evaluation rounds of the PBRF, to encourage growth in Pacific research capability.

External research income (ERI) and research degree completions (RDC)

- 59** External research income (ERI) is a measure of the total research income received by a TEO (and/or any 100% owned subsidiary), excluding income from: TEO employees who receive external research income in their personal capacity (ie the external research income is received by them and not their employer); controlled trusts; partnerships; and joint ventures.
- 60** The 2007 funding allocations are based on the ERI data supplied by TEOs for each of the calendar years 2003, 2004 and 2005.
- 61** The requirements relating to ERI are described in detail in Chapter 6.
- 62** Research degree completions (RDC) is a measure of the number of research-based postgraduate degrees (eg masters and doctorates) that are completed within a TEO and that meet the following criteria:
- a The degree has a research component of 0.75 EFTS or more.
 - b The student who has completed the degree has met all compulsory academic requirements by the end of the relevant years.
 - c The student has successfully completed the course.
- 63** For 2007 funding allocations, the end of the relevant years is 31 December 2003, 2004 and 2005.
- 64** The requirements relating to RDC are described in detail in Chapter 7.

The definition of research

For the purposes of the PBRF, research is original investigation undertaken in order to contribute to knowledge and understanding and, in the case of some disciplines, cultural innovation or aesthetic refinement.

It typically involves enquiry of an experimental or critical nature driven by hypotheses or intellectual positions capable of rigorous assessment by experts in a given discipline.

It is an independent*, creative, cumulative and often long-term activity conducted by people with specialist knowledge about the theories, methods and information concerning their field of enquiry. Its findings must be open to scrutiny and formal evaluation by others in the field, and this may be achieved through publication or public presentation.

In some disciplines, the investigation and its results may be embodied in the form of artistic works, designs or performances.

Research includes contribution to the intellectual infrastructure of subjects and disciplines (eg dictionaries and scholarly editions). It also includes the experimental development of design or construction solutions, as well as investigation that leads to new or substantially improved materials, devices, products or processes.

The following activities are excluded from the definition of research except where they are used primarily for the support, or as part, of research and experimental development activities:

- Preparation for teaching
- The provision of advice or opinion, except where it is consistent with the PBRF's Definition of Research
- Scientific and technical information services
- General purpose or routine data collection
- Standardisation and routine testing (but not including standards development)
- Feasibility studies (except into research and experimental development projects)
- Specialised routine medical care
- The commercial, legal and administrative aspects of patenting, copyrighting or licensing activities
- Routine computer programming, systems work or software maintenance (but note that research into and experimental development of, for example, applications software, new programming languages and new operating systems is included)
- Any other routine professional practice (eg in arts, law, architecture or business) that does not comply with the Definition.**

Notes:

* The term "independent" here should not be construed to exclude collaborative work.

**Clinical trials, evaluations and similar activities will be included, where they are consistent with the Definition of Research.

Chapter 3

The conduct of the 2006 Quality Evaluation

Introduction

65 This chapter briefly outlines the conduct of the 2006 Quality Evaluation. In particular, it provides a timeline of the key events, describes the way that the peer review panels conducted their assessments of EPs, and outlines the role of the Moderation Panel. The chapter also includes some relevant data concerning the implementation of the assessment process and notes a few of the issues that arose.

Timeline of key events

- 66** Following the 2003 Quality Evaluation, the TEC received a number of reports as part of its evaluation of the PBRF. These included: a report from the Office of the Auditor General; the reports of the twelve peer review panels; the Moderation Panel's report; and the report of the Phase I evaluation of the PBRF prepared by Web Research. While all these reports⁶ found that the assessment process was robust and fair, they also indicated areas where improvements might be made.
- 67** During 2004, the TEC began its review of all aspects of the PBRF, in preparation for the 2006 Quality Evaluation. This included the appointment of a Sector Reference Group (SRG) chaired by Professor Paul Callaghan. The SRG was asked to analyse the PBRF process, taking into account the earlier reports, and to suggest improvements. As part of its activities, the SRG undertook extensive consultation with the tertiary sector.
- 68** The SRG commenced work in 2004 and prepared a total of twelve consultation papers for consideration by the sector. These consultation papers dealt with a range of significant issues that warranted careful consideration. These included: the unit of assessment; the "partial" round provisions; the definition of research; the assessment framework; and the reporting framework.
- 69** Following careful consideration of feedback from the tertiary sector, the SRG prepared a series of recommendations to the TEC. These recommendations were carefully considered by the TEC and, where appropriate, reflected in the revised guidelines for the PBRF. Following additional consultation, the *PBRF Guidelines 2006* was formally released in July 2005.
- 70** Detailed information on the refinement of the PBRF after the 2003 Quality Evaluation – including the report of the SRG and the response of the TEC to that report – is available on the TEC website.⁷
- 71** One of the key differences between the 2003 and 2006 Quality Evaluation was the provision for a "partial" round. The "partial" round had two key implications for the 2006 Quality Evaluation.
- 72** Firstly, the preparation and submission of EPs was not required for most PBRF-eligible staff. Quality Categories assigned in the 2003 Quality Evaluation could, in most cases, be "carried over" to the 2006 Quality Evaluation.
- 73** Secondly, TEOs were not required to conduct a full internal assessment of the EPs prepared by their PBRF-eligible staff. The TEOs were required simply to submit to the TEC those EPs that were likely to meet the standards required for the assignment of a funded Quality Category.⁸

⁶ Archived at <<http://www.tec.govt.nz/templates/standard.aspx?id=588>>.

⁷ See "PBRF 2006 Resources" at <<http://www.tec.govt.nz/templates/standard.aspx?id=588>>.

⁸ Funded Quality Categories are those that attract funding through the Quality Evaluation measure, namely "A", "B", "C", and "C(NE)"

- 74** The EPs that were considered by TEOs to meet this standard were submitted to the TEC, for assessment by a peer review panel, by 21 July 2006. The EPs were distributed to panel members for preparatory scoring in early September, and the panels met (typically for three days) between late November and early December to undertake their assessments. A more detailed timeline of the key events is provided in Table 3.1.

Table 3.1: Timeline of Key Events

Date	Event
April 2004	Report of the 2003 Quality Evaluation published
September 2004 to June 2005	Redesign work overseen by the Sector Reference Group (SRG)
February 2005	Appointment of moderators for the 2006 Quality Evaluation
July 2005	Appointment of members of peer review panels announced; <i>PBRF Guidelines 2006</i> released
January 2006	2006 “EP Manager” software operational; process assurance and audit of TEOs commences
January to June 2006	TEOs conduct internal assessment of EPs (to determine which EPs were likely to meet the standards of a funded Quality Category)
14 June 2006	Date of PBRF Census: Staffing Return
21 July 2006	All EPs submitted to the TEC
September to November 2006	Pre-meeting assessment of EPs by panel pairs
20 November 2006	First Moderation Panel meeting
27 November – 8 December 2006	Peer review panel meetings
15 December 2006	Second Moderation Panel meeting
21 February 2007	Convening of Māori Knowledge and Development Panel sub-committee
March 2007	Process assurance and audit of TEOs completed
26 March 2007	Tertiary Education Commissioners approve results of 2006 Quality Evaluation
April/May 2007	TEOs advised of Final Quality Categories; report of the 2006 Quality Evaluation released
18 May 2007	Lodging of complaints closes
July 2008	Report of the Phase II of the evaluation of the PBRF due

Participation in the PBRF

- 75** At the PBRF Census date (14 June 2006), there were a total of 46 PBRF-eligible TEOs. Of these TEOs, 31 participated in the 2006 Quality Evaluation: all eight of New Zealand’s universities; 10 of the 17 eligible institutes of technology and polytechnics; both colleges of education; two of the three wānanga; and nine of the 16 eligible private training establishments (PTEs). In addition, provision was made for the separate reporting of the staff of the former Auckland and Wellington colleges of education.
- 76** All the 31 participating TEOs were required to participate in all three measures of the PBRF. PBRF-eligible TEOs that chose not to participate in all three components are not eligible for PBRF funding.

77 Of the 8,671 PBRF-eligible staff in these 31 TEOs, 4,532 had EPs submitted to the TEC as part of the 2006 Quality Evaluation. A further 2,996 had their Quality Categories from the 2003 Quality Evaluation “carried over” and automatically reconfirmed (this group included some researchers whose EPs had been assigned an “R” Quality Category in 2003). PBRF-eligible staff who did not submit an EP in either 2003 or 2006 were counted as “R” or “R(NE)” for the purposes of the 2006 Quality Evaluation.

The assessment of EPs by the peer review panels

78 All peer review panels strove to ensure that the EPs for which they were responsible were assessed in line with the *PBRF Guidelines 2006* and in an accurate, fair and consistent manner. In particular, every effort was made to ensure that conflicts of interest were handled in accordance with the agreed procedures, and that the different subject areas for which each panel was responsible were assessed on the basis of equivalent quality standards.

79 In all cases, the panels employed the following methods:

- a Each EP was initially assessed by a panel pair; and pre-meeting scores for most EPs were submitted to the PBRF Project Team before the panel meetings.
- b Panel members obtained and reviewed nominated research outputs (NROs). Slightly more than 10,000 NROs were either supplied to panel members or were reported as having been sourced by panel members themselves. In most cases, at least two NROs were sighted for each EP.
- c Panel members typically operated in multiple pairings (ie in some cases a panel member might work in 10 or more pairings, each time with a different member of their panel), thus enabling significant variations in standards or approach to be detected.
- d Where special circumstances had been claimed, the EPs were scored twice – once disregarding the special circumstances, and once taking them into account.
- e Around 22% (987) of EPs were cross-referred to other peer review panels for advice (compared with 8% of all EPs in 2003).
- f Specialist advice was sought for 267 EPs (compared with 87 in 2003), from a total of 51 specialist advisers.
- g Panels were informed, by their chairs, of the findings of the first Moderation Panel meeting (which was held just before the commencement of the panel meetings).
- h Panels devoted considerable attention to the calibration of scores for each of the three EP components.
- i All panels undertook a systematic review of EPs. In some panels, particular attention was given to those EPs where the total weighted score was close to a Quality Category boundary.
- j Panels considered all EPs where panel pairs were unable to reach agreement on the preliminary scores.
- k Panels gave particular attention to the EPs of new and emerging researchers, to ensure that the “C(NE)”/“R(NE)” boundary was appropriately calibrated.

- l Panels discussed (and agreed upon) the appropriate boundaries between Quality Categories, giving appropriate regard to the tie-points and descriptors in the *PBRF Guidelines 2006*.
 - m Panels considered a small number of EPs at the holistic assessment stage, but a significant proportion of these EPs were discussed in detail.
 - n At a late stage in proceedings, panels considered the Quality Categories assigned in 2003 (where available) and reviewed those EPs where there were large disparities between the 2003 Quality Category and the panel's 2006 Holistic Quality Category.
 - o Panel secretariats took an active role in ensuring that panels complied with the PBRF assessment framework and guidelines.
- 80** Some panels employed a number of additional methods to ensure that EPs were assessed in an accurate, fair and consistent manner. For instance:
- a In many cases, panel chairs assessed a significant proportion of the EPs submitted to their particular panels.
 - b In many cases, panels examined all EPs that had unusual score combinations for their RO, PE and CRE components.
 - c In almost every case, all panel members were involved in an EP's assessment.
 - d After panel calibration discussions, groups of panel members with expertise in the same subject area met to reconsider the preliminary scores of a small number of EPs.

Conflicts of interest

- 81** The *PBRF Guidelines 2006* included detailed provisions for the handling of conflicts of interest. In addition, the Moderation Panel provided panel chairs with guidelines for dealing with specific types of conflicts of interest.
- 82** Panel chairs, with the assistance of the panel secretariats, managed conflicts of interest in accordance with the *PBRF Guidelines 2006*. This included a declaration of potential conflicts before the allocation of EPs to panel members, and the active management of conflicts as they were identified during the course of panel meetings.

The moderation process

- 83** The PBRF assessment framework was designed to maximise not merely *intra*-panel consistency but also *inter*-panel consistency. Methods employed in the 2006 Quality Evaluation to achieve inter-panel consistency included:
- a the moderation process (which was overseen by the Moderation Panel);
 - b the provision of clearly specified assessment criteria and guidelines, including tie-points and descriptors;
 - c a requirement for panel-specific guidelines to be consistent with the generic PBRF guidelines for panels;
 - d the use of cross-referrals between panels – which included score data and, in some cases, commentary; and

e the use of 2003 Quality Evaluation results for comparative purposes – both in relation to the Quality Categories assigned to individual staff and at the aggregate level.

84 A detailed account of the methods and procedures employed in the moderation process is contained in the Report of the Moderation Panel (see Appendix C). In brief, the Moderation Panel sought to ensure inter-panel consistency through the following means:

a In mid November 2006, a detailed analysis of the results of the assessment thus far (based on data from the pre-meeting assessment undertaken by panel members) was prepared by the Moderation Panel's secretariat. This analysis identified areas of concern, including possible inconsistencies in the application of the assessment guidelines.

b The Moderation Panel at its first meeting (held in November, just before the commencement of panel meetings) considered the findings of this analysis. In response, the Moderation Panel agreed that particular issues would be drawn to the attention of various peer review panels by their respective chairs.

c In addition, the Moderation Panel considered a selection of EPs representing those scored at the "A", "B" and "C" Quality Categories levels. This enabled various calibration issues to be clarified and a common view reached on the boundaries for tie-points. The nature and results of the Moderation Panel's deliberations were reported to each peer review panel by their respective chairs.

d The moderators attended peer review panel meetings for significant periods, to observe proceedings.

e In early December 2006, an updated analysis of the results of the assessment (based on data from the preparatory scores and the Final Quality Categories) was prepared by the Moderation Panel's secretariat for consideration by the second meeting of the Moderation Panel.

f The second Moderation Panel meeting considered the findings of this analysis. Attention was given to the overall pattern of the results and the changes that had occurred at various stages in the assessment process (eg from the pre-meeting assessment undertaken by panel members, to the Final Quality Categories).

g It was noted that two Māori Knowledge and Development Panel members were unable to attend their panel meetings because of illness. Accordingly it was agreed that a sub-committee would be convened to provide an opportunity for those two panel members to participate fully in the assessment.

h The meeting of the sub-committee took place in February 2007 with a Deputy Moderator in attendance. The Moderation Panel considered and accepted the outcomes of the sub-committee's deliberations.

Audits

85 The TEC made every effort to ensure that the 2006 Quality Evaluation, including the assessment of EPs by the peer review panels, was conducted in a fair and robust manner and that the data upon which the panels based their assessments were of the highest possible integrity. It also sought to ensure that the data supplied by TEOs in relation to the two PBRF performance measures – ERI and RDC – were accurate and complied with the *PBRF Guidelines 2006*.

- 86** Building on the experience of the 2003 Quality Evaluation, the TEC undertook a risk-based approach to the process assurance and audit of the data supplied by TEOs. The primary objectives of the PBRF audit methodology were to:
- determine whether participating TEOs had adequate systems and controls for submitting EPs to the TEC;
 - determine whether participating TEOs had adequate systems and controls for identifying and verifying PBRF-eligible staff for inclusion in the PBRF Census;
 - understand participating TEOs' preparedness for submitting accurate PBRF Census and EP data; and
 - provide assurance to the TEC and the PBRF peer review panels that the material presented in the RO component of EPs and in the TEOs' staff-eligibility data was complete and accurate.
- 87** Independent assurance on the processes for the assessment of EPs was provided by the TEC's Internal Audit Unit.
- 88** Appendix D outlines the design, conduct and results of these audits.

Relevant data arising from the assessment process

- 89** Table 3.2 outlines key data arising from the conduct of the 2006 Quality Evaluation.

Table 3.2: Data on the Assessment Process

Item	Number/ percentage
Number of TEOs participating in the PBRF	31
Number of TEOs participating in the 2006 Quality Evaluation for reporting purposes	33
Number of EPs received	4,523
<i>Percentage of PBRF-eligible staff who submitted EPs</i>	<i>52%</i>
Average number of EPs per panel	377
Number of cross-referrals of EPs	1,177
Number of transfers of EPs between panels	123
Number of EPs referred to specialist advisers	87
Number of NROs	17,908
Number of other ROs	72,378
Total number of ROs	90,286
Number of ineligible NROs	8
Number of NROs examined by panel members	Approx. 10,500
<i>Percentage of NROs examined by panel members</i>	<i>59%</i>
Average number of ROs per EP	19
Average number of PE entries per EP	14
Average number of CRE entries per EP	13

90 Table 3.3 outlines the number and percentage of different types of the (up to four) NROs contained in EPs, while Table 3.4 provides similar data for the (up to 30) other ROs. As might be expected, conference papers comprise a much higher proportion of other ROs than of NROs.

Table 3.3: NROs (Nominated Research Outputs) by Type

Output Type	Number	Percentage
Artefact/Object	124	0.69%
Authored Book	673	3.76%
Awarded Doctoral Thesis	709	3.96%
Awarded Research Masters Thesis	215	1.20%
Chapter in Book	1335	7.45%
Composition	55	0.31%
Conference Contribution – Abstract	156	0.87%
Conference Contribution – Full Conference paper	712	3.98%
Conference Contribution – Oral presentation	411	2.30%
Conference Contribution – Other	39	0.22%
Conference Contribution – Paper in published proceedings	1100	6.14%
Conference Contribution – Poster presentation	95	0.53%
Confidential Report	35	0.20%
Design Output	114	0.64%
Discussion Paper	26	0.15%
Edited Book	228	1.27%
Exhibition	476	2.66%
Film/Video	75	0.42%
Intellectual Property	55	0.31%
Journal Article	10295	57.49%
Monograph	38	0.21%
Oral Presentation	63	0.35%
Other	145	0.81%
Performance	168	0.94%
Report for External Body	318	1.78%
Scholarly Edition	37	0.21%
Software	51	0.28%
Technical Report	79	0.44%
Working Paper	81	0.45%
Total	17,908	100.00

Table 3.4: Other ROs (Research Outputs) by Type

Output Type	Number	Percentage
Artefact/Object	485	0.67%
Authored Book	513	0.71%
Awarded Doctoral Thesis	455	0.63%
Awarded Research Masters Thesis	112	0.15%
Chapter in Book	4451	6.15%
Composition	275	0.38%
Conference Contribution – Abstract	4026	5.56%
Conference Contribution – Full Conference paper	6835	9.44%
Conference Contribution – Oral presentation	8299	11.47%
Conference Contribution – Other	506	0.70%
Conference Contribution – Paper in published proceedings	7176	9.91%
Conference Contribution – Poster presentation	2108	2.91%
Confidential Report	470	0.65%
Design Output	365	0.50%
Discussion Paper	219	0.30%
Edited Book	580	0.80%
Exhibition	1747	2.41%
Film/Video	256	0.35%
Intellectual Property	384	0.53%
Journal Article	21913	30.28%
Monograph	242	0.33%
Oral Presentation	2593	3.58%
Other	2613	3.61%
Performance	1129	1.56%
Report for External Body	2705	3.74%
Scholarly Edition	114	0.16%
Software	214	0.30%
Technical Report	898	1.24%
Working Paper	695	0.96%
Total	72,378	100.00

Problems and issues

- 91 Overall, the implementation of the 2006 Quality Evaluation was relatively smooth. All the panels conducted their assessments in accordance with the agreed guidelines and completed their task within the set timeframes.
- 92 Nevertheless, the reports of the Moderation Panel and the peer review panels have highlighted a number of issues that the TEC will carefully consider to ensure that the lessons learned from this experience are taken into account in the design and conduct of the next Quality Evaluation scheduled for 2012.

Chapter 4

Interpreting the results of the 2006 Quality Evaluation

Introduction

- 93 The detailed results of the 2006 Quality Evaluation are presented in Chapter 5 and Appendix A. These results also include data carried forward from the 2003 Quality Evaluation.
- 94 In some cases, the presentation of some of the results of the 2006 Quality Evaluation differs from that outlined in Chapter 6 of the *PBRF Guidelines 2006*. The changes in question have been designed to enhance the clarity and comprehensiveness of the data.
- 95 The TEC will not be publicly releasing data on the Quality Categories assigned to individuals. Likewise, it will not be publishing the content of EPs submitted for assessment.

Presenting the data

Principles

- 96 In considering how to present the results of the 2006 Quality Evaluation, the TEC has been guided by a number of important principles. These include:
- a protecting the confidentiality of individuals' Quality Categories;
 - b maintaining the confidence and co-operation of the academic community;
 - c ensuring that the results are presented in a useful and meaningful manner for relevant stakeholders, such as students and research funders;
 - d providing information that will assist TEOs in benchmarking their research performance and will enable them to make better decisions on priority setting and resource allocation; and
 - e maintaining a consistent reporting framework over two or more Quality Evaluations, to facilitate comparisons over time.

Changes to the reporting framework

- 97 The reporting framework is broadly similar to that employed for the 2003 Quality Evaluation. In keeping with the 2003 Quality Evaluation, results have been reported at four levels: TEO, panel, subject area, and nominated academic unit. Significant exceptions are:
- a Data on staff headcount (ie non-FTE-weighted) is not presented for nominated academic units, nor where the subject area is reported at TEO level.
 - b Aggregate information on the Quality Categories assigned to new and emerging researchers is presented at the TEO, panel and subject-area level.
 - c For nominated academic units and subject areas at the TEO level, the "C" and "C(NE)" Quality Categories have been combined.
 - d For nominated academic units and subject areas at the TEO level, the "R" and "R(NE)" Quality Categories have been combined.

- e In order to minimise the possibility that the Quality Categories assigned to the EPs of individual staff may be inferred, no data is reported for nominated academic units or subject areas with less than five PBRF-eligible FTE staff. Instead, the relevant data is aggregated under a separate category of "other".
 - f Results at the overall TEO, panel and subject-area level include information on their standard deviation and standard error, and box and whisker diagrams outlining their spread.
 - g The results for TEOs that merged between 31 December 2002 and 31 December 2005 have been reported separately.
- 98** As in 2003, participating TEOs were allowed to choose their own nominated academic units. In some cases, TEOs chose to group their staff into relatively large units (eg at the faculty level). In other cases, TEOs chose smaller units (eg departments or schools). As a result, the relative performance of nominated academic units covering similar disciplinary areas may not be comparable.
- 99** The results for the four colleges of education that have been disestablished and merged with their local universities have been reported separately. In the cases of the Christchurch and Dunedin colleges of education, this is because the relevant merger took place after the PBRF Census date. In the cases of the Auckland and Wellington colleges of education, this is because of the separate reporting requirement for TEOs that merged between 31 December 2002 and 31 December 2005. The results of the 2006 Quality Evaluation relating to staff of the former Auckland and Wellington colleges of education who were employed by that college before the merger are reported under that college (which is prefixed by "former"); staff members employed by the "new" combined entity (ie since the merger) will be reported against that entity ie the University of Auckland or Victoria University of Wellington.

The calculation of quality scores

- 100** Many of the results of the 2006 Quality Evaluation are reported using quality scores. The method for calculating these scores is the same as that outlined in the *PBRF Guidelines 2006* (Chapter 6). In brief:
- a Weightings were assigned to the six Quality Categories. The agreed funding weights – "A" (5), "B" (3), "C" (1), "C(NE)" (1), "R" (0) and "R(NE)" (0) – were multiplied by 2, to give an enhanced weighting. This resulted in a rating scale of 0-10. The weighting regime was applied to all PBRF-eligible staff, not merely those whose EPs were submitted in 2006 or who were assigned a Quality Category in 2003 that was "carried over". PBRF-eligible staff who did not have an EP submitted in 2003 or 2006 have been assigned an "R" or "R(NE)".
 - b The quality score was thus calculated by: adding the weighted scores (0, 1, 3, and 5) of staff in the relevant TEO, subject area or nominated academic unit; multiplying by 2; and then dividing by the number of staff.
 - c All the figures displaying the ranking of quality scores have been presented using FTE weightings (see Appendix A: Figures A-1 to A-78).
 - d The information provided in the various tables and figures has been calculated to one or two decimal places.

Notes on the interpretation of quality scores

- 101** The following considerations are important to bear in mind when assessing quality scores.
- 102** Under the approach adopted, the maximum quality score that can be achieved by a TEO, subject area or nominated academic unit is 10. In order to obtain such a score, however, all the PBRF-eligible staff in the relevant unit of measurement would have to receive an “A” Quality Category. Given the nature of the assessment methodology adopted under the 2006 Quality Evaluation, and the very exacting standards required to secure an “A”, such an outcome is extremely unlikely. Furthermore, there is no suggestion that a quality score of less than 5 constitutes a “fail”. No sizeable academic unit, let alone a large TEO, could reasonably be expected to secure a quality score even close to a 10.
- 103** Just as a quality score between 8 and 10 is not realistically achievable (except by very small academic units), it is not necessarily something to which it would be prudent to aspire. For example, any academic unit (or TEO) concerned about its longer-term viability and future research capability would have a strong interest in ensuring that it has within its ranks not only a sufficient number of experienced and well respected researchers, but also a pool of new and emerging researchers. Under the assessment framework employed in the 2006 Quality Evaluation, any academic unit with staff at different stages of their research careers will find it virtually impossible to secure a score in excess of 8.⁹
- 104** Quite apart from this, TEOs and the academic units within them have multiple purposes. While research is vitally important (especially for universities), so too are teaching and service to the community. In many cases, PBRF-eligible staff members are employed primarily, if not solely, for their teaching expertise rather than as researchers. This, of course, is perfectly appropriate. High-quality teaching is not an optional extra. But by virtue of having multiple purposes – and thus the need to recruit and retain staff with varying types of expertise – TEOs are likely to achieve somewhat lower quality scores than those that would be achieved by an institution dedicated solely to research, if it were assessed by the same criteria.

The impact of the assessment framework on the overall results

- 105** The overall results of the 2006 Quality Evaluation will have been influenced by the nature of the assessment framework. Three matters deserve particular attention:
- a The Quality Evaluation is a standards-referenced assessment regime; it is not norm-based. Therefore there are no controls or predetermined limits on the assignment of particular Quality Categories.
 - b The scoring system employed by panels had significant implications for the distribution of Quality Categories.
 - c The criteria for achieving an “A” were exacting.

⁹ For example, only two nominated academic units achieved quality scores higher than seven. None of these contained more than 20 (FTE weighted) staff.

No controls or predetermined limits on Quality Categories

- 106** Because the Quality Evaluation is a standards-referenced assessment regime, there were no predetermined limits on the proportion of PBRF-eligible staff who could be assigned particular Quality Categories. Accordingly, the peer review panels were free to determine the appropriate distribution of Quality Categories for their respective subject areas. The decisions of each panel, however, needed to be consistent with the agreed assessment criteria and were subject to the scrutiny of the Moderation Panel.

The scoring system

- 107** With the exception of the “C(NE)” Quality Category, the scoring system used for the 2006 Quality Evaluation is likely to have had the effect of reducing the overall proportions of those assigned a funded Quality Category, compared with what would have been the case if scores had been based solely on the RO (research output) component.
- 108** For example, in order to secure an “A” it was generally necessary for all three components of an EP¹⁰ to receive a relatively high score (ie a minimum of 6/6/6 or 7/4/4). For example, of the 30 EPs with a score of 6 for RO and PE but a 5 for CRE, only four were assigned an “A” (based on the holistic judgement of the relevant panel).
- 109** While some EPs with scoring combinations of less than 6/6/6 or 7/4/4 were assigned an “A” at the holistic stage of the panel assessment process, this was not common. The scoring system thus had the effect of reducing the proportion of those assigned an “A” relative to what would have been the case if the results had been based solely on the RO component. This effect was slightly greater than that noted in the report of the 2003 Quality Evaluation. In 2006, only 4.8% of EPs (non-FTE- weighted) received an “A”, but 10.1% of EPs were assigned a score of 6 or 7 for the RO component of their EPs. For the 2003 Quality Evaluation, the relevant proportions were 5.5% and 9.5% respectively.
- 110** In the same way, the scoring system increased the proportion of those assigned an “R” Quality Category, which would have been allocated for a score of 2/2/1. For example, of the EPs submitted as part of the 2006 Quality Evaluation, 520 (11.5%) were assigned an “R” – and these included 210 EPs (4.6%) with an RO score of “2”. This effect did not alter the proportion of EPs assigned an “R(NE)” Quality Category because new and emerging researchers could be assigned a “C(NE)” Quality Category without any evidence of peer esteem or contribution to the research environment.

The exacting criteria for achieving an “A”

- 111** The standards required for achieving an “A” Quality Category, as stated in the *PBRF Guidelines 2006* and applied by the 12 peer review panels, were exacting. Many staff who produced research outputs of a world-class standard did not secure an “A” because they did not demonstrate either the necessary level of peer esteem or a contribution to the research environment to the standard required.¹¹

¹⁰ RO (research output), PE (peer esteem) and CRE (contribution to the research environment), which were weighted 70, 15, and 15 respectively.

¹¹ In order to achieve an “A”, EPs were required to demonstrate – among other things – leadership and accomplishment exemplified by a platform of world-class research, including highly original work ranking with the best of its kind and characterised by qualities such as:

- intellectual and creative advance;
- important new findings with wider implications;
- intellectual rigour, imaginative insight, or methodological skill;
- substantial impact or uptake; and
- dissemination through most appropriate and best channels.

- 112** Two other factors also contributed to some high-calibre researchers receiving a “B” rather than an “A”:
- a The assessment period covered only six years. In some cases, major research outputs were produced just before, or just after, the assessment period, with the result that the researcher in question received a lower score for their RO component than might otherwise have been the case.
 - b The EPs of some high-calibre researchers did not provide sufficient detail of their PE and/or CRE. While this was less of an issue than in 2003, the panels assessing such EPs were unable to score these two components as highly as might otherwise have been possible.

Other factors influencing the overall results

- 113** The PBRF is intended to provide powerful incentives for TEOs to enhance research quality, prioritise research, and to concentrate their research efforts around areas of excellence. The principal incentives associated with the Quality Evaluation measure are reputational and financial. The “ranking” of TEOs through their quality scores is a clear measure of the performance of each TEO relative to its peers. Performance in the Quality Evaluation also determines how 60% of PBRF funding will be allocated among TEOs from 2007 to 2012.¹² The differences between these incentives should not be underestimated. While reputational matters are clearly of some importance, the ability of TEOs to deliver the outcomes expected of them by the government and the community are largely determined by the proportion of the government’s investment in research funding and research training that each TEO is able to attract.
- 114** For individual staff, direct “feedback” in the form of Quality Categories based on the judgements of their peers may act as a powerful incentive. The fact that almost 40% of staff received a higher Quality Category than they did in 2003 can be argued as evidence that the assessment system is able to generate a positive response.
- 115** Over time, the combination of these factors at an institutional and individual level can be expected to result in an overall increase in research quality as measured through the PBRF. Nevertheless, as relatively little time has past since the introduction of the PBRF, the actual improvement in research quality is difficult to quantify. Certainly, it is reasonable to assume that some of the change in measured research quality will have been the result of other factors, such as:
- a the “partial” round provisions of the 2006 Quality Evaluation;
 - b improvements in the presentation of EPs;
 - c specific provision for new and emerging researchers;
 - d that not all TEO researchers were PBRF-eligible;
 - e changes in PBRF-eligible staff reported by TEOs;

¹² Current projections for the PBRF indicate that funding will rise to \$264m (GST inclusive) by 2010.

- f the results cover only participating TEOs;
- g the separate reporting of merged TEOs; and
- h the limited assessment period.

Each of these factors is discussed in more detail below.

“Partial” round provisions

- 116** The 2006 Quality Evaluation has been conducted on a “partial” basis. The “partial” round provision means that in most cases the Quality Categories assigned to the EPs of staff assessed in the 2003 Quality Evaluation have been “carried over” to the 2006 Quality Evaluation. In practical terms, this means that the Quality Categories assigned to 2,996 EPs in 2003 were “carried over” automatically to the 2006 Quality Evaluation.
- 117** A significant proportion (31% [919]) of the EPs carried over from 2003 were assigned an “R” or had their Quality Category updated to “R(NE)” in 2006, and so are unlikely to have achieved a higher Quality Category if they had resubmitted in 2006. Another 42% (1,245) in 2003 were assigned a total weighted score that was more than two points above the level required (excluding the effect of the holistic assessment) for the Quality Category that they were assigned in 2003. The remaining 832 were within two points of a lower Quality Category in 2003 and, if they had resubmitted in 2006, would have been more likely to have had that lower Quality Category assigned. Nevertheless, it is not possible to state definitively whether higher or lower Quality Categories would have been assigned if EPs had been resubmitted for these staff in the 2006 Quality Evaluation.
- 118** It is worth noting, however, that there was a reasonable level of consistency in the Quality Categories assigned to the EPs submitted for assessment in both Quality Evaluations. Of the 4,532 EPs assessed by the peer review panels in 2006, 2,670 were from researchers whose EPs had also been assessed in 2003. Of this group, 51% were assigned the same Quality Category as in 2003, 39% were assigned a higher Quality Category and 10% a lower Quality Category. This level of consistency is notable given that TEOs were much more likely to submit EPs for which they expected a higher Quality Category than in 2003.

Improvements in the presentation of EPs

- 119** All PBRF peer review panels commented uniformly on the improvement in the presentation of EPs compared with those submitted for assessment in the 2003 Quality Evaluation. These improvements might be expected to lead to higher Quality Categories being assigned – and given the high proportion of staff whose EPs were assigned a higher Quality Category this would appear to be the case.
- 120** Improvements in the presentation of EPs, however, may simply mean that the EPs submitted in 2006 provide a more accurate reflection of the research activities undertaken in the tertiary sector than did the EPs in 2003, as the information they contain is more complete and accurate.

Specific provision for new and emerging researchers

- 121** One of the key changes implemented for the 2006 Quality Evaluation was the establishment of a specific assessment pathway for new and emerging researchers. Almost 2,000 (22.2%) PBRF-eligible staff were reported by their TEOs as having met the eligibility criteria for new and emerging researchers, and the EPs of almost 1,000 of these staff were assigned a funded Quality Category in 2006. Of these 1,000, 84.0% were assigned a "C(NE)" and 11% an "A" or "B"; the remaining 5% had their funded Quality Categories "carried over" from 2003.
- 122** The recognition of new and emerging researchers is likely to have resulted in higher levels of assessed research quality than in 2003. This is because the EPs of a number of new and emerging researchers would most likely have been assigned an "R" Quality Category if the specific assessment pathway had not been implemented.
- 123** The decision on whether to report its researchers as new and emerging was at the discretion of the TEO. As a result, TEOs reported differing proportions of new and emerging researchers and may, in some cases, have understated their numbers. For example, while some established universities like the University of Canterbury and Victoria University of Wellington reported that new and emerging researchers made up more than 28% of all staff, the University of Auckland reported a figure of 9%. Where a TEO did not report a researcher as new and emerging, this may have influenced the Quality Category assigned to that researcher's EP and thus affected the TEO's quality score.

Not all TEO researchers were PBRF-eligible

- 124** As in 2003, not all TEO researchers were eligible to participate. While the eligibility criteria were adjusted for the 2006 Quality Evaluation, inevitably there were some active researchers in TEOs who were ineligible for inclusion. These included researchers who failed to meet the requirement of "a sufficiently substantive contribution" to degree-level teaching and/or research. Other staff who may have been affected were: those who had their primary place of research overseas or were sub-contracted to a TEO by a non-TEO, but had not fulfilled the requirement of an employment relationship of at least five years; those who had left their employment in a participating TEO before the PBRF Census date; those who were working under the strict supervision of another staff member; and those employed under an employment agreement that did not meet the general eligibility criteria.
- 125** Certainly in the case of some TEOs (Massey University and AUT are notable examples) a number of staff who were reported as eligible in 2003 were not reported as eligible in 2006 even though they were still employed by the TEO. If these staff had received an "R" Quality Category in 2003, the effect on the 2006 quality scores at the TEO level (and at other levels in the reporting framework) is likely to have been significant.

Changes in PBRF-eligible staff reported by TEOs

- 126** There has been some change in the numbers of PBRF-eligible staff reported by participating TEOs compared with those reported in the 2003 Quality Evaluation. Overall, there has been a reduction of 3.4% (1.9% FTE) in the numbers of PBRF-eligible staff reported by the universities. To give some indication of the range, AUT reported a 33.8% decrease in PBRF-eligible staff on an FTE basis; conversely, Victoria University of Wellington (excluding Wellington College of Education) reported a 22.3% increase in PBRF-eligible staff on an FTE basis.
- 127** The difference between the 3.4% fall in non-FTE terms and the 1.9% fall on an FTE basis indicates that many of the staff who are no longer PBRF-eligible were employed on a part-time basis. The most marked example of this is the University of Otago. The total staff reported by this TEO has dropped from 1,357 (1,174.94 FTE) in 2003 to 1,244 (1,144.66 FTE) in 2006, a drop of 8.1% on a non-FTE basis but only 2.6% on an FTE basis.¹³
- 128** There has also been a significant level of turnover in at least a part of the academic workforce since the 2003 Quality Evaluation. Of the 8,018 PBRF-eligible staff reported in the 2003 Quality Evaluation, almost 30% (approximately 2,500) were not PBRF-eligible in 2006 – either because they were no longer employed by a participating TEO or because their employment functions changed.
- 129** There is anecdotal evidence that TEOs actively recruited researchers either from overseas or from other TEOs in order to improve their research performance. Where TEOs have pursued such a strategy, the effect may have been to increase their quality scores. This is noted in the Report of the Moderation Panel (Appendix C) which suggests that approximately one-quarter of the staff whose EPs were assigned an “A” in 2006 were new appointments from overseas.
- 130** The TEC carefully audited the participating TEOs’ application of staff PBRF-eligibility criteria, and was satisfied that all participating TEOs complied with the *PBRF Guidelines 2006*. The details of this audit are described in Appendix D.
- 131** It should be noted that some of the changes described above are the result of amendments to the PBRF-eligibility criteria for the 2006 Quality Evaluation, or are the result of TEO responses to these amendments. Others may result from factors that relate only indirectly to the PBRF, such as increases in the numbers of students enrolled at particular TEOs.

The results cover only participating TEOs

- 132** Of the 46 PBRF-eligible TEOs, 31¹⁴ participated in the 2006 Quality Evaluation. This compares with 22 TEOs in the 2003 Quality Evaluation. These differences arose because of the participation for the first time of eight institutes of technology and polytechnics (ITPs), one additional wānanga, and three private training establishments (PTEs).¹⁵ Accordingly, the results of the 2006 Quality Evaluation provide a fuller picture of the quality and level of research activity across the whole tertiary education sector than did those of 2003.

¹³ It should be noted, however, that in 2006 the “average FTE” (expressed by dividing the reported total FTE by the total non-FTE of staff) of a staff member at the University of Otago was 0.92 – the lowest average FTE of any university. Otago also had the lowest average FTE of any university in 2003.

¹⁴ This total includes the four colleges of education that have merged with their local university.

¹⁵ One PTE that participated in 2003 chose not to participate in 2006.

- 133** To a large extent, however, the participation of additional TEOs has not resulted in significant changes in the number of EPs that were assigned a funded Quality Category. In fact, the main effect has been a higher number of EPs assigned either an “R” or “R(NE)” Quality Category.
- 134** In addition, it is important to stress that the PBRF is concerned with research performance in New Zealand’s tertiary education sector. It does not, therefore, assess the research performance of the many other governmental and non-governmental organisations that undertake research, such as the nine Crown research institutes (CRIs). Neither does the PBRF assess researchers working in the private sector. For this reason, the results of the 2006 Quality Evaluation do not provide a comprehensive overview of the quality of all the research being undertaken by New Zealand-based researchers.

Separate reporting of merged TEOs

- 135** As outlined earlier in this chapter, the 2006 Quality Evaluation provided for separate reporting of recently merged TEOs. This affects the reporting of results for the universities of Auckland, Victoria, Canterbury, and Otago – each of which has merged with the college of education in its respective region since 2003. It is important to note that the quality score of each of these four universities would have been different if its results had been merged with those of its college of education.

The limited assessment period

- 136** The results of the 2006 Quality Evaluation are based on research completed within a six-year assessment period (1 January 2000 – 31 December 2005). They do not represent a judgement of the quality of individuals’ research during the whole of their working lives. They also do not assess the many and varied contributions that staff of TEOs make outside the field of research (eg in teaching, administration, and service to the community).

Interpreting the results at the panel and subject-area levels

- 137** There are also a number of factors that need to be carefully considered when interpreting the results of the 2006 Quality Evaluation at panel and subject-area level. These factors include:
- a the multidisciplinary nature of panels and subject areas;
 - b the potentially very wide range of disciplines covered by the Māori Knowledge and Development Panel; and
 - c the meaning of the “R” and “R(NE)” Quality Categories.

The multidisciplinary nature of panels and subject areas

- 138** The 12 PBRF peer review panels varied significantly in terms of both the scope of the subject areas covered and the number of EPs assessed. Two of the panels, the Education Panel and the Māori Knowledge and Development Panel, embrace only one subject area. All other panels cover two or more subject areas, up to a maximum of six. For panels spanning more than one subject area, the research performance of the particular panel’s subject areas differed – sometimes significantly. The panel-level results thus mask considerable variation at the subject-area level.

- 139** It was recognised when determining the classification of the 42 subject areas that some subject areas did not relate directly to well established academic disciplines. Certain subject areas embrace two or more recognised disciplines (eg anthropology and archaeology) or cover a very large disciplinary area where it is common to make sub-disciplinary distinctions (eg engineering has a range of sub-disciplines such as civil, mechanical, electrical, and chemical engineering). Nor, of course, do the 42 subject areas accurately reflect the way research activity is organised and conducted within many TEOs – which is often through multi-disciplinary teams.
- 140** For such reasons, the quality scores and other aggregate results for a particular subject area may mask considerable variations in research performance at the disciplinary and sub-disciplinary levels. Many of these variations will be apparent if the performance of particular subject areas is compared with that of the relevant nominated academic units within TEOs.
- 141** A significant proportion of those submitting EPs for assessment undertake research that crosses two or more subject area boundaries (and in some cases two or more panel boundaries). Such staff (and/or their TEOs) were able to indicate under which subject-area their EP should be assessed and reported. For instance, a health economist could have asked to be assessed either by the Business and Economics Panel (and thus be reported under the subject area of economics), or by the Medicine and Public Health Panel (and thus be reported under the subject area of public health). Although there was scope for EPs to be transferred between subject areas and panels, in most cases the preferences indicated by staff determined the allocation and reporting of their EPs at the subject-area level. This, in turn, will have affected the nature and pattern of subject-level results in some instances.
- 142** Approximately 123 EPs (compared with 238 in 2003) were transferred after being received by the TEC, from one panel to another. They have therefore been reported under a subject area different from that originally chosen. This will have had an effect, albeit marginal, on subject-area (and panel) results.
- 143** In some subject areas, a significant proportion of PBRF-eligible staff are employed on a part-time basis. Many such staff are recruited primarily to teach rather than to conduct research. This inevitably has implications for the quality scores of subject areas where there is a high level of clinical or professional practice.

The results of the Māori Knowledge and Development Panel

- 144** Staff undertaking research based on Māori world-views (both traditional and contemporary) and Māori methods of research were able to submit their EPs either to the Māori Knowledge and Development Panel or to another appropriate panel. As a result, the results of the Māori Knowledge and Development Panel do not necessarily provide a complete picture of the quality of research conducted by Māori staff or the quality of research dealing with Māori themes and issues. Moreover, the EPs submitted to the Māori Knowledge and Development Panel covered a very wide range of academic disciplines. Hence, the aggregate results for this panel (and subject area) provide only a partial indication of the relative strength of the many and varied fields of academic inquiry where Māori researchers are actively engaged (or where Māori research methods are regularly employed).

The meaning of the "R" and "R(NE)" Quality Categories

145 The *PBRF Guidelines 2006* describe the "R" and "R(NE)" Quality Categories as follows:

Quality Category "R": An EP will be assigned an "R" when it does not demonstrate the quality standard required for a "C" Quality Category or higher.

Quality Category "R(NE)": An EP will be assigned an "R(NE)" when it does not demonstrate the quality standard required for a "C(NE)" Quality Category or higher.

146 The results of the 2006 Quality Evaluation (see Chapter 5) show that 33.5% of PBRF-eligible staff have received an "R" or "R(NE)". It is important to understand that the assignment of such a Quality Category does not mean that the staff member in question has produced no research outputs during the six-year assessment period, or that none of the research outputs produced are of a sound (or even very good) quality. Rather, it simply means that they did not meet the standards required for the award of a funded Quality Category. It would be inappropriate to assume that all such staff were not active in research, or undertaking research of poor quality.

147 There are a number of possible reasons for the assignment of an "R":

- a The EP contained no Research Outputs (ROs) other than a masters or doctoral thesis.
- b The score for the RO component of the EP was less than 2.
- c The RO component was awarded a score of 2 (thus demonstrating a platform of research activity based on sound/justifiable methodologies); but the combined score for the other two components (PE and CRE) was less than 4, and the relevant panel decided at the holistic assessment stage not to assign a "C" or higher Quality Category.
- d The EP did not include all the relevant information that the staff member could have provided. Peer review panels were not permitted to draw on any information about an individual's research activities or personal circumstances that was not included in the relevant EP.

148 Similarly, there are a number of other specific reasons for the assignment of an "R(NE)":

- a The RO component of the EP did not contain evidence of a PhD (or equivalent and two quality-assured research outputs, or research outputs equivalent to a PhD and two quality-assured research outputs).
- b The score for the RO component of the EP was less than 2.

149 Because of the nature of the assessment methods and the standards set for a "C", those assigned an "R" or "R(NE)" include at least four different categories of staff. These are detailed below.

150 First, there are a number of researchers who were reported as new and emerging but whose EPs were not assigned a funded Quality Category. Some of these staff may have been only recently appointed to an academic/research position within a TEO, or only recently become active researchers. As a result, they will have produced few research outputs during the assessment period. This group of staff no doubt includes many researchers of considerable potential, most of whom can reasonably expect to secure a higher Quality Category in future Quality Evaluation.

- 151** Second, some staff who met the eligibility criteria for new and emerging researchers were not reported as such by their TEO. These staff may have submitted EPs that met the assessment standard to be assigned a “C(NE)”; but, as they were not reported as new and emerging, their EPs could not be assigned this Quality Category. Many of these staff may not yet have acquired significant peer esteem, and they may have been unable to make a significant contribution to the research environment (either within their own institution or beyond). As a result, their EPs would not have been assigned a funded Quality Category.
- 152** Third, some staff may have held academic/research positions for a considerable time but for one reason or another have not produced many substantial research outputs during the assessment period (and/or have not acquired a significant level of peer esteem or made a considerable contribution to the research environment). In some cases, the staff in question may have produced one or more major research outputs just outside the assessment period, and so were unable to include them in their EPs.
- 153** Finally, some staff may have held academic positions for many years but have not chosen, been required or been able to undertake research.
- 154** The TEC has insufficient data to ascertain the relative proportion of staff who fall into each of these four categories. However, such information will be known within individual TEOs. It is crucial that TEOs interpret the results carefully, taking proper account of individual circumstances and implementing appropriate strategies for staff development.

Chapter 5

The results of the 2006 Quality Evaluation

Introduction

156 Of the total funding to be allocated through the PBRF each year, 60% is allocated according to the results of the periodic Quality Evaluation assessment.¹⁶ The following section outlines the results of the 2006 Quality Evaluation. It begins with a brief summary of the key results; this is followed by a more detailed analysis of the results for individual TEOs, panels, subject areas, and nominated academic units.

Summary of the key results

157 A summary of some of the key results of the 2006 Quality Evaluation is outlined in Table 5.1. A much fuller presentation of the statistical results can be found in Appendix A.

Overall quality scores

158 As Figure A-1 shows, the overall quality score of the 31 participating TEOs is 2.96 (FTE-weighted). This is out of a possible maximum of 10 – which is the score that would be achieved if all eligible staff were assigned an “A”. The quality score of 2.96 indicates that the average quality of the research produced by PBRF-eligible staff is towards the bottom of the “C”/“C(NE)” range (2.00 to 5.99). As explained in Chapter 4, however, the quality score data must be interpreted with appropriate care.

159 The quality scores obtained by participating TEOs reflect broad patterns identified in 2003. The overall variation in quality scores remains large, with a range from 4.23 to zero (see Figure 5.2; and Table A-1 in Appendix A). This compares to a range of 3.96 to zero in 2003. As was the case in 2003, the universities achieved much higher quality scores than other participating TEOs. However, a notable feature of the universities’ quality scores, compared with those reported in 2003, is a reduction in the difference between the highest- and lowest-scoring universities. In 2003, this difference was 3.19 (between the University of Auckland and AUT). By comparison, in 2006 the difference was 2.37 (between the University of Otago and AUT).

160 The quality scores also reveal large variations in the relative performance of the 42 subject areas. (Table A-3). Whereas the 12 highest-performing subject areas achieved quality scores in excess of 4.0, the eight lowest-performing had scores of 2 or less. This is consistent with the broad trends identified in the 2003 Quality Evaluation. As in 2003, long-established subject areas with well developed research cultures (such as earth sciences and philosophy) achieved much higher quality scores than less well established subject areas (such as design, and nursing).

¹⁶ Chapter 8 contains detail on the PBRF funding attracted by participating TEOs

Figure 5.1: Subject Area Ranking – All Subject Areas

Numbers above bars indicate FTE-weighted quality scores

Numbers in parentheses indicate total number of PBRF-eligible FTE-weighted staff

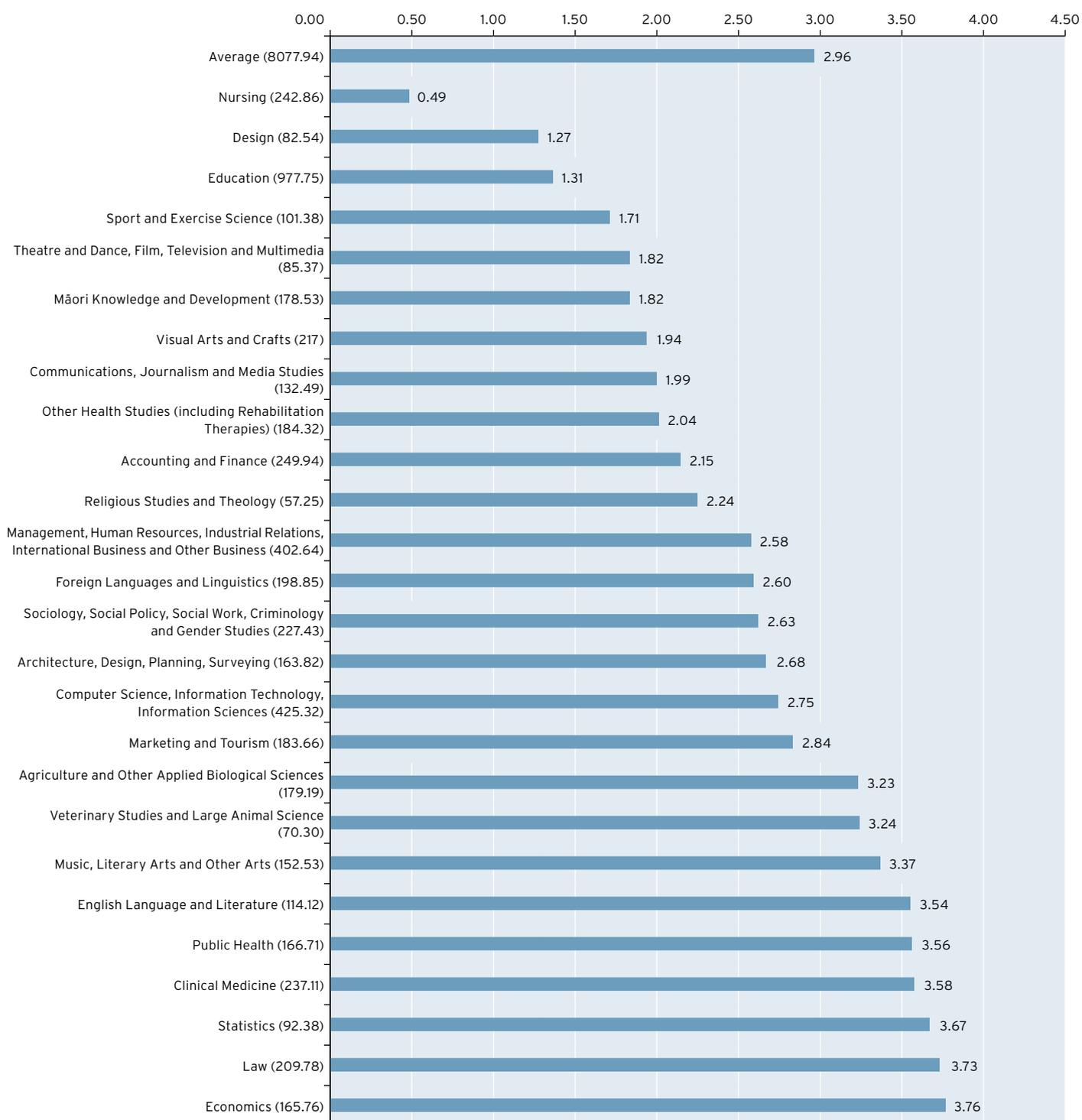


Figure 5.1: Subject Area Ranking – All Subject Areas – continued

Numbers above bars indicate FTE-weighted quality scores

Numbers in parentheses indicate total number of PBRF-eligible FTE-weighted staff

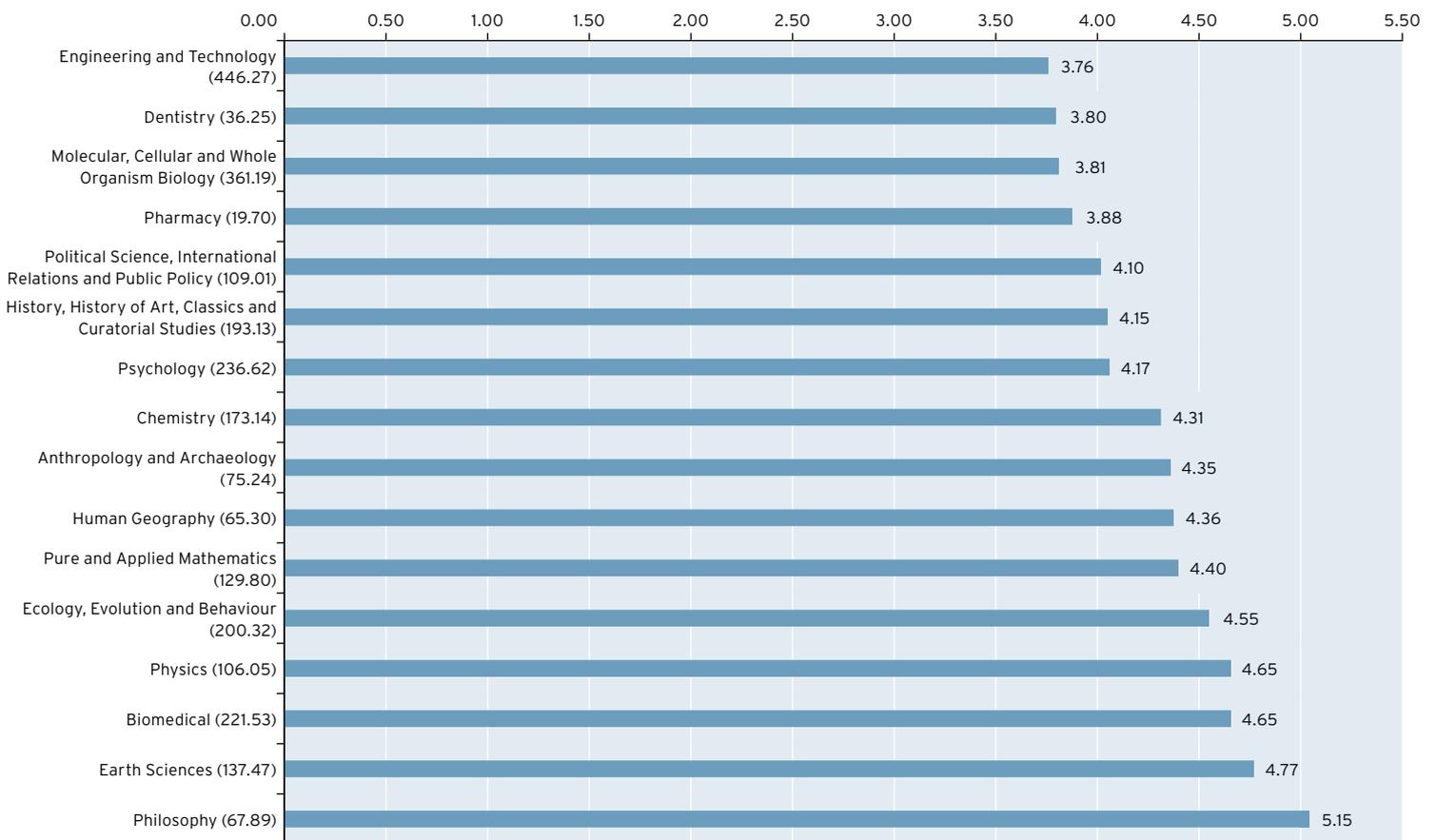


Figure 5.2: TEO Ranking – All TEOs

Numbers above bars indicate FTE-weighted quality scores

Numbers in parentheses indicate total number of PBRF-eligible FTE-weighted staff

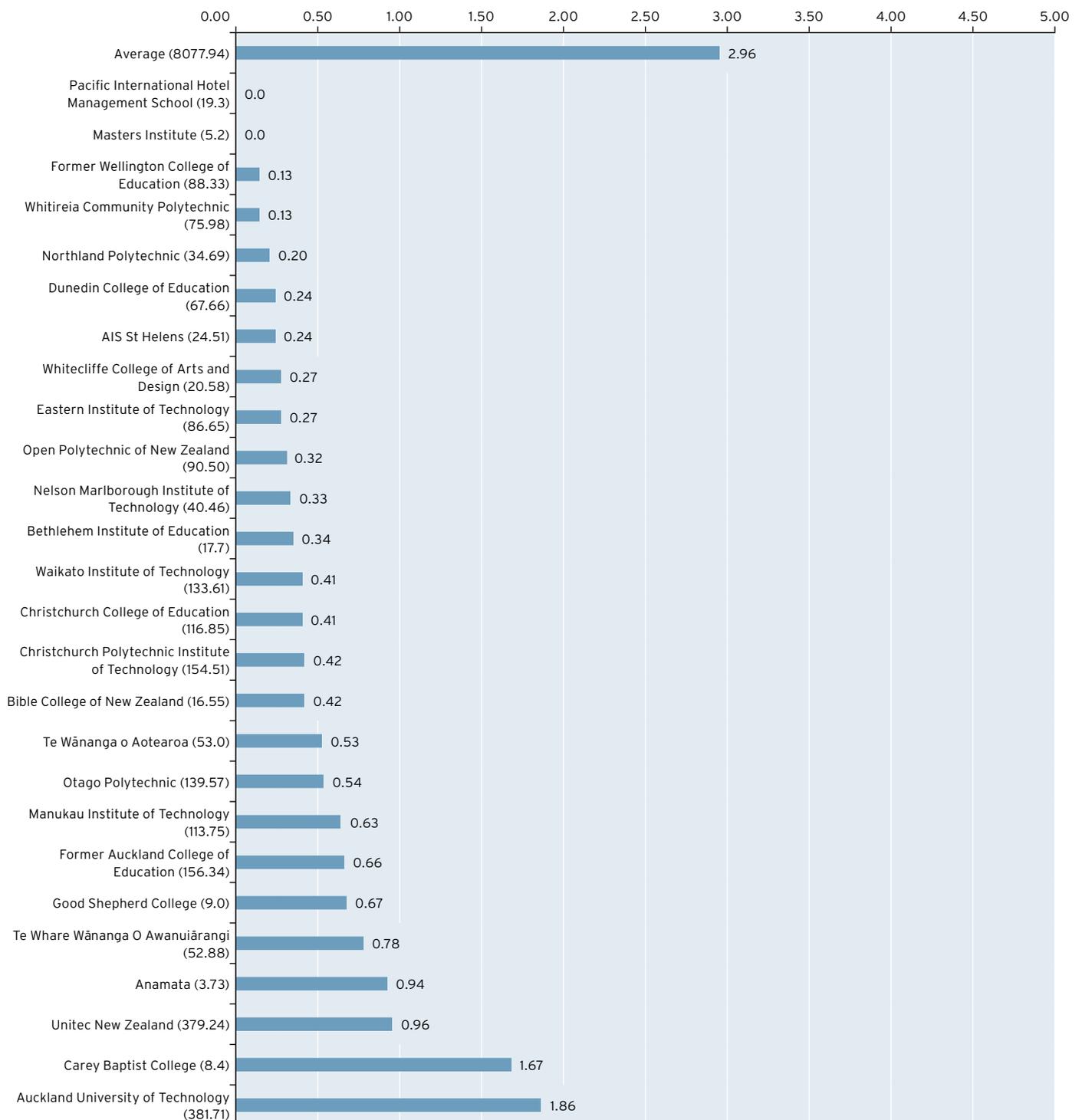


Figure 5.2: TEO Ranking – All TEOs – continued

Rank based on Quality Score (FTE-weighted)

Numbers in parentheses indicate total number of PBRF-eligible staff (FTE-weighted)

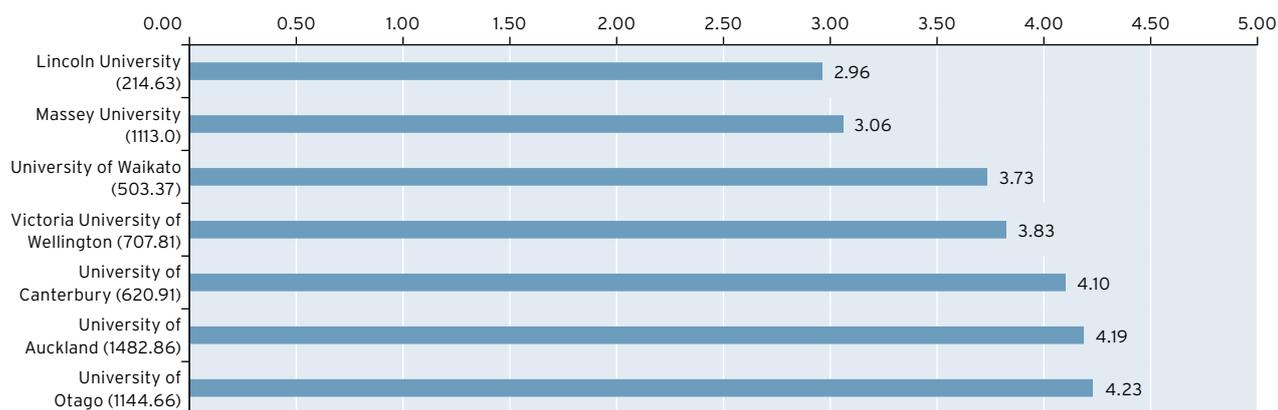


Table 5.1: The Distribution of Quality Categories 2003 and 2006 Quality Evaluations

Quality Category	Quality Categories – 2003 Quality Evaluation		Quality Categories – 2003 Quality Evaluation (FTE-weighted)		Quality Categories – 2006 Quality Evaluation		Quality Categories – 2006 Quality Evaluation (FTE-weighted)	
	%	Number	%	Number	%	Number	%	Number
A	5.54	444	5.72	424.15	7.27	630	7.42	599.75
B	22.57	1,810	23.21	1,720.85	25.00	2,168	25.55	2,063.55
C	31.01	2,486	31.21	2,313.82	24.67	2,139	24.80	2,003.08
C(NE)	N/A	N/A	N/A	N/A	9.53	826	9.69	782.99
R	40.88	3,278	39.86	2,955.75	22.65	1,964	22.08	1,783.58
R(NE)	N/A	N/A	N/A	N/A	10.89	944	10.46	844.99
A + B	28.11	2,254	28.93	2,145.00	32.27	2,798	32.97	2,663.30
B + C + C(NE)	53.58	4,296	54.42	4,034.67	59.20	5,133	60.04	4,849.62
A Universities only	6.53	443	6.74	423.15	9.57	627	9.68	597.15

Distribution of Quality Categories

- 161** Of the 8,671¹⁷ PBRF-eligible staff (non-FTE-weighted), 630 (7.27%) received a Quality Category of “A”, 2,168 (25.00%) received a “B”, 2,139 (24.67%) a “C”, 826 (9.53%) a “C(NE)”, 1,964 (22.65%) an “R”, and 944 (10.89%) an “R(NE)”. This means that in 2006 the EPs of 32% of PBRF-eligible staff were assigned an “A” or a “B” – compared with 28% in 2003. The proportion of PBRF-eligible staff whose EPs were assigned a funded Quality Category (“A”, “B”, “C”, or “C(NE)”) increased from 59.1% to 66.5%. The distribution of Quality Categories is shown in Table 5.1; and the overall distribution is graphically depicted in Figure 5.3. More detailed data are presented in Appendix A: Tables A-1, A-2 and A-3; and Figures A-1, A-2 and A-3.
- 162** When the results of the 2006 Quality Evaluation are calculated on a FTE basis, the relative proportion of “A”, “B”, “C”, and “C(NE)” Quality Categories increases, while the proportion of “R”s decreases. The use of FTE-weighted data tends to enhance the scores of TEOs with a high proportion of part-time staff (eg the University of Otago). This effect is due partly to the fact that, on average, part-time staff received lower Quality Categories than full-time staff did. However, the rankings of TEOs, panels and subject areas do not change when considered on an FTE-weighted, rather than a non-FTE-weighted, basis.
- 163** The proportional distribution of Quality Categories conceals to some extent the actual level of change in the tertiary sector, because of the participation of a number of TEOs for the first time. The number of staff whose EPs were assigned a funded Quality Category in 2006 was 5,763. This is a substantial increase on the 4,740 staff whose EPs were assigned a funded Quality Category in 2003. In terms of volume, the largest increase occurred at the “C”/“C(NE)” level. In 2003, 2,486 staff received a “C” Quality Category. In 2006, 2,965 staff received a “C” or “C(NE)” Quality Category.

Figure 5.3: Distribution of Quality Categories

(PBRF-Eligible FTE-weighted Staff)



¹⁷ The figures in the text above and in Table 5.1 indicate that there were 8,671 PBRF-eligible staff, and that 4,532 Evidence Portfolios were assessed. But both these figures include four duplicates (ie there were four staff concurrently employed by two different TEOs at the time of the PBRF Census [Staffing Return]). In addition, one further staff member was employed by two participating TEOs on the PBRF Census date but had a Quality Category “carried over” from the 2003 Quality Evaluation. So there were 8,666 PBRF-eligible staff; and 4,528 separate EPs were assessed.

- 164** As in 2003, the distribution of "A"s is highly skewed across the tertiary education sector (see Figure 5.4). Of the 630 "A"s, only three were assigned to a researcher outside the university sector (up from one in 2003). Overall, a third (33.3%) of A-rated staff are concentrated in a single institution (the University of Auckland), and just over 68% are located in three universities (Auckland, Otago and Canterbury).
- 165** The distribution of "R"s and "R(NE)"s across the tertiary education sector is also very uneven. The TEOs with the lowest proportions of "R"s and "R(NE)"s are the University of Canterbury (11.4% of PBRF-eligible staff, FTE-weighted) and the University of Otago (13.5% of PBRF-eligible staff, FTE-weighted). At the other end of the spectrum, the proportions of "R"s and "R(NE)"s exceeds 90% in five TEOs – Masters Institute, Northland Polytechnic, Pacific International Hotel Management School, the former Wellington College of Education, and Whitireia Community Polytechnic.
- 166** The distribution of "A"s at the subject-area level is highly variable. The proportion of "A"s exceeds 15% (FTE-weighted) in five subject areas: biomedical; dentistry; philosophy; psychology; and pure and applied mathematics. By contrast, the proportion of "A"s is under 2% (FTE-weighted) in four subject areas: communications, journalism and media studies; design; nursing; and sport and exercise science.

Organisational share of staff assigned a funded Quality Category

- 167** The relative research performance of TEOs can be considered in a number of ways. Research performance across TEOs can be compared by calculating their respective shares of PBRF-funded staff (ie those who received a funded Quality Category).
- 168** The results of weighting the Quality Categories received by staff (by assigning a value of 10 to an "A", 6 to a "B", and 2 to a "C" or "C(NE)") are depicted in Figure 5.5. As in 2003, the University of Auckland has the highest proportion of PBRF-funded staff. However, its share of all PBRF-funded staff (quality-weighted) has fallen from 29% in 2003 to 27% in 2006. Similar trends occurred at the universities of Canterbury and Waikato. Even though the numbers of PBRF-funded staff at these TEOs have increased since 2003, the numbers of PBRF-funded staff at other TEOs have increased at a much faster rate. For example, while the number of PBRF-funded staff at the University of Auckland increased by 7%, the relevant figure for AUT was 66%.
- 169** When TEOs are ranked on the basis of their quality scores, the University of Canterbury is ranked third. However, when rankings are determined on the basis of the organisational shares of PBRF-funded staff, Massey University moves into third place. This reflects the fact that Massey is a much larger organisation (with far more PBRF-eligible staff) than Canterbury.
- 170** As shown in Figure 5.5, more than 86% of the PBRF-funded staff within the tertiary education sector is located in just six TEOs. There has been only a modest change since the 2003 Quality Evaluation, when the same six TEOs' proportion of PBRF-funded staff was 90%.

Figure 5.4: Organisational Share of PBRF-Eligible FTE-weighted Staff Rated "A", "B", "C", "C(NE)"

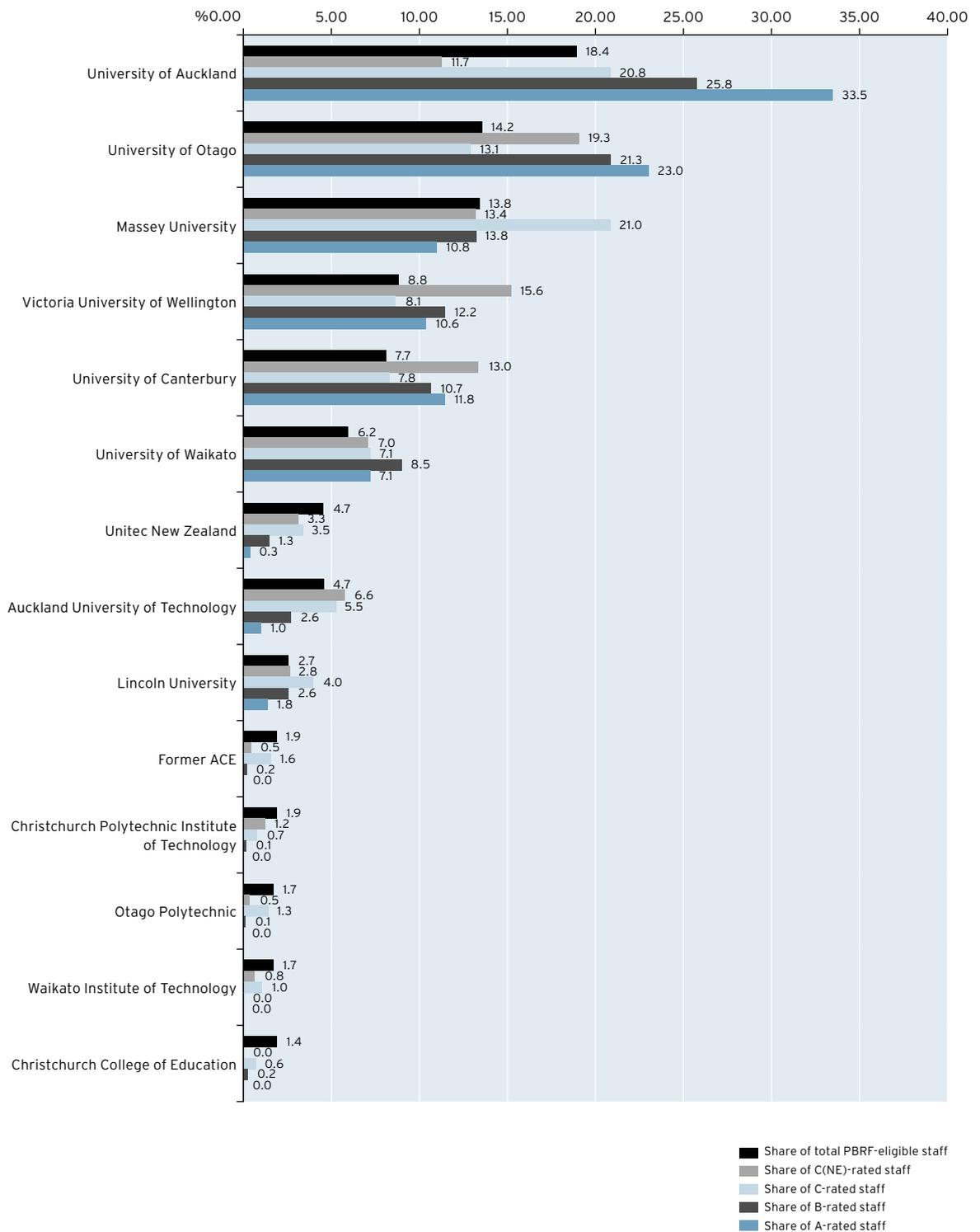


Figure 5.4: Organisational Share of PBRF-Eligible FTE-Weighted Staff Rated "A", "B", "C", "C(NE)" – continued

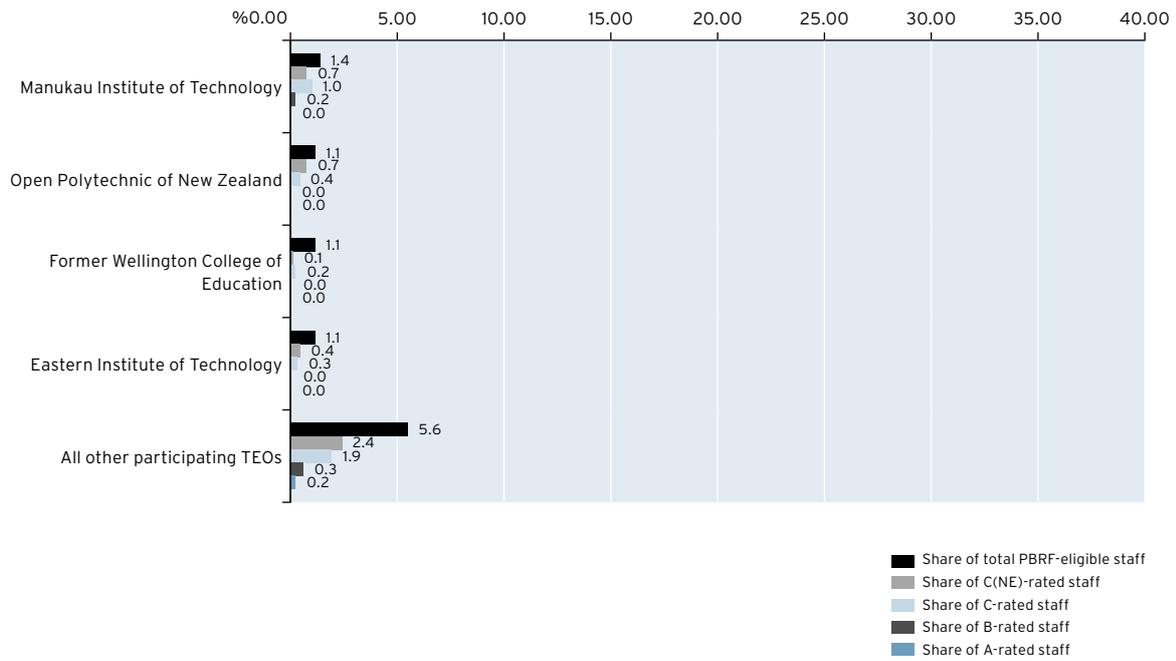


Figure 5.5: Organisational Share of Quality-Weighted Staff

(FTE Weighted) %

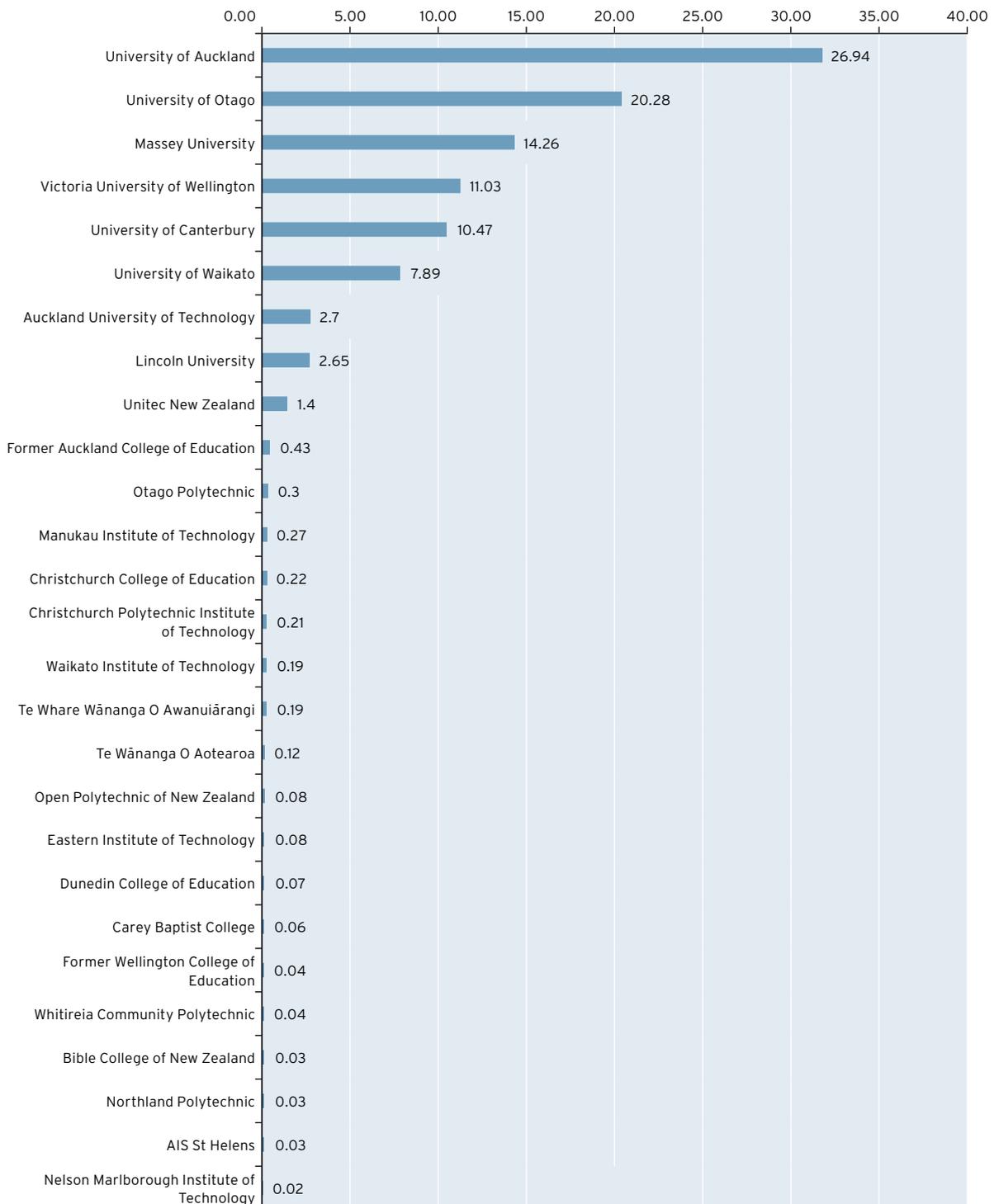
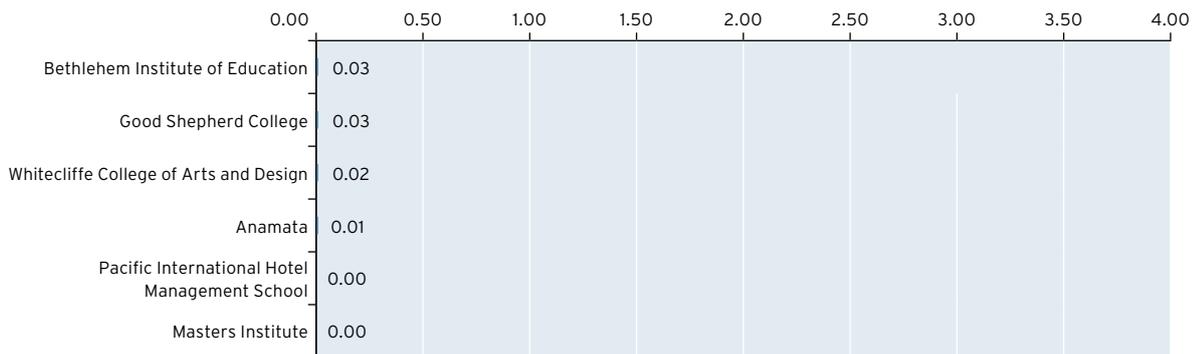


Figure 5.5: Organisational Share of Quality-weighted Staff – continued

(FTE Weighted) %



More detailed analysis: the relative performance of TEOs

- 171** As noted above, the 2006 Quality Evaluation data reveal major differences in the research performance of participating TEOs – whether judged on the basis of quality scores, the distribution of “A”s, or the organisational share of PBRF-funded staff.
- 172** Of the 21 TEOs that participated in both Quality Evaluations, 17 recorded higher quality scores in 2006. The change in quality scores between the two Quality Evaluations is shown in Table 5.2.

Table 5.2: Change in quality score (FTE-weighted) from 2003 to 2006

TEO Name	2006 quality score (FTE-weighted)	2003 quality score (FTE-weighted)	Change (no)	Change (%)
Auckland University of Technology	1.86	0.77	1.09	141.6%
University of Otago	4.23	3.23	1.00	31.0%
Massey University	3.06	2.11	0.95	45.0%
University of Waikato	3.73	2.98	0.75	25.2%
Carey Baptist College	1.67	1.16	0.51	44.0%
Victoria University of Wellington	3.83	3.39	0.44	13.0%
Lincoln University	2.96	2.56	0.40	15.6%
Bethlehem Institute of Education	0.34	0	0.34	N/A
University of Canterbury	4.10	3.83	0.27	7.3%
Former Auckland College of Education	0.66	0.39	0.27	69.2%
Unitec New Zealand	0.96	0.71	0.25	35.2%
University of Auckland	4.19	3.96	0.23	5.8%
Te Wānanga o Aotearoa	0.53	0.32	0.21	65.6%
Christchurch College of Education	0.41	0.2	0.21	105.0%
Former Wellington College of Education	0.13	0.03	0.10	333.3%
Waikato Institute of Technology	0.41	0.32	0.09	28.1%
AIS St Helens	0.24	0.22	0.02	9.1%
Dunedin College of Education	0.24	0.27	-0.03	-11.1%
Anamata	0.94	1	-0.06	-6.0%
Whitecliffe College of Arts and Design	0.26	0.36	-0.10	-27.8%
Bible College of New Zealand	0.42	0.83	-0.41	-49.4%
Average (all universities)	3.71	2.98	0.73	24.5%
Average (TEOs that participated in both Quality Evaluations)	3.25	2.59	0.66	25.5%
Average (all TEOs)	2.96	2.59	0.37	14.3%

- 173** There are clearly two significant patterns in relation to the relative performance of TEOs. Firstly, the performance of most of the country's eight universities is markedly better than that of the other participating TEOs (see Figures 5.2, 5.4, and 5.5; and Table A-1). Virtually all those rated "A" were university staff; similarly, of the 2,168 "B"s, only 58 were received by staff in TEOs outside the university sector.
- 174** Secondly, there has been a change in the relative ranking of the universities. As noted earlier, the degree of difference between the highest- and lowest-ranked university has decreased. In addition, each participating university has achieved a higher quality score than in 2003 – an average increase of 0.73; a percentage increase of 24.5%. The most significant improvements were by AUT and the University of Otago (increases of 1.09 and 1.00 respectively). The three top-ranked TEOs in the 2003 Quality Evaluation (the universities of Auckland, Canterbury and Victoria) reported increases in their quality scores below the average for all universities.
- 175** The most notable change in ranking is that of the University of Otago (ranked fourth in the 2003 Quality Evaluation and first in the 2006 Quality Evaluation). This university achieved the second-highest increase in quality score, moving from 3.23 to 4.23. A significant factor in this increase was the reduction in its reported number of PBRF-eligible staff, which dropped from 1,357 in 2003 to 1,244 in 2006 (a decrease of 8.3%) – although this is less dramatic when considered on an FTE basis (a decrease of 2.6%).
- 176** Of the University of Otago staff who were no longer PBRF-eligible in 2006, a significant proportion were part-time and their EPs had been assigned an "R" Quality Category in 2003.¹⁸ There were a number of reasons why these staff members were no longer eligible in 2006 – and these reasons applied to a greater or lesser extent to all TEOs that participated in both Quality Evaluations. Firstly, staff may have left the TEO where they were employed at the time of the 2003 PBRF Census. Secondly, there may have been some change to their employment agreements which meant that in 2006 they did not meet the staff PBRF-eligibility criteria. Thirdly, the changes in staff PBRF-eligibility criteria for the 2006 Quality Evaluation may have meant that they were no longer PBRF-eligible. A practical effect of this change was to reduce the proportion of staff (FTE-weighted) assigned an "R" or "R(NE)" from 28.1% to 13.5%.¹⁹
- 177** It is worth noting that the difference in quality scores between the top-ranked University of Otago and the second-ranked University of Auckland is very small – 0.04. In 2003, the difference between the two top-ranked TEOs (the universities of Auckland and Canterbury) was 0.13.
- 178** The two top-ranking universities have considerable depth and breadth of research activity. They were ranked first or second in a significant number of the 42 subject areas assessed in the 2006 Quality Evaluation – 23 in the case of the University of Otago; 22 in the case of the University of Auckland). In addition, a high proportion of their nominated academic units achieved quality scores above the sector average (42 of 49 in the case of the University of Otago; 49 of 60 in the

¹⁸ In 2003, 329.92 staff (FTE weighted) from the university were assigned an "R" Quality Category. In 2006, 53% of these staff were no longer PBRF-eligible.

¹⁹ Within the universities, an average of 49.9% of PBRF-eligible staff in 2003 who were assigned an "R" were no longer PBRF-eligible in 2006. There are likely to be a multitude of reasons for this. A significant number of staff assigned an "R" in 2003 were working under fixed-term, often part-time, employment agreements. The highest proportional drop was recorded by AUT (66.5%), followed by Otago (53%), Massey (52.4%) and then the University of Auckland (39.9%). The lowest drop was recorded by Victoria University of Wellington (28.8%).

case of the University of Auckland). The University of Auckland had 21 nominated academic units with quality scores in excess of 5.0, while the University of Otago had 14. As a result, the measured research quality of the University of Otago and the University of Auckland is broadly the same.

- 179** The University of Canterbury was ranked third in the 2006 Quality Evaluation, with a quality score of 4.10 (FTE-weighted). As in 2003, Canterbury's strong showing has been underpinned by a relatively low proportion of staff rated "R" or "R(NE)" – a proportion that dropped from 15.7% in 2003 to 11.4% in 2006. Interestingly, the University of Canterbury reported 28.4% of its staff as new and emerging researchers (compared with a sector average of 22.1%). More than 80% of these researchers were assigned a funded Quality Category in 2006 – the highest such proportion in the university sector. At the subject-area level, Canterbury ranked first or second in six subject areas: engineering and technology; earth sciences; molecular biology; philosophy; foreign languages and linguistics; and other health studies (including rehabilitation therapies). Of Canterbury's 32 nominated academic units, six achieved quality scores of 5.0 or higher and a further 14 achieved quality scores between 4.0 and 5.0.
- 180** Victoria University of Wellington achieved a quality score of 3.83 (FTE-weighted) and a ranking of fourth. A notable factor influencing the performance of Victoria was the 22.3% increase in its number of PBRF-eligible (FTE-weighted) staff since 2003 – which is partly the result of its high level of enrolment growth in the past few years. This increase in PBRF-eligible staff may have contributed to its high proportion of new and emerging researchers (28.3%). More than 70% of these researchers were assigned a funded Quality Category in 2006. Victoria ranked first or second in 13 subject areas (only two other TEOs exceeded this). These subject areas were: music, literary arts and other arts; theatre and dance, film and television and multimedia; design; psychology; history, history of art, classics and curatorial studies; Māori knowledge and development; human geography; management, human resources, industrial relations, international business and other business; religious studies and theology; sociology, social policy, social work, criminology and gender studies; physics; biomedical; and nursing. Six of Victoria's 40 nominated academic units achieved a quality score in excess of 5.0; another 14 achieved scores between 4.0 and 5.0. Only 12 units had scores below the tertiary sector average.
- 181** The University of Waikato achieved a quality score of 3.73 (FTE-weighted) thus giving it a ranking of fifth. As in 2003, the proportion of "A"s at Waikato was just above the tertiary sector average; however, in 2006, its proportion of "R" and "R(NE)"s fell from 31% (FTE-weighted) to 17.3%. This is slightly below the average for all universities (18%). Waikato is ranked first in nine subject areas: accounting and finance; chemistry; communications, journalism and media studies; computer science, information technology, information sciences; ecology, evolution and behaviour; management, human resources, industrial relations, international business and other business; pure and applied mathematics; molecular, cellular and whole organism biology; and music, literary arts and other arts. The University of Waikato has aggregated its staff into eight relatively large nominated academic units – six achieved quality scores above the tertiary sector average, with the scores of three being between 4.0 and 5.0.
- 182** Massey University, with a quality score of 3.06, ranks sixth. This is a substantial increase on its 2003 quality score (2.11); and the most significant factor in this has been a reduction in its number of PBRF-eligible staff. The overall reduction of 9.2% in Massey's PBRF-eligible staff (FTE-weighted) is similar to that of Otago's. In 2003, the EPs of 536.5 staff (FTE-weighted) from Massey were

assigned an "R" Quality Category; in 2006, 52% of these staff were no longer PBRF-eligible. A practical effect of this change has been to reduce the proportion of staff assigned an "R" or "R(NE)" from 44.7% to 21.5%. Nevertheless, Massey has demonstrated a relatively strong performance in a number of subject areas, being ranked first in two subject areas and second in seven subject areas. Of the 39 subject areas in which Massey was represented, 19 achieved a quality score above the sector average – and seven of these achieved a quality score of between 4.0 and 5.0. The seven are: chemistry; ecology, evolution and behaviour; earth sciences; engineering and technology; pure and applied mathematics; physics; and visual arts and crafts. Massey University has also aggregated its staff into (five) relatively large nominated academic units. One of these academic units, the College of Sciences, achieved a quality score above the tertiary sector average.

- 183** The country's smallest university – Lincoln – achieved a quality score of 2.96, identical to the tertiary sector average. Lincoln reported 214 PBRF-eligible staff (FTE-weighted) – an increase of 20 (10%) since 2003. The strongest subject areas at Lincoln were: architecture, design, planning, surveying; ecology, evolution and behaviour; economics; agriculture and other applied biological sciences; and earth sciences. All these achieved a quality score of 3.0 or higher. The greatest concentration of PBRF-funded researchers at Lincoln is in the subject area of agriculture and other applied biological sciences, which has 53.5 staff (FTE-weighted) whose EPs were assigned a funded Quality Category in 2006. Lincoln's strongest-performing nominated academic units were Food and Health (with a quality score of 4.3) and Agricultural and Primary Products (with a quality score of 3.7). Overall, four of Lincoln's eight nominated academic units received scores above the tertiary sector average.
- 184** The country's newest university – AUT – achieved a quality score of 1.86 (FTE-weighted) and was ranked eighth overall. In 2003, its quality score was 0.77. A significant factor in its improvement since 2003 has been the reduction in its number of PBRF-eligible staff from 617 to 410, a decrease of 33%. In 2003, 432.47 staff (FTE-weighted) from AUT received an "R" Quality Category. In 2006, 66.5% (FTE-weighted) of these staff were no longer PBRF-eligible. A practical effect of this change has been to reduce the proportion of staff assigned an "R" or "R(NE)" from 77.3% to 43%.
- 185** Nevertheless, the number of PBRF-funded researchers at AUT has increased from 140 in 2003 to 233 in 2006. Notably, the number of AUT's nominated academic units with a quality score above 2.0 has increased from zero in 2003 to 11 in 2006. These 11 include three academic units (Accounting and Finance, Management, and Marketing) with quality scores above the tertiary sector average. Similarly, the number of subject areas where AUT has more than five FTE staff and a quality score of 2.0 or higher has increased from one in 2003 to nine in 2006 (including all four subject areas covered by the Business and Economics Panel).
- 186** As noted in Chapter 4, the results of all four colleges of education are reported separately from the universities with which they have recently merged. The quality scores of all four colleges of education are low – in each case under 0.7 (FTE-weighted). The highest-ranked of the four is the Auckland College of Education (0.66), followed by Christchurch College of Education (0.41), Dunedin College of Education (0.24), and Wellington College of Education (0.13). Altogether, nine out of 471 (non-FTE-weighted) staff within the colleges of education received a "B", 61 received a "C", and 6 a "C(NE)".

- 187** A notable feature of the 2006 Quality Evaluation was the participation of 10 ITPs, eight of which participated for the first time. There is a significant difference between the highest quality score in the ITP sector (Unitec New Zealand with 0.96) and the lowest (Whitireia Community Polytechnic with 0.13). The average quality score for the ITP sector was 0.57 (FTE-weighted). The low quality scores achieved by these TEOs is perhaps not surprising, given their history and role in the tertiary sector. What is notable, however, is their relatively large number of PBRF-funded researchers (311) in 2006.²⁰ Almost half of these PBRF-funded staff are found in just five subject areas: visual arts and crafts (71); computer science, information technology, information sciences (35); engineering and technology (24); education (22) and management, human resources, industrial relations, international business and other business (21).
- 188** Two of New Zealand's three wānanga, Te Wānanga o Aotearoa and Te Whare Wānanga o Awanuiārangi, participated in the 2006 Quality Evaluation. Te Whare Wānanga o Awanuiārangi ranked twelfth overall, with a quality score of 0.78. Te Wānanga o Aotearoa ranked 17th (equal with Christchurch Polytechnic Institute of Technology), with a quality score of 0.42. Of the 109 PBRF-eligible staff in the wānanga sector, one received an "A", four a "B", 14 a "C", and four a "C(NE)". PBRF-funded staff from the wānanga sector are concentrated in three subject areas: visual arts and crafts (8); Māori knowledge and development (5); and education (5). It should be noted that 35.7% of staff at the participating wānanga were reported as new and emerging researchers.
- 189** Amongst the nine PTEs that participated in the 2006 Quality Evaluation, quality scores ranged from 1.67 for Carey Baptist College to zero for Masters Institute and the Pacific International Hotel Management School. Three PTEs participated for the first time in 2006 (Good Shepherd College, Masters Institute, and Pacific International Hotel Management School), and one PTE that participated in the 2003 Quality Evaluation (Te Whare Wānanga o Pihopatanga) did not participate in 2006. These PTEs have relatively few (144) PBRF-eligible staff, and only 23 of these received a funded Quality Category. As in 2003, the difference between the PTEs, in terms of their quality scores, appears to be partly related to the "age" of the provider: long-established PTEs generally performed better than those more recently established.
- 190** The relative rankings of TEOs are broadly similar, regardless of whether the quality scores are calculated on a FTE-weighted or non-FTE-weighted basis.

More detailed analysis: panel-level results

- 191** Another way of examining the results of the 2006 Quality Evaluation is to consider the relative performance of the groupings of subject areas under the responsibility of each peer review panel. It is important to stress that the performance in question here is not that of panel members or panels (eg how well they undertook their tasks), but rather that of the 12 groupings of between one and six subject areas that were assessed by each panel. For simplicity, however, this will be referred to as performance at the panel level.

²⁰ Although 133 of these are found in one TEO (Unitec New Zealand) and this overall total includes only 2 As.

- 192** The quality scores on an FTE-weighted basis of the 12 panels (ie the groupings of subject areas) ranged from 4.55 for the Physical Sciences Panel to 1.31 for the Education Panel – see Table A-2 and Figure A-2 in Appendix A. Only Physical Sciences achieved a quality score above 4.0; six panels (Biological Sciences; Engineering, Technology and Architecture; Humanities and Law; Medicine and Public Health; Mathematical and information Sciences and Technology; and Social Sciences and Other Cultural/Social Studies) achieved quality scores between 3.0 and 4.0.
- 193** The remaining five panels (Business and Economics; Creative and Performing Arts; Māori Knowledge and Development; Health; and Education) achieved quality scores below the average (2.96). The Business and Economics Panel, which ranked eighth, achieved a quality score of 2.72 (well above that of the next-ranked panel). The overall score of the Business and Economics Panel masks a relatively strong performance by the subject area of economics and a rather more modest score for the subject area of accounting and finance.
- 194** The quality score of the ninth-ranked Creative and Performing Arts Panel (2.22 FTE-weighted) concealed a strong performance by the subject area of music, literary arts and other arts (which achieved a quality score of 3.37). Similarly, three subject areas within the Health Panel (dentistry; pharmacy; and veterinary studies and large animal science) achieved quality scores well above those of the other subject areas covered by the panel.
- 195** The only panel whose quality score in 2006 was lower than in 2003 was the Māori Knowledge and Development Panel. Its quality score (FTE-weighted) fell from 1.94 to 1.82. However, the number of PBRF-eligible staff (FTE-weighted) reported under this panel increased from 142.34 in 2003 to 178.53 in 2006 (and these staff tended to come from TEOs without traditions of research).
- 196** As in 2003, the highest proportions of “R” and “R(NE)” Quality Categories were recorded in the Health and Education panels. These proportions are, however, lower than in 2003. In Education, 65% of all PBRF-eligible staff (FTE-weighted) received an “R” or “R(NE)” in 2006 – compared with 73.1% who received an “R” in 2003. In Health, 55.4% of PBRF-eligible staff received an “R” or “R(NE)” in 2006; 67.6% received an “R” in 2003. The largest drops were, however, recorded by the Business and Economics Panel and the Mathematical and Information Sciences and Technology Panel (from 46.1% to 33.3% and from 38.3% to 27.4%, respectively). In each of these, much of the change is explained by the assessment provisions for new and emerging researchers.
- 197** Perhaps unsurprisingly, the three highest-ranked panels (Physical Sciences; Medicine and Public Health; and Biological Sciences) had the lowest proportion of staff whose EPs were assigned an “R” or “R(NE)”. For example, the proportion of “R”s and “R(NE)”s in the Physical Sciences Panel was 8.5% (FTE-weighted) in 2006.
- 198** The highest proportion of “A”s (FTE-weighted) was assigned by the Physical Sciences Panel and the Medicine and Public Health Panel, while the lowest proportion of “A”s was assigned by the Education Panel and the Māori Knowledge and Development Panel. There is, however, a significant number of “A” Quality Categories in all other panels, as well as large numbers of “B”s.
- 199** There is only one difference in the rankings when the results are compared on a non-FTE-weighted and FTE-weighted basis. The Medicine and Public Health Panel, ranked third under non-FTE-weighting, rises to second when FTE-weighted; and the Biological Sciences Panel falls from second to third. The higher ranking of the Medicine and Public Health Panel when an FTE-weighting is used

can be attributed to the large proportion of staff in part-time academic positions, especially in clinical medicine. This reflects a similar pattern to that noted in 2003.

More detailed analysis: subject-area results

- 200** As previously noted, there are large differences in research quality between the 42 subject areas – whether judged on quality scores or the distribution of Quality Categories.
- 201** As shown in Figure 5.1, and in Table A-3 in Appendix A, the 10 highest-scoring research subject areas are: philosophy; earth sciences; physics; biomedical; ecology, evolution and behaviour; pure and applied mathematics; human geography; anthropology and archaeology; chemistry; and psychology. The 10 lowest-scoring are: nursing; design; education; sport and exercise science; Māori knowledge and development; theatre and dance, film and television and multimedia; visual arts and crafts; other health studies (including rehabilitation therapies); communications, journalism and media studies; and accounting and finance.
- 202** Overall there was a high correlation between the 2003 and 2006 rankings of the subject areas, with few subjects making major changes.²¹ Three subject areas (dentistry; design; and veterinary studies and large animal science) increased their average quality score by more than 50%. Four subject areas (anthropology and archaeology; Māori knowledge and development; visual arts and crafts; and religious studies and theology) decreased their average quality score – but none had more than a 14% decrease, which is small indeed.
- 203** There has been very little change in the 10 highest-scoring and lowest-scoring subject areas since 2003. The subject area of history, history of art, classics and curatorial studies, which ranked 10th in 2003, was 11th in 2006. Pure and applied mathematics, which was 12th in 2003, ranked sixth in 2006. Dentistry and veterinary studies and large animal science have shown the most significant changes in rankings. Dentistry rose from 32nd to 14th in 2006; and veterinary studies and large animal science rose from 33rd to 24th. Māori knowledge and development and visual arts and crafts both joined the 10 lowest-scoring subject areas in 2006. For visual arts and crafts, this may be due to the participation for the first time of a number of ITPs that had relatively large numbers of PBRF-eligible staff in this subject area.
- 204** Ranking by quality scores provides only part of the picture. In each subject area, it is also important to consider the number of “A” or “B” Quality Categories that have been assigned. For example, education, with a relatively low quality score of 1.31 (FTE-weighted), has 28 researchers whose EPs were assigned an “A”. By contrast, human geography, which has a relatively high quality score of 4.36, has only nine “A”s.
- 205** Altogether, 18 of the subject areas have fewer than 10 FTE-weighted researchers who received an “A”. A further eight subject areas have between 10 and 15 “A”s. Only 16 subject areas have more than 15 “A”s (although this represents a significant increase on 2003, when there were 10 such subject areas). In short, there are relatively few subject areas with a significant number of A-rated researchers. The largest such concentrations are in engineering and technology (56.85); psychology (41.7); biomedical (35.6); molecular, cellular and whole organism biology (29.5); ecology, evolution and behaviour (28.89); and education (25.86).

²¹ The correlation between the subject area ranking in 2003 and 2006 was 0.93.

- 206** There are 10 subject areas with more than 100 “A”s or “B”s (FTE-weighted). These are: engineering and technology (187.45); molecular, cellular and whole organism biology (164.59); computer science, information technology, information sciences (126.4); education (122.63); biomedical (121.27); management, human resources, industrial relations, international business and other business (110.24); psychology (110.01); ecology, evolution and behaviour (104.89); clinical medicine (102.39); and law (101.6).
- 207** At the other end of the spectrum, there are seven subject areas with fewer than 20 “A”s or “B”s (FTE-weighted). These are: nursing (7.4); design (8); pharmacy (10); theatre and dance, film and television and multimedia (12.74); sport and exercise science (13.9); dentistry (13.05); and religious studies and theology (15.25). Apart from dentistry, all these subject areas have fewer than five (FTE-weighted) staff whose EPs were assigned an “A” Quality Category. This raises the question of whether some subject areas lack a critical mass of experienced and highly respected researchers capable of providing strong leadership in their respective disciplines.
- 208** In order to undertake a more comprehensive assessment of the research performance of particular subject areas, it would be necessary to consider the relative performance of different disciplines or sub-disciplines within these subject areas. The aggregate data available in this report do not permit such an analysis. Take, for example, the subject area of political science, international relations and public policy: it is not possible to ascertain on the basis of the data in Appendix A whether there are significant differences in the research strength of the various disciplines that comprise this subject area. Thus, it cannot be determined whether the main strength (or weakness) lies in comparative government, political theory, electoral behaviour, international relations, or policy studies.
- 209** Observers interested in securing a more complete picture of the state of particular disciplines (or sub-disciplines) may need to undertake their own analysis using PBRF data, or other data sources. Interested parties are invited to seek access to the data collected as part of the 2003 and 2006 Quality Evaluations.²²

The assessment of Māori and Pacific researchers

- 210** The PBRF was designed to enable Māori research and researchers to be assessed by Māori within an appropriate framework, as determined by the Māori Knowledge and Development Panel. To this end, the Māori Knowledge and Development Panel developed detailed panel-specific guidelines (see *PBRF Guidelines 2006* Chapter 2, Section H).
- 211** There has been no analysis undertaken of the performance of staff based on their ethnicity. As a result, it is not possible to determine at this time how many Māori staff had EPs submitted to peer review panels for assessment. Nevertheless, a total of 89 EPs (including three re-allocated from other panels) were assessed by the Māori Knowledge and Development Panel; another 57 were cross-referred from other panels for advice. A further 53 EPs had their Quality Categories “carried over” to the 2006 Quality Evaluation.

²² For information on the TEC’s Data Access Policy in relation to the PBRF, please refer to <http://www.tec.govt.nz/templates/standard.aspx?id=588>.

- 212** As noted above, the quality score for the Māori Knowledge and Development Panel was lower in 2006 (1.82) than it had been in 2003 (1.94). Nevertheless – as in 2003 – the Māori Knowledge and Development Panel ranked 10th, with a quality score similar to that of the Creative and Performing Arts Panel. As a subject area, Māori knowledge and development ranked 37th (out of 42). It should be noted that, in the EPs assessed by the Māori Knowledge and Development Panel, a number of sub-doctoral theses were put forward as NROs: this indicates the developing nature of research in the Māori knowledge and development subject area.
- 213** The Report of the Māori Knowledge and Development Panel notes that the 2006 Quality Evaluation generated a range of issues about the assessment of Māori research and researchers. There is, however, no suggestion that the panel had any serious concerns about the overall fairness and credibility of the results.
- 214** With reference to Pacific research and researchers, there were three Pacific panel members spread over three panels – and a number of other panel members also had expertise relevant to Pacific research. There was only one EP referred to a Pacific specialist adviser.
- 215** A relatively high proportion of EPs (12.4% [562]) were identified as containing Pacific research. The Moderation Panel has noted, however, that a high proportion (approximately 80%) of these EPs appeared not to contain research that met the criteria for Pacific research outlined in the *PBRF Guidelines 2006*. It appears that, as in 2003, the actual volume of EPs containing Pacific research was low and that panel members generally felt able to assess these EPs.

The reliability of the results

- 216** The TEC, the Moderation Panel and the 12 peer review panels have made strenuous efforts to ensure that the results of the 2006 Quality Evaluation are reliable, appropriate, fair, and robust. In this regard, it is important to consider the following:
- a In the view of the TEC and the Moderation Panel, the peer review panels conducted their assessments appropriately, fairly, and consistently – and they applied the PBRF guidelines in a reasonable manner. Accordingly, the results provide an accurate picture of the relative research performance of TEOs, subject areas, and nominated academic units.
 - b There was a significant measure of agreement across all panels, including those that spanned many different subject areas, on where the boundaries should be drawn between Quality Categories.
 - c All panels included experts from outside New Zealand, most of whom were from overseas universities. Such panel members constituted about a quarter of all panel members.
 - d The TEC has carefully audited the application of the *PBRF Guidelines 2006* to ensure that the information supplied by participating TEOs was accurate.

Changes in measured research quality between the 2003 and 2006 Quality Evaluations

- 217** As highlighted in Chapter 4, there were a number of important differences between the 2003 and 2006 Quality Evaluations. In particular, the 2006 Quality Evaluation was conducted on a “partial” basis and made specific provision for the assessment of new and emerging researchers. In addition, significantly more TEOs participated in 2006 than in 2003. Such differences mean that considerable care is needed in making comparisons between the research performance reported in these two Quality Evaluations.
- 218** Overall, the results show that the quality score for the tertiary education sector has increased from 2.59 in 2003 to 2.96 (FTE-weighted) in 2006. This represents a 14.3% improvement in measured research quality. It would, however, be erroneous to suggest that research quality has improved by this precise magnitude. Nor is the quality score the only relevant measure of research quality.
- 219** To make an appropriate and meaningful comparison between the 2003 and 2006 Quality Evaluations, it is necessary to exclude those TEOs that participated for the first time in 2006 and those that participated in 2003 but chose not do so in 2006. The average quality score for the 21 TEOs that participated in both Quality Evaluations was 3.25 in 2006, a net increase of 0.66 (25.5%) since 2003. However, various factors contributed to this improvement and an actual improvement in research quality is but one of them. Four of these factors deserve particular attention:
- a changes to staff-eligibility criteria, and TEOs' application of these criteria;
 - b the revised assessment provisions for new and emerging researchers;
 - c the impact of the “partial” round; and
 - d the improved quality of the information provided in EPs.
- 220** There were some minor, but potentially significant, changes to the PBRF staff-eligibility criteria for the 2006 Quality Evaluation which had the effect of clarifying the nature of the eligibility rules. These changes included specific definitions of the minimum contribution to degree-level teaching and/or research required of PBRF-eligible staff (ie the substantiveness test). Additional criteria were also introduced covering TEO staff based overseas and those sub-contracted to a TEO by a non-TEO. The net effect of these changes was to reduce, albeit slightly, the number of TEO staff eligible to participate in the 2006 Quality Evaluation
- 221** More important, there is reason to believe that TEOs had a more complete understanding of the staff-eligibility rules in 2006 than in 2003. This has been reflected in their various approaches to human resource management. For example, the employment agreements of some staff have been changed to clarify that their contribution to degree-level teaching and/or research, if any, falls outside the bounds of the PBRF's substantiveness test. In some other cases, TEOs have carefully defined where staff are working under the strict supervision of another staff member.
- 222** Such changes almost certainly led to the exclusion by TEOs in 2006 of some staff who were included in the 2003 Quality Evaluation. The evidence suggests that a disproportionate number of these staff members were rated “R” in 2003. Had there been no changes to the eligibility criteria or their application by TEOs, there can be no doubt that the overall quality score would have been lower in 2006. But it is difficult to accurately quantify the impact of this change.

- 223** The 2006 Quality Evaluation made provision for new and emerging researchers to be assessed differently from how they had been in 2003. Had the provision for new and emerging researchers not been included, the improvement in measured research quality would have been lower – but only modestly so.
- 224** Because the 2006 Quality Evaluation was a “partial” round, a significant proportion of those assessed in 2003 were not reassessed in 2006. Had all PBRF-eligible staff been assessed in 2006, the quality score is likely to have been lower. It is extremely difficult to ascertain what the effect of a full round would have been, however there is some discussion of the possible impact in Chapter 4.
- 225** Further, the average quality of the information provided in EPs in 2006 was higher than in 2003. To the extent that this reflected a greater understanding of the expectations of the assessment processes of the Quality Evaluation, it will have resulted in a more complete and accurate picture of research quality in the tertiary sector. Its impact on the average quality score is difficult to quantify, but it is certainly likely to have been at least a moderate factor.
- 226** At least two broad conclusions emerge from this brief analysis. First, whatever the actual improvement in average research quality, there can be little doubt that there has been an increase in research activity and in the quantity of research output since 2003. This is reflected in the increase between 2003 and 2006 in the number of staff whose EPs were assigned a funded Quality Category, and in the continuing improvement in research performance as measured by the volume of external research income and research degree completions. Second, it is difficult at this stage to provide a precise estimate of the actual (as opposed to measured) improvement that has occurred between 2003 and 2006 in the average quality of research being undertaken in the tertiary education sector.
- 227** It is important to emphasise that a large improvement in actual research quality in 2006 would have been surprising – given that there were only three years separating the first and second Quality Evaluations, and only 20 months between the publication of the results of the 2003 Quality Evaluation and the end of the assessment period for the 2006 Quality Evaluation. Improvement in research quality – the goal of the PBRF – is something that requires a long-term commitment from researchers, TEOs and the government; and this is reflected in the periodic nature of the Quality Evaluation and the relative funding stability that the PBRF engenders.
- 228** As part of Phase 2 of the evaluation of the PBRF (see Audit section), the TEC and Ministry of Education intend to conduct a range of analyses using the results of the 2003 and 2006 Quality Evaluations and other data sources. It is hoped that detailed analysis such as this can draw reliable conclusions about the change in research quality between the first and second Quality Evaluations.

Chapter 6

External research income

Introduction

- 229** The external research income (ERI) measure accounts for 15% of the total funds allocated through the PBRF each year. ERI is included as a performance measure in the PBRF on the basis that it provides a good proxy for research quality. The underlying assumption is that external research funders are discriminating in their choice of who to fund and that they will allocate their limited resources to those they see as undertaking research of a high quality.
- 230** ERI is defined as the total of research income received by a TEO (and/or any 100% owned subsidiary), *excluding* income from:
- a TEO employees who receive external research income in their personal capacity (ie the external research income is received by them and not their employer);
 - b controlled trusts;
 - c partnerships; and
 - d joint ventures.
- 231** A complete description of inclusions and exclusions is given in Chapter 5 of the *PBRF Guidelines 2006*, along with guidance on the status of joint or collaborative research.
- 232** According to the *PBRF Guidelines 2006*, income cannot be included in the ERI calculation until the work has been “undertaken”.
- 233** Each participating TEO submits a return to the TEC. This return shows the TEO’s total PBRF-eligible ERI for the 12 months ending 31 December of the preceding year. In addition, in support of each ERI calculation, the TEO provides the TEC with an independent audit opinion and a declaration signed by the TEO’s chief executive.

Funding allocations

- 234** Within the ERI component of PBRF funding, a funding allocation ratio determines the amount paid to each TEO. The 2007 funding allocation ratio for each TEO is based on 15% of its ERI figure for 2003, 35% of its ERI figure for 2004, and 50% of its ERI figure for 2005.
- 235** The ERI measure includes returns from 11 TEOs that are participating in the PBRF for the first time. The total ERI for the 2003, 2004 and 2005 calendar years has been updated to reflect these returns and so may differ from that previously reported. ERI submitted by the former colleges of education has been reported separately.
- 236** In 2005, the total ERI declared by the 33 TEOs then participating in the ERI measure²³ was \$286.4 million (see Table 6.1). Seven of the eight universities dominated the generation of ERI, reporting figures in excess of \$15 million in their ERI returns. The remaining 26 TEOs reported combined ERI of less than \$8.1 million.²⁴

²³ Prior to 2007, TEOs could participate in one component of the PBRF (eg ERI) without participating in the others (eg Quality Evaluation or RDC).

²⁴ Where TEOs merged before to the PBRF Census date for the 2006 Quality Evaluation, their ERI and RDC figures have been combined retrospectively. For example, the ERI and RDC figures in the Wellington College of Education returns for 2002 and 2003 have been included in the figures for Victoria University of Wellington.

237 ERI reported by TEOs increased overall by 10.7% between 2004 and 2005. The most significant increases in dollar terms were achieved by the universities of Otago, Canterbury and Auckland; these accounted for 68% of the overall increase in ERI reported by TEOs. Four TEOs reported a drop in ERI.

238 In terms of ERI generation:

- a A significant gap exists between the ERI reported by the university earning the largest amount, and that reported by the other seven universities.
- b Non-universities' ERI was considerably less in total than that reported by any one university.

Table 6.1: External Research Income 2003-2005

TEO	2003 (\$)	2004 (\$)	2005 (\$)	Change 2004-2005 (%)	PBRF-weighted (\$)
AIS St Helens	\$0	\$0	\$0	N/A	0.00
Anamata	\$0	\$224,750	\$437,363	94.60%	297,344.00
Auckland University of Technology	\$2,021,902	\$3,004,814	\$4,824,164	60.55%	3,767,052.29
Bethlehem Institute	\$0	\$87,561	\$60,000	-31.48%	60,646.35
Bible College	\$0	\$0	\$22,000	N/A	11,000.00
Carey Baptist College	\$0	\$0	\$0	N/A	0.00
Christchurch College of Education	\$253,966	\$58,823	\$0	-100.00%	58,682.76
Christchurch Polytechnic Institute of Technology	\$0	\$124,559	\$0	-100.00%	43,595.65
Dunedin College of Education	\$78,326	\$5,355.56	\$77,595	1348.87%	52,420.85
Eastern Institute of Technology	\$0	\$0.00	\$10,955	N/A	5,477.50
Good Shepherd College	\$0	\$0.00	\$0	N/A	0.00
Lincoln University	\$12,959,427	\$17,569,105	\$16,354,761	-6.91%	16,270,481.30
Manukau Institute of Technology	\$0	\$79,522	\$265,652	234.06%	160,658.70
Massey University	\$31,255,104	\$33,597,945	\$36,392,947	8.32%	34,644,019.85
Masters Institute	\$0	\$0	\$0	N/A	0.00
Nelson Marlborough Institute of Technology	\$0	\$0	\$0	N/A	0.00
Northland Polytechnic	\$0	\$0	\$27,000	N/A	13,500.00
Open Polytechnic	\$0	\$0	\$699,653	N/A	349,826.50
Otago Polytechnic	\$0	\$0	\$242,034	N/A	121,017.00
Pacific International Hotel Management School	\$0	\$0	\$0	N/A	0.00
Te Wānanga O Aotearoa	\$0	\$105,670	88,834	-15.93%	81,401.50
Te Whare Wānanga o Awanuiārangi	\$0	\$0	88,333	N/A	44,166.50
Unitec NZ	\$733,785	\$535,677	\$602,563	12.49%	598,836.20
University of Auckland	\$86,152,367	\$101,119,426	\$106,147,979	4.97%	101,388,643.65
University of Canterbury	\$15,502,437	\$11,624,014	\$17,407,993	49.76%	15,097,766.95
University of Otago	\$50,455,614	\$59,405,816	\$67,404,653	13.46%	62,062,704.20
University of Waikato	\$12,611,012	\$14,394,986	\$15,592,836	8.32%	14,726,314.90
Victoria University of Wellington	\$11,214,207	\$15,665,303	\$18,406,557	17.50%	16,368,265.60
Waikato Institute of Technoloy	\$106,307	\$509,264	\$585,279	14.93%	486,827.95
Whitecliffe College of Arts and Design	\$0	\$0	\$0	N/A	0.00
Whitireia Community Polytechnic	\$74,916	\$15,780	\$48,829	209.44%	41,174.90
Totals	223,419,370	258,128,370	285,787,980	10.72%	266,751,825.09

Chapter 7

Research degree completions

Introduction

- 239** The research degree completions (RDC) measure accounts for 25% of the total funds to be allocated through the PBRF each year. The use of RDC as a performance measure in the PBRF serves two key purposes:
- It captures, at least to some degree, the connection between staff research and research training – thus providing some assurance of the future capability of tertiary education research.
 - It provides a proxy for research quality. The underlying assumption is that students choosing to undertake lengthy, expensive and advanced degrees (especially doctorates) will tend to search out departments and supervisors who have reputations in the relevant fields for high-quality research and research training.
- 240** To be eligible for the RDC measure, research-based postgraduate degrees (eg masters and doctorates) must be completed within a TEO and must meet the following criteria:
- The degree has a research component of 0.75 equivalent full-time student (EFTS) value or more.
 - The student who has completed the degree has met all compulsory academic requirements by 31 December of the year preceding the return.
 - The student has completed the course successfully.

Funding formula and allocations

- 241** Within the RDC component of PBRF funding, a funding allocation ratio determines the amount allocated to each TEO. The 2006 funding allocation ratio for each TEO was based on 15% of its RDC figure for 2003, 35% of its RDC figure for 2004, and 50% of its RDC figure for 2005.
- 242** The funding formula for the RDC component includes weightings for the following factors:
- the funding category of the subject area (a cost weighting);
 - Māori and Pacific student completions (an equity weighting); and
 - the volume of research in the degree programme (a research-component weighting).
- 243** The cost weighting (for the subject area) is the same as that applied in the Quality Evaluation part of the PBRF, and is determined by the course's funding category as set down in the course register (see Table 7.1).

Table 7.1: Cost weighting

Student Component – Funding Category	Weighting
A, I, J	1
B, L	2
C, G, H, M, Q	2.5

- 244** Table 7.2 shows the equity weighting applied to each individual completion. This weighting aims to encourage TEOs to enrol and support Māori and Pacific students, as they have little representation at higher levels of the qualifications framework. Ethnicity is taken from the student enrolments file, using the latest enrolments in the course.

Table 7.2: Equity weighting

Ethnicity	Weighting
Māori	2
Pacific	2
All other ethnicities	1

- 245** The research-component weighting uses a “volume of research factor” (VRF). The VRF is based on the volume of research included in the degree programme that has been completed, as shown in Table 7.3.

Table 7.3: Research-component weighting

Research-Component Weighting	Weighting
Less than 0.75 EFTS	0
0.75-1.0 EFTS of masters	EFTS value
Masters course of 1.0 EFTS thesis or more	1
Doctorate	3

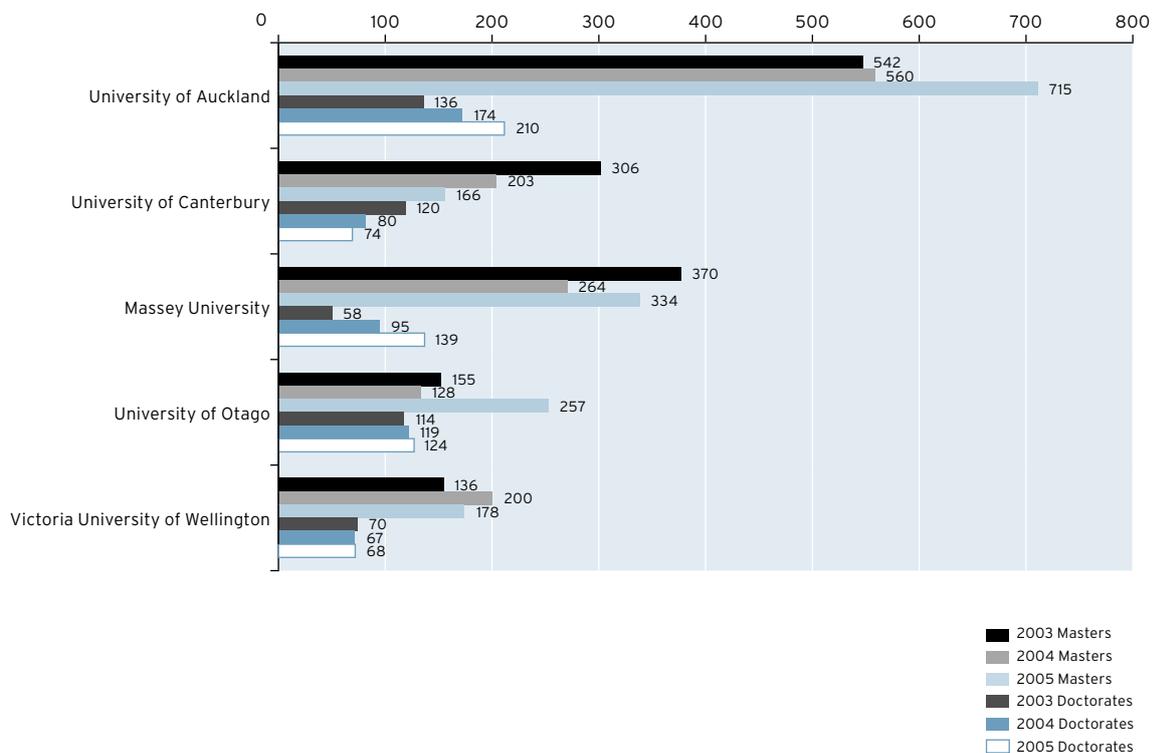
Results

- 246** A total of 2,574 eligible research degree completions were reported by 15 TEOs in 2005, compared with 2,264 by 15 TEOs in 2004 (see Figure 7.1). Reported research degree completions increased by 13.7% (310) between 2004 and 2005.²⁵
- 247** In the 2005 calendar year, the majority of the completions were masters courses; approximately one quarter were doctorates. Doctorate completions were reported by all universities except AUT.
- 248** Half of the universities reported growth in research degree completions in the 2005 calendar year. Overall, seven TEOs reported increases.
- 249** Auckland, Massey and Otago universities each reported more than 300 research degree completions during 2005. The University of Auckland reported the highest number of completions overall.
- 250** The University of Auckland reported more masters completions than any other TEO in 2005.

²⁵ Completions figures are subject to change as updated information is provided by participating TEOs.

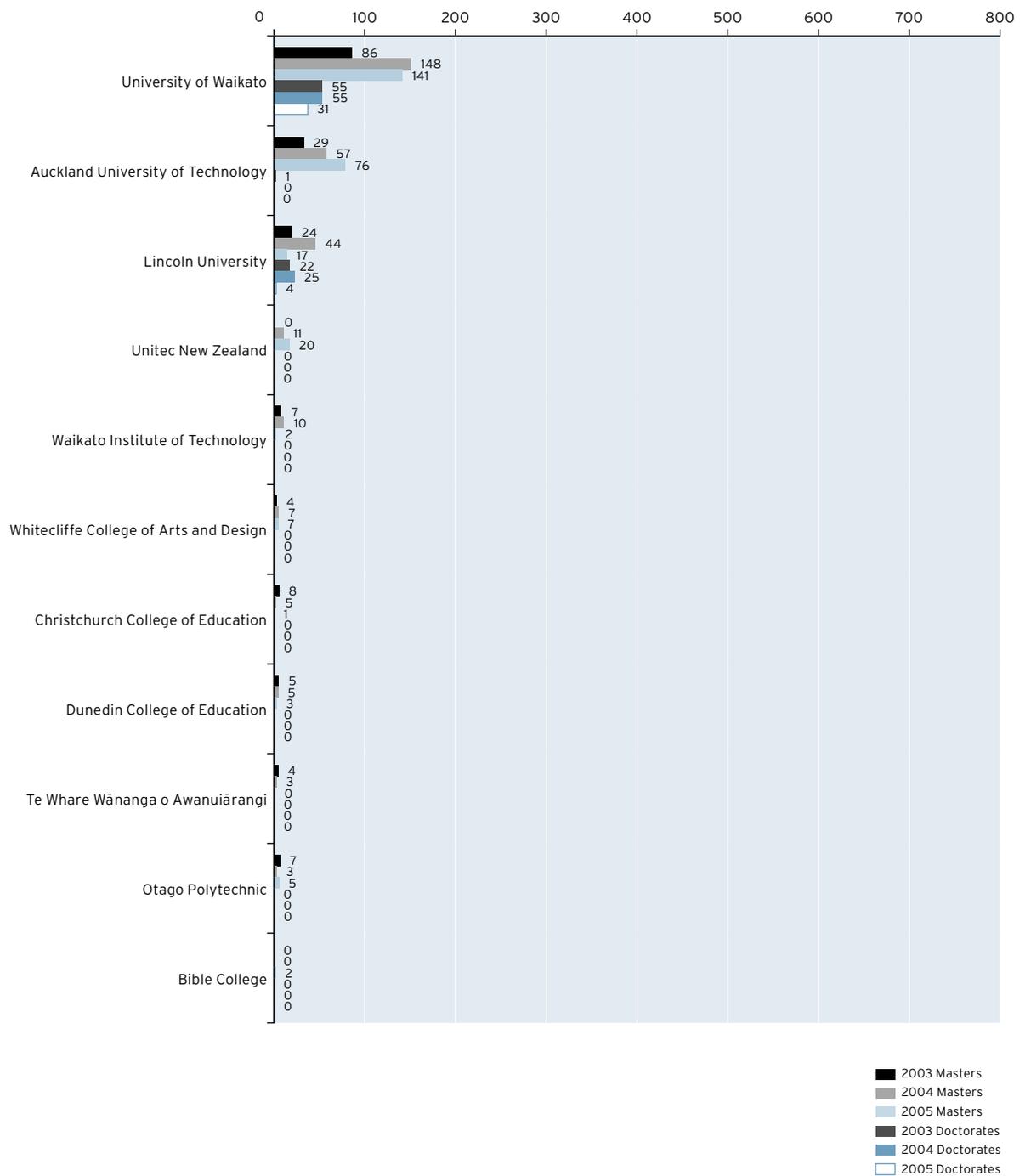
- 251** Some universities (eg Massey, Canterbury and Otago) had relatively more doctorate completions; Lincoln, Otago and Canterbury universities had relatively more completions in higher-weighted subject areas. These universities' funding allocation ratios for the RDC component were therefore higher than those of other TEOs with similar numbers of completions overall. (See Chapter 8 for detail on the 2007 indicative allocations.)
- 252** Demographically, the RDC results show:²⁶
- a Of the completions in 2005, 60.6% were by European/Pākehā students. This compares with 60.2% in 2004, and represents a numerical increase of 199.
 - b The proportion of completions by Māori students increased from 6.1% in 2004 to 6.2% in 2005 (representing a numerical increase of 22).
 - c Completions by Pacific students decreased slightly, from 1.8% in 2004 to 1.7% of all completions in 2005 (a numerical increase of 22).
- 253** Because of changes to the mechanism for collecting RDC information, data on the gender of completing students was not available when this report was prepared. The TEC will provide the information as it becomes available.

Figure 7.1: Research Degree Completions Results by TEO – Volume of Masters and Doctorates – continued over page



²⁶ The figures for 2003 and 2004 vary from those stated in the *PBRF's 2005 Annual Report* because of the provision of updated information by participating TEOs.

Figure 7.1: Research Degree Completions Results by TEO – Volume of Masters and Doctorates – continued



Chapter 8

PBRF funding apportionment

Introduction

- 254** The amount of PBRF funding that each TEO receives is determined by its performance in the three components of the PBRF:
- the 2006 Quality Evaluation (60%);
 - RDC (25%); and
 - ERI (15%).
- 255** Each TEO's share of funding for each of these three components is determined by its performance relative to other participating TEOs.

The funding formula for the quality measure

- 256** Funding in relation to the Quality Evaluation is based on:
- the Quality Categories assigned to EPs;
 - the funding weighting for the subject area to which EPs have been assigned; and
 - the full-time-equivalent (FTE) status of the participating TEOs' PBRF-eligible staff as at the date of the PBRF Census: Staffing Return (with the qualifications as outlined below in the section "FTE status of staff").

The Quality Categories

- 257** The PBRF funding generated by way of the staff who participate in the Quality Evaluation is determined by the Quality Category assigned to their EP by the relevant peer review panel. These Quality Categories are then given a numerical weighting known as a "quality weighting". The quality weightings used in the 2006 Quality Evaluation are outlined in Table 8.1.

Table 8.1: Quality-Category weightings

Quality Category	Quality Weighting
A	5
B	3
C	1
C(NE)	1
R	0
R(NE)	0

Funding weighting for subject areas

258 Subject-area weightings are based on an EP's primary subject area of research. The current funding weightings for subject areas are shown in Table 8.2.

Table 8.2: Subject Area weightings

Subject Areas	Funding Category	Weighting
Māori knowledge and development; law; history, history of art, classics and curatorial studies; English language and literature; foreign languages and linguistics; philosophy; religious studies and theology; political science, international relations and public policy; human geography; sociology, social policy, social work, criminology and gender studies; anthropology and archaeology; communications, journalism and media studies; education; pure and applied mathematics; statistics; management, human resources, industrial relations, international business and other business; accounting and finance; marketing and tourism; and economics.	A, I	1
Psychology; chemistry; physics; earth sciences; molecular, cellular and whole organism biology; ecology, evolution and behaviour; computer science, information technology, information sciences; nursing; sport and exercise science; other health studies (including rehabilitation therapies); music, literary arts and other arts; visual arts and crafts; theatre and dance, film and television and multimedia; and design.	B, L	2
Engineering and technology; agriculture and other applied biological sciences; architecture, design, planning, surveying; biomedical; clinical medicine; pharmacy; public health; veterinary studies and large animal science; and dentistry.	C, G, H, M, Q	2.5

FTE status of staff

259 The FTE status of each staff member is also a factor in the formula. Funding is generated in proportion to FTE status (as stated in the PBRF Census: Staffing Return). Four particular considerations apply to FTE calculations.

- a When staff were concurrently employed at two TEOs, they generated an FTE entitlement for each organisation based on their FTE status in their employment agreement with each TEO.
- b For most staff, their FTE status was that of the week 12 June 2006 to 16 June 2006. However, if staff had changed their employment status within the TEO during the previous 12 months, their FTE status was their average FTE status over the period (eg six months at 0.5 FTE and six months at 1 FTE = 0.75 FTE).
- c When a staff member started employment in the 12-month period before the PBRF Census and was previously not employed by a participating TEO, then (providing they had an employment agreement of one year or more) their FTE status was what their employment agreement stated it to be at the time of the Census.
- d When a staff member left one participating TEO to take up a position in another participating TEO in the 12 months before the PBRF Census, both TEOs had a proportional FTE entitlement.

Quality Evaluation funding formula

260 The funding formula for the Quality Evaluation measure is:

$$\frac{\sum \text{TEO} [(\text{numerical quality score}) \times (\text{FTE status of researcher}) \times (\text{funding weighting for relevant subject area})]}{\sum \text{all TEOs} [(\text{numerical quality score}) \times (\text{FTE status of researcher}) \times (\text{funding weighting for relevant subject area})]} \times \text{Total amount of funding available for the Quality Evaluation component of the PBRF}$$

Funding formulae for the RDC and ERI measures

261 The formula used to calculate funding for the RDC measure for each TEO is:

$$\sum \text{RDC} = [(\text{research component weighting}) \times (\text{cost weighting for relevant subject area}) \times (\text{equity weighting})]$$

262 The funding formula for the RDC measure is:

$$\frac{\sum [(RDC \text{ for TEO2003} \times 0.15) + (RDC \text{ for TEO2004} \times 0.35) + (RDC \text{ for TEO2005} \times 0.5)]}{\sum [(Total RDC \text{ for TEOs2003} \times 0.15) + (Total RDC \text{ for TEOs2004} \times 0.35) + (RDC \text{ for TEO2005} \times 0.5)]} \times \text{Total amount of funding available for the RDC component of the PBRF}$$

263 The ERI measure allocates funding to TEOs in proportion to the extent to which they attract external research income. The funding formula for the ERI measure is:

$$\frac{\sum [ERI \text{ for TEO2003} \times 0.15) + (ERI \text{ for TEO2004} \times 0.35) + (ERI \text{ for TEO2005} \times 0.5)]}{\sum [(Total RDC \text{ for TEOs2003} \times 0.15) + (Total RDC \text{ for TEOs2004} \times 0.35) + (RDC \text{ for TEO2005} \times 0.5)]} \times \text{Total amount of funding available for the ERI component of the PBRF}$$

Applying the funding formulae

264 The PBRF has been progressively implemented. This process involved reallocating much of the research funding available through degree “top ups” (ie on the basis of student enrolments) by gradually phasing it into the PBRF. This “top up” funding for undergraduate degrees and research postgraduate degrees reduced to 90% of its 2003 rates in 2004, to 80% in 2005, and to 50% in 2006. Funding through degree “top-ups” was completely phased out by the beginning of 2007.

265 For the 2007 funding year, the total funding allocated by means of the three PBRF performance measures is \$230.7 million (based on current forecasts). This is derived from 100% of the degree “top up” funding, plus approximately \$62.6 million of additional funding allocated by the government through the budget process.

266 TEOs that are entitled to PBRF funding will receive monthly PBRF payments through the tertiary funding system, with each monthly payment normally being of an equal amount.

- 267** The amount of a TEO's *overall* PBRF entitlement may vary for a number of reasons including:
- a A TEO may leave the PBRF during the course of a year by ceasing operation or changing course offerings, which may increase the value of the share of each remaining TEO even though it reduces the total fund size.²⁷
 - b Errors may be found in PBRF data as a result of checks; and these, when corrected, will result in an increase or a decrease in the share of a TEO (with a corresponding adjustment for other TEOs).
 - c The number of students at degree and postgraduate degree level may increase or decrease, affecting the total size of the fund.
- 268** A final "wash up" payment for each year will be made with the April payment of the following year. This will take into account any changes in a TEO's overall PBRF entitlement.

Results for 2007

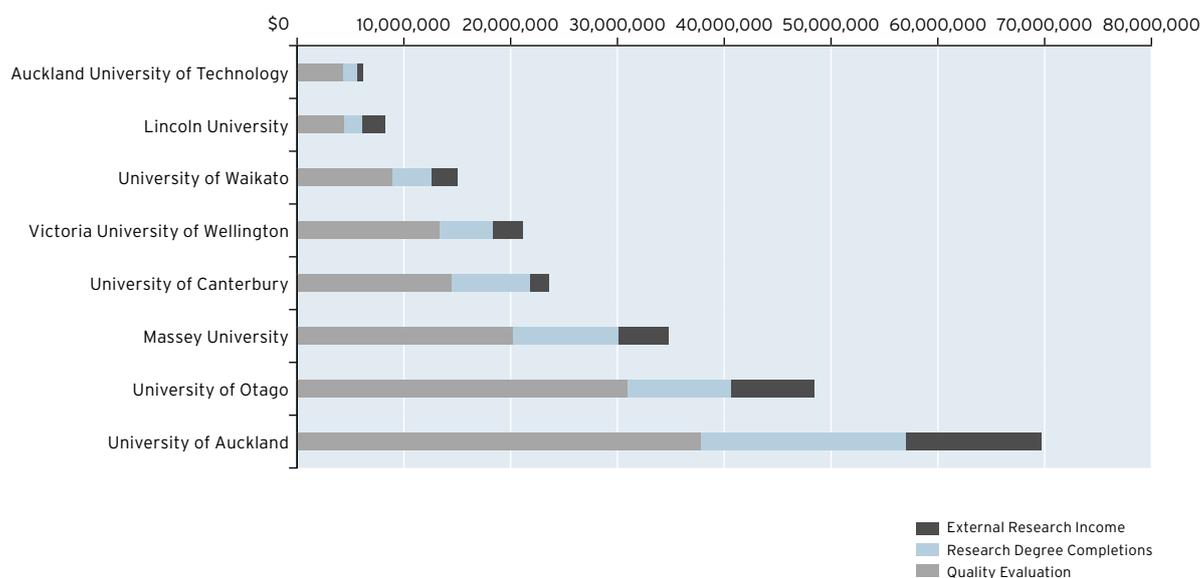
- 269** Table 8.3 and Figures 8.1 and 8.2 show the 2007 PBRF allocations for participating TEOs. The allocation ratios and funding allocations are indicative only; actual figures will be advised separately to each TEO before the first payment is made.
- 270** Universities will receive the bulk of PBRF funding in 2007. Of the non-universities, only Unitec New Zealand will receive greater than 1% of the total PBRF.
- 271** The University of Auckland (30.3%) and University of Otago (21%) dominate the overall funding allocations, showing significant levels of achievement in all three components of the PBRF. Their performance is particularly strong for the ERI measure; and they will receive 61% of the 2006 ERI funding, with the other universities receiving approximately 37.8% (Figure 8.3). The six remaining TEOs that received external research income (and therefore submitted ERI returns) will receive less than 1% of this component's funding in 2007 – a total of approximately \$172,000 between them.
- 272** The universities of Auckland, Otago, Massey and Canterbury demonstrated the strongest performance in the RDC measure, and will secure 79% of the funding for this component. As was the case in 2006, the eight universities will receive almost 99% of the RDC funding for 2007. The seven remaining TEOs that reported PBRF-eligible research degree completions (and therefore submitted RDC returns) will receive just over 1% of this component's funding for 2007 – a total of approximately \$608,000 between them.

²⁷ For more information on the mechanism for allocating PBRF funding, see the TEC paper "Allocating PBRF funding" (available online at <http://www.tec.govt.nz/funding/research/pbrf/tools.htm>).

Table 8.3: 2007 PBRF Indicative Funding

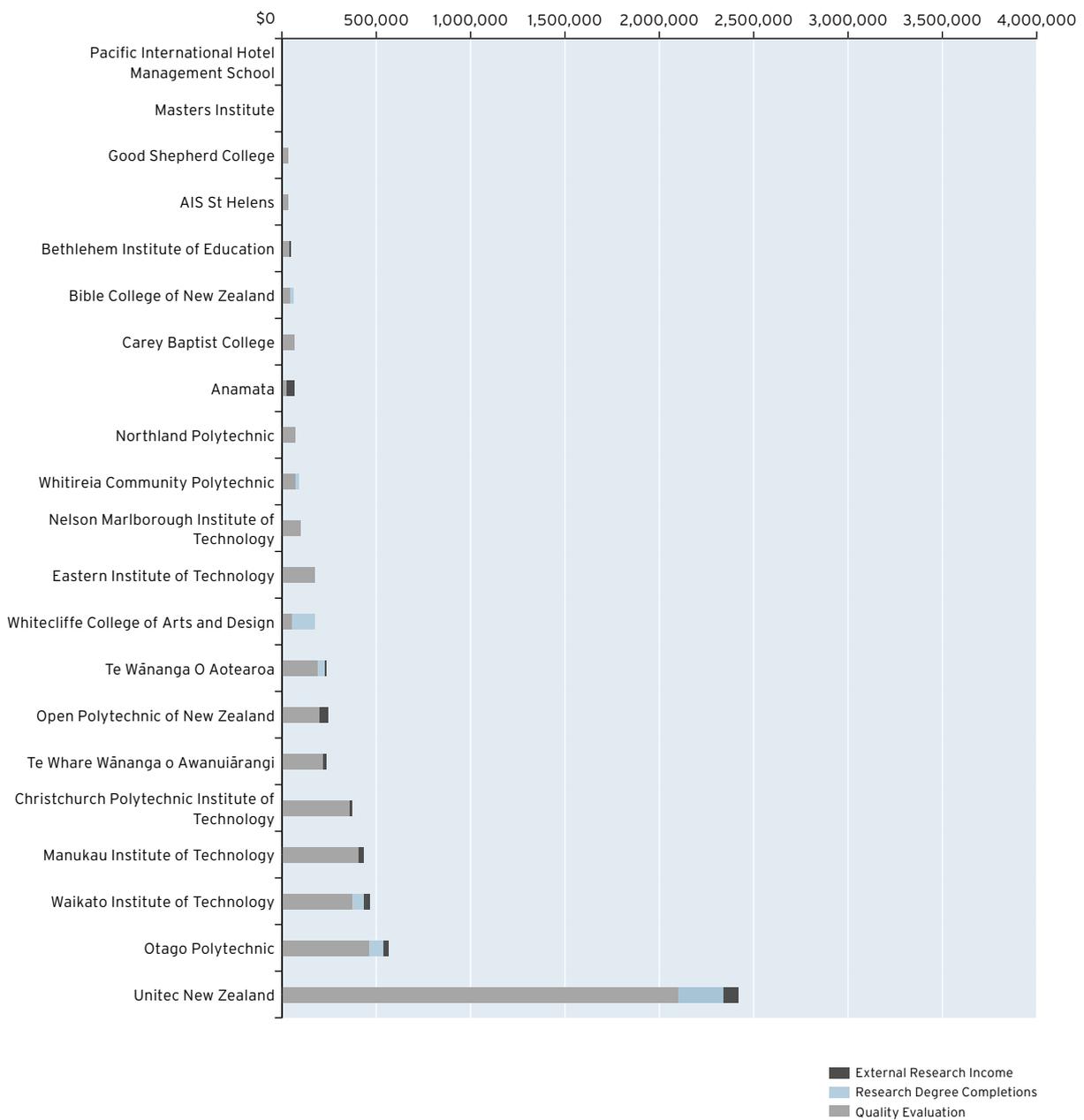
TEO	Quality Evaluation	Research Degree Completions	External Research Income	Total	Percentage of Total PBRF Funding
University of Auckland	\$37,442,726	\$19,265,406	\$13,153,591.00	\$69,861,723	30.28%
University of Otago	\$30,944,018	\$9,502,337	\$8,051,667.00	\$48,498,022	21.02%
Massey University	\$20,122,794	\$9,964,081	\$4,494,520.50	\$34,581,396	14.99%
University of Canterbury	\$14,468,664	\$6,984,796	\$1,958,699.38	\$23,412,159	10.15%
Victoria University of Wellington	\$13,492,715	\$5,057,858	\$2,123,526.75	\$20,674,100	8.96%
University of Waikato	\$8,840,939	\$4,076,049	\$1,910,509.13	\$14,827,497	6.42%
Lincoln University	\$4,323,681	\$1,179,007	\$2,110,840.75	\$7,613,528	3.30%
Auckland University of Technology	\$3,797,089	\$1,042,630	\$488,716.31	\$5,328,435	2.31%
Unitec New Zealand	\$2,154,291	\$218,203	\$77,689.67	\$2,450,184	1.06%
Otago Polytechnic	\$462,783	\$83,185	\$15,700.10	\$561,668	0.24%
Waikato Institute of Technology	\$335,576	\$90,458	\$63,158.25	\$489,192	0.21%
Manukau Institute of Technology	\$411,272	\$0	\$20,843.03	\$432,115	0.19%
Christchurch Polytechnic Institute of Technology	\$347,531	\$0	\$5,655.80	\$353,187	0.15%
Christchurch College of Education	\$192,109	\$26,857	\$7,613.17	\$226,579	0.10%
Te Wānanga o Aotearoa	\$170,794	\$27,589	\$10,560.64	\$208,943	0.08%
Open Polytechnic of New Zealand	\$161,503	\$0	\$45,384.50	\$206,887	0.09%
Te Whare Wānanga o Awanuiārangi	\$184,321	\$0	\$5,729.86	\$190,051	0.09%
Whitecliff College of Arts and Design	\$31,426	\$117,880	\$0.00	\$149,306	0.06%
Eastern Institute of Technology	\$147,566	\$0	\$710.48	\$148,276	0.06%
Dunedin College of Education	\$62,511	\$33,441	\$6,800.94	\$102,753	0.04%
Nelson Marlborough Institute of Technology	\$78,873	\$0	\$0.00	\$78,873	0.03%
Whitireia Community Polytechnic	\$58,753	\$0	\$5,341.92	\$64,095	0.03%
Northland Polytechnic	\$50,418	\$0	\$1,751.45	\$52,170	0.02%
Anamata	\$11,956	\$0	\$38,575.60	\$50,531	0.02%
Carey Baptist College	\$47,822	\$0	\$0.00	\$47,822	0.02%
Bible College of New Zealand	\$23,911	\$8,360	\$1,427.19	\$33,699	0.01%
Bethlehem Institute of Education	\$20,495	\$0	\$7,867.87	\$28,363	0.01%
AIS St Helens	\$20,495	\$0	\$0.00	\$20,495	0.01%
Good Shepherd College	\$20,495	\$0	\$0.00	\$20,495	0.01%
Masters Institute	\$0	\$0	\$0.00	\$0	0.00%
Pacific International Hotel Management School	\$0	\$0	\$0.00	\$0	0.00%
Totals	\$138,427,526	\$57,678,137	\$34,606,881	\$230,712,544	100.00%

Figure 8.1: 2007 PBRF Indicative Funding – Universities



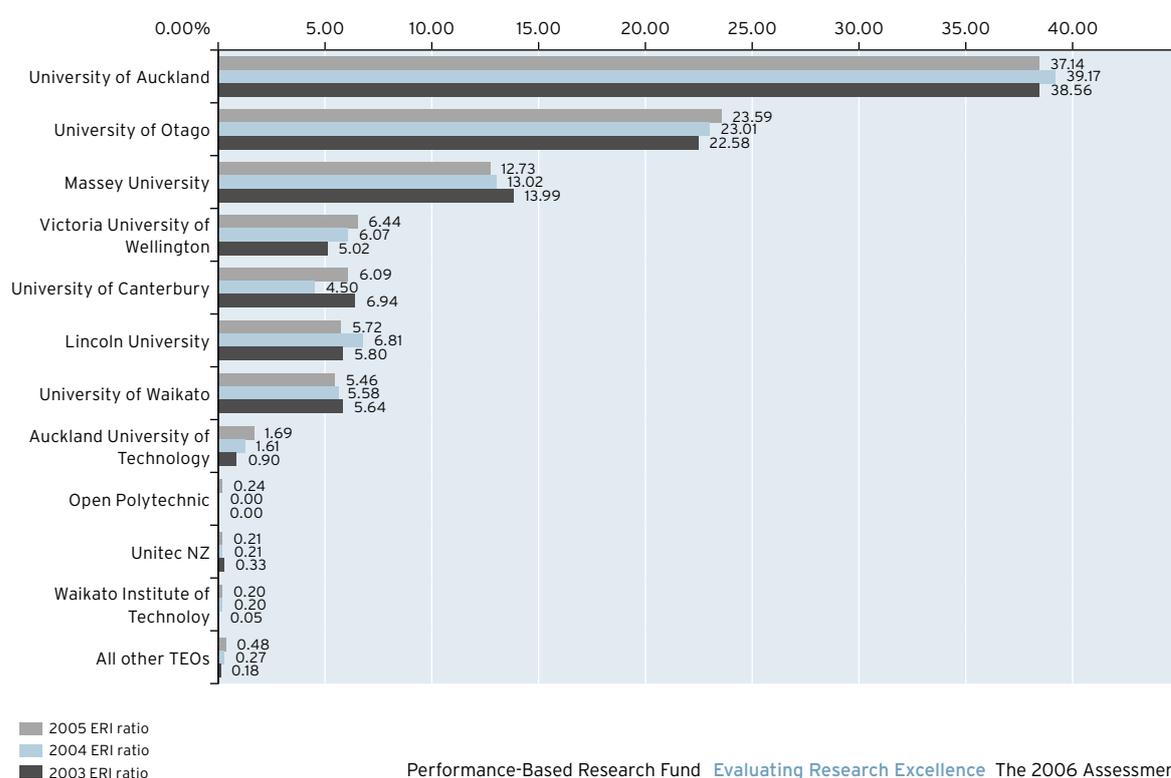
TEO	External Research Income	Research Degree Completions	Quality Evaluation
University of Auckland	\$13,153,591	\$19,265,406	\$37,442,726
University of Otago	\$8,058,468	\$9,535,778	\$31,006,529
Massey University	\$4,494,521	\$9,964,081	\$20,122,794
University of Canterbury	\$1,966,313	\$7,011,653	\$14,660,773
Victoria University of Wellington	\$2,123,527	\$5,057,858	\$13,492,715
University of Waikato	\$1,910,509	\$4,076,049	\$8,840,939
Lincoln University	\$2,110,841	\$1,179,007	\$4,323,681
Auckland University of Technology	\$488,716	\$1,042,630	\$3,797,089

Figure 8.2: 2007 PBRF Indicative Funding – Other TEOs



TEO	Quality Evaluation	Research Degree Completions	External Research Income
Unitec New Zealand	\$2,154,291	\$218,203	\$77,690
Otago Polytechnic	\$462,783	\$83,185	\$15,700
Waikato Institute of Technology	\$335,576	\$90,458	\$63,158
Manukau Institute of Technology	\$411,272	\$0	\$20,843
Christchurch Polytechnic Institute of Technology	\$347,531	\$0	\$5,656
Te Whare Wānanga o Awanuiārangi	\$184,321	\$0	\$5,730
Open Polytechnic of New Zealand	\$161,503	\$0	\$45,385
Te Wānanga o Aotearoa	\$170,794	\$27,589	\$10,561
Whitecliffe College of Arts and Design	\$31,426	\$117,880	\$0
Eastern Institute of Technology	\$147,566	\$0	\$710
Nelson Marlborough Institute of Technology	\$78,873	\$0	\$0
Whitireia Community Polytechnic	\$58,753	\$0	\$5,342
Northland Polytechnic	\$50,418	\$0	\$1,751
Anamata	\$11,956	\$0	\$38,576
Carey Baptist College	\$47,822	\$0	\$0
Bible College of New Zealand	\$23,911	\$8,360	\$1,427
Bethlehem Institute of Education	\$20,495	\$0	\$7,868
AIS St Helens	\$20,495	\$0	\$0
Good Shepherd College	\$20,495	\$0	\$0
Masters Institute	\$0	\$0	\$0
Pacific International Hotel Management School	\$0	\$0	\$0

Figure 8.3: ERI Allocation Ratios



Net effect on TEO funding allocations

- 273** Tables 8.4, 8.5 and 8.6 show the net effect of the introduction of the PBRF on the funding that each of the *PBRF-eligible* TEOs will receive in 2007. Note that the figures are indicative only, and so are subject to change (because of the reasons outlined earlier).
- 274** The first column of figures in each table indicates the funding each TEO would have received in 2007 if the PBRF had not been introduced; it is based on the forecast degree “top ups” for 2007. The second column shows the amount of funding each TEO will receive based on the results of the 2006 Quality Evaluation plus the RDC and ERI measures. The third column shows the net impact of the PBRF. The final column shows (in percentage terms) the net difference that the PBRF has made to the TEO’s research funding for 2007.
- 275** Of the TEOs participating in the PBRF, nine can expect to receive a net increase in their 2007 funding levels. The average increase for these TEOs is 39.7%. The University of Auckland is expected to receive the largest net increase in funding (\$21.4 million). Of those TEOs receiving more than \$1 million through the PBRF, the largest projected percentage increase is that of Lincoln University (at 65%).
- 276** A further 20 of the TEOs that participated in the PBRF will receive lower funding than they would if they PBRF had not been implemented. Both AUT and Victoria University of Wellington feature in this group (see Table 8.5). Victoria University of Wellington’s result is influenced by its very strong enrolment growth since 2004 (degree “top up” funding for Victoria increased significantly between 2004 and 2006). The slight reduction in research funding for Victoria should be considered in the context of the relative stability of funding offered by the PBRF.
- 277** Because all degree “top up” funding has been transferred to the PBRF, TEOs that did not participate in the PBRF will not receive research funding. Of these TEOs (See table 8.6), Southland Polytechnic will experience the largest loss in dollar terms (\$932,248).

Table 8.4: Research Funding Increases – PBRF Participants

TEO	2007 Forecast Degree Top-ups	2007 PBRF Indicative Allocation	Net Impact of PBRF on Research Funding 2007	Net Change
University of Auckland	\$48,701,553	\$69,861,723	\$21,160,171	43.45%
University of Otago	\$31,505,433	\$48,600,775	\$17,095,342	54.26%
Massey University	\$26,553,225	\$34,581,396	\$8,028,170	30.23%
University of Waikato	\$10,833,001	\$14,827,497	\$3,994,496	36.87%
Lincoln University	\$4,625,585	\$7,613,528	\$2,987,943	64.60%
University of Canterbury	\$20,999,457	\$23,638,738	\$2,639,281	12.57%
Te Wānanga o Aotearoa	\$78,275	\$208,943	\$130,668	166.94%
Anamata	\$4,360	\$50,531	\$46,172	1059.08%
Good Shepherd College	\$5,691	\$20,495	\$14,804	260.13%
Totals	\$143,306,579	\$199,403,627	\$56,097,047	39.14%

Table 8.5: Research Funding Decreases – PBRF Participants

TEO	2007 Forecast Degree Top-ups	2007 PBRF Indicative Allocation	Net Impact of PBRF on Research Funding 2007	Net Change
Unitec New Zealand	\$6,819,846	\$2,450,184	-\$4,369,662	-64.07%
Auckland University of Technology	\$8,794,515	\$5,328,435	-\$3,466,080	-39.41%
Whitireia Community Polytechnic	\$1,108,167	\$64,095	-\$1,044,072	-94.22%
Otago Polytechnic	\$1,106,381	\$561,668	-\$544,714	-49.23%
Victoria University of Wellington	\$21,193,097	\$20,674,100	-\$518,997	-2.45%
Christchurch Polytechnic Institute of Technology	\$727,129	\$353,187	-\$373,942	-51.43%
Whitecliffe College of Arts and Design	\$463,876	\$149,306	-\$314,571	-67.81%
Waikato Institute of Technology	\$769,307	\$489,192	-\$280,115	-36.41%
Eastern Institute of Technology	\$418,205	\$148,276	-\$269,929	-64.54%
Te Whare Wānanga o Awanuiārangi	\$465,012	\$190,051	-\$274,961	-59.13%
The Open Polytechnic of New Zealand	\$389,987	\$206,887	-\$183,100	-46.95%
Northland Polytechnic	\$144,790	\$52,170	-\$92,620	-63.97%
Bible College of New Zealand	\$122,988	\$33,699	-\$89,289	-72.60%
Nelson Marlborough Institute of Technology	\$120,695	\$78,873	-\$41,822	-34.65%
AIS St Helens	\$57,598	\$20,495	-\$37,103	-64.42%
Carey Baptist College	\$60,473	\$47,822	-\$12,650	-20.92%
Bethlehem Institute of Education	\$39,569	\$28,363	-\$11,205	-28.32%
Masters Institute	\$10,835	\$0	-\$10,835	-100.00%
Manukau Institute of Technology	\$436,767	\$432,115	-\$4,653	-1.07%
Pacific International Hotel Management School	\$2,846	\$0	-\$2,846	-100.00%
Total	\$43,252,081	\$31,308,917	-\$11,943,164	-27.61%

Table 8.6: Research Funding Decreases – PBRF Non-Participants

TEO	2007 Forecast Degree Top-ups	2007 PBRF Indicative Allocation	Net Impact of PBRF on Research Funding 2007	Net Change
Southern Institute of Technology	\$780,038	\$0	-\$780,038	-100%
Te Wānanga ō Raukawa	\$775,030	\$0	-\$775,030	-100%
Universal College of Learning	\$683,679	\$0	-\$683,679	-100%
Wellington Institute of Technology	\$206,298	\$0	-\$206,298	-100%
Waiariki Institute of Technology	\$174,878	\$0	-\$174,878	-100%
Western Institute of Technology Taranaki	\$122,777	\$0	-\$122,777	-100%
Media Design School	\$92,595	\$0	-\$92,595	-100%
New Zealand College of Chiropractic	\$70,809	\$0	-\$70,809	-100%
International Pacific College	\$45,299	\$0	-\$45,299	-100%
Tairāwhiti Polytechnic	\$36,921	\$0	-\$36,921	-100%
New Zealand Graduate School of Education	\$21,436	\$0	-\$21,436	-100%
Ames Training & Resource Centre Limited	\$16,040	\$0	-\$16,040	-100%
Natcoll Design Technology	\$12,454	\$0	-\$12,454	-100%
ATC New Zealand	\$9,053	\$0	-\$9,053	-100%
The New Zealand College of Massage	\$6,027	\$0	-\$6,027	-100%
New Zealand Drama School	\$4,598	\$0	-\$4,598	-100%
Auckland College of Natural Medicine	\$2,006	\$0	-\$2,006	-100%
Bay of Plenty Polytechnic	\$687	\$0	-\$687	-100%
Eastwest College of Intercultural Studies	\$160	\$0	-\$160	-100%
Apostolic Training Centres	\$0	\$0	\$0	N/A
Totals	\$3,060,787	\$0	-\$3,060,787	-100%

Chapter 9

Looking ahead

A valuable exercise

- 278** The 2006 Quality Evaluation is the second comprehensive assessment of research quality within New Zealand's tertiary education sector. It contributes to our understanding of the distribution of research quality by building on the valuable information obtained through the first Quality Evaluation in 2003.
- 279** The Quality Evaluation is a complex undertaking that involves the assessment of thousands of individual researchers by their peers. As a result, it carries with it significant costs both in terms of time and resources. Nevertheless, the TEC firmly believes that the longer-term benefits of the PBRF – both to the tertiary education sector and to the building of a knowledge society – will significantly outweigh the short-term costs. This is particularly true when the costs are considered in the context of the almost two billion dollars that will be allocated over the next six years through the PBRF.
- 280** The results of the 2006 Quality Evaluation, together with the updated results of ERI and RDC, present a systematic, authoritative and up-to-date account of the research performance of the participating TEOs. In addition, the participation of many additional TEOs in the 2006 Quality Evaluation provides a more complete picture of research quality in the tertiary education sector. The higher level of participation in 2006 enables stakeholders to make more-informed judgements about the likely research performance of the remaining PBRF-eligible TEOs. As a result, the 2006 Quality Evaluation provides a good indication of the research performance of the tertiary education sector as a whole.
- 281** While the results are important in terms of what they reveal about the performance of different TEOs and different types of TEO, they are equally significant in showing the relative performance of different subject areas both nationally and within individual TEOs. In addition, the results provide valuable information for assessing trends in research performance over the coming decades and for comparison with the first (2003) Quality Evaluation.
- 282** This report highlights some of the key findings of the 2006 Quality Evaluation – at the organisational, sub-organisational, panel, and subject-area levels. However, the analysis of the results is designed to encourage further inquiry and reflection. The statistical information contained in Tables A-1 to A-138 of Appendix A provides a rich and valuable source of data. The TEC welcomes further analysis of these data by interested parties. In particular, it encourages researchers to take advantage of the data collected as part of the Quality Evaluation process and to use these to inform analysis – of the PBRF and its impact, or in relation to broader questions about research in New Zealand.
- 283** Among the many issues that are likely to attract particular attention are the following:
- a the major differences in the assessed research performance between different TEOs (and types of TEOs), and between the nominated academic units within TEOs, and the reasons for these differences;
 - b the major differences in the assessed research performance between the 42 different subject areas, and the reasons for these differences;
 - c the relatively low proportion of researchers (7.4%) whose EPs were rated "A" in 2006, and what action can and should be taken to improve upon this result;
 - d the relatively high proportion of researchers (about 32%) whose EPs were rated "R" or "R(NE)" in 2006, and what action can and should be taken to address this situation;

- e the reasons for the relatively high quality scores of some subject areas, and what could be done to sustain and build upon these results;
- f the reasons for the relatively low quality scores of some subject areas, and what can and should be done to improve the quality of research being undertaken in these areas;
- g the adequacy of the resources currently available for supporting and building research capability in the tertiary education sector;
- h the question of whether specific government action may be required in order to assist TEOs in improving their quality of research in areas of strategic importance and/or weakness;
- i the nature of the various changes in performance in subject areas and TEOs, and the reasons for these changes;
- j the implications of the results of the 2006 Quality Evaluation for the quality of degree-level provision in parts of the tertiary education sector (especially at the postgraduate level), including whether certain TEOs are fulfilling their statutory obligations and “distinctive contributions”;
- k the extent to which the PBRF will achieve an appropriate degree of concentration in the allocation of research funding; and
- l the overall improvement in terms of measured research quality since the 2003 Quality Evaluation, and what actions can be taken to encourage this trend.

Placing the results in context

- 284** In exploring these and related issues, it is important that the limitations of the data be properly recognised. In particular, as already highlighted in Chapter 4, it is vital to bear in mind that the 2006 Quality Evaluation constitutes a retrospective assessment of research performance, based primarily on the research outputs produced during a six-year period (1 January 2000 – 31 December 2005). More than a year has elapsed since the end of this assessment period. In the intervening period, there has been much research activity within the tertiary education sector – activity that in many cases is likely to contribute to a different (and hopefully improved) set of results in the next Quality Evaluation. In addition, the provision for new and emerging researchers and the higher quality of the EPs submitted for assessment in 2003 mean that a more complete and accurate picture of research quality in the tertiary sector is now available.
- 285** It must be emphasised that exacting standards were set for the attainment of an “A” Quality Category. The TEC makes no apologies for establishing a high benchmark for the achievement of world-class standing and for requiring the 12 peer review panels to apply the agreed assessment framework in a rigorous and consistent manner. A relentless focus on verifiable quality is essential if the tertiary education sector is to achieve and sustain internationally competitive levels of research excellence.
- 286** However, the TEC readily acknowledges that the approach taken has influenced the overall shape and pattern of the results. Three matters (outlined below) deserve particular emphasis in this regard.

- 287** First, included among the EPs assessed as “B” and (to a lesser extent) “C” or “C(NE)” are those of excellent researchers and scholars who have been making valuable and important contributions to their respective disciplines and the wider research environment.
- 288** Second, a significant proportion of staff whose EPs were rated “R” or “R(NE)” are still at a relatively early stage of their careers as researchers. As emphasised elsewhere in this report, these researchers have not yet had time to produce a substantial body of research outputs, acquire significant peer esteem, or make a major contribution to the research environment. It can be expected that many of these researchers will secure higher Quality Categories in future Quality Evaluations.
- 289** Third, the Quality Evaluation process is complex, and relatively little time has passed since the first Quality Evaluation in 2003. As a result, the process continues to present challenges – for participating TEOs as they strive to ensure completeness of information on their staff members’ research, and for academic disciplines as they respond to the new incentives generated by the PBRF.

Building on the foundations of the 2006 Quality Evaluation

- 290** The next Quality Evaluation is scheduled for 2012. In preparing for this, the TEC will draw upon the findings of Phase 2 evaluation of the PBRF, which is due for completion in mid 2008 (see Appendix E). It will also take full account of the direct feedback received from participants in the 2006 Quality Evaluation (including the reports of the peer review panels), as well as feedback from many other interested stakeholders. In addition, the TEC will continue to monitor the impact of the new funding regime on TEOs.
- 291** In reviewing how the 2012 Quality Evaluation should be designed and conducted, consideration will be given to the following:
- a rules governing staff eligibility;
 - b number and structure of the peer review panels;
 - c number and classification of subject areas;
 - d overall assessment framework (including the generic descriptors and tie-points, the scoring system used to guide the decisions of the peer review panels, the nature of the holistic assessment stage, and the logistics of providing NROs to panel members for assessment);
 - e eligibility and assessment criteria for new and emerging researchers;
 - f most effective and appropriate ways of addressing issues associated with Māori and Pacific research and researchers;
 - g design of EPs, the nature of the information to be included, and the mechanism for collection;
 - h management of conflicts of interest;
 - i treatment of special circumstances;
 - j capture and reporting of information in relevant databases;
 - k assessment timetable;

- l moderation process;
- m checking and verification of the information contained in EPs;
- n reporting of results;
- o complaints process;
- p PBRF funding formula and weightings;
- q operational arrangements for the conduct of Quality Evaluations (including the provision of training, staffing, and logistical and electronic support); and
- r ways of reducing the compliance and administrative costs associated with the PBRF.

Any policy changes required will be made following consultation with the sector.

- 292** The TEC, in consultation with the Ministry of Education and the tertiary education sector, will also be reviewing the guidelines relating to the ERI and RDC measures. Again, any policy changes required will be made following consultation with the sector.
- 293** The design of the PBRF has benefited from the keen interest and extensive contributions of many groups and individuals in the tertiary sector. The important contribution that the sector has made to the design of the PBRF will be critical into the future as the TEC works with the sector to improve the PBRF and ensure that it remains relevant over time.
- 294** It is important, when considered in the context of New Zealand's aspirations, for there to be a relentless commitment to research excellence. This commitment – combined with the incentives provided by the PBRF – should underpin future improvements in the actual quality of research in the tertiary education sector. This, in turn, can be expected to yield significant economic, social and cultural dividends.
- 295** The results of the 2006 Quality Evaluation provide further evidence that New Zealand has significant research strength in a substantial number of subject areas and in most of the country's universities. This information will be extremely valuable for stakeholders in the tertiary education sector. For example, information on the distribution of research excellence might be used by TEOs when considering what role they may play in the network of provision of tertiary education.
- 296** The results of the 2006 Quality Evaluation also suggest there has been some degree of improvement in research quality. This reflects the experience in other countries that have conducted periodic evaluations of research performance, such as Britain and Hong Kong, where significant improvements have occurred in the quality of research since the commencement of the assessment regimes.
- 297** The measured improvement in research quality cannot be solely attributed to improvements in actual research quality as there are likely to be a number of factors influencing the results of the 2006 Quality Evaluation. Nevertheless, the increase in average quality scores, and the marked increase in the number of staff whose EPs were assigned a funded Quality Category between 2003 and 2006 suggests that there has been some increase in the actual level of research quality. This is very promising trend and indicates that the PBRF is having its desired effect on the New Zealand tertiary education sector.

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