

Research funding

- 3.1 This chapter examines several key research funding issues, namely funding for:
- national research and development;
 - universities, so that they can provide research training; and
 - career researchers.

National Research and Development funding

- 3.2 Universities Australia provided comments and significant summarised data on Australia's commitment to Research and Development (R&D):

While Australia's science and technology system is strong, it has failed to reach its full potential because of insufficient public and private investment. Gross Expenditure on Research & Development (GERD) as a percentage of Gross Domestic Product (GDP) is at 1.76 per cent, well below the OECD average of 2.26 per cent.¹

- 3.3 The estimated 'gap' between 1.76 per cent and 2.26 per cent is approximately \$5 billion (based on Australia's GDP of approximately \$1 000 billion²).

1 Universities Australia, *submission 82*, p. 5.

2 The Australian Bureau of Statistics listed Australia's GDP for 2007-08 at \$1037.027 billion; <www.abs.gov.au/AUSSTATS/abs@nsf/mf/1345.0>, viewed 11 November 2008.

3.4 Universities Australia added:

... the government contribution to research funding has diminished considerably from 76.5 per cent in 1978-79 to just 41.4 per cent in 2004-05. Industry financing of GERD as a percentage of GDP is also very low by OECD standards (Australia 0.91 per cent, OECD average 1.4 per cent, and Sweden, Finland and Japan in excess of 2 per cent).³

3.5 University of Notre Dame commented on limited research and development funding and its impact on Australia's international standing:

I think it is very difficult to innovate if you are dealing with a very small pie. By way of comparison, look at a country like Japan, where I understand there are over 700 institutions of higher education and they have a very different culture, I think, around R&D. You can see that with the success that they have achieved. Very roughly factoring in the population differential between Japan and Australia, that still leaves them with around 500 higher education institutions – an overservicing, if you like – around which the benefits of incredible investments into R&D can be seen. That sort of comparison places us so far behind countries like Japan, and I would argue it comes back to the sort of value we place on education and R&D. You really need to be prepared to put your money where you want your outcomes to be.⁴

3.6 University of South Australia commented on international examples of R&D expenditure, and recommended that Australia set a similar target:

In Lisbon, March 2000, EU heads of state and government agreed on making the EU “the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion”. The Lisbon Summit agreed that this required a necessary investment in R&D – 3% of GDP. Between 1991 and 2004, total investment in R&D in China grew thirteen-fold and India passed the 1% threshold for GERD as a percentage of GDP in 2004. Australia should set a target of 3% of GDP for investment in R&D (GERD) recognising that research productivity and high calibre research training is driven by investment and a strong competitive system that rewards excellence wherever it occurs.⁵

3 Universities Australia, *submission 82*, p. 5.

4 UND, *transcript of evidence 12 August 2008*, p. 39.

5 UniSA, *submission 32*, p. 9.

- 3.7 Innovative Research Universities Australia (IRUA) stated that the Australian Government has acknowledged that Australia's R&D spending, at 1.8 per cent of GDP in 2004, is not adequate for Australia to maintain its international competitiveness.⁶
- 3.8 NTEU-UQ suggested that Australia spends less on R&D than almost all other OECD countries, adding that limited public funding has had a profound impact on universities:
- In 2006, Government budget appropriations for R&D were just 0.54% of GDP, compared to 0.72% for the UK, 1.03% for the US, and 0.8% for the entire OECD. Not only has Australia failed to keep pace with its international colleagues, it has substantially withdrawn public funding to the tertiary sector over the past decade, resulting in damaging downsizing of most teaching and research units.⁷
- 3.9 Dr Adam Cawley provided open and frank comments on university involvement in and approach to R&D:
- Australia has a unique distribution of R&D in comparison to other modern economies with nearly two-thirds conducted by universities compared to half in the United Kingdom and one-third in the United States. This poses both opportunities and challenges to differentiating ourselves by developing niche capabilities. Universities need to develop their own strategies towards long-term sustainability of research programs. These institutions should be considered to have appropriate foresight in terms of strategic direction, not the unresponsive nature of governments ... Australia's innovation system needs universities to play to their strengths and not be consumed by the idealism of being all things to all students. This approach will benefit both established metropolitan universities and contemporary regional universities.⁸
- 3.10 The final report of the *Australia 2020 Summit* recommended a doubling of R&D investment by 2020.⁹

6 IRUA, *submission 51*, p. 1; Senator the Hon Kim Carr, address to National Press Club of Australia - *Science Serving Society*, 19 Mar 2008, <minister.innovation.gov.au/Carr/Pages/SCIENCESERVINGSOCIETY.aspx>, viewed 11 November 2008.

7 NTEU-UQ, *submission 59*, p. 3.

8 Dr Adam Cawley, *submission 92*, p. 1.

9 Australia 2020 Summit (2008) *Final Report*. Department of the Prime Minister and Cabinet, Barton, p. 31.

- 3.11 Ideas concerning R&D expenditure put forward by participants during the Summit discussion included:
- Commit to a long-term national R&D expenditure that is substantially above the OECD average as a fraction of GDP.¹⁰
 - The average OECD spend on research and development is 3 per cent of GDP. Australia should spend 3.6 per cent of GDP on R&D to catch up – 1.6 per cent from direct government expenditure and up to 2 per cent from dollar-for-dollar matching (1 per cent from government and 1 per cent from the private sector).¹¹
 - After we catch up with the OECD average we should maintain expenditure at 3.6 per cent to ensure that we remain among the top nations for innovation.¹²
- 3.12 The Committee is deeply concerned that Australia is well behind other countries in terms of expenditure on R&D. The Committee agrees that expenditure needs to be raised dramatically and recommends that the Australian Government increase funding for R&D by raising incrementally the GERD as a percentage of GDP over a ten year period until it equals the OECD average.

Recommendation 2

The Committee recommends that the Australian Government increase funding for research and development by raising incrementally the Gross Expenditure on Research and Development as a percentage of Gross Domestic Product over a ten year period until it equals the Organisation for Economic Cooperation and Development average.

10 Australia 2020 Summit (2008) *Final Report*. Department of the Prime Minister and Cabinet, Barton, p. 11.

11 Australia 2020 Summit (2008) *Final Report*. Department of the Prime Minister and Cabinet, Barton, p. 25.

12 Australia 2020 Summit (2008) *Final Report*. Department of the Prime Minister and Cabinet, Barton, p. 25.

Universities and funding for research training

- 3.13 The majority of submissions to the inquiry commented on the fact that research training in Australia is chronically under-funded.
- 3.14 Australian National University commented on the funding situation that Australian universities face:
- ... we are chronically partially funded for everything we do. We are partially funded for research, we are partially funded for PhDs, we are partially funded for undergraduate programs, we are partially funded for infrastructure, and the assumption is that we can make do. Sooner or later partial funding is just incremental, not even very genteel, decay. We have got to change that.¹³

Government support for research training

- 3.15 The Australian Government Department of Innovation, Industry, Science and Research (DIISR), in its submission to the inquiry, outlined the funding programs that currently support research training in Australia.
- 3.16 DIISR administers the following 'block grant' programs:
- Research Training Scheme;
 - Australian Postgraduate Award;
 - International Postgraduate Research Scholarships; and
 - Commercialisation Training Scheme.¹⁴
- 3.17 DIISR explained that block grant program funds are allocated to universities using program-specific formulae that reward the performance of universities in attracting research income, disseminating research results in mainly peer-reviewed publications and through the successful completion of research degrees.¹⁵
- 3.18 DIISR further explained that the Australian Research Council (ARC) administers the Australian Postgraduate Award (Industry) scholarships.¹⁶

13 ANU, *transcript of evidence 27 August 2008*, p. 24.

14 DIISR, *submission 50*, p. 3.

15 DIISR, *submission 50*, p. 3.

16 DIISR, *submission 50*, p. 3.

3.19 DIISR outlined other research training support mechanisms:

Publicly funded research agencies, such as the Commonwealth Scientific and Industrial Research Organisation (CSIRO), play a key role in the training of research students in collaboration with the higher education sector as do Cooperative Research Centres (CRCs).¹⁷

3.20 DIISR further explained that other portfolios support research training:

... through competitively funded research programs and by dedicated mechanisms such as the National Health and Medical Research Council scholarships, the Endeavour program, the Australian Development Scholarships and Australian Leadership Awards provided by AusAID.¹⁸

3.21 The Australian Government also supports the funding of research training through:

- Research Infrastructure Block Grants Scheme, which provides block grants to eligible higher education providers to enhance the development and maintenance of research infrastructure.¹⁹
- Institutional Grants Scheme, which provides block grants to eligible higher education providers to support research and research training activities.²⁰
- Regional Protection Scheme, which helps to protect designated regional higher education providers from losses of income against their indexed 2001 Research Training Scheme and IGS combined grants.²¹

3.22 In addition to research funding, the Australian Government supports the funding of education infrastructure, through the Education Investment Fund (EIF). This fund, a 2008-09 Federal Budget initiative, absorbs the \$6 billion allocated to the Higher Education Endowment Fund and receives an additional \$5 billion from the 2007-08 and 2008-09 Budgets. The EIF will be focused on capital expenditure and renewal and refurbishment in

17 DIISR, *submission 50*, p. 4.

18 DIISR, *submission 50*, p. 4.

19 <www.dest.gov.au/sectors/research_sector/programmes_funding/general_funding/research_infrastructure/research_infrastructure_block_grants_scheme.htm>, viewed 12 November 2008.

20 <www.dest.gov.au/sectors/research_sector/programmes_funding/general_funding/operating_grants/institutional_grants_scheme.htm>, viewed 13 November 2008.

21 <www.dest.gov.au/sectors/research_sector/programmes_funding/programme_categories/professional_skills/Regional_Protection_Scheme_2007.htm>, viewed 13 November 2008.

universities and vocational institutions as well as in research facilities and major research institutions.²²

- 3.23 Discussion and analysis of these schemes can be found further in this chapter.

Research Training Scheme

- 3.24 DIISR outlined how the Research Training Scheme (RTS) works:

The RTS provides block grants, on a calendar year basis, to eligible universities to support research training for domestic students undertaking PhD and Masters degrees by research. RTS students are entitled to a maximum of four years full-time equivalent study if undertaking an eligible PhD degree by research and a maximum of two years full-time equivalent study if undertaking a Masters degree by research. RTS students study in a fully-subsidised place during this period, with no HECS-type liability accrued and no tuition fees to pay.²³

- 3.25 DIISR explained that the objectives of the RTS are to:

- enhance the quality of research training provision in Australia;
- improve the responsiveness of universities to the needs of their research students;
- encourage universities to develop their own research training profiles;
- ensure the relevance of research degree programs to labour market requirements; and
- improve the efficiency and effectiveness of research training.²⁴

- 3.26 In Appendix A of its submission to the inquiry, DIISR explained that each higher education provider's RTS grant amount is determined using particular formulae.²⁵

- 3.27 Some of the key elements of the funding formulae are as follows:

- Completions, research income and publications data make up the RTS performance index where:
 - ⇒ HDR student completions are weighted at 50 per cent;
 - ⇒ Research income is weighted at 40 per cent; and

22 Universities Australia *submission 82*, p. 9; Education Investment Fund, <www.heef.deewr.gov.au/EIF/>, viewed 12 November 2008.

23 DIISR, *submission 50*, p. 4.

24 DIISR, *submission 50*, p. 4.

25 DIISR, *submission 50*, pp. 32-33.

- ⇒ Research publications are weighted at 10 per cent.
- High-cost disciplines are funded at 2.35 times the rate of low-cost disciplines.²⁶

The need for more RTS places

3.28 Several submissions to the inquiry commented on the number of RTS places at Australian universities, suggesting that there are too few. Many submissions recommended that the number of places be increased to meet demand.

3.29 The Council of Deans and Directors of Graduate Studies (DDoGS) commented on the state of the RTS, submitting that the total pool of funded higher degree by research places had not increased:

In the absence of additional funded places, many universities over enrol their RTS allocation and since the numbers of completions have also increased very substantially, the funding per capita for enrolments and completions has diminished significantly.²⁷

3.30 Southern Cross University also stated that there are too few RTS places:

... the total pool of funded places has not kept pace proportionately with the increase in enrolments and completions ... Like other universities wanting to meet demand and increase completion rates, we have had to significantly over-enrol postgraduate students: currently we have 232 equivalent fulltime enrolments for 166 funded places which means our funding per capita is inadequate, with serious implications for the resources we can provide to postgraduate students.²⁸

3.31 University of New South Wales also commented on the poor state of the RTS:

... the level of funding to Universities via the RTS and IGS has dropped to a level that is unsustainable and is so low that it is now a real disincentive to recruit more new PhD students.²⁹

3.32 Deakin University discussed the basis on which RTS places are allocated to Australian universities:

The current RTS system is based on a formula which began from an arbitrary base of the number of HECS exemptions allocated to

26 DIISR, *submission 50*, p. 32.

27 DDoGS, *submission 72*, p. 4.

28 SCU, *submission 12*, p. 2.

29 UNSW, *submission 31*, p. 5.

universities for HDR candidates prior to the introduction of the RTS scheme, rather than the actual number of Commonwealth funded places. At that time a cap of 21,500 funded places was placed on the system.³⁰

- 3.33 Deakin University stated that, at the introduction of the RTS, the university lost a significant number of federally funded places:

By operation of the formula which was introduced in 2000 and phased in over a number of years, Deakin's allocation of HDR places decreased from 525 Commonwealth places agreed through profile discussions to a target of 301.³¹

- 3.34 Deakin University commented on the advantage for some universities:

The greatest weight in the formula (50%) is the number of completions. Because the number of completions is clearly related to the number of HDR enrolments, the universities which started from a higher base were in a much better position to make gains.³²

- 3.35 Deakin University also commented on improvement of performance and the difficulty in getting more federally funded places:

At the same time, a cap on improvement was imposed so that no university could make an improvement of more than 5% over the previous year. The cap on the number of places for the sector and the restrictive formula makes it difficult for a younger and more innovative university like Deakin University to reach the share of Commonwealth funded places needed to support its rapidly growing research effort.³³

- 3.36 University of New South Wales suggested that declining RTS returns have had the effect of driving international recruitment in the sector:

... to both increase funding received in the RTS (via increased HDR completions) and to raise income via full fee tuition costs from international students. As a result, the distribution of RTS income no longer correlates with total research income, arguably the most important indicator of the research environment for delivery of high quality research training.³⁴

30 Deakin, *submission 73*, p. 1.

31 Deakin, *submission 73*, p. 1.

32 Deakin, *submission 73*, p. 1.

33 Deakin, *submission 73*, p. 1.

34 UNSW, *submission 31*, p. 6.

- 3.37 University of Western Australia stated that many universities are subsidising their research training of higher degree by research students through other sources of income, and recommended that there be an increase in the number of RTS places available to Australian universities.³⁵
- 3.38 Australian Catholic University stated that a significant increase in the number of RTS places is needed in order to:
- ensure that suitable well-qualified graduates have the opportunity to attain higher level qualifications in research and therefore make their maximal contribution to the research effort of the country; and
 - develop the potential workforce which needs to be replaced in the University sector.³⁶
- 3.39 DDoGS stated that the current system of partial RTS funding with subsidy coming from undergraduate and graduate coursework activities is unsustainable and recommended an increase in the number of RTS places available to Australian universities.³⁷
- 3.40 Southern Cross University also recommended an increase in the number of RTS places available to Australian universities which can fill them.³⁸
- 3.41 DIISR stated that, for the period 2001-08, RTS funding has increased marginally per annum due to indexation. There has been no increase in the RTS base funding over this period.³⁹
- 3.42 The Committee is concerned that there are too few RTS places, particularly given that many universities are able to fill places and resort to funding postgraduate students from other sources.
- 3.43 The Committee is also concerned that the number of RTS places has not increased adequately on an annual basis since the scheme's inception.
- 3.44 The Committee is of the opinion that the Australian Government should conduct a review into the number of RTS places that will be required to meet current and future research training needs, with a view to funding a substantial number of additional places in the near future.

35 UWA, *submission 96*, p. 5.

36 ACU, *submission 97*, pp. 1-2.

37 DDoGS, *submission 72*, p. 4.

38 SCU, *submission 12*, p. 2.

39 DIISR, *submission 50*, p. 4.

Recommendation 3

The Committee recommends that the Australian Government determine and fund the number of Research Training Scheme places that will be required to meet current and future research training needs.

Full cost of research training

3.45 Many submissions to the inquiry called for the Australian Government to fund the full cost of all research training programs.

3.46 The Group of Eight stated that high quality research training outcomes cannot be achieved unless resources (both for students and institutions) are sufficient to task, and explained that:

Current Australian Government funding rates for HDR student training bear no relation to actual costs of providing supervision, training, infrastructure, consumables and support services to students across different disciplines.⁴⁰

3.47 The Group of Eight discussed the urgent need for funding to cover the full cost of research training:

If we do not significantly increase the funding for research in Australia there will be a decline in the quality of research training. Graduate students need the best quality labs, the best support structures for PhD training; they need high quality professional development programs and they need trained academic staff and infrastructure to support their PhD training. We do not fund the full cost of research and this is the most urgent issue for us.⁴¹

3.48 The Group of Eight, in its submission to the Review of the National Innovation System, recommended that a systematic study of the full costs of research training, drawing on methodology used internationally, be commenced in 2009 (alongside a study of the full costs of research).⁴²

3.49 Universities Australia stated that, as well as a significant increase in research block grant funding, it supports the introduction of funding mechanisms that provide support for the full cost of research, and suggested that:

40 Group of Eight, *submission 55*, p. 2.

41 Group of Eight, *transcript of evidence 25 June 2008*, p. 2.

42 Group of Eight, *submission 55*, pp. 2-3.

This could be achieved through the development of a transparent institutional-level process that takes into account specific costing for project grants. This is necessary for institutions to avoid having to cross-subsidise projects from other revenue sources.⁴³

- 3.50 Fourteen key submissions to the inquiry also recommended that the Australian Government fund the full cost of each higher degree by research program and abolish the high-cost/low-cost funding model.⁴⁴
- 3.51 The Committee agrees that continual under-funding of research training will place undue pressure on universities and ultimately lead to poor research training outcomes.
- 3.52 The Committee is of the opinion that the high-cost/low-cost funding model is outdated and does not take into account advances in technology, or the actual costs of supervision, resources and infrastructure required to train our researchers.
- 3.53 The Committee agrees that the full cost of research training should be funded by the Australian Government.

High-cost and low-cost disciplines

- 3.54 A considerable number of submissions to the inquiry commented on a key part of the RTS funding formula, which concerns the division of particular disciplines into high-cost and low-cost categories. High-cost disciplines include primarily the sciences and engineering, and some health and medical studies.⁴⁵
- 3.55 DIISR explained that high-cost disciplines are funded at 2.35 times the rate of low-cost disciplines.⁴⁶
- 3.56 Australian Academy of the Humanities discussed problems with the RTS and the perceived impact on particular fields:

Whatever the merits of the RTS at the institutional level, it has been problematic at the national level: some disciplines or discipline clusters cannot compete effectively, and some have been

43 Universities Australia, *submission 82*, p. 8.

44 SCU, *submission 12*, p. 2; ACDS, *submission 13*, p. 2; JCU, *submission 22*, p. 4; ANU, *submission 23*, p. 4; UNSW, *submission 31*, p. 3; FASTS, *submission 37*, p. 9; Murdoch, *submission 38*, p. 3; NTEU, *submission 53*, p. 4; UniMelb, *submission 56*, p. 2; Research Australia, *submission 70*, p. 11; Deakin, *submission 73*, p. 2; USC, *submission 74*, p. 1; UQ, *submission 100*, p. 1; CAPA, *transcript of evidence 24 September 2008*, p. 11.

45 <www.dest.gov.au/NR/rdonlyres/F8BE38C6-8BB2-4369-BEBA-CD5C7116CE36/19773/2008RTSandRPSProcessCalculations.pdf>, viewed 19 November 2008.

46 DIISR, *submission 50*, p. 32.

significantly disadvantaged by it. The humanities disciplines have suffered due to knock-on, iterative and proxy effects of the RTS funding formulae. As disciplinary winnowing is not one of the objectives of the Scheme, the RTS has proved to be poorly suited to its objectives to the extent that it has disadvantaged particular research fields.⁴⁷

- 3.57 Australian Academy of the Humanities stated that its greatest concern with the RTS is the low-cost/high-cost differential:

Dividing the entire research education enterprise in Australia into two categories – expensive and cheap – fails to have regard to the fact that there is significant variation in the actual cost of delivery (supervision, resources, infrastructure, etc.) within each of these categories. This 2.35:1 funding quotient is an exceedingly blunt instrument that has little relationship to the actual costs incurred within the research training activities it is designed to fund.⁴⁸

- 3.58 University of New South Wales stated that the high-cost/low-cost funding model is now outdated:

... in a climate fostering innovation through highly cross-disciplinary research programs that span the Humanities, Arts and Social Sciences (HASS), Science, Technology, Engineering and Mathematics (STEM) and Health Sciences.⁴⁹

- 3.59 University of New South Wales explained some of the anomalies it see in funding particular disciplines:

For example, Community Health is currently in a “low-cost” band, but frequently involves “high-cost” preventative interventions. Computer Science which is currently a “lowcost” band, frequently involves high-cost specialised equipment and facilities, while Communications Technology is classified as “High-cost”. While many research areas in the Humanities and Social Sciences are classified as “low-cost” this classification does not recognise the significant costs associated with extensive fieldwork as an essential component of research in some areas.⁵⁰

- 3.60 NTEU suggested that the high-cost/low-cost differential funding model is outdated as it is based on data collected in the late 1980s. NTEU added

47 AAH, *submission 61*, p. 7.

48 AAH, *submission 61*, pp. 8-9.

49 UNSW, *submission 31*, p. 6.

50 UNSW, *submission 31*, p. 6.

that this approach does not take into account changes in technology and research over the last two decades.⁵¹

- 3.61 University of Queensland stated that the high-cost/low-cost differential funding model ignored the actual cost of supervision, resources and infrastructure, and suggested that if the dollar value allocated by RTS to low-cost disciplines was passed on without additional funding from universities, research training in those disciplines would cease to be viable.⁵²
- 3.62 DDoGS commented on funding levels and the high-cost/low-cost differential funding model:
- ... there is strong local and international evidence that the levels of RTS funding falls well short of the full cost per student of delivering HDR programs, both at the high band and the low band levels. The arbitrary division between “high-cost” and “low-cost” disciplines is not based on any recent analysis of the costs of supervision and research.⁵³
- 3.63 Several submissions recommended that further review is required to ascertain the relevance of the current high-cost/low-cost categorisations.⁵⁴
- 3.64 University of New South Wales recommended that the high-cost/low-cost funding model should more appropriately reflect the costs of research in collaborative disciplines, and recommended that the model be reviewed and a four-step cost band model be introduced, with a weighting ratio of 2:3:4:5 across the four bands.⁵⁵
- 3.65 Australian Technology Network recommended that there needs to be a closer alignment of funding to match the real costs of PhD study:
- ... a simple high cost/low cost binary doesn’t relate to actual costs
... This inequitable funding model presents a barrier to encouraging diversity amongst students considering a research degree while acknowledging that a diverse workforce is required within and beyond universities.⁵⁶

51 NTEU, *submission 53*, p. 14.

52 UQ, *submission 100*, p. 8.

53 DDoGS, *submission 72*, p. 3.

54 CUT, *submission 18*, p. 2; IRUA, *submission 51*, p. 16; DDoGS, *submission 72*, p. 4; UWA, *submission 96*, p. 5.

55 UNSW, *submission 31*, p. 6.

56 ATN, *submission 54*, pp. 5-6.

Regional universities

3.66 Several submissions to the inquiry discussed the disadvantages that regional universities face.

3.67 University of the Sunshine Coast explained its situation at length, particularly with regard to access to Research Training Scheme funds:

... the really serious limitation for us in relation to research training is the fact that we are new and small. Our capacity to compete on a level playing field under the research block grants and particularly the Research Training Scheme is impossible. Each year we are dropping back by the maximum five per cent in our Research Training Scheme allocation because we do not have critical mass with our higher-degree-by-research student body, so we are sort of trading ourselves out of existence each year at the moment.⁵⁷

3.68 University of the Sunshine Coast further explained how the RTS funding formula impact on small institutions:

The formulas that drive the Research Training Scheme are about having equity in the pool of funds that are available to support research training. Our equity is sufficiently small, lacking in critical mass, that we cannot compete with the formulas. We just do not have the size and the number of completions each year which are really the primary driver to increase the monetary source that we are able to get out of the pool ... It is not possible for us to get from where we are to critical mass in order that the formulas start to work for us instead of against us without us using all of the resources that we can from other sources to cross-subsidise our research training enterprise.⁵⁸

3.69 The Central Queensland University Branch of the National Tertiary Education Union (NTEU-CQU) discussed issues that affect regional universities and the impact of low funding levels:

Regional universities face particular challenges in building strong research capacity ... Developing from teaching institutions prior to 1990, regional universities require strong support and nurturing to contribute meaningfully to their region and build a credible reputation in research. Lack of adequate Federal government funding over the past decade has forced regional universities such

57 USC, *transcript of evidence 18 August 2008*, p. 30.

58 USC, *transcript of evidence 18 August 2008*, p. 31.

as Central Queensland University to focus its core business on revenue-raising from teaching to the detriment of its fledgling research.⁵⁹

3.70 NTEU-CQU discussed the perception of regional universities:

I think regional universities are often regarded as second-rate institutions ... They are regarded by some of our cousin universities, the metropolitan universities, in that way, but individual scholars may or may not be ... The PhDs that come out of our regional universities are no less than anywhere else, but there is a perception that in some way what we do is less than what other people do. In some ways they are right, because in a regional university you do not have access to the same sorts of resources that you may have in a large university ...⁶⁰

3.71 When asked what specifically would be required for regional universities in an overhaul of funding models, particularly considering a weighting or directed funding, NTEU-CQU stated that it would:

... make sure that research areas that need to be looked at, that have a regional impact, are done through regional universities rather than through metropolitan universities. Perhaps there needs to be a weighting.⁶¹

3.72 NTEU-CQU elaborated on the need for assistance for regional universities:

Governments need to recognise that the cost of doing research at a regional university could be much higher than that in the cities. The impacts of isolation and the lack of adequate research infrastructure need to be factored into funding arrangements with regional universities. A locality weighting similar to that adopted in allocating other government grants should be considered.⁶²

3.73 NTEU-CQU stated that the regional isolation factor presents a formidable obstacle to pursuing a career in research, and provided an example, quoting a research student:

Even though my Faculty would like to support my research, I'm having some trouble getting money to go to a conference to present a paper. It could cost as much as \$3000 to get there because of air fares and accommodation (it's in Sydney). It is a lot of money

59 NTEU-CQU, *submission 62*, p. 1.

60 NTEU-CQU, *transcript of evidence 19 August 2008*, p. 3.

61 NTEU-CQU, *transcript of evidence 19 August 2008*, p. 6.

62 NTEU-CQU, *submission 62*, p. 1.

with little return for the university. But how else does one build a research profile and career if one doesn't go to conferences and try to publish papers?⁶³

- 3.74 James Cook University also discussed the need to cover greater expenses for travel:

... everywhere is a very long way from here, and collaborating with people in bigger centres is always very expensive. Even collaborating across our campuses is expensive.⁶⁴

- 3.75 James Cook University further explained the challenges faced by a regional university in operating without being funded the full cost of research:

The additional costs of operating in a region extend to the supervisory teams, which are also having to dip into their pockets for a fair amount of the research training because, as we know, the RTS system does not meet the full costs; we are dipping into other pots to subsidise or pay for that training. When you then ramp that up and say that the entire costs of doing business in a place like this are much higher, as they are, it just escalates ...⁶⁵

- 3.76 When asked about the issue of defining what is regional, James Cook University stated:

... there is a complexity there that needs to be resolved. I think it has been done very arbitrarily, and I would say that there is actually a degree of cynical rorting of the system, quite frankly.⁶⁶

- 3.77 IRUA discussed the importance of regional areas to national development:

... our future economic, social and environmental development is inextricably linked to the future success of rural and regional communities. Around two thirds of Australia's export earnings come from regional industries such as agriculture, tourism, retail, services and manufacturing. Many of Australia's key topics of national interest or concern ... are closely associated with the regional and rural areas of the country. It is vitally important that research training in regional Australia be supported by government.⁶⁷

63 NTEU-CQU, *submission 62*, p. 4.

64 JCU, *transcript of evidence 19 August 2008*, p. 23.

65 JCU, *transcript of evidence 19 August 2008*, p. 23.

66 JCU, *transcript of evidence 19 August 2008*, p. 24.

67 IRUA, *submission 51*, p. 9-10.

- 3.78 Research Australia explained that the Regional Protection Scheme (RPS) is provided to regional institutions to compensate for lost income resulting from previous funding reforms.⁶⁸
- 3.79 The RPS helps to protect designated regional higher education providers from losses of income against their indexed 2001 RTS and Institutional Grants Scheme (IGS) combined grants. The RPS Grant may be used at the higher education provider's discretion for any RTS or IGS objective.⁶⁹
- 3.80 The Committee recognises the contribution made by regional universities to Australia's research community and acknowledges that regional universities face particular challenges in delivering high quality research training.
- 3.81 The Committee, while acknowledging the Regional Protection Scheme, does not want any particular regional university to be disadvantaged when compared with larger metropolitan universities.
- 3.82 The Committee is of the opinion that funding the full cost of research will remove any disadvantages universities face due to geographic location.

Minimum resource standards

- 3.83 Several submissions to the inquiry discussed the issue of minimum resource standards for postgraduate students.
- 3.84 The Council of Australian Postgraduate Associations (CAPA) in particular provided extensive comment on the issue, initially suggesting that resource standards vary significantly, both across and within universities.⁷⁰
- 3.85 CAPA stated that many universities make a minimum level of funding available to all students to fund consumables, fieldwork, lab or research costs, or attendance at conferences.⁷¹
- 3.86 However, CAPA claimed that many postgraduates draw significantly on their own funds to support the costs of their research, and quoted research that indicated that candidates are likely to have spent around \$5 000 of their own funds on research related activity within the first 18 months of candidature.⁷²

68 Research Australia, *submission 70*, p. 5.

69 <www.dest.gov.au/sectors/research_sector/programmes_funding/programme_categories/professional_skills/Regional_Protection_Scheme_2007.htm>, viewed 13 November 2008.

70 CAPA, *submission 90*, p. 37.

71 CAPA, *submission 90*, p. 37.

72 CAPA, *submission 90*, p. 37.

3.87 When asked if students have access to adequate resources, Sydney University Postgraduate Representative Association (SUPRA) stated:

... there are disparities depending on which project you happen to be on, let alone which faculty you happen to be in, about the kind of resources that are available to you. At the University of Sydney we have students who have designated desks or communal offices with their own desk, their own computer, all that stuff and we have other students in other faculties who can not get a designated desk except for on a competitive basis in their final six months to a year.⁷³

3.88 CAPA also discussed the distinct lack of resources for postgraduate students:

... in many cases research higher degree students that are full time and compelled to be on campus to do research do not have access to the basics – a desk space and the opportunity to maintain their research data and records in a secure environment. These sorts of things are basic to doing high-quality research. So it is more than just access to stationery and highlighters.⁷⁴

3.89 CAPA provided an example from University of Melbourne:

... approximately 10 per cent of arts and education research higher degree students have access to a workstation, so 90 per cent of them do not. That is only the students who are in full research degrees – master's or PhD by research – and there are a number of other research students doing minor theses who of course are not even included in that equation and are not given any work space for doing that research. So it is an extreme problem. Part-time students in the arts and education areas cannot even apply for an office usually, because there simply aren't any.⁷⁵

3.90 SUPRA explained that it raised minimum resource issues because:

... we feel that it is exploitative of universities to take on students for whom they cannot provide the minimum resources for the completion of their degree in order either to get their research output or to get their RTS funding.⁷⁶

73 SUPRA, *transcript of evidence 5 August 2008*, p. 36.

74 CAPA, *transcript of evidence 24 September 2008*, pp. 2-3.

75 CAPA, *transcript of evidence 24 September 2008*, pp. 2-3.

76 SUPRA, *transcript of evidence 5 August 2008*, p. 36.

3.91 SUPRA also discussed minimum resource issues for students not funded through the RTS:

... there are increasing numbers of research places which are not funded through the RTS but are funded by industry or in other ways. It is particularly important to us to ensure that those postgraduates who have places funded in that manner receive the same resources and receive the same entitlements as those who are funded through the RTS.⁷⁷

3.92 CAPA discussed its production of guidelines for the provision of resources for postgraduate students:

One of the most effective initiatives CAPA has been involved in is the development of the 2004 *Statement of Minimum Resources for Postgraduate Study*. This has proven to be an extremely successful initiative in providing universities with a reasonable benchmark for the provision of resources for research postgraduates. Many universities now have effective measures in place to help support students with the costs and resources for doing research based on a consistent, transparent, institution-wide policy.⁷⁸

3.93 CAPA recommended that the implementation of a clear and detailed policy on minimum resource standards for research higher degree students be an Australian Government requirement of higher education providers for the receipt of funding for research places.⁷⁹

3.94 SUPRA also recommended that the implementation of minimum resource policies across the entire sector should be made compulsory so that no student is left without basic and minimum infrastructure, adding that such an initiative must be supported by increased funding commitments from the Australian Government to ensure that universities are able to meet requirements.⁸⁰

3.95 AUQA stated that some but not all universities have a policy on resources for research students, adding that even those that do are not always implementing their own policy consistently.⁸¹

77 SUPRA, *transcript of evidence 5 August 2008*, p. 37.

78 CAPA, *submission 90*, pp. 37-38.

79 CAPA, *submission 90*, p. 38.

80 SUPRA, *submission 66*, p. 3.

81 AUQA, *submission 14*, p. 4.

3.96 CAPA commented on the need for all universities to have a minimum resource policy:

... we would just be very happy to see a basic statement of compliance on resourcing standards from every institution. That is not something we have at this stage, but I think it is entirely achievable.⁸²

3.97 The Committee is of the opinion that a minimum resource standard should be implemented for all higher degree by research students, and that this standard should be as part of funding the full cost of research training.

Recommendation 4

The Committee recommends that the Australian Government fund the full cost of each higher degree by research program at Australian universities through the Research Training Scheme and within all national competitive grant funding programs. This funding should take into account:

- **the removal of the high-cost/low-cost funding differential that currently exists between research disciplines, subject to interim arrangements to ensure that no discipline is disadvantaged;**
- **the travel and accommodation needs of students for research collaboration, regardless of geographic location; and**
- **the provision and maintenance of a minimum standard of supervision and resources.**

Indexation of block grant funding

3.98 DIISR stated that the Higher Education Indexation Factor, which is about two per cent per annum, is used to index the total funding allocated under the APA scheme and other research block grant funding.⁸³

3.99 As stated earlier, DIISR explained that, for the period 2001-08, RTS funding has increased marginally per annum due to indexation.⁸⁴

82 CAPA, *transcript of evidence 24 September 2008*, p. 2.

83 DIISR, *submission 50*, pp. 19-20.

84 DIISR, *submission 50*, p. 4.

- 3.100 A review of indexation arrangements for the Commonwealth funding of universities was completed in April 2005. After considering the review, the Government concluded that there was not a strong case for a change to the indexation arrangements at that time.⁸⁵
- 3.101 IRUA stated that a shortfall in research training funding can be partly attributed to the accumulated impact of the lack of adequate annual indexation of funding.⁸⁶
- 3.102 University of Southern Queensland discussed the lack of indexation for research training funding:
- [It] has been a very difficult problem for universities for many years now. I think that for most universities, if we were relying only on student and block funding income, you could probably show a graph that would show revenue rising at about two per cent and expenditure at about 5½ per cent, dominated by academic salaries. That is a disastrous position to be in. We cannot lift our salaries any further; we would just give ourselves enormous operating problems.⁸⁷
- 3.103 University of Western Australia argued that better indexation of Commonwealth block grants would allow universities to keep salaries closer to those available in the private sector, and thus retain quality staff.⁸⁸
- 3.104 The National Tertiary Education Union (NTEU) stated that, to ensure that the quality of research training is not compromised, it is essential that the real value of future RTS funding is maintained through an appropriate indexation.⁸⁹
- 3.105 The Committee is of the opinion that an indexation of two per cent per annum is not sufficient to maintain a healthy research training sector.

85 <www.dest.gov.au/sectors/higher_education/policy_issues_reviews/reviews/index_arrange_in_highered_sector/>, viewed 13 November 2008; <www.dest.gov.au/Ministers/Media/Nelson/2005/04/n1090190405.asp>, viewed 13 November 2008.

86 IRUA, *submission 51*, p. 16.

87 USQ, *transcript of evidence 18 August 2008*, p. 8.

88 UWA, *submission 96*, p. 4.

89 NTEU, *submission 53*, p. 4.

Recommendation 5

The Committee recommends that the Australian Government amend the current indexation measures for research training block grant schemes, to reflect real costs.

The way RTS payments are made

3.106 The structure of RTS payments to universities was raised in several key submissions, and discussed at length during the evidence-gathering phase of the inquiry.

3.107 DDoGS stated that the system of payment of RTS funds in arrears makes it difficult for universities to invest in research training in new areas.⁹⁰

3.108 SUPRA explained how research training funding is paid to universities:

That funding comes in two blocks. The first block is at the beginning. Half of it comes at the beginning. You are a research student, the university gets half of the money in order to offset I suppose some of the costs of allowing you to use their resources to complete your degree. The second lot comes on submission of the thesis.⁹¹

3.109 Southern Cross University also stated that the system of payment on completion of RTS funds makes it difficult for investment in new areas of research training:

For instance, SCU is one of the few universities with a commitment to Indigenous research, but because so few students have yet completed, there is no funding to pay either for supervision or infrastructure support for postgraduate students. Thus the university has to subsidise research training in this vital area.⁹²

3.110 University of New South Wales explained that the current funding model for research training funds completions more heavily than enrolments. However, the university stated that there is a need for more of the allocated funding during a student's course of study:

90 DDoGS, *submission 72*, p. 4.

91 SUPRA, *transcript of evidence 5 August 2008*, p. 28.

92 SCU, *submission 12*, p. 3.

While funding should be tied to completions as evidence of the successful delivery of research training, there are significant ongoing costs that are not being met throughout the candidature. In the current model, this is made even more difficult as, for example, completion funds for a student who commenced a PhD in 2006 will not appear in the RTS funding received by the University until 2011-2012.⁹³

3.111 University of New South Wales added:

Furthermore, the current model provides no direct incentives to drive high quality research training; the heavy emphasis on only completions has improved the number of completions, but a greater emphasis on ensuring Australian Universities deliver high quality research training is now required.⁹⁴

3.112 Professor Nigel Laing stated that RTS funding comes too late, and that more is needed during candidature:

The current PhD payment system results in supervisors receiving funding mostly from 3 to 5 years after the PhD student has completed. During the PhD, the supervisor receives very little funding, perhaps between \$2,000 and \$4,000 per year, or in many cases nothing at all. However, a PhD student in an expensive research field, costs \$20,000 a year in consumables. This means that during the time of the PhD, the supervisor has a \$16,000 to \$18,000 or \$20,000 hole in their budget. This is a disincentive to supervisors taking on PhD students.⁹⁵

3.113 Professor Laing also suggested that funding for PhD students never actually goes to the PhD supervisor:

You end up taking on the work of supervising a PhD student, with very little reward or incentive for doing it, and you end up asking yourself the question, 'Can I afford to take on a PhD student with the budget that I have available?'⁹⁶

3.114 Professor Laing explained further:

I do not know the exact sum that comes to a university for a PhD student, but it filters down into the university, down to the faculty, down to the school, down to the department, down to the

93 UNSW, *submission 31*, p. 6.

94 UNSW, *submission 31*, p. 6.

95 Professor Nigel Laing, *submission 40*, p. 1.

96 Professor Nigel Laing, *transcript of evidence 12 August 2008*, p. 17.

supervisor, and it gets reduced, each taking a cut ... Frequently the money does not actually come right back to that supervisor who has the hassle of trying to support the PhD student.⁹⁷

- 3.115 Several submissions supported a change in the way RTS funding is paid to universities. University of New South Wales stated:

We would favour a model in which the delivery of the funding to universities is through the course of the research training as opposed to the bulk of the money delivered currently on completion of the degree.⁹⁸

- 3.116 Professor Laing discussed the need for funding for students during candidature:

More of the funding has to be there during the time of the PhD student ... From my point of view, as someone who has to get on and do the actual research and have the PhD students in my lab, that is what we need.⁹⁹

- 3.117 Professor Laing suggested that the ideal situation would be:

... for sufficient funding to be made available during the tenure of the PhD student in the laboratory, up to say \$20,000 per year, with a bonus for completion after the PhD is completed.¹⁰⁰

- 3.118 University of New South Wales proposed that the funding model be changed whereby 75 per cent of funding is delivered during candidature and 25 per cent of the funding is delivered on successful completion.¹⁰¹

- 3.119 SUPRA discussed at length the pressure imposed on students by universities to finish early, due to the fact that the universities receive their second and final RTS payment on submission of a student's thesis:

We would suggest that that second half should instead be paid on conferral which would still mean the same total amount of funding going to the university but the second half would just be paid later ... What it would avoid though is pressure which can unfortunately be put on students to submit early because the university needs that second tranche of money as soon as it can and therefore it puts pressure on students to submit early ... It puts the student in the invidious position of having to do a lot

97 Professor Nigel Laing, *transcript of evidence 12 August 2008*, p. 18.

98 UNSW, *transcript of evidence 5 August 2008*, p. 50.

99 Professor Nigel Laing, *transcript of evidence 12 August 2008*, p. 22.

100 Professor Nigel Laing, *submission 40.1*, p. 1.

101 UNSW, *submission 31*, p. 2.

more work outside their own funding cycle because of course their APA has ceased at that point as well, but on top of that, it encourages potentially lower quality submissions of these because they are coming much earlier.¹⁰²

- 3.120 The Committee understands that the current RTS payments regime is designed to encourage a high completion rate, and is keen to see this remain a key part of the regime. However, the Committee is also cognisant of the fact that students and their supervisors need a larger percentage of funding during the course of study.
- 3.121 The Committee is of the opinion that universities' drive to have students submit their theses so that those universities can receive their final RTS payments is an unhealthy situation for research training outcomes. The Committee therefore recommends that the final RTS payment for each student be made at the time at which that student is informed that they have been awarded a degree, as opposed to the time at which they submit their thesis.
- 3.122 The Committee recommends that research training funding be disbursed, partially prospectively, to institutions according to a staggered formula: 50 per cent on enrolment, 20 per cent at a specified benchmark during the course of study, and 30 per cent at the point at which the student is informed that they have been awarded their degree.
- 3.123 The Committee is concerned that research training funding is not finding its way to the relevant research training supervisors in a timely fashion. The Committee encourages universities to ensure that RTS funding is directed to students and their supervisors appropriately.

Recommendation 6

The Committee recommends that research training funding be disbursed, partially prospectively, to institutions according to a staggered formula: 50 per cent on enrolment, 20 per cent at a specified benchmark during the course of study, and 30 per cent at the point at which the student is informed that they have been awarded their degree.

102 SUPRA, *transcript of evidence 5 August 2008*, p. 28.

Infrastructure

- 3.124 Universities Australia discussed other forms of infrastructure support for research, namely through the National Collaborative Research Infrastructure Strategy (NCRIS) and the Education Investment Fund (EIF):

The major 2008-09 Budget initiative was the creation of an \$11 billion Education Investment Fund (EIF), which will absorb the \$6 billion allocated to the Higher Education Endowment Fund (HEEF) and receive an additional \$5 billion from the 2007-08 and 2008-09 budget surpluses. The EIF will be focused on capital expenditure on teaching and research facilities.¹⁰³

- 3.125 NTEU claimed that funding for research infrastructure has been a significant issue for universities for a number of years:

While there are a variety of existing Commonwealth Schemes that directly or indirectly support investment in university capital and research infrastructure, these have not been able to entirely address the backlog in university maintenance which includes research infrastructure.¹⁰⁴

- 3.126 NTEU submitted that universities need to have greater certainty of funding to develop and maintain world class research infrastructure.¹⁰⁵ NTEU stated that the deficiency in infrastructure funding was addressed to some extent with the 2007 announcement of the Higher Education Endowment Fund, noting that there were some restrictions on the access and amounts available from this Fund.¹⁰⁶

- 3.127 NTEU noted the recent announcement of the \$500 million one-off block grant to universities, together with the potential benefits of the \$11 billion EIF, and suggested that this had been well received by the sector. NTEU also commented that, at the time of submission, the detail of the EIF, such as eligibility requirements and limitations on grant amounts, had yet to be announced.¹⁰⁷

- 3.128 ADBED explained that the Productivity Commission estimated the level of deferred maintenance on capital assets in universities at \$1.5 billion for

103 Universities Australia, *submission 82*, p. 9.

104 NTEU, *submission 53*, pp. 11-12.

105 NTEU, *submission 53*, p. 4.

106 NTEU, *submission 53*, p. 12.

107 NTEU, *submission 53*, p. 12.

2005,¹⁰⁸ adding that, even allowing for measurement issues, it is clear that infrastructure in Australian universities is of concern.¹⁰⁹

- 3.129 ADBED welcomed the announcement of the EIF and the one-off payments for university infrastructure in the 2008-09 Federal Budget, adding:

Of equal importance is the continuation of the National Collaborative Research Infrastructure Strategy (NCRIS), which ensures that Australia has cutting edge infrastructure in areas of strategic national importance.¹¹⁰

- 3.130 University of South Australia also commented on funding for research infrastructure:

The recent national investment in research infrastructure through the National Collaborative Research Infrastructure Strategy and the proposal to develop the teaching and research infrastructure through the Education Investment Fund are critical steps in building the next generation of infrastructure required to underpin a superb education system.¹¹¹

- 3.131 Universities Australia was concerned that the new fund will still be insufficient:

While the EIF may go some way towards addressing the maintenance backlog in universities, and to meeting new capital needs, there is a danger that, as the EIF will be open to applications for teaching facilities and also to applications from the Vocational Education and Training (VET) sector and other research facilities and institutions, the actual funds available to research infrastructure will be minimal.¹¹²

- 3.132 University of Sydney recommended that the EIF be further supplemented from subsequent budgets whenever possible.¹¹³

- 3.133 University of Western Australia discussed the inadequacy of infrastructure funding, in particular the Research Infrastructure Block Grant (RIBG):

108 Productivity Commission (2007) *Public Support for Science and Innovation*, Research Report, Productivity Commission, Canberra, p. 214.

109 ADBED, *submission 39*, p. 5.

110 ADBED, *submission 39*, p. 5.

111 UniSA, *submission 32*, p. 10.

112 Universities Australia, *submission 82*, p. 9.

113 USyd, *submission 17*, p. 4.

Perhaps the single biggest impediment to research growth at universities, and thus the environment for graduate student training, is the continuing small and stable size of the Research Infrastructure Block Grant. There has been a significant increase in the amount of research funding being won by universities, but the Research Infrastructure Block Grant budget has remained fixed for some time.¹¹⁴

3.134 University of Western Australia suggested that there must be an increase in money flowing to universities through the performance based block grants.¹¹⁵

3.135 University of South Australia explained that the current level of research infrastructure funding and what that funding is for:

... funding provided through the [RIBG] is 23c/\$ and this funding is intended to:

- enhance the development and maintenance of research infrastructure in Higher Education Providers (HEPs) for the support of high quality research in all disciplines;
- meet project-related infrastructure costs associated with Australian Competitive Grants;
- remedy deficiencies in current research infrastructure; and
- ensure that areas of recognised research potential, in which HEPs have taken steps to initiate high quality research activity, have access to the support necessary for development.¹¹⁶

3.136 University of South Australia explained further that the aims of the RIBG scheme are simply not achievable at 23c/\$, which lags significantly behind the US (45c/\$) and UK (55c/\$).¹¹⁷

Generic skills development and the Commercialisation Training Scheme

3.137 Submissions to the inquiry suggested that postgraduate research students may require generic skills training so that they are equipped to participate in the workforce after their studies are complete.

3.138 University of Melbourne stated that postgraduate research students require strong generic transferable skills over a broad range of disciplines so they are prepared for a diverse range of occupations.¹¹⁸

114 UWA, *submission 96*, p. 3.

115 UWA, *submission 96*, p. 3.

116 UniSA, *submission 32*, p. 10.

117 UniSA, *submission 32*, p. 10.

118 UniMelb, *submission 56*, p. 5.

3.139 Australian Catholic University claimed that there has been an encouraging shift in universities towards the inclusion of more coursework into research higher degrees, particularly focussing on the generic skills required for research.¹¹⁹

3.140 DDoGS also commented on the development of generic skills training:

With the growing awareness of the diversity of employment outcomes following the PhD and the importance of transferable skills to future employers, Australian universities have enthusiastically responded to the development of generic skills and the broader support needs of research students.¹²⁰

3.141 IRUA also stated that many universities have sought to enhance the quality of research training by introducing a range of associated systems, structures and support mechanisms, including compulsory coursework programs, often including generic skills training.¹²¹

3.142 Australian National University believes very strongly in adding in generic skills to the PhD program:

While it is true that just undertaking the research itself gives students a lot of skills, a lot of the students cannot identify them as skills that they have. Part of the process that is needed is that we need to demonstrate to them what skills they are learning through that training. We also need ... to teach students how to teach, project management, industry skills, public speaking, report writing – all of those sorts of things that are really valuable skills they could learn in the PhD ...¹²²

3.143 Several submissions commented on the fact that it is difficult to incorporate generic skills training in a relatively short PhD candidature.

3.144 Australian Catholic University suggested that there is:

... a tension between the need to provide more generic skills education, the requirement to complete degrees in a timely manner, and the preservation of a certain “standard” at least with respect to the quantity and complexity of research presented in the thesis.¹²³

119 ACU, *submission 97*, p. 2.

120 DDoGS, *submission 72*, p. 3.

121 IRUA, *submission 51*, p. 13.

122 ANU, *transcript of evidence 27 August 2008*, p. 22.

123 ACU, *submission 97*, p. 2.

- 3.145 An extension of the PhD scholarship period may allow generic skills training to be included in a PhD program (discussion on scholarships can be found further in this chapter).
- 3.146 University of Queensland stated that a four-year PhD would enable broader training in generic skills.¹²⁴
- 3.147 University of New South Wales also suggested that extension of scholarships would provide for the generic skill training required to facilitate the transition from PhD or Research Masters into industry, business or government.¹²⁵
- 3.148 CAPA also discussed the issue of generic skills training acknowledging that that particular students may have different requirements:
- It is important to acknowledge therefore that it is inappropriate to consider the issue of “generic skills” to be a narrowly vocational one. Not all postgraduates come to a research degree effectively as a “clean slate” when it comes to workplace skills and experience, but all seek to build on their existing skills through research in a way which is potentially unique for each candidate.¹²⁶
- 3.149 CAPA suggested that mandating a narrow set of desired generic skills outcomes through research training:
- ... underestimates the capacity for innovation among both candidates and industry. It would be unwise to seek to second-guess either through narrowly focussed and inflexible policy measures.¹²⁷
- 3.150 CAPA recommended that efforts to promote and support the uptake of “generic skills” should be:
- ... characterised by quality, flexibility and choice, as opposed to compulsory requirements and a generic and narrowly vocational view of the “transferable” outcomes of research education.¹²⁸
- 3.151 Professor Terry Evans, Dr Peter Macauley and Ms Margot Pearson also warned of underestimating the capacity of postgraduate research students:

124 UQ, *submission 100*, p. 4.

125 UNSW, *submission 31*, p. 3.

126 CAPA, *submission 90*, pp. 13-14.

127 CAPA, *submission 90*, p. 14.

128 CAPA, *submission 90*, p. 14.

Generic skills training is supplementary to this end and should be provided in ways that recognise the diverse existing expertise of the doctoral population. A narrow focus on skills training as an 'input' ignores the extent to which doctoral students bring skills and knowledge to their doctorate from their employment and other personal and community activities ... Many generic skills courses focus on [topics such as critical thinking, ICT skills, time management, problem solving, teamwork, writing and project management] but it seems they may be superfluous for many candidates.¹²⁹

3.152 The Commercialisation Training Scheme (CTS) has been one way to provide skills training to a small set of students enabling them to commercialise their research. Several institutions have also developed graduate certificate courses delivering similar commercialisation and generic skills material.

3.153 DIISR explained how the CTS works:

The CTS enables universities to provide high quality research commercialisation training for domestic PhD and Masters by research students to equip them with the skills, knowledge and experience necessary to bring research-based ideas, inventions and innovations to market ... CTS students ... are awarded a Graduate Certificate on successful completion.¹³⁰

3.154 DIISR further explained that 40 out of 42 eligible universities elected to participate in the CTS in 2007 and around 250 CTS students are expected to be supported each year.¹³¹

3.155 CTS students receive training in three areas:

- commercialisation know-how (a strategic understanding of commercialisation processes);
- technical commercialisation skills (e.g. intellectual property management, financial management, project management and market research); and
- organisational behaviour skills (e.g. leadership, teamwork and presentation skills).¹³²

129 Professor Terry Evans, Dr Peter Macauley and Ms Margot Pearson, *submission 46*, p. 3.

130 DIISR, *submission 50*, pp. 7-8.

131 DIISR, *submission 50*, p. 8.

132 <www.dest.gov.au/sectors/research_sector/policies_issues_reviews/key_issues/commercialisation/commercialisation.htm>, viewed 15 November 2008.

- 3.156 Some submissions to the inquiry suggested that the CTS is a valuable initiative.
- 3.157 Australian Technology Network stated that the CTS has been a valuable vehicle for broadening skills development training for higher degree by research students and should be retained for a further three years, with a review of the scheme in 2010.¹³³
- 3.158 Southern Cross University submitted that the CTS has been a valuable scheme. The university developed a Graduate Certificate in Research Management to overcome the perceived barriers to the employment of PhD graduates. The university now has agreements with five other universities to enrol their students in the course under the CTS.¹³⁴
- 3.159 RMIT University suggested that the CTS will assist research students to broaden their generic skills around research management, including areas such as project management, ethics and social policy development.¹³⁵
- 3.160 RMIT University added:
- Research graduates with such enhanced understandings will be better equipped to address many relevant and significant research questions/challenges of the future where solutions, needed by our communities will be discovered at boundaries between technology and community and will require input from across many research disciplines.¹³⁶
- 3.161 RMIT University explored how this initiative would work and what would it cost:
- We recommend that at least 10% of research students should have the opportunity to participate in the CTS and/or an expanded version as described above. This would require increasing the CTS numbers from the current 250 to around 2,500. At \$15,000 per student, this could be achieved for approximately \$34m. It may be appropriate to stage such growth over say 3 years.¹³⁷
- 3.162 Dr Adam Cawley suggested that the CTS be doubled:
- ... to provide an increasing number of higher degree research students and postdoctoral appointees with an understanding of,

133 ATN, *submission 54*, p. 4.

134 SCU, *submission 12*, p. 4.

135 RMIT, *submission 63*, p. 4.

136 RMIT, *submission 63*, p. 4.

137 RMIT, *submission 63*, p. 4.

and exposure to, the concepts and processes involved in the management of technology products and services.¹³⁸

3.163 Some evidence to the inquiry suggested that the CTS or graduate certificate programs could be broadened to incorporate other skills development in addition to commercialisation training.

3.164 University of Western Australia elaborated on its views:

... there are other aspects of the whole research training environment that could be encapsulated in a certificate or diploma if you wanted to have that sort of thing concurrently, rather than just commercialisation. Commercialisation would deal with some areas of project management, but there is a lot more project management outside the commercialised sector. There is a lot of work that needs to be done on ethics and the legislative requirements around being a professional researcher, whether it be in industry, in a university or in a government agency. If you are really thinking about training future research professionals, commercialisation is one aspect of that.¹³⁹

3.165 Australian National University also suggested that the CTS needs to be broadened:

... the commercialisation training scheme, while it is to be applauded, is too narrow in its focus. It could offer much more if we were to suggest that students could also be trained to teach. Teaching is not just valuable in an academic setting; it is also valuable in many workplaces, where people have to learn how to disseminate their knowledge and the skills they have gained within the PhD.¹⁴⁰

3.166 Some submissions to the inquiry were unhappy with the CTS, suggesting that the scheme should be evaluated or that the scheme be abolished with those funds directed elsewhere.

3.167 University of Melbourne suggested that there are a number of issues in relation to the CTS. The university stated that there is pressure for timely completions and that supervisors are reluctant to allow research candidates to undertake six months of coursework whilst enrolled in a full-time higher degree by research.

138 Dr Adam Cawley, *submission 92*, p. 4.

139 UWA, *transcript of evidence 12 August 2008*, p. 50.

140 ANU, *transcript of evidence 27 August 2008*, p. 17.

- 3.168 University of Melbourne suggested that a solution would be to make funded places in a graduate certificate course available to researchers who have completed a research degree.
- 3.169 University of Melbourne recommended that the effectiveness of the CTS and the Graduate Certificate in Commercialisation for Research Students¹⁴¹ should be evaluated.¹⁴²
- 3.170 Queensland University of Technology stated that the CTS has been a useful contribution to the Australian PhD and should be retained. However, the university suggested that the scheme reaches a small minority of the total research training cohort, and a more comprehensive approach is required.¹⁴³
- 3.171 University of Western Australia stated that the CTS has worked with limited success, suggesting that demand for the program has been low and it is questionable whether it is being provided at the right time in the research training cycle.¹⁴⁴
- 3.172 University of Western Australia added that the idea of a structured program of training with diploma accreditation upon successful completion is good, but that the scheme should be extended to early career researchers.¹⁴⁵
- 3.173 University of New South Wales suggested that:
- ... the CTS Scheme is poorly targeted for a relatively small pool of funds, distributed to 36 of the 38 Universities with very high administrative, compliance and human resource issues that Universities have had to absorb to deliver the program.¹⁴⁶
- 3.174 University of New South Wales stated that most universities have struggled to fill places and suggested that:
- Providing funding to Universities to train < 30-40 students in a stand-alone program is an inefficient use of resources. UNSW considers that the CTS Pilot Program is under-resourced and

141 <www.egradschool.edu.au/whategsaoffe/awardlevelqu/gradcert/>, viewed 15 November 2008.

142 UniMelb, *submission 56*, p. 4.

143 QUT, *submission 36*, p. 4.

144 UWA, *submission 96*, p. 8.

145 UWA, *submission 96*, p. 8.

146 UNSW, *submission 31*, p. 8.

poorly targeted to deliver its goals by expecting 36 universities to deliver CTS training.¹⁴⁷

- 3.175 University of New South Wales recommended that the CTS be abolished and the limited funds should be allocated to universities that have demonstrated industry and commercial linkages to incorporate commercialisation training into the training of research students working with industry.¹⁴⁸
- 3.176 The Committee is of the opinion that the Commercialisation Training Scheme has merit in providing particular generic skills training that will enable students to develop the most from their research training.
- 3.177 The Committee understands that the Commercialisation Training Scheme is in place until 2011,¹⁴⁹ and recommends that the Australian Government retain the scheme for at least that period, and conduct a review of the effectiveness of the scheme during the latter part of that period with a view to extending the scheme.

Recommendation 7

The Committee recommends that the Australian Government retain the Commercialisation Training Scheme, currently in place until 2011, and evaluate the effectiveness of the scheme during the latter part of that period, with a view to extending the scheme.

- 3.178 Griffith University also discussed the CTS, suggesting that it should continue. However, the university raised two additional means of achieving commercialisation and industry outcomes for PhD students:
- The 'public space' concept suggests that the university sector can best assist business, industry, government and community by provision of conferences and other forms of interaction which allow universities to engage in applied problem solving. Outcomes could include the provision of advisory services, access to specialist equipment or facilities, short courses, consultancy, contract research, or graduate programs. Doctoral students should be an integral part of this activity.

147 UNSW, *submission 31*, p. 8.

148 UNSW, *submission 31*, p. 8.

149 <[www.innovation.gov.au/Section/AboutDIISR/FactSheets/Pages/CommercialisationTrainingScheme\(CTS\)FactSheet.aspx](http://www.innovation.gov.au/Section/AboutDIISR/FactSheets/Pages/CommercialisationTrainingScheme(CTS)FactSheet.aspx)>, viewed 19 November 2008.

- Knowledge Transfer Partnerships (KTP) are a UK concept in which one or more KTP 'associates' (high-calibre PhD graduates) are recruited to work in a particular business on a project that is central to its strategic development. A project may last from 12 to 36 months. The university partner provides its expertise and jointly supervises the project together with a representative from the company. The costs are part funded by Government with the balance being borne by the participating business. The PhD graduate then receives the benefit of the industry position whilst still retaining links with the university and research mentoring from the academic supervisor.¹⁵⁰
- 3.179 The Committee is of the opinion that the two models outlined above should be given consideration by universities as a means of further developing links with industry.
- 3.180 The Committee recommends that the Australian Government develop and implement an additional industry partnership program, modelled on Knowledge Transfer Partnerships, that will further facilitate connection between business and research institutions.

Recommendation 8

The Committee recommends that the Australian Government develop and implement additional industry partnership programs, possibly modelled on Knowledge Transfer Partnerships, that will further facilitate connection between business and research institutions.

Increasing student diversity

- 3.181 Several submissions to the inquiry discussed addressing social equity issues, particularly through making postgraduate research study accessible to all graduates.
- 3.182 Victoria University's submission discussed the issue at length, initially outlining its diverse student background:

Victoria University's student body consists of many students who are the first in their family to attend University. Many of these students are from non-English speaking backgrounds, their share of the student body rising from 25.9 per cent in 2001 to 34.1 per

150 Griffith, *submission 80*, p. 5.

cent in 2004. The University also has the highest proportion of students from a low socio-economic background in terms of access and participation in Victoria with, in 2005 23.8 per cent of commencing VU students from a low socioeconomic background, and 25 per cent of commencing students who are under 25 years of age.¹⁵¹

3.183 Victoria University explained the difficulties some students face:

Many students from disadvantaged backgrounds face financial and other hardships which make them view postgraduate as an unattainable 'pipedream'.¹⁵²

3.184 Victoria University explained that it currently has a number of initiatives aimed at improving the student mix and addressing social equity, but added that:

... as a single institution, the scope for activity is limited. As such, government should act to improve equitable outcomes for research participation. The programs should be directly aimed at postgraduate research students from disadvantaged backgrounds.¹⁵³

3.185 Victoria University suggested that Government initiatives could be developed to encourage greater participation from groups that are currently under-represented, adding that such programs could be similar to those that have existed to attract women.¹⁵⁴

3.186 Victoria University also explained that:

Improving the student mix would also have benefits of a less altruistic nature. The diversity would bring new perspectives and thought processes that would facilitate innovation and improve research outcomes.¹⁵⁵

3.187 James Cook University also believes that further incentives are required to attract outstanding research students, in particular:

... from minority groups who are underrepresented in research training (e.g. Indigenous Australians who can attract high salaries external to the academy and typically have family commitments at a younger age than the wider community).

151 VU, *submission 15*, p. 2.

152 VU, *submission 15*, p. 2.

153 VU, *submission 15*, pp. 2-3.

154 VU, *submission 15*, p. 2.

155 VU, *submission 15*, p. 2.

- 3.188 Murdoch University also recommended the introduction of programs to encourage Indigenous Australians and disadvantaged Australians to undertake research higher degrees.¹⁵⁶
- 3.189 IRUA also discussed the need for supporting research training across all segments of the Australian community. Further, IRUA suggested that the distribution of research higher degree attainment is unevenly distributed across the Australian population.¹⁵⁷
- 3.190 IRUA discussed the importance of the participation of Indigenous Australians in research training:
- The government's critically important policy goal, of 'closing the gap' for Indigenous Australians, will rely significantly on access to Indigenous research graduates with a strong understanding of Indigenous culture and issues and the skills required to conduct complex research, analysis and evidence-based policy development.¹⁵⁸
- 3.191 IRUA also stated that education and training is at the heart of the government's social inclusion agenda, requiring participation from all Australian communities:
- Australia not only needs to increase participation in higher education by disadvantaged communities and citizens, but it also needs to ensure that more Australians from disadvantaged backgrounds have an opportunity to undertake research training.¹⁵⁹
- 3.192 Australian Academy of the Humanities discussed the negative impact of the current arrangements with the Research Training Scheme:
- We would add that the RTS's effects on women, older candidates and people from disadvantaged backgrounds – also not consonant with the objectives of the Scheme – constitute a similar significant failure of the mechanism to produce the stated policy outcomes.¹⁶⁰
- 3.193 The Committee agrees that all Australians should have the opportunity to participate in research training, regardless of cultural or socio-economic background.

156 Murdoch, *submission 38*, p. 2.

157 IRUA, *submission 51*, p. 9.

158 IRUA, *submission 51*, p. 9.

159 IRUA, *submission 51*, p. 9.

160 AAH, *submission 61*, pp. 7-8.

- 3.194 The Committee is of the opinion that appropriate measures should be put in place to encourage Indigenous Australians, minority groups, and under-represented or disadvantaged Australians to undertake and successfully complete higher degrees by research.
- 3.195 The Committee therefore recommends that the Australian Government encourage the participation of minority groups and under-represented Australians by applying a weighting to research training funds for universities that increase PhD completions by minority or under-represented students.

Recommendation 9

The Committee recommends that the Australian Government attach additional funds to research training scheme places that are secured by minority and under-represented students. This funding is for universities to provide the additional necessary assistance for minority and under-represented students throughout their candidature.

Areas of skill shortage

- 3.196 James Cook University commented on the current Australian employment market and the availability of high salaries for commencing graduates, suggesting that the situation is exacerbating the challenges in attracting high-quality candidates to postgraduate research training.¹⁶¹
- 3.197 James Cook University, quoting data from Queensland's Chief Scientist, stated:
- In Australia, employment in scientific and engineering professions is growing more than twice as fast as the workforce as a whole. In Queensland, employment in these professions is at 1.3 times the national rate and the percentage of domestic science and engineering graduates is falling.¹⁶²
- 3.198 James Cook University added that undergraduate enrolments in enabling disciplines (especially science) have been steadily declining for a number of years, creating a supply problem for research candidature.¹⁶³

161 JCU, *submission 22*, p. 5.

162 JCU, *submission 22*, p. 5.

163 JCU, *submission 22*, p. 6.

3.199 CSIRO stated that it is finding it difficult to recruit skilled researchers in a number of science disciplines as well as interdisciplinary skills areas critical to effective multidisciplinary science. Analysis of CSIRO's requirements indicates current, anticipated and continuing shortages in the following areas:

- Mathematical and statistical sciences
- Computational, simulation and modelling sciences
- Quantitative systems science
- Metallurgy, surface science and advanced materials
- Petroleum, geosciences and geo-engineering
- Chemistry and chemical engineering
- Mechanical, electrical and electronic engineering
- Bioinformatics
- Molecular biologists
- Quantitative geneticists
- Molecular geneticists and advanced genomics
- Climate sciences including: atmospheric, marine, meteorological, hydrology and hydro-climatology sciences.¹⁶⁴

3.200 CSIRO further explained that it recognises there are fewer postgraduate students, and is concerned about the impact of this on research outcomes:

In addition to the problems of recruiting experienced research staff, a number of CSIRO Business Units face difficulty securing high quality PhD students and acknowledge that this is a broad issue as university departments cite the same issue. The declining supply and quality of PhD graduates means that the pool of future scientists able to conduct world class research is small. If not addressed, this will affect the long term viability of Australian research ...¹⁶⁵

3.201 University of Western Australia discussed the issue of shortages of domestic students conducting postgraduate study in particular fields:

... last year we had no domestic applicants for PhDs in the earth sciences in Western Australia, at our university – none. Not one student decided to stay on and do a PhD in the earth sciences, which is driving the national economy. On the other hand, the demand from international students to come and study earth sciences for PhDs is very high. It is the same for engineering. Domestic interest in research training in engineering is low, low,

164 CSIRO, *submission 83*, pp. 6-7.

165 CSIRO, *submission 83*, p. 7.

low; they have all got jobs. Year 2, year 3, they have all got guaranteed jobs before they finish their undergraduate work.¹⁶⁶

- 3.202 Professors Hyam Rubinstein, Peter Hall, William Dunsmuir and Philip Broadbridge, representing key Australian mathematical societies and institutes, expressed their concerns regarding a critical skills shortage in several important areas of mathematical sciences:

Industry is hampered by a lack of graduates and for example, BHP Billiton now exports problems in the mathematical sciences to India and Russia for solution and offers scholarships to students in such countries to attract them for employment.¹⁶⁷

- 3.203 Professors Rubinstein, Hall, Dunsmuir and Broadbridge discussed the need to attract more PhD students to particular fields:

The stipend for PhD students where there is high demand for mathematical or statistical expertise is unattractive compared with what they can earn by going into the workforce. This is a problem shared by some other skills shortage areas. Yet these are the areas that need to attract PhD students or there will be no-one to train the next generation of highly skilled people in these areas. Greatly improving the stipend for students who can attract large salary packages on completion of an honours degree should be a priority.¹⁶⁸

- 3.204 James Cook University believes that further incentives are required to attract outstanding research students:

... in particular in areas of national significance in which there is an emerging skills gap (e.g. engineering, earth sciences, the enabling sciences, quantitative marine science, and Indigenous health) ...¹⁶⁹

- 3.205 James Cook University's experience suggests that potential students in these categories will require a stipend which is significantly above the APA rate, and recommended:

... that a National Priority Postgraduate Research Scholarship Scheme be introduced to provide attractive and competitive

166 UWA, *transcript of evidence 12 August 2008*, p. 34.

167 Professors Hyam Rubinstein, Peter Hall, William Dunsmuir and Philip Broadbridge, *submission 52*, p. 4.

168 Professors Rubinstein, Hall, Dunsmuir and Broadbridge, *submission 52*, p. 4.

169 JCU, *submission 22*, p. 6.

stipends to attract outstanding students in areas of national significance ... ¹⁷⁰

- 3.206 James Cook University also suggested that the operational arrangements for such a scheme be developed after wide consultation to ensure that it is attractive to the target groups.¹⁷¹
- 3.207 The Committee is deeply concerned that there are serious shortages of postgraduate research students in fields that are considered of national significance or fields where there is an identified skills gap.
- 3.208 The Committee shares the concerns of particular submitters regarding the lack of interest in certain fields, which will lead to a serious shortage of people to teach and sustain those fields in the future.
- 3.209 To address the shortage of postgraduate research students entering particular fields, the Committee is of the opinion that a National Priority Postgraduate Research Scholarship Scheme should be established to provide scholarship awards, with stipends that are competitive with workforce conditions, to outstanding students who undertake studies in fields of national significance and skills shortage.

Recommendation 10

The Committee recommends that the Australian Government introduce a National Priority Postgraduate Research Scholarship Scheme that provides competitive stipends to outstanding students in areas of national significance and skills shortage.

National competitive grant funding for research

- 3.210 Many submissions to the inquiry called for competitive funding for research to be increased so that it covers the full cost of the research undertaken.
- 3.211 Many submissions also suggested that the success rate of applications for competitive funding is too low, excluding young PhD graduates from a research career.

¹⁷⁰ JCU, *submission 22*, p. 6.

¹⁷¹ JCU, *submission 22*, p. 6.

3.212 This section of the chapter briefly examines the two key competitive funding bodies and discusses the issues of success rates and the full cost of funding.

Australian Research Council

3.213 The ARC, a statutory authority within the Innovation, Industry, Science and Research portfolio, provides advice to the Australian Government on research matters and manages the National Competitive Grants Program (NCGP).¹⁷²

3.214 ARC explained that, through the NCGP, it supports the highest quality fundamental and applied research and research training across all disciplines (with the exception of clinical medicine and dentistry), primarily through two streams of research funding:

- Discovery, under which funding is made available for investigator-initiated research and research fellowships; and
- Linkage, under which research projects, infrastructure, fellowships, centres and networks are funded jointly with partner organisations in the private sector, government or the community.¹⁷³

3.215 ARC explained that funding is allocated on the basis of a competitive peer review process using national and international research experts.¹⁷⁴

National Health and Medical Research Council

3.216 The National Health and Medical Research Council (NHMRC) is Australia's principal agency for:

- funding fundamental and applied health and medical research;
- developing health advice for the Australian community, health professionals and governments; and
- providing advice on ethical behaviour in healthcare and in the conduct of health and medical research.¹⁷⁵

3.217 NHMRC stated that it is committed to building Australia's competitiveness in health and medical research, through funding grants for research activities and building research capacity.¹⁷⁶

172 ARC, *submission 24*, p. 2.

173 ARC, *submission 24*, p. 2.

174 ARC, *submission 24*, p. 2.

175 NHMRC, *submission 101*, p. 2-3.

176 NHMRC, *submission 101*, p. 3.

- 3.218 NHMRC explained that it supports early, mid and senior researchers through prestigious and highly competitive fellowship and scholarship programs.¹⁷⁷
- 3.219 NHMRC acknowledged that there are complex inter-relationships between universities, healthcare settings, medical research institutes and industry in training healthcare professionals:
- Whilst universities are the breeding ground for the development of researchers, universities are also competing with medical research institutes (MRI), industry and hospitals in attracting and retaining staff. There is competition between these organisations in a limited labour market, and perceived disparity between the costs of funding research and the salaries provided.¹⁷⁸
- 3.220 NHMRC explained that researcher salaries are regulated in the university and public hospital settings, however they are not regulated in industry or medical research institutes. NHMRC suggested that this disparity may affect onward employment and career progression and retention of researchers.¹⁷⁹
- 3.221 NHMRC briefly discussed the cost of research, stating that is:
- ... aware of concerns that research funding does not currently cover the full costs of researcher salaries, as seen in the gap between NHMRC funding and existing salary structures within the sector. This is particularly relevant when researchers are able to attract significantly higher remuneration packages overseas.¹⁸⁰

Success rates

- 3.222 University of New South Wales also commented on low success rates and the impact on young researchers:
- ... the success rates for ARC and NHMRC have now dropped to a low that is very demoralising particularly to a new academic coming in. If you do not get up and going it is very tough; you go into a hole and you do not get out.¹⁸¹

177 NHMRC, *submission 101*, p. 3.

178 NHMRC, *submission 101*, pp. 3-4.

179 NHMRC, *submission 101*, p. 4.

180 NHMRC, *submission 101*, p. 4.

181 UNSW, *transcript of evidence 5 August 2008*, p. 69.

- 3.223 James Cook University explained that postdoctoral fellowships are the most common form of apprenticeship into a university research career, but they are 'in short supply and funded for only three years'.¹⁸²
- 3.224 James Cook University discussed the impact of a low number of fellowships:
- The success rate for ARC Discovery Postdoctoral Fellowships starting in 2008 was only 17.8%. The lack of availability and guaranteed tenure is a major deterrent for applicants and also result in some post-doctoral fellows spending much of the last year unproductively looking for a new job rather than writing up their research.¹⁸³
- 3.225 James Cook University further explained the impact of the low success rate of ARC grants:
- ... even very good researchers sometimes miss out on expected funding forcing the university to meet the shortfall in the project costs of their research students (who cannot put their career on hold waiting for the next funding round).¹⁸⁴
- 3.226 WEHIMR suggested that access to some funding schemes has become increasingly difficult to achieve:
- ... for example, NHMRC Fellowships now have an average age of entry in the mid 40's and applicants need to be ranked as *outstanding* to be funded - being merely excellent does not guarantee funding.¹⁸⁵
- 3.227 NTEU-UQ submitted that many research staff feel there is a lot of effort wasted in preparing unsuccessful research grants, and commented on the need for an established research record to obtain funding:
- The competition for grants means usually it is necessary to have an internationally recognised track record to support the research application. This can only be obtained by initially undertaking a considerable amount of unfunded research, before a successful grant application can be prepared.¹⁸⁶
- 3.228 Professor Ellen McIntyre discussed her concerns over the low success rate of NHMRC grants:
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182 JCU, *submission 22*, p. 10.

183 JCU, *submission 22*, p. 10.

184 JCU, *submission 22*, p. 4.

185 WEHIMR, *submission 34*, p. 4.

186 NTEU-UQ, *submission 59*, p. 3.

You put an awful lot of effort into writing up your proposal and so on, and then if you do not get it, what then? There is a lot of energy going into developing proposals that often are quite doable and should be funded, but there is just not enough funding. That is one issue. It seems that we are wasting a lot of energy.¹⁸⁷

- 3.229 The Committee is disappointed that there are so few competitive grants for research, and considers the success rate of around 20 per cent to be too low.
- 3.230 The Committee is also of the opinion that the low success rate for grant applications can be a deterrent for young researchers considering a career in research.
- 3.231 The Committee recommends that the Australian Government increase the funding pool for Australian Research Council and National Health and Medical Research Council grants to enable a minimum success rate of 40 per cent.

Recommendation 11

The Committee recommends that the Australian Government increase the funding pool for Australian Research Council and National Health and Medical Research Council grants to enable a minimum success rate for applicants of 40 per cent.

Full cost of research

- 3.232 ADBED explained the impact of serious deficiencies in funding for research:

While research in universities for industry and other segments of the public sector are done on a full cost basis, the gap between the funding supplied under ARC and NHMRC programs and the real cost of undertaking this research must be met by the universities. This impacts significantly on universities undertaking curiosity-driven research, and the development of the next generation of research leaders.¹⁸⁸

187 Professor Ellen McIntyre, *transcript of evidence 6 August 2008*, p. 3.

188 ADBED, *submission 39*, p. 7.

- 3.233 University of Western Australia stated that research project grant applications that are successful are under-funded and have to be subsidised through other parts of university activity:

... and, typically, that is going to come from whatever other resources you have, so out of teaching or out of whatever else you can spend on doing research. So there is almost a negative feedback loop, in the sense that the more successful you get to be with research, the more it is going to cost you to do it.¹⁸⁹

- 3.234 Australian National University discussed the shortfall in competitive funding and the consequences for universities:

If the ARC, on average, funds 65 per cent of the research costs and the university has either got to bear the rest or do 65 per cent either of the quantity or of the quality – assuming that you can draw that longbow – as a consequence of that funding, is that good? I do not think it is. And that is done in order to keep the success rate at one in five. Is that good? I do not think it is strategic, because the money that then comes in comes in in packets determined by somebody else's evaluation of the quality of the program.¹⁹⁰

- 3.235 Professor Nigel Laing stated that the gaps between NHMRC salary packages and host institution salary scales need to be abolished, with NHMRC fully funding research staff positions on NHMRC grants.¹⁹¹

- 3.236 Professor Laing suggested that NHMRC is the only funding agency in the world that partially funds agreed necessary positions on grants, through its Personnel Support Packages (PSPs).¹⁹²

- 3.237 Professor Laing explained that:

The problem with the personnel support packages is that they do not fully fund that position. You get enough money for maybe four days a week of that person at that level. You do not get enough to pay the person the full five days.¹⁹³

- 3.238 Professor Laing added that on-costs of employing a researcher, such as superannuation, are not included in the PSPs.¹⁹⁴

189 UWA, *transcript of evidence 12 August 2008*, p. 30.

190 ANU, *transcript of evidence 27 August 2008*, p. 23.

191 Professor Nigel Laing, *submission 40*, p. 1.

192 Professor Nigel Laing, *submission 40.1*, p. 1.

193 Professor Nigel Laing, *transcript of evidence 12 August 2008*, p. 19.

194 Professor Nigel Laing, *transcript of evidence 12 August 2008*, p. 18.

3.239 Professor Laing stated further:

When you have a gap, you spend a lot of your time trying to find ways to overcome the gap instead of getting on with the research ... Even the premier funding body for medical research in this country says, 'We're only going to pay you for four days a week.' It is telling you that it is looked on as a part-time job, and it is not. It is a six and a half days a week job.

3.240 The Institute Postdoctoral Researchers' Association at the Telethon Institute for Child Health Research (IPRA-TICHR) compared its NHMRC Personnel Support Packages to the university sector, stating that remuneration for PSPs ranges from 16 per cent to 26 per cent lower than equivalent positions at University of Western Australia, depending on the superannuation scheme available.¹⁹⁵

3.241 IPRA-TICHR also stated that employment on-costs impacted significantly on researchers' salaries, in particular those not in the university system:

... with my fellowship, for example, 30 per cent is considered on-costs and is taken out of my salary, out of my fellowship, whereas a university would pay that 30 per cent, as well as the superannuation ... Universities, I guess, have ways of absorbing that. They are big institutions and they can do that, whereas at our institute there are maybe 300, 400 researchers.¹⁹⁶

3.242 IPRA-TICHR suggested that the argument for not funding employment on-costs is that grant salaries are only supposed to pay researchers at 0.8 of a full-time position:

That is employing you maybe four out of five days a week. Firstly, the institution is supposed to absorb those 30 per cent costs, and our institute cannot. They do not have the money to do that. Secondly, now we are supposed to be working only 0.8, so they have tried to justify that poorer level of funding that they provide by saying, 'It's only a 0.8 level.' The other day a week we are supposed to get a real job and make up the difference, which is just not realistic.

3.243 When asked how the funding gap has impacted on the ability to retain good researchers, IPRA-TICHR stated:

... when it comes time to advertise even for a position of a research assistant, they cannot match the market rate, so what they are

195 IPRA-TICHR, *submission 81*, p. 1.

196 IPRA-TICHR, *transcript of evidence 12 August 2008*, p. 63.

seeing is a poor number of applicants for a given job and perhaps a poorer quality. Higher up, in terms of recruiting decent postdocs, it is the same sort of effect.¹⁹⁷

3.244 Professor Laing stated that this funding gap is growing:

What has gradually been happening is that the PSPs have been going up by about two per cent a year since they were introduced, whereas institution salary scales have gone up at a much faster rate. So the gap between what you should be paying your staff and what you are getting from the NHMRC is gradually widening.¹⁹⁸

3.245 The Committee is very concerned that researchers are expected to conduct their research with only a proportion of the funding required to do the job effectively.

3.246 The Committee is again of the opinion that the full cost of research should be met by any competitive grants awarded to researchers.

Recommendation 12

The Committee recommends that the Australian Government specify that competitive grants, in particular all National Health and Medical Research Council grants, fund the full cost of research in each program to which a grant has been awarded.

197 IPRA-TICHR, *transcript of evidence 12 August 2008*, p. 55.

198 Professor Nigel Laing, *transcript of evidence 12 August 2008*, p. 20.