



Submission to

**Inquiry into Research Training  
and Research Workforce Issues  
in Australian Universities**

## LETTER OF SUBMISSION

Professor Ian Goulter  
Vice-Chancellor  
Charles Sturt University  
The Grange, Panorama Avenue  
**BATHURST NSW 2795**

### **SUBMISSION TO THE INQUIRY INTO RESEARCH TRAINING AND RESEARCH WORKFORCE ISSUES IN AUSTRALIAN UNIVERSITIES**

Thank you for the opportunity to contribute to the inquiry into Research Training and Research Workforce Issues in Australian Universities

This inquiry and its outcomes are vitally important for addressing the future challenges for our nation in research capacity and productivity and positioning Australia as a significant international contributor to the creation of new knowledge for the advancement of the society in general.

I wish the Committee the best in this important endeavour and look forward to reading the conclusions of the Committee in due course.

Yours sincerely



Professor Ian Goulter  
**VICE-CHANCELLOR**

*Charles Sturt University acknowledges the Wiradjuri, Ngunawal, Gundungurra and Inuit peoples who are the traditional Custodians of the Lands on which Charles Sturt University's various campuses are located in Australia and Canada.*

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## BACKGROUND

The House of Representatives Standing Committee on Industry, Science and Innovation has been asked to inquire into and report on research training and research workforce issues in Australian universities.

The Committee's inquiry includes an examination of the contribution that Australian universities make to Australian research training, and the challenges Australian universities face in recruiting, training and retaining quality research staff in Australia.

In particular, the inquiry will examine:

1. The contribution that Australian universities make to research in Australia, including:
  - The contribution of research training programs to Australia's competitiveness in the areas of science, research and innovation;
  - The effectiveness of current Commonwealth research training schemes; and
  - The adequacy of current research training schemes to support Australia's anticipated future requirements for tertiary-qualified professionals in a wide range of disciplines.
2. The challenges Australian universities face in training, recruiting and retaining high quality research graduates and staff, including, but not limited to:
  - Adequacy of training and support (including income support) available to research graduates in Australia;
  - Factors for graduates that determine pursuit of a career in research;
  - Opportunities for career advancement for research graduates and staff;
  - Factors determining pursuit of research opportunities overseas;
  - Australia's ability to compete internationally for high quality researchers; and

- Whether Australia's academic workforce is ageing, and the impact this may have on Australia's research capacity.

## INTRODUCTION

Charles Sturt University is committed to excellence in research and to identifying and supporting areas in which the University is able to undertake and provide internationally competitive research and research training. In pursuit of this goal, the University has determined that it will invest its research resources in selected areas of proven or potential strength, in areas of strategic importance to the University's mission, and in ways that will maximise the potential for Charles Sturt University to offer high quality research and research training opportunities for its staff, students and inland communities.

In achieving this goal, Charles Sturt University recognises that it is located in one of the most important agricultural, environmental and economic areas in Australia - the Murray-Darling Basin. The *Charles Sturt University Act 1989* indicates the University's clear mandate to undertake research that contributes to the development of inland New South Wales. The University therefore believes that one of the significant outcomes of research across Charles Sturt University should be the development of strategies that focus on the effective and sustainable management of the region.

Recognising the complexity and multi-disciplinary nature of the issues that confront society, and the fact that many of the most exciting developments occur at the boundaries and intersections of existing disciplines, the University is committed to supporting collaborative, interdisciplinary research whereby a multiplicity of skills, expertise and experience can be focussed on research issues.

Charles Sturt University expects all academic staff to be actively involved in the creation of new knowledge through research, scholarship and creative endeavours. At the start of each year the University presents an updated picture of Research at Charles Sturt University at the following website: <http://www.csu.edu.au/research> and click on Introduction to Research @ Charles Sturt University.

### **The contribution of research training programs to Australia's competitiveness in the areas of science, research and innovation**

University research and research training activities contribute to the social and economic development of Australia through the production, application, diffusion and maintenance of knowledge.

Universities are the primary supplier of research training opportunities in Australia and a large producer of basic and applied research. They are the only providers of research training and education that leads to a formal qualification. Universities are uniquely placed to provide research training due to their well developed and tested quality assurance mechanisms.

Universities are engaged at every stage of the lifecycle of education, research and research application and are an incubator of future research capacity. Undergraduate education nurtures the interest of students in higher degree training and research, equips them with the skills necessary to advance, enables them to explore desirable research specialisations and promotes pathways to research careers.

While there is a multiplicity of arguments for ensuring the effective linkage of high quality education and research (indeed, a University is defined by the promotion of both education and research) the linkage is essential to the development of effective research training pathways from undergraduate to postgraduate level through the participation and exposure of students to the infinite possibility of knowledge creation, production and dissemination.

This symbiotic relationship between education and research is explored by Mowrey and Sampat who argue that the:

“... joint production of trained personnel and advanced research may be more effective than specialization in one or the other activity. For example, the movement of trained personnel into industrial or other occupations can be a powerful mechanism for diffusion of scientific research, and demands from students and their prospective employers for ‘relevance’ in the curriculum can strengthen links between the academic research agenda and the needs of society.” (Mowrey and Sampat, 2003, 4).

Charles Sturt University is of the view that the interaction of undergraduate and postgraduate training with research is essential to the sustainable production of Australia's next generation research workforce and the interactions that support innovation across industry.

Charles Sturt University is also of the view that excellence in research and innovation is best supported by multidisciplinary teams and that Australia needs a more formal way of recognising and supporting multi-disciplinarity, in particular the under-valued contribution of research in the arts, social science and humanities. Current policy frameworks have appeared to marginalise or exclude these important disciplines from the innovation agenda.

Universities accordingly have multiple roles in creating the future research workforce and supporting Australia's competitiveness in science, research and innovation.

Charles Sturt University is of the view that the Committee should be mindful, in preparing its recommendations, of the mechanisms that have promoted and supported the rapid growth in research training participation and research productivity over the last three decades. The rapid expansion of participation in research training and research productivity was a product of the creation of the unified national system in 1989. One of the significant factors has been the establishment of a suite of new, competitive and innovative universities that have challenged traditional orthodoxy and created a competitive dynamic that has spurred innovation and reform across the sector.

### **The effectiveness of current Commonwealth research training schemes**

Charles Sturt University is of the view that the Research Training Scheme has been effective in using the research performance of a University to allocate funding for research students.

However, it is concerned that this approach perpetuates the *status quo* and does not promote the emergence of new areas of research strength or those areas where high research income is not needed to undertake high quality research activities – particularly in the arts, humanities and social sciences.

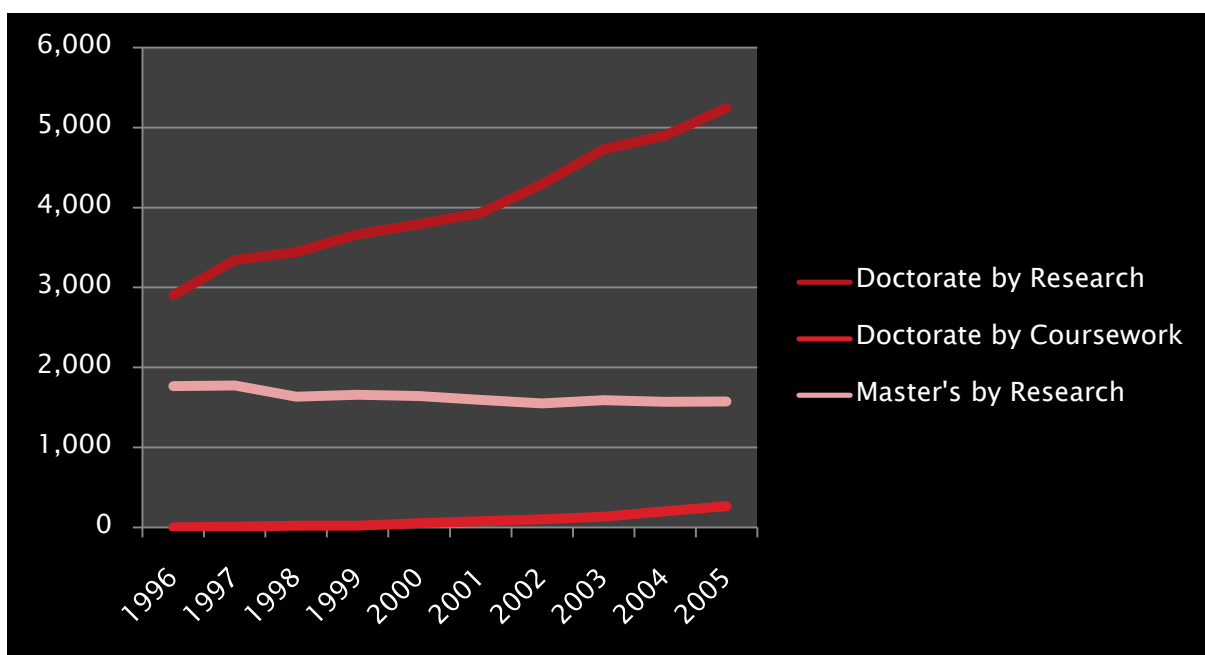
Charles Sturt University is of the view that the policy on allocation of Research Higher Degree Students to areas of research strength should be considered. Charles Sturt University would support an allocation of 80% of our Research Training Scheme places to targeted areas of research strength and 20% discretionary to emergent areas or small pockets of strength.



## The adequacy of current research training schemes to support Australia's anticipated future requirements for tertiary-qualified professionals in a wide range of disciplines

One of the goals of research training is to expand the pool of academics who will be the primary researchers, research trainers and educators of the future. The research doctorate has become the base qualification for employment in the academy and in research organisations.

Reflecting the increased emphasis on research and development, and innovation, in Australia graduate completions for higher degrees by research has grown substantially over the last decade, with the Department of Education, Employment and Workplace Relations reporting a more than 50% increase over that time from 2095 in 1996 to 5244 in 2005.



However, the output of graduates holding higher degrees by research have not kept pace with total completions for higher degrees, with coursework master completions showing a sustained preference over time rising from 14,708 in 1996 to 49,695 in 2005.

With an ageing academic and research workforce, there is a need to substantially increase rates of commencement and completion of research doctorates to meet future demand and sustain Australia's competitive innovation capacity.

Building a better understanding of the factors influencing student decisions to commence higher degrees by research may improve the capacity of the Government to target resources to encourage greater take-up of research doctorates. It is important that any decision-making on

the future of research training funding is based on evidence regarding the relevant factors that influence decision making to ensure any programs that are developed are appropriately targeted.

Charles Sturt University is of the view, however, that there are three significant factors in the decision-making of students to commence, and complete, research higher degrees:

- income support for higher degree students is no longer adequate to encourage participation in research doctoral programs;
- the lack of clear career pathways for research doctorate holders;
- competition from the private sector for University graduates.

While substantially more students are now commencing doctoral studies part-time (this may itself reflect the need to balance study and income generation), the intensive nature of undertaking a higher degree by research invariably impacts on earning potential at a time when postgraduate students can least afford to reduce total earning capacity.

While in some professions, postgraduate study can be offset against future earning potential, the future rewards for the majority of research doctorates are insufficient, or insufficiently defined, to act as an attractor to undertaking intensive doctoral study. In terms of entering the academic workforce, declining levels of Government support for universities and research activity has reduced the competitiveness of academic salaries in the general market.

### **Adequacy of training and support (including income support) available to research graduates in Australia**

The current level of support for research training is inadequate. With the remuneration offered by private sector employers, potential higher degree candidate are understandably attracted to the potential of immediate employment.

While this should not be viewed as a negative outcome (research graduates practising in the private sector supports knowledge transfer and innovation in the Australian economy), the level of income support provided to higher degree students at present is uncompetitive and must be addressed as a matter of urgency.

However, Charles Sturt University is not of the view that a global increase in income support will be sufficient to sustain productive capacity across the sector. Charles Sturt University has

found that tailoring benefits to meet the needs and interests of prospective students is necessary to differentiate competing institutions both in Australia and overseas. For example, attendance at international conferences, supported field work and other incentives can be designed to more appropriately support the specific discipline related needs and aspirations of candidates. Charles Sturt University believes that the Government should increase direct funding to universities on a *per capita* basis to enable them to tailor programs to meet the competitive demands of prospective students.

The effectiveness of a Research Training Scheme in general is measured by the quality of the research outputs - in this case the theses that are produced. There is, however, currently no nation-wide indicator that can assess the quality of the theses produced by Australia's Research Higher Degree Students.

Charles Sturt University is of the view that consideration should be given to recognising excellence by having ten national prestigious prizes in each discipline area (this would be around 25 discipline areas). This would identify the top 250 Research Higher Degree Students annually and provide competitive, quality based, incentives for participation and completion.

### **Factors for graduates that determine pursuit of a career in research**

The lack of supported career progression opportunities after completion of a research doctorate creates unnecessary uncertainty for potential applicants about the value of commencing postgraduate research study.

Charles Sturt University is of the view that a better career path for research workers across the nation should be developed to reduce the loss of good researchers because they can't see the path ahead.

Peer and public esteem are major drivers for research career choices. Charles Sturt University is of the view that the Government, working with the University and research sectors, should support a targeted marketing campaign to raise the awareness and standing of research as a career in the community.

### **Australia's ability to compete internationally for high quality researchers**

Like other sectors, an ageing workforce will significantly impact on the capacity of universities to attract sufficiently qualified researchers to support research training and research output in the future. Competition from the private sector for graduates, coupled with this demographic shift, will further impact on the long term capacity of universities and other research bodies to contribute to innovation and national economic productivity.

Charles Sturt University is of the view that, like other sectors, an increased focus on recruiting higher degree candidates from overseas will be necessary including providing appropriate fee waivers/scholarships and income support during their candidacy. To retain these new researchers in Australia, Charles Sturt University believes that immigration processes should be examined to facilitate retention of researchers in Australia.

Charles Sturt University is committed to solving problems through practical, applied and strategic research. We understand that many of the challenges facing our communities, and our nation, require us to work across traditional disciplines to develop innovative solutions. That is why Charles Sturt University is committed to a collaborative and interdisciplinary approach to research.

The University strategically invests its resources in selected areas of proven and potential strength significant to the University's mission. In line with this approach, the University supports a range of key research centres and groupings. To ensure our research is practical and informed, our research centres include participation from industry or international experts.

### *Research Centres*

#### **ARC Special Research Centre for Applied Philosophy and Public Ethics**

The Centre for Applied Philosophy and Public Ethics constitutes the largest concentration of philosophers working on applied philosophy and public ethics in Australia, and one of the largest such concentrations internationally. The largest centre of its kind in the world, the Centre is a national special research centre that brings together the strengths of Charles Sturt University, the University of Melbourne and the Australian National University. Research areas are criminal justice ethics, business and professional ethics, computer ethics and the ethics of nanotechnology, biotechnology, welfare and political violence.

[www.cappe.edu.au](http://www.cappe.edu.au)

#### **ARC Special Research Centre of Excellence in Policing and Security**

The Australian Research Council Centre of Excellence in Policing and Security aims to achieve excellence in policing and security research to drive local and global policy and practice reform strengthening the security and wellbeing of Australia.

[www.griffith.edu.au/arts-languages-criminology/centre-excellence-policing-security](http://www.griffith.edu.au/arts-languages-criminology/centre-excellence-policing-security)

#### **International Centre of Water for Food Security**

The Centre is an international centre for excellence in strategic research, smart technologies and applied training in integrated water resources management to secure and improve food production, environmental sustainability and communities' well-being through advanced research, enhanced technical and scientific cooperation, and knowledge transfer in related topics at both regional and international levels. The Centre is the Australasian host of the UNESCO's Hydrology for the Environment, Life and Policy (HELP) initiative under the International Hydrology Program (IHP). [www.icwater.org](http://www.icwater.org)

## **Institute for Land, Water and Society**

The Institute is an internationally recognised provider of integrated research that contributes to enhanced social and environmental sustainability in rural and regional areas. The Institute combines the expertise of over 100

environmental scientists, hydrologists, social researchers and economists, plus 80 PhD students to address critical sustainability issues in inland Australia. The five research themes are; Ecology and Biodiversity; Economics and Regional Development; Human Dimensions of Environmental Management; Rural and Social Research, Water Systems and an emerging theme of Arts Culture and Communications. [www.csu.edu.au/research/ilws](http://www.csu.edu.au/research/ilws)

## **EH Graham Centre for Agricultural Innovation**

The Centre is developing innovations for profitable and sustainable agricultural systems through integrated and collaborative research, extension, education and training, and is speeding up the delivery of new information to land managers. The EH Graham Centre for Agricultural Innovation has an international reputation as a centre of excellence for integrated agricultural research and extension in mixed farming systems.

[www.csu.edu.au/research/grahamcentre](http://www.csu.edu.au/research/grahamcentre)

## **National Wine and Grape Industry Centre**

The National Centre undertakes research which contributes to the sustainability of grape and wine production across NSW's wine production areas and across Australia. The Centre is composed of teaching and research staff from the University, NSW Department of Primary Industries and NSW Wine Industry Association. Its key research themes represent the areas identified by the wine industry in its analysis of research and development needs.

[www.csu.edu.au/nwgic](http://www.csu.edu.au/nwgic)

## **Centre for Public and Contextual Theology**

This research group breaks new ground in the theological scene in Australia. Traditionally, theology has been undertaken within an ecclesiastical environment, which can narrow its scope and not account for wider contexts. The focus of this group is the concern for questions and issues relevant in contemporary society, placed within the Australian setting. Public theology needs be concerned with the engagement, via dialogue, of faith tradition with wider social and intellectual concerns of the day. Contextual theology in Australia must take account of our pluralist, multicultural society, in order to remain relevant to our diverse population, across the scope of our wide land. The context created by Aboriginal settlement, colonisation and progress to nationhood provides a perspective which influences the various strands of theology, to provide a unique resource for the tasks of theology today.

[www.csu.edu.au/faculty/arts/theology/pact](http://www.csu.edu.au/faculty/arts/theology/pact)

## **Research Institute for Professional Practice, Learning and Education**

The Centre focuses on understanding and developing professional practice in a range of professions including education, occupational therapy, speech pathology, nursing, accountancy,

management and other professions. Researchers are working on problems including attracting and retaining professionals in rural and regional Australia and responding to increased diversity in the professions through initial and continuing education and research.

[www.csu.edu.au/research/ripple](http://www.csu.edu.au/research/ripple)

### **Centre for Research in Complex Systems**

The Centre for Research in Complex Systems carries out world-class research in complex systems theory and applications. The many projects in the group cover a range of themes in different ways, from fundamental analysis of cellular automata to virtual environments.

[silica.csu.edu.au/CRICS/](http://silica.csu.edu.au/CRICS/)

### **Centre for Inland Health**

The Centre for Inland Health co-ordinates cooperative research and development programs designed to examine and address the priority health issues and concerns of inland Australian communities. The programs are conducted cooperatively by alliances of University teams and teams from external organisations, including health service providers. Collaborative research teams are currently working in the areas of: rural mental health; dentistry and oral health; heart and lung health and fitness; cancer; muscle, bone and joint health; vulnerable families; ageing; health services and workforce, and, health promotion.

[www.csu.edu.au/special/inland-health/](http://www.csu.edu.au/special/inland-health/)

### *Cooperative Research Centres*

### **Cooperative Research Centre for Future Farm Industries**

The Centre is a unique co-investment between meat, grains and wool industry research corporations, the Landmark agribusiness company, and the combined research power of CSIRO, six state agencies and four universities, including Charles Sturt University. The aim of the CRC is to transform agricultural systems across southern Australia by developing Profitable Perennials™, and applying perennial plant technologies to innovative farming systems that increase productivity of existing livestock and grain industries, develop new regional industries through investment, reduce the risk of natural resource degradation, including dryland salinity, and improve conservation of biodiversity and water resources.

[www.futurefarmcrc.com.au](http://www.futurefarmcrc.com.au)

### **Cooperative Research Centre for Irrigation Futures**

The Centre's mission is to facilitate cooperative research and training networks and programs which continuously improve irrigation policy, tools, practices and processes to double irrigation water use efficiency, improve profitability for commercial irrigation, protect soil and water condition and the dependent ecosystems. Charles Sturt University is a program leader for the System Harmonisation and Regional Irrigation Business Partnerships. The System Harmonisation Program aims to develop strategies to improve cross-organisational communication and system-wide management while improving production and environmental outcomes.

[www.irrigationfutures.org.au](http://www.irrigationfutures.org.au)

### **Cooperative Research Centre for Spatial Information**

The Centre works to develop the concept of a Virtual Australia, uniting research and commercial innovation in spatial information. The Centre will harness Australia's recognised research and commercialisation strengths in spatial information technologies to create new opportunities and increased prosperity for all Australians.

[www.crcsi.com.au](http://www.crcsi.com.au)

### **Cooperative Research Centre for Plant Biosecurity**

The CRC Plant Biosecurity's vision is to be a world leader in the generation, development and delivery of plant biosecurity science and education. The mission is to foster scientific collaboration and engage stakeholders to deliver plant biosecurity technologies that will reduce risk to, and ensure sustainability of, Australia's plant industries.

[www.crcplantbiosecurity.com.au/index.php](http://www.crcplantbiosecurity.com.au/index.php)

### **Cooperative Research Centre for Pork**

Charles Sturt University is a supporting participant in the Centre. The Centre aims to enhance the international competitiveness of the Australian pork industry by providing and adopting new and novel technologies that reduce feed costs, improve herd feed conversion efficiency and increase the range and functionality of pork products. The Centre is focussed on breakthroughs in pig and plant biology to advance knowledge and facilitate the development of technological innovations for the pork industry.

[www.porkcrc.com.au/html/about\\_us.html](http://www.porkcrc.com.au/html/about_us.html)

### **Cooperative Research Centre for Cotton Catchment Communities**

The Centre undertakes collaborative research, education and commercialisation activities to provide innovative knowledge that is adopted for the benefit of the Australian cotton industry, regional communities and the nation. [www.cotton.pi.csiro.au](http://www.cotton.pi.csiro.au)



## REFERENCES

Mowrey, D., & Sampat, B. (2003) Universities in national innovation systems, Presentation to the Globlincs Academy downloaded from

[http://www.globelicsacademy.net/pdf/DavidMowery\\_1.pdf](http://www.globelicsacademy.net/pdf/DavidMowery_1.pdf)