

THE HOUSE OF REPRESENTATIVES INDUSTRY, SCIENCE AND INNOVATION  
COMMITTEE

**Inquiry into research training and research workforce issues in  
Australian universities**

**SUBMISSION BY**

The Australian Society for Microbiology  
(ASM)

**30 May 2008**

## **BACKGROUND**

This submission from the Australian Society for Microbiology (ASM)<sup>1</sup> responds to the terms of reference of the House of Representatives Standing Committee on Industry, Science and Innovation inquiry into research training and research workforce issues in Australian universities.

The Committee invited interested persons and organisations to make submissions addressing the terms of reference by Friday 30 May 2008.

## **TERMS OF REFERENCE**

The Committee's Terms of Reference were:

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

The Committee will inquire into 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.

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.

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<sup>1</sup> The Australian Society for Microbiology (ASM) was formed in 1959 as a learned society devoted to furthering the science of microbiology. The ASM became an incorporated professional society in 1976 and now has a membership of around 3,000.

## **RESPONSE SUMMARY**

The main objective of the ASM is to advance the science of microbiology in Australia.

The ASM recognises the critical importance of research training in advancing knowledge and innovation in Australia and globally and thanks the Minister for the opportunity to respond to the inquiry into research training and research workforce issues in Australian universities.

The ASM recommends that consideration be given to:

- Providing structures and funding schemes that will enable career length support for those who wish to maintain a research only career.
- The appropriate amount and mix of funding for discovery versus hypothesis led and basic versus applied research. This would include schemes that enable researcher led collaborative, cross disciplinary and cross sector research programs.
- Providing adequate funding at all levels. This would include provision for fully funded research staff positions and postgraduate research stipends of suitable duration.

## **SPECIFIC COMMENTS**

### **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;

Research students are highly motivated and productive and their work contributes significantly to the research outputs and outcomes of universities in Australia.

The work of research students produces commercial outcomes, exportable products and knowledge and significant innovations in human and animal health.

- The effectiveness of current Commonwealth research training schemes;

In many disciplines the funded period of PhD candidature is insufficient to allow completion of a thesis of a caliber suitable for examination. Postgraduates often need to work to supplement their stipends, or indeed to support themselves entirely, and this can result in extended periods to completion, or failure to complete.

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

In many cases, research training receives substantial cross-subsidisation from other sources including research grants and student fees. The range of disciplines providing research training will be dependent on the ability of those disciplines to source supplementary funding.

Specifically, there is little support for training in antimicrobial resistance management and insufficient funding of community based research aimed at developing and assessing intervention programs.

### **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 available to research graduate students in Australia;

On the whole, research training in Australia is excellent, providing graduates and staff with generic and highly transferable skills. As a result, high quality research graduates and staff can, and do, pursue careers outside research.

The quality of postgraduate supervision is, arguably, the most significant factor determining success in research training. Attracting and retaining research staff willing and able to provide that supervision is essential.

The majority of research training is provided by mid career researchers who are operating in a climate of uncertainty with inadequate career pathways and poor remuneration. Inability to retain these researchers will inevitably lead to reduced training and support for research graduate students.

Funding from industry for research training is cyclical and, in disciplines like agriculture, currently being heavily impacted by the drought. Industry funding generally represents a relatively short term investment and tends to target applied research.

- Factors for graduates that determine pursuit of a career in research;

In research, early career choices are often influenced by interest and idealism rather than financial reward. Later, career choices come under the influence of the relentless quest for funds and it is that which is often cited as the principal deterrent to pursuit of a career in research. National under resourcing of science has two negative outcomes. The first of these is the termination of research careers to pursue other more lucratively resourced and better paid endeavours. The second of these is recruitment overseas to countries where research is more highly valued and better remunerated.

Key to successful and rewarding research is the ability to associate and collaborate successfully, often across disciplines and between sectors. Funds, such as those made available through ARC/NHMRC special research initiatives, directed at the establishment of researcher led networks should be made available on a regular basis.

- Opportunities for career advancement for research graduates and staff;

For those who wish to stay in research only positions, mid-career development is problematic. The recently announced Future Fellows scheme goes some way to addressing this issue and is to be commended for encouraging collaborative research aligned, and presumably strongly supported by host institutions.

Specifically, there is a need for greater breadth on ARC grant review panels to allow proper assessment of microbiology based grants.

- Factors determining pursuit of research opportunities overseas;

Beyond the post-doctoral level, overseas research structures and funding are seen to offer more career certainty through provision of more funds and greater breadth of research.

- Australia's ability to compete internationally for high quality researchers;

According to a recent UNESCO report<sup>2</sup> Australia spent 1.8% of GDP on R&D compared with 2% in the United States and 2% to 3% in many European and East Asian countries.

The amount and balance of funding for discovery versus hypothesis driven and basic versus applied research needs to be reconsidered to provide opportunities for long term, strategic research that will be attractive to high quality researchers.

- Whether Australia's academic workforce is ageing, and its impact on research capacity.

Irrespective of age, inadequate career pathways and prospects mean there is a decline in the number and quality of people pursuing research careers.

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<sup>2</sup> UNESCO Institute for Statistics, *A global perspective on research and development. October 2007*  
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