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This is a submission to the Standing Committee on Industry, Science and Innovation in relation to their inquiry concerning research training and research workforce issues in Australian universities:

Summary

Australian universities make a significant contribution to research especially through research training schemes. The schemes could benefit from more academic support, longer duration (5 years instead of 3) and more opportunities for Australian research graduates to increase uptake of the scheme by Australians. There are not enough Australian graduates to meet Australia's current and future requirements. Many are sourced from overseas and come to improve their standard of living rather than for career reasons. Research opportunities are greater overseas and research working conditions in terms of support and career advancement are generally poor in Australia. If Australia wishes to compete internationally then it will need to address these deficiencies.

Comments in relation to terms of reference of the inquiry:

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;

My experience is that these programs are drivers of discovery and innovation. A contemporary PhD student, Dr Lee Berger, discovered the cause of enigmatic global amphibian declines, a spreading disease, chytridiomycosis, caused by an aquatic fungus. This work was published in the Proceedings of the National Academy of Sciences and Lee received the CSIRO and Ian Clunies Ross medals for her work. Many other students make significant advancements in knowledge that will eventually lead to similar breakthroughs.

- The effectiveness of current Commonwealth research training schemes; and

There is not enough academic support for research students. Whilst research student load is supposed to be taken into account when determining academic workloads, the reality is that it is not. This appears to be because income from research students is a very small proportion of university school budgets. In an increasingly economic rationalist environment in universities, academics are expected to devote their time to things that earn a steady income such as teaching undergraduates.

Current PhD training schemes are too short. Three years is generally not adequate to conduct a literature review, obtain scientific and ethics permits, obtain project funding, develop methods, conduct significant and innovative research, develop general technical expertise in the field, engage in academic life such as teaching, supervision, grant and report writing and debate, write a thesis and write papers for publication. Most students now must have done significant preliminary work and forego developing technical expertise in the field and engagement with academic life. In contrast the duration of PhD degrees in the USA is approximately five years and includes significant course work to ensure technical expertise, significant teaching responsibilities and academic engagement through activities such as seminar series run by the students.

I have difficulty finding Australian students who wish to undertake a research training degree despite the availability of an industry level (\$25000 tax free) scholarship and significant project funding. Of my current eight PhD students at James Cook University only one is Australian. Other academics have also experienced this difficulty recently. The most common theory is that there are few research opportunities in Australia for people with higher degrees whereas there are opportunities overseas. Overseas students are happy to return overseas to pursue a research career whereas Australians generally do not wish to leave their family, friends and Australian life style.

- 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 my field of veterinary science I have generally observed few veterinarians pursuing higher degrees over the past 10 years. This has been highlighted by the recent difficulty in finding people to fill academic positions at new veterinary schools.

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;

Of the cohort of PhD students including me at the Veterinary School at the University of Melbourne in the mid 1990s most moved overseas to pursue our research careers as there were few jobs in Australia. Some are still overseas. Of my recent and current research students, most will go overseas once they graduate to obtain research positions. Most of my graduates that remain in Australia will take up non research positions.

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

Most appear to be personal such as a love of knowledge, need to solve problems and a commitment to making the world a better place. Graduates often state it is not because of the remuneration, opportunities or job security. People like the work time flexibility and independence of a research position.

- Opportunities for career advancement for research graduates and staff;

The short term funding cycle and fixed term contracts of research staff make career advancement a low priority. Most effort is directed in obtaining ongoing funding or finding their next job. Often staff are employed at levels below their capability or duties but accept this rather than the alternative of giving up their research career. Often research staff are not consulted in decision making within universities. Research staff often do not receive training support or any discretionary budget allocation to use in furthering their career such as attending conferences. All support must be found from external funding.

- Factors determining pursuit of research opportunities overseas;

In my area of interest, wildlife health, there were no research jobs in Australia after I graduated with my PhD. I was able to obtain a research associate position with the University of Wisconsin and the National Wildlife Health Center (the peak wildlife health research institute internationally) in Madison, Wisconsin and conduct field work in Alaska.

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

I returned to Australia to raise my children and be close to my family. I was able to return in 2003 to Australia to take up an academic position which involved a large amount of teaching. Despite this my research career continued to prosper and I needed to resign in 2007 and take up a fixed term research position to meet my research commitments. Despite my research success, my future is uncertain as the funding cycle is generally

three years. It is possible that I will return overseas to pursue my research career once my children are older given the current lack of permanent positions in Australia.

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

I am a senior person in my research field even though I am only 37. This reflects general lack of support for this research field and retirement or death of my mentors. In contrast Australia's research needs in this area are growing due to emerging diseases of wildlife such as AIDS, SARS, avian influenza, chytridiomycosis and Tasmanian devil facial tumour disease.

Yours sincerely

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