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Senator Gavin Marshall
Chair
Senate Standing Committee on Education, Employment and Workplace Relations
Department of the Senate
Parliament House
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Dear Senator Marshall

Inquiry into the Effects of Climate Change on Training and Employment Needs

Universities Australia welcomes the opportunity to make this brief submission to the Senate Inquiry into the Effects of Climate Change on Training and Employment Needs. Universities Australia promotes the value and widespread benefits of higher education for the nation's 'triple bottom line': economic progress, social understanding and ecological sustainability.

Australia's university academics already play a leading role in Australia's engagement with the problem of climate change, whether as members of the International Panel on Climate Change; through 'expert ginger groups' such as the Wentworth Group of Concerned Scientists; as authors of reports such as the Garnaut Climate Change Review Draft Report (June 2008) addressing global warming; or undertaking research into viable geo-sequestration, renewable energy and the social and economic effects of climate change.

In addition to such research and engagement contributions by universities, there are a number of aspects to university teaching programs too that are absolutely central to meeting future skills needs to address climate change. They include:

- specific degrees (particularly at the postgraduate coursework level) with a focus on climate change mitigation and/or adaptation;
- course units and course material in wider degrees addressing climate change related subjects;
- higher degree by research students undertaking their research training on topics concerned with climate change; and
- non-award teaching related to climate change, for example, professional development courses or public lectures.

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Undergraduate and postgraduate coursework degrees

In relation to degree courses in Australia with a specific climate change focus in their degree title, the University of Adelaide offers a Master of Applied Projects Management in Climate Change which combines study of business, finance and accounting with topics on the management of carbon pollution. The University of the Sunshine Coast has recently introduced an intensive mode Master of Climate Change Adaptation which combines specific units in climate change theory and practice with a broader range of environmental management topics.

A number of postgraduate degrees are offered in environmental management that allow students to undertake significant specified study streams related to climate change. For example, students may undertake a climate change specialisation within the Master of Environmental Management and Development at the Australian National University, with units in climatology and greenhouse policy in addition to core environmental management units. Similar options are offered at the University of New South Wales, the University of Newcastle and the University of South Australia.

It is also the case that generalist degrees in Science, Engineering, Economics and other disciplines are increasingly including some study of climate change as such within their curricula. For example, Swinburne University of Technology offers a unit on 'Climate Change' in its Bachelor of Engineering degree, while the Master of Science at Murdoch University offers an elective in "Greenhouse Science and Policy'. The University of Melbourne offers an 'Introduction to Climate Change' unit as part of its new 'Melbourne model' of broad undergraduate teaching.

Naturally, numerous subjects include climate change in various ways not necessarily reflected in a specific title using that designation, e.g. as a component, topic, application, or illustration. This is common for many issues of policy significance, so the perspective brought by a discipline, e.g. whether law, management, geology or chemistry, can be appreciated for a range of current pertinent and significant issues, as part of the general training of graduates in a wide range of studies.

As a general principle, rather than specialising to a high degree in climate change at the undergraduate level, there is merit in students establishing a broad disciplinary foundation in one of these disciplines first, understanding their robustness and potential for the world's many changing challenges, and then applying these skills through specialised postgraduate study and/or workplace training in climate change. However, some exposure to the fundamentals of climate change science and policy will clearly be important for graduates proceeding to a wide range of occupations in research, business, the professions and public policy.

Undergraduate and postgraduate coursework degrees are strongly demand driven. Over time, university course offerings and student demand are well matched, and should there be significant additional demand for studies related to climate change, universities may be expected to expand their offerings in this area. A useful analogy is the increased focus given to courses available in the study of security-related issues in the years following September 11, 2001. Responsiveness to demand can be particularly observed in fee-paying postgraduate coursework courses, which have more flexibility than Commonwealth-supported undergraduate courses. But even here the fact that Commonwealth doctoral funding does not fully cover the cost of a place nor provide a reasonable level of income support for postgraduate students (less than the poverty line), responsiveness to new and changing problems through research training can be less than is desirable for the national interest.

In the case of undergraduate degrees, the similar fact that the sector has been almost uniquely under-funded over the course of the last decade compared to other OECD countries, has affected the capacity of universities to provide innovative course offerings that respond to new national priorities such as climate change. As the funding of Commonwealth-supported places does not meet the full cost of those places

universities must make decisions concerning how to find sources of cross-subsidy to support availability of such courses. One such source has in the past been international students, but there is clear research evidence that as capacity has been taken up fully this is no longer feasible in most universities, quite apart from issues of fairness. Similarly, large undergraduate classes in traditional compulsory subjects can cross-subsidise new specialised initiatives. But again there is a serious price being paid by the students in those large classes, as Australian student-staff ratios have climbed to amongst the highest in the OECD. This in turn challenges the sustainability of international student growth.

There is detailed material on the wider consequences of under-funding higher education for Australia's national progress in the Universities Australia submission to the Review of Australian Higher Education, a copy of which I have attached for your information.

Higher degrees by research

The number of higher degree by research (primarily doctoral) students is critical to addressing Australia's skills needs in cutting-edge climate change research and innovation. The doctoral student intake is affected by student demand and by the level of university research activity in particular fields. The level of demand will to some extent increase naturally with the profile of the subject, but can be encouraged through creating appropriate pathways from undergraduate study.

A general increase in research scale and profile in the climate change area will naturally lead to an increase in higher degree by research candidature (e.g. through the offering of additional scholarships). However, the general university research income (block grants and competitive grants) is already stretched; and it is unlikely that the existing competitive grants system would be able either to absorb significant new initiatives or lead to many more postgraduates undertaking studies in the climate change area.

One solution would be to create special purpose grants directed at advancing knowledge on climate change, as it is uncertain to what extent the additional \$1.15 billion in the May 2008 Federal Budget in this area will open up opportunities in research training. The recently released Garnaut Report suggested an indicative figure of \$2.8 billion per annum would be more appropriate. However, it is clear in the light of the points made above regarding funding that the best guarantee of responsiveness is full-cost funding provided for expanded activity in national priority areas of teaching and research. The key point there is full-cost funding, as the overhead core of university capabilities has been performing brilliantly in supporting new endeavours wherever possible, but is at risk of being run down and over-stretched as indexation of core grants has been well behind costs and comparable activities, whether private school funding or CSIRO research.

Universities are at the centre of solutions to the problems of our globe, and investment in universities has a high payoff, short and long-term. This should be well-recognised in national responses through appropriate policies in relation to the climate change challenge.

Please do not hesitate to contact me for further clarification.

Yours sincerely



Professor Richard Larkins AO
Chair

Attachment: Universities Australia submission to the Review of Australian Higher Education (July 2008)