



THE UNIVERSITY OF  
**SYDNEY**

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Ms Maria Vamvakinou MP  
Chair  
House of Representatives Standing Committee on Industry, Science and Innovation  
PO Box 6021  
Parliament House  
Canberra ACT 2600

Dear Ms Vamvakinou,

The University of Sydney is pleased to make the attached submission to the House of Representatives Standing Committee on Industry, Science and Innovation's inquiry into Australia's international research collaborations.

The case for ensuring that Australia's public research organisations and businesses are able to engage effectively in international collaborations was made forcefully in the 2008 *venturousaustralia* review of the national innovation system, and in *Powering Ideas* – the Australian Government's response to that review and others.

The Government has taken a number of important initial steps to make our research system more outward looking and internationally engaged, and this inquiry provides a welcome opportunity to take stock of the current situation – with a view to developing a more strategic and coordinated approach to Australia's involvement in international research collaborations.

We see room for substantial improvements to be made in the way that Australia engages in international research collaborations through governments, businesses and universities and other publicly funded research organisations working more closely together to provide a framework, information and processes designed to make collaboration as easy as possible – as well as a routine and expected part of Australia's overall approach to research.

The University of Sydney would be happy to provide further information to the Committee as required.

Yours sincerely

Michael Spence

## **University of Sydney submission to the House of Representatives Standing Committee on Industry, Science and Innovation's Inquiry into Australian International Research Collaborations, January 2010**

### **1. The nature and extent of existing international research collaborations**

In 2008 some 32 per cent of the University of Sydney's 5691 academic publications were co-authored with one or more collaborators from outside Australia, while around 20 per cent of our postgraduate by research students and 23 per cent of all students were drawn from some 130 countries. During 2008 our researchers published with colleagues in some 85 countries, with the United States, the United Kingdom, China, Canada, Germany, France, Japan, New Zealand, Italy and the Netherlands representing the top ten countries our researchers collaborated with – as indicated by the total numbers of publications co-authored with researchers from each country.

We are involved in several research programs funded by the United States National Institutes of Health and the European Union that involve multi-national collaboration, particularly in health and medical research, but also in the physical sciences. We have extensive research linkages with leading international universities throughout the world through our membership of three major international network groups – the Academic Consortium 21 (AC21), the Association of Pacific Rim Universities (APRU) and the Worldwide Universities Network (WUN). These networks give universities that share common goals in major global research challenges the capacity to build mobility and communication using state of the art global conferencing and video link technologies, and provide a platform for connecting leading researchers and educators through contact groups and the resulting research programs that would not otherwise happen.

We will shortly host a node of the renowned European Molecular Biology Laboratory (EMBL) as an important part of a major research and teaching initiative focused on obesity, diabetes and cardiovascular disease. We also plan to play a leading role in Australia's involvement in the Square Kilometre Array (SKA). Through internal schemes such as our International Development Program Fund, we are pursuing strategies to increase international engagement throughout our teaching, research and outreach activities.<sup>1</sup> We particularly encourage our researchers to pursue multilateral partnerships, as well as collaborations that incorporate a research mobility component for postgraduate research students and early career researchers. Furthermore, we encourage international research leaders to come to Sydney to collaborate with our staff by offering around 50 international visiting research fellowships each year for visits of up to 10 weeks.

The University has established substantial international research networks with most of the world's top 100 universities. These linkages are reviewed annually against criteria that include

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<sup>1</sup> University of Sydney International Development Fund  
[http://www.usyd.edu.au/international/documents/2010\\_IPDF\\_Guidelines.pdf](http://www.usyd.edu.au/international/documents/2010_IPDF_Guidelines.pdf)



national research priorities; our own strategic priorities; the quality and sustainability of the partnership; and the potential for the attraction of short and long term resources. While we are already highly internationally connected in our research and teaching, we recognise that we can only achieve our goal of being a world centre for scholarship, research and education by embedding internationalisation at the core of all of our activities.

It is difficult to pinpoint the full extent of Australia's existing international research collaborations at all levels for a variety of reasons. At a national level, unlike for Australia's international bilateral and multilateral agreements on trade and investment, for example, there is no single Government Minister and supporting agency responsible for the negotiation, oversight, coordination, implementation and review of our formal international research agreements.<sup>2</sup> Responsibility for Australia's research engagement is distributed widely across many Government departments and agencies. Similarly, at the State and Territory level it is not always clear that there is effective coordination with Federal departments and agencies with overlapping interests and responsibilities for research. At the University level, while good information generally exists about collaborations occurring under formal agreements with other institutions, the 'bottom up' and informal nature of much research collaboration, the sheer scale of the activity in large institutions, the wide variety and short-term nature of most funding for research, and the constant turnover of research staff and students, all provide challenges for institutions in terms of keeping data current and linkages intact. At the business level, organisations are sometimes reluctant to share information about international research collaborations for commercial or other reasons.

The international research and education framework is a dynamic one, and includes rapid developments in response to major international events such as the global financial crisis and the responses to it from the US, UK, Europe and Asia, pandemics, terrorism and natural disasters. All of the leading 100 research universities in the world are increasing their international activities in research and in competition for the best staff and students. This increasing competition will directly affect Australia's attraction of talent and research leaders over the next 10 years. It will also affect the retention of Australian talent.

## **2. The benefits to Australia from engaging in international research collaborations**

In *Powering Ideas* the Australian Government set the core goal of progressively increasing the number of our research groups performing at world-class levels, as measured by international performance benchmarks.<sup>3</sup> This goal will not be achieved unless our research organisations and researchers are entrenched firmly within global research networks and *Powering Ideas* recognises this by including increased international research collaboration as one of the Government's seven national innovation priorities.<sup>4</sup>

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<sup>2</sup> <http://www.austrade.gov.au/Free-Trade-Agreements/default.aspx>

<sup>3</sup> *Powering Ideas*, p.5.

<sup>4</sup> *Powering Ideas*, p.4

As a relatively small and geographically isolated nation, responsible for only a fraction of global R&D investment and output, it is vital that Australia's research system is embedded within the global system. Participation in international research collaborations enables our researchers to access specialist research facilities that are beyond our capacity, or beyond the capacity of any individual nation to provide on its own. It increases the impacts of our research by providing broader avenues for the dissemination of research findings as demonstrated by higher citation rates in some fields.<sup>5</sup> It provides our researchers with the linkages and networks that are essential in order to achieve success in international funding schemes. It ensures that our researchers, governments and businesses have early access to the vast majority of advances in new knowledge and technological innovation that occurs elsewhere – enabling them to apply this knowledge and understanding in an Australian context. In an environment where global competition for the best researchers, educators and research students is intense and looks certain to increase, the personal contacts formed by researchers and students through active participation in international research networks improves our ability to identify and attract top talent to Australia – thus contributing to our long-term national and international competitiveness. Further, publication in internationally peer reviewed journals with colleagues from key institutions in the US and the UK also increases not only our citations, but ultimately contributes to the international ranking of Australian universities. For better or for worse, international league tables of universities are now an entrenched part of the system, influencing decisions by governments, businesses, researchers and students.

Perhaps most importantly, active participation in international research collaborations raises our international standing as an open and engaged, advanced research nation, willing to contribute its fair share of resources and expertise to address global challenges. It also serves to foster friendly relations and understanding between individuals and nations. In this regard the University of Sydney is committed to working in partnership with the Australian Government to promote research and education diplomacy, in line with the Government's ambition for the future as a middle power with links globally and especially in Asia.

- 3. The key drivers of international research collaboration at the government, institutional and research level &**
- 4. The impediments faced by Australian researchers when initiating and participating in international research collaborations and practical measures for addressing these**

The drivers of international research collaboration at the Government level should align with the practical needs of research organisations and researchers, the key benefits that result from international collaborations such as those outlined above, and agreed national strategic research and innovation priorities. In the absence of such a framework, government decisions appear sometimes to have been driven more by the diplomatic imperatives of the day, rather

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<sup>5</sup> FEAST (March 2009), [A Bibliometric Analysis of Australia's International Research Collaboration in Science and Technology: Analytical Methods and Initial Findings](#)



than by close consideration of the approaches that are most likely to achieve desired outcomes, or of how well specific proposals under consideration fit with other programs and the research system more broadly. Over time, this has resulted in the establishment of various small schemes, administered by different agencies for different purposes – each with its own processes and selection criteria, which often involve high transaction costs and lengthy delays for applicants, with questionable sustainability. It has led to governments often reacting to opportunities as they arise, rather than being in a position to seek out proactively those intergovernmental opportunities that align best with national and disciplinary priorities. It has also led, on occasion, to some confusion about which Minister, department or agency is responsible for coordinating the Government's consideration of specific opportunities for international research collaborations that can proceed only with the approval and active involvement of the Australian Government.

At the institutional level, the overriding impediment to international research collaboration is access to funds to support such activities for both researchers and research students. The longstanding shortfall in the capacity of competitive and block funds combined to meet the direct and indirect costs of core research activities has made it difficult for Australian universities to provide the resources required to support international collaborations at optimum levels. The introduction of measures such as the Sustainable Research Excellence (SRE) initiative to meet more of the indirect costs of research, improved indexation of block grants and the prospect of performance funding through the proposed compact arrangements will have a positive impact on overall institutional capacity, but this will take time.

Immigration and visa requirements for incoming researchers and students sometimes also serve to impede collaboration in some instances. For example, the Department of Immigration and Citizenship's recently introduced rules on sponsorship for visits of more than 90 days are quite burdensome, time consuming and require host institutions to pay a fee, while recent changes to the skilled migration laws have also impacted on international students with Australian doctoral degrees, who now face longer waiting times and stricter rules for permanent residency applications following graduation. While tighter rules and regulation of providers to protect against exploitative practices and ensure quality is supported, this should not come at the expense of making Australia a less attractive destination for high quality international students who have so much to offer the Australian research system and the economy more broadly. Further, relatively simple changes such as ensuring that international students are entitled to the same public transport and other concessions as their domestic counterparts can influence perceptions about Australia as a potential study destination.

## **5. Principles and strategies for supporting international research engagement**

The Australian Government has started to articulate new policy principles that have the potential to substantially improve our national research capacity, as well as the way that Australian university researchers engage with their colleagues overseas. It has done this by, for example, moving to open all Australian Research Council Fellowship schemes and Linkage

Australian Postgraduate Award (Industry) (APA(I)) scholarships to international candidates who apply through eligible Australian institutions, and by making a raft of other internationalising changes to the rules of key ARC schemes designed to encourage and support international collaborations. There will always be a need for specific funding initiatives to, for example, foster collaboration with countries that prefer bilateral agreements, enable Australia to join major international research projects, or provide researchers with access to major international research facilities located overseas. Nevertheless, as a general policy principle, embedding the costs associated with international collaboration as allowable expenses within core competitive funding programs is sound, as it provides researchers and institutions with certainty and reduces the transaction costs associated with sourcing supplementary funding from a myriad of smaller schemes.

Based on the above observations the following principles and strategies for supporting and enhancing Australia's research engagement are offered for consideration by the Committee:

- 5.1 Continue to internationalise all Federal funding schemes.** Continue to progressively open up all Federal schemes for research fellowships, higher degree by research scholarships and project grants to international candidates who apply through, or to, an eligible Australian institution. For example, consideration should be given to allowing Commonwealth funding and research partner contributions to meet the tuition costs of international postgraduate research students in receipt of Australian scholarships such as the APA(I)s. The current prohibition on meeting student fees from such sources has diluted the effectiveness and reduced the impact of opening up the APA(I) scheme to the best international candidates. Steps should also be taken to ensure that all Commonwealth competitive schemes (ARC, NHMRC and others) designed to support research projects have internationalisation objectives and include funding to cover the reasonable costs associated with supporting international collaboration.
- 5.2 Enhance researcher mobility.** Ensure our immigration and visa requirements for both short and longer-term visits by international researchers promote rather than impede researcher mobility. This may include the active pursuit of agreements with other countries to facilitate the movement of researchers and research students.
- 5.3 Attract more high quality international research students.** Scholarship support to attract the highest quality international students to study in Australia rather than in leading institutions in North America or Europe is comparatively limited and of questionable competitiveness. The main Government scheme - the International Postgraduate Research Scholarship Scheme (IPRS) - provides 330 new tuition cost only scholarships a year nationally and has provided around this many scholarships for more than decade. In 2009 the University received an allocation of 30 IPRS scholarships with all successful



candidates ranked in the top 30 per cent of all scholarship recipients (domestic and international). The quality of applicants for the IPRS awards is generally exceptional and demand is consistently strong despite the fact that unlike the major schemes for domestic candidates, IPRS scholarships do not cover student living costs. The IPRS underwent a departmental evaluation in 2009 to examine, among other things, whether the scheme should be integrated and aligned with the main scheme for Australian research students – the Australian Postgraduate Award (APA) scheme - which could then be opened up to international candidates as a single scheme. In an era when domestic demand for postgraduate research studies can be fickle due to changes in economic conditions and the relative attractiveness of research careers in some disciplines, the international market for students represents an opportunity for Australia to attract the highest quality candidates to our research institutions. The University encourages the Review to engage with the Department of Innovation, Industry, Science and Research regarding its evaluation of the IPRS and would be likely to support any recommendations designed to enhance access by the highest quality students, regardless of their nationality.

- 5.4 Enhance mobility for Australian research students.** Many Australian postgraduate research students are currently disadvantaged in their ability to build international research connections because of difficulties they face in having an international experience as part of their studies. This is often due to the tight timeframes and funding constraints Australian research students face compared to their colleagues in many leading international research universities. In addition to progressively opening up Australia's postgraduate research scholarship scheme to high quality international research students, consideration should be given to supporting an optional international research experience of at least six months for holders of Australian Postgraduate Awards. This may require a six month extension to the maximum length of scholarship support available, along with some additional funding to cover travel and other reasonable costs associated with such placements. Funding mobility placements is bilaterally beneficial to both the host organisation based overseas and the home institution and can encourage future collaboration.
- 5.5 Establish a new Australian International Research Fund.** Such a fund would provide seed funding, on top of existing competitive resources, to enable Australian participation in major international research and infrastructure programs of strategic value to Australia. The strategies of the European Union which link mobility, migration, future workplace needs, innovation and cultural engagement present a framework that could be drawn upon in an Australian context. There are examples of Australian involvement in such partnerships (eg. EMBL and SKA) but there are many other strategic opportunities Australia could take advantage of if a dedicated fund existed.

Australian governments have tended to be wary of providing research funding support to international organisations, preferring to retain the funds and work bilaterally with countries. While this may provide for the more efficient allocation and control of funds, it also diminishes the engagement of Australia with international organisations on most pressing issues that require international cooperation. These arrangements need to be reviewed. In particular, relations with the EU, UN and development organisations could be managed through an Australian International Research Fund with criteria that include stringent requirements around quality and alignment with the national research and innovation priorities.

- 5.6 Make a single Minister responsible for international research collaboration at the intergovernmental level.** To enhance coordination and to minimise fragmentation and duplication of effort, a single Minister should be made responsible for all decisions about Australia's involvement in major intergovernmental research agreements and for the oversight and coordination of all Federal programs and activities in support of the internationalisation of Australia's research effort. Under the current administrative arrangements the Minister for Innovation, Industry, Science and Research would appear to be the most appropriate minister to assume this role.

A unit within the responsible Minister's department could then act as the key source of expertise and advice to all other Government departments, agencies and research organisations about Australia's international research strategies, priorities, agreements, programs, and processes. It could, for example, coordinate input on international research matters to the Prime Minister's Science, Engineering and Innovation Council, the Chief Scientist, the Coordinating Committee for Science and Technology and peak representative bodies. It could also work closely with all government departments (including Immigration & Citizenship), the research funding councils, universities and other research organisations, industry groups and our embassies to make high quality information available about relevant visa rules, intergovernmental agreements, programs, intellectual property opportunities, and the location of research expertise within Australia.

- 5.7 Promote international cotutelle arrangements and treat them more flexibly.** Currently, the Australian government views cotutelle (jointly-badged degree) students as having the status of exchange students and requires that for every one inbound student received by a university, the hosting university should endeavour to return one outbound student to the partner institution. For this reason, cotutelle agreements can only be established where reciprocity is likely, thereby limiting some potentially fruitful collaborations in emerging fields and countries. Cotutelle arrangements at the postgraduate research level provide enormous opportunities to enhance international



research linkages, particularly in countries where issues such as language proficiency sometimes make it difficult for Australian institutions to reciprocate.

**5.8 Explore technology options to support international collaboration.**

Australia's distance from the research hubs of North America and Europe has always made research collaboration relatively difficult and expensive. In a low carbon future and as fossil fuels are depleted, it is possible that air travel will become increasingly expensive and undesirable. Many innovative technological options already exist for facilitating international collaboration and it would be sensible for Australia to start thinking now about future technological options for supporting international research engagement in an environmentally sustainable way.

**5.9 Protect our reputation as a reliable partner in research.** Attention needs to be given also to building and maintaining short and long term relationships that provide our international partners with confidence that Australia can and will deliver in collaborative research. This depends on extending engagement well beyond relationships at the individual researcher level. The Australian Government is increasing its support to international alumni networks in some Asian countries but more could be done, for example, to build links between universities, university and business groupings, and public research agencies in different countries.

**5.10 Use mission-based compacts to drive international collaboration.** The Australian Government's proposed compact approach to the funding and performance monitoring of Australian universities should be used to reward those universities that improve their levels of engagement in international research collaborations.

Should the Committee require further information on any of the issues raised in this submission our Deputy Vice-Chancellor (Research), Professor Jill Trehwella and/or Deputy Vice-Chancellor (International), Professor John Hearn, would be happy to answer any questions the Committee may have.

January 2010