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Australia's International Research Collaboration

House of Representatives
Standing Committee on Industry, Science and Innovation

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Canberra

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Foreword

This Committee began the 42nd Parliament with an inquiry into research training and research workforce issues in Australian Universities, culminating with the report *Building Australia's Research Capacity*. This inquiry sought to build on the first research inquiry, focusing on our ability to engage in research at an international level. In particular, this inquiry examined the impediments to collaborating internationally and ways to address those impediments.

Several key issues were raised in a large number of submissions to the inquiry and these are examined in this report.

The International Science Linkages program was described as being of immense value to international collaboration, yet the program is said to be winding down and is not funded beyond June 2011. The Committee is seeking clarification on the status of the program and the implications for international engagement if it does indeed cease.

Visa issued were raised with the Committee. It is unfortunate and regrettable that problems with visa applications have prevented effective international collaboration. It is deeply embarrassing to our research institutions to have researchers suffer through immigration bureaucratic processes or, at worst, be refused entry to Australia.

Australian researchers are highly regarded around the world. The appointment of science counsellor positions in strategic locations around the world should strengthen our reputation as an effective research partner and promote the benefits of engagement with Australian researchers.

The Committee recognises that international collaboration is driven at the individual researcher level, through one-on-one contact, or engagement between research groups, schools or institutions. The Committee also recognises that we are indeed very distant from most of our research partners and that face-to-face collaboration is expensive. Rather than setting a particular direction or providing prescriptive guidelines on how to collaborate, the Australian Government should

continue to provide assistance to encourage and facilitate international collaboration.

It is hoped that the measures recommended in this report will help facilitate our continuing engagement in research at the international level.

Maria Vamvakinou MP
Chair

Membership of the Committee

Chair	Ms Maria Vamvakinou MP	
Deputy Chair	Hon Fran Bailey MP	
Members	Mr James Bidgood MP (until 22/10/09)	Hon Duncan Kerr SC MP (from 30/11/09)
	Mr Nick Champion MP	Mr Rowan Ramsey MP
	Mr Darren Cheeseman MP	Ms Amanda Rishworth MP
	Dr Dennis Jensen MP	Mr Mike Symon MP
	Mr Michael Johnson MP	

Committee Secretariat

Secretary	Mr Russell Chafer
Inquiry Secretary	Mr Anthony Overs
Senior Research Officer	Mr Shane Armstrong

Terms of reference

The House of Representatives Standing Committee on Industry, Science and Innovation shall inquire into and report on Australia's international research engagement, with particular reference to:

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

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

3. The key drivers of international research collaboration at the government, institutional and researcher levels.

4. The impediments faced by Australian researchers when initiating and participating in international research collaborations and practical measures for addressing these.

5. Principles and strategies for supporting international research engagement.

List of abbreviations

AARNet	Australia's Academic and Research Network
AAS	Australian Academy of Science
AATSE	Australian Academy of Technological Sciences and Engineering
ACIAR	Australian Centre for International Agricultural Research
ACU	Australian Catholic University
AINSE	Australian Institute of Nuclear Science and Engineering
AMSI	Australian Mathematical Sciences Institute
ANSTO	Australian Nuclear Science and Technology Organisation
ANU	Australian National University
ARC	Australian Research Council
ARMS	Australasian Research Management Society
ASSA	Academy of the Social Sciences in Australia
BoM	Bureau of Meteorology
CAMS	Centre for Antimatter-matter Studies
COSA	Clinical Oncological Society of Australia
CQU	Central Queensland University
CRCA	Cooperative Research Centres Association Inc
DECCW	Department Environment, Climate Change and Water

DIAC	Department of Immigration and Citizenship
Go8	Group of Eight Ltd
IODP	Australian Integrated Ocean Drilling Program Consortium
ITER	International Thermonuclear Experimental Reactor
JCU	James Cook University
JDRF	Juvenile Diabetes Research Foundation
NCA	National Committee for Astronomy
NHMRC	National Health and Medical Research Council
NTEU	National Tertiary Education Union
QUT	Queensland University of Technology
RMIT	Royal Melbourne Institute of Technology
UNE	University of New England
UNSW	University of New South Wales
UoA	University of Adelaide
UoM	University of Melbourne
UoN	University of Newcastle
UoW	University of Wollongong
USYD	University of Sydney

List of recommendations

3 Impediments to outbound researchers

Recommendation 1

The Committee recommends that the Department of Innovation, Industry, Science and Research investigate the viability of a small grants scheme to be established to support the travel expense of Australian early-career researchers who win time on foreign instruments and facilities that are unavailable in Australia.

4 Impediments to incoming researchers

Recommendation 2

The Committee recommends that the Department of Immigration and Citizenship make formal contact with the human resources sections of all relevant universities and research institutions explaining the most appropriate visa that should be used for visiting researchers.

Recommendation 3

The Committee recommends that the Department of Immigration and Citizenship remain in close contact with the human resource departments of universities and research institutions that are responsible for visa applications, reporting to these bodies monthly on the progress of active visa applications.

Recommendation 4

The Committee recommends that the Department of Immigration and Citizenship streamline the visa application process for visiting researchers by replacing the section that requires applicants to detail the benefits to Australia of their planned visit with a simplified section consisting of check boxes containing common reasons for academic visits.

Recommendation 5

The Committee recommends that the federal Minister for Education formulate a proposal for consideration through COAG recommending that visiting researchers that have an Australian tax file number and are contracted to work on research projects for more than six months be eligible to receive public education for all school age children.

5 Access to domestic and bilateral research grants

Recommendation 6

The Committee recommends that the Australian Government implement a quota of 10 per cent of ARC and NHMRC successful grants to be allocated to early-career researchers who are first-time awardees.

Recommendation 7

The Committee recommends that the Australian Government specify that competitive grants, in particular all National Health and Medical Research Council grants, fund the full cost of research in each program to which a grant has been awarded.

Recommendation 8

The Committee recommends that the Department of Innovation, Industry, Science and Research announce a successor program to the International Science Linkages program as soon as practicable to address the concerns of the research community.

Recommendation 9

The Committee recommends that the successor program to the International Science Linkages program has its budget increased and indexed, and, pending proven success of the new program, that the Department of Innovation, Industry, Science and Research seek to have funding increased further in future budgets.

Recommendation 10

The Committee recommends that the Department of Innovation, Industry, Science and Research investigate the operation of the Canadian small grant scheme and report on its effectiveness and the potential benefits to Australia of duplicating the scheme in its review of the International Science Linkages program.

Recommendation 11

The Committee recommends that the Australian Research Council and the National Health and Medical Research Council allocate a fixed percentage of research funding to 'blue-sky' research.

Recommendation 12

The Committee recommends that the Australian Research Council and the National Health and Medical Research Council relax the restrictions on researchers spending funding overseas on a trial basis for the next two funding rounds, and that the organisations review the impacts of this policy to determine whether it should be a permanent feature of research funding.

Recommendation 13

The Committee recommends that the Department of Innovation, Industry, Science and Research propose to Australia's bilateral funding scheme partners a streamlined application process consisting of both countries setting aside a defined total amount of funds, with each country separately administering the granting process.

Recommendation 14

The Committee recommends that the Australia-China Science and Technology Program has its funding increased and indexed, and that the Department of Innovation, Industry, Science and Research seek to increase funding to the scheme as its budgetary situation improves.

6 Access to overseas-based grant schemes

Recommendation 15

The Committee recommends that the Department of Innovation, Industry, Science and Research familiarise itself with the grant application requirements of the US National Institute of Health and the US National Science Foundation and make this information available to Australian universities and research institutions.

7 Strategies and Opportunities

Recommendation 16

The Committee recommends that the science counsellor program be revitalised, initially on a smaller scale than the previous program, with full-time science counsellor positions for the European Union, United States, China, and India. Additionally, the Department of Innovation,

Industry, Science and Research should seek to expand the program to other relevant areas of significance to Australian research as is necessary.

Recommendation 17

The Committee recommends that the Minister for Innovation, Industry, Science and Research be given full ministerial responsibility for supporting international research collaboration.

Recommendation 18

The Committee recommends that the Department of Innovation, Industry, Science and Research seek the funding to establish an International Research Collaboration Office to consult with stakeholders in Australian research and to act as a conduit between Australian researchers and overseas research organisations and funding bodies.

1

Introduction

> Interdependence is now so deeply rooted in the organisation of human affairs that no business, no economy, no research team, no organisation, no society can operate independently of the needs, priorities, resources and policies of its counterparts elsewhere in the world. In our present interconnected world, it is no longer possible to pursue one's interests without due regard to the interests of others. This fundamental insight must inform innovation policy and research collaboration.[1]

1.1 Australia is a key player in research at the international level. Collaboration at the international level is not only desirable, but an absolute necessity.

1.2 This inquiry aimed to identify the impediments to engaging in research internationally, and this report suggests measures to overcome those impediments.

1.3 Our research abilities were explored in the Committee's first report for the 42nd Parliament, *Building Australia's Research Capacity*. That report fed into the Cutler Review report *Powering Ideas: an innovation agenda for the 21st century*, the Australian Government's innovation policy agenda to 2020.

1.4 It is hoped the measures outlined in this report will facilitate Australia's ability to engage in research internationally.

1 Centre for Dialogue, La Trobe University, *submission 66*, p. 1.

Background to the inquiry

1.5 The Committee agreed on 25 November 2009 to conduct an inquiry into international research collaboration. The inquiry was referred to the Committee by Senator the Hon Kim Carr, the Australian Government Minister for Innovation, Industry, Science and Research

1.6 The Terms of Reference called for the Committee to inquire into and report on Australia's international research engagement, with particular reference to:

- The nature and extent of existing international research collaborations
- The benefits to Australia from engaging in international research collaborations
- The key drivers of international research collaboration at the government, institutional and researcher levels
- The impediments faced by Australian researchers when initiating and participating in international research collaborations and practical measures for addressing these
- Principles and strategies for supporting international research engagement.

1.7 The inquiry was advertised in the Australian Financial Review on 5 December 2010. The Committee sought submissions from relevant Australian Government ministers and from state and territory governments. In addition, the Committee sought submissions from all of Australia's universities and a wide range of university and research peak and representative bodies, industry peak bodies, and embassies and high commissions.

1.8 The Committee received 85 submissions, and three supplementary submissions. These submissions are listed at Appendix A.

1.9 Submissions were received from many Australian universities and research institutions. Key submissions were received from university and academic representative bodies. Valuable submissions were also received from individual academics, reflecting personal experiences.

1.10 The Committee received 20 exhibits to the inquiry, which were provided in addition to written submissions, received during public hearings or sent to the Committee by other parties. These are listed in Appendix B.

1.11 The Committee held nine public hearings across Australia, in Canberra, Melbourne, Sydney and Perth. The Committee called 62 witnesses. These witnesses are listed in Appendix C.

Structure of the report

1.12 The inquiry covered a wide range of collaborative research issues.

1.13 Chapter Two provides a brief discussion on the benefits of international collaboration.

1.14 Chapter Three examines several key impediments to Australian researchers seeking to go overseas to commence or support collaborative research.

1.15 Chapter Four examines the role played by researchers coming to Australia from overseas, and the impediments faced by those researchers.

1.16 Chapter Five discusses access by researchers to domestic and bilateral research grants.

1.17 Chapter Six discusses access by researchers to overseas-based grant schemes.

1.18 Chapter Seven examines strategies for supporting research collaboration and opportunities for the Australian Government to provide assistance for the Australian research community.

2

Benefits of collaboration

2.1 The Committee was extremely impressed by the breadth of international research collaboration, and, in particular, the very high profile of Australian researchers in the international research community.

2.2 Many of the submissions to the inquiry elaborated on the nature and extent of Australia's contribution to international research collaboration, the benefits to Australia from engaging in those collaborations, and the key drivers of international research collaboration at the government, institutional and researcher levels.

2.3 The Committee greatly appreciates the contributions made by submitters concerning these particular inquiry terms of reference. Those contributions set a valuable context for the Committee during its discussions concerning the major impediments to effective international research collaboration.

2.4 This report seeks to focus on those impediments and how they will be addressed, and other principles and strategies for supporting international research engagement.

2.5 This chapter briefly summarises the benefits of international research collaboration, and provides selected key examples as noted in the submissions. The Committee encourages readers to seek further examples from the full set of submissions to the inquiry.

Benefits

2.6 The Australian Nuclear Science and Technology Organisation (ANSTO) stated that international collaborations can bring key skills, capability and

infrastructure to Australia, and facilitate the participation of Australian experts in research activities of global significance.[1]

2.7 The University of NSW described some of the tangible direct benefits of international collaborations including:

- Improved international research reputation of Australian higher education institutions, captured in indicators such as international University Rankings …
- Increased numbers and quality of co-authored research publications, books and publications through access to a larger "virtual" critical mass of researchers
- Access to international expertise and networks of researchers that permit major programs of global (and national) significance to be addressed
- Access to data-bases and collections of data from overseas, samples for testing or analysis, cutting edge technology, equipment and infrastructure
- Increased ability and opportunity to translate research outputs into internationally relevant outcomes through international exposure and engagement
- Increased opportunity for the development of Australian researchers and students, from a cultural and professional perspective
- Enhanced ability of Australian Universities to attract the best international undergraduate and higher degree research students, postdoctoral and research Fellows, academic staff and visiting staff and students
- Enhanced opportunities for Australian students to participate in global education programs and mobility options as part of their overall research training experience.[2]

2.8 The Faculty of Science at the University of Melbourne stated that some of the key benefits of international collaboration include:

- access to expertise and infrastructure not available in Australia.
- opportunities to showcase the ingenuity of Australian researchers and the quality of Australian science.[3]

1 ANSTO, *submission 25*, p. 4.

2 UNSW, *submission 28*, p. 3.

3 Faculty of Science, UoM, *submission 33*, p. 1.

2.9 Dr Mehmet Cakir provided another summary, stating that Australia obtains multiple benefits from participating in international research collaborations, including:

- enhance Australia's international research reputation
- enable a transnational research approach to solving common problems
- provide access to international knowledge and expertise
- provide access to international infrastructure and technology
- enable Australia to compare its research quality and expertise with that of other nations
- provide a stimulating environment which triggers new ideas, technologies and innovations
- provide social and economic benefits to Australia
- engender greater understanding of the causes and impacts of development in developing nations.[4]

2.10 The Juvenile Diabetes Research Foundation (JDRF) stated that a key benefit of international collaboration is access to sources of international funding, and added that its coordination of international research funding activities results in a net inflow of funds to Australia in the millions of dollars annually.[5]

2.11 Research Australia listed some of the direct benefits of international collaboration, particularly related to medical research fields:

- Access to complementary expertise, knowledge and skills that enhance scientific excellence. The motivation to find external expertise is particularly strong for smaller countries where national expertise may be absent.
- Access to unique sites, facilities or population groups.
- Sharing costs and risk that may be operational or where one country is the host to a large and expensive scientific endeavour to service regional research centres.
- Access to new funding opportunities.
- Contributions to solving global health issues.
- Accessing large population study cohorts.[6]

2.12 The Clinical Oncological Society of Australia (COSA) discussed the benefits of international collaboration to medical clinical trials:

> … Australian researchers seek and have had success in achieving collaborations with international academic research groups.

4 Dr Mehmet Cakir, *submission 82*, p. 3.

5 JDRF, *submission 52*, p. 5.

6 Research Australia, *submission 62*, p. 5.

> Multicentre clinical trials conducted through these international collaborations, have resulted in changes in standards and clinical practice guidelines, and have improved patient outcomes across a range of areas both in Australia and overseas.[7]

2.13 Professor Fiona Stanley AC stated that the sharing of data and ideas across nations will lead to more effective use of resources to address the big questions common to all nations. Professor Stanley provided an example:

> … research consortia and international collaborations in childhood cancers can address the causes by each nation providing data on specific cancers and comparing the patterns of exposures and genetic/familial factors within and between countries. Studies of new treatments are best addressed by very large clinical trials such as those conducted by international consortia with results coming much more quickly and best practice being implemented locally.[8]

2.14 A key benefit of international collaboration is the development of regional relationships and partnerships. The Australian Centre for International Agricultural Research (ACIAR) stated that its activities are well acknowledged in partner developing countries, enhancing Australia's recognition in the region.[9] ACIAR discussed its role:

> [ACIAR] … assists and encourages agricultural scientists in Australia to use their skills for the benefit of developing countries while at the same time working to solve Australia's own agricultural problems … [10]

2.15 Professor Fiona Stanley AC discussed the need to collaborate with poorer countries:

> … in my opinion, for the Australian government in particular is the moral imperative we have as a wealthy nation in our region with many nearby poor countries such as Papua New Guinea, to work collaboratively with them to achieve cost-effective solutions. Such cultural exchanges and collaborations in our region can only reduce the problem of security threats, reducing the risks of our own populations being affected by disease or other problems coming in from nearby nations etc.[11]

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7 COSA, *submission 50*, p. 4.
8 Professor Fiona Stanley AC, *submission 30*, p. 4.
9 ACIAR, *submission 27*, p. 7.
10 ACIAR, *submission 27*, p. 1.
11 Professor Fiona Stanley AC, *submission 30*, p. 5.

3

Impediments to outbound researchers

3.1 This chapter examines several key impediments to Australian researchers seeking to go overseas to commence or support collaborative research, namely:

- Distance and culture
- Lack of seed funding to establish or develop collaborations.

Distance and culture

3.2 The distance of Australia from the major research centres of North America and Europe was a commonly noted impediment to both incoming and outbound research collaboration.[1]

3.3 As a result of this distance, travel costs are a major issue for most Australian researchers. However, some submitters noted that travel funding wasn't difficult to obtain to cement a strong research project[2], or they were able to budget how much to spend on collaborations because of their status as an institute.[3]

3.4 However, the Committee heard of instances where researchers had secured time on facilities based overseas with no equivalent in Australia, where the researchers were unable to take advantage of that opportunity due to a lack of travel funding.[4]

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1 CRCA, *transcript of evidence*, 10 March 2010, p. 5.
2 Dairy Australia, *transcript of evidence*, 9 April 2010, p. 74.
3 ANSTO, *transcript of evidence*, 8 April 2010, p. 64.
4 AINSE, *submission 20*, p. 7.

3.5 Some witnesses noted that some non-scientists viewed overseas travel to foster scientific collaboration as an indulgence:

> The [NSW] department [of Environment, Climate Change and Water] has quarterly update reporting, and at the last executive meeting, a graph of overseas travel was flashed in front of me. The science division I think has the largest number of overseas trips. From my perspective that should be seen as a good thing. It shows that we are internationally engaged. But it was put to me as: 'Look, Kate, watch out.' That was more the attitude, so it's more about changing that.[5]

3.6 Witnesses and submitters expressed their dismay that some people considered funding researcher travel to be an indulgence,[6] with others suggesting researcher travel should be viewed as assisting innovation.[7]

3.7 The Australian Academy of Technological Sciences and Engineering (AATSE) observed:

> [Australian funding is being spent on research collaboration] because it raises our game, our effectiveness, our productivity. To me that is the prime reason.[8]

Lack of funding to establish or develop collaborations

3.8 The benefits of international travel for Australian researchers are many. Travel enables Australian researchers to meet with leaders in their research field, it forges links between researchers that can evolve into opportunities for collaboration, and it enables Australian researchers to use facilities that are not available in Australia.[9]

3.9 A common theme in submissions received by the Committee was that there was often a lack of seed funding available to enable researchers to

5 NSW DECCW, *transcript of evidence*, 8 April 2010, p. 40.
6 UoM, *transcript of evidence*, 9 April 2010, p. 8.
7 Monash University, *transcript of evidence*, 9 April 2010, p. 9.
8 AATSE, *transcript of evidence*, 9 April 2010, p. 51.
9 Flinders University, *submission 56*, p. 1.

travel and forge links with colleagues overseas.[10] This was especially the case for early-career researchers.[11]

3.10 It was noted that researchers needed to access grants to develop relationships with overseas researchers, and that quite often research proposals would have travel components removed from the grant.[12]

3.11 A witness noted that some researchers had funded their own travel overseas to explore collaborative opportunities:

> ... I have probably had to recommend maybe 10 or a dozen international trips, and for two of them the scientists were actually funding themselves to go overseas.[13]

3.12 Several witnesses and submitters,[14] including Professor Fiona Stanley AC note the value of getting young researchers to international conferences to build connections with fellow researchers:

> ... we absolutely need to get funded to travel to these international network meetings and conference and to get our young people there.[15]

3.13 The University of Sydney (USYD) also supported the use of conferences as a way of maximising the exposure of young Australian researchers to gifted international minds, but in lieu of sending Australian researchers overseas:

> ... we need to change some of our own cultural apology approach and think of Australia as a destination. I think we could have some fairly inexpensive initiatives, be they managed better through universities or other academic agencies, such as Nobel Fellows on visiting lectureships for up to a year – up to a month, actually; a year is probably too long. That would bring very high prestige. Many universities in Asia are now running Nobel lectures on their own. They are not cheap but they get focus around selected areas.

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10 Dr Lindsay Campbell, *submission 13*, p. 3; NCA, AAS, *submission 35*, p. 4; CQU, *submission 43*, p. 2; NT Research and Innovation Board, *submission 47*, p. 5; Professor Jane Kenaway and Dr Johannah Fahey, *submission 9*, p. 2; USYD, *submission 18*, p. 7; UoW, *submission 12*, p. 1.

11 Faculty of Science, UoM, *submission 33*, p. 3; CAMS, *submission 5*, p. 3.

12 AMSI, *transcript of evidence*, 9 April 2010, p. 17.

13 NSW DECCW, *transcript of evidence*, 8 April 2010, p. 41.

14 AMSI, *transcript of evidence*, 9 April 2010, p. 28; Professor Vladimir Bazhanov and Professor Murray Batchelor, *submission 23*, p. 1; Professor Brian O'Brien, *submission 60*, p. 2; AMSI, *submission 53*, p. 3; UoM, *submission 51*, p. 9; ANU, *submission 14*, p. 3.

15 Professor Fiona Stanley AC, *transcript of evidence*, 13 April 2010, p. 3.

> A second would be funding to universities – again, probably through the compact system – of major strategic conferences. By 'major' I mean small, strategic conferences around Australia's research priorities and how we work with other countries. We should make these quite prestigious.[16]

3.14 Another witness noted that establishing relationships with colleagues was the most fundamental step.

> I still feel that it boils down to personal linkages; skills, expertise that we need to have on the ground that can link us with the people overseas. To me, that is really the starting point.[17]

3.15 Witnesses from the Australian Mathematical Sciences Institute (AMSI) advised the Committee of a small grants model that operates in Canada to support early-career researchers in forging international links, and that a similar scheme used to operate in Australia and should be reinstated:

> There was a small grants scheme in Australia 20 years ago; it has not been around for a long time. The sorts of funds I am talking about are of the order of $20,000 a year and are enough to maintain research programs for many active mathematical sciences. Of course, $20,000 a year will not allow the employment of young, early-career researchers, but it is certainly enough to be able to provide travel support for international collaborations, to be able to send early-career researchers overseas and so on.[18]

3.16 Further methods for supporting early-career researchers are canvassed in Chapter 5.

Committee comment

3.17 Geoffrey Blainey's 'tyranny of distance'[19] is all pervasive, even impacting on the ability of Australian researchers to cooperate with their international colleagues, and it is a problem that will have to continue to be managed by Australian researchers.

3.18 Developments in information and communication technology will serve to mitigate these difficulties slightly, but given the importance to researchers

16 USYD, *transcript of evidence*, 8 April 2010, p. 7.

17 Dr Mehmet Cakir, *transcript of evidence*, 13 April 2010, p. 35.

18 AMSI, *transcript of evidence*, 9 April 2010, p. 27.

19 '*The Tyranny of Distance: How Distance Shaped Australia's History*', by Geoffrey Blainey, is an account of how Australia's geographical remoteness has been central to shaping our history and identity. First published in 1966, ISBN 0732911176.

of face-to-face contact in developing collaborative opportunities there will always be a need for Australian researchers to travel and meet their colleagues in person.

3.19 Addressing the issue of culture, and opposition to researcher mobility, the Committee acknowledges that researcher mobility is vital in building research collaboration and maximising opportunities for Australian researchers and Australian science.

3.20 The Committee also acknowledges that funding for travel to establish and support collaborations is insufficient, and is disappointed that often when grant applications are reduced, international travel components are removed. However, the Committee also believes that guaranteeing travel funding would reduce the percentage of successful research grants even further. Further discussion on funding is in Chapter 5.

3.21 Reducing an already low success rate for grant applications is an undesirable outcome, and the Committee would prefer to see more research done in Australia than less. The Committee acknowledges that information communication technology is no substitute for true face-to-face contact between researchers, but it nonetheless encourages researchers to use these methods to develop and maintain contact with colleagues overseas.

3.22 The Committee believes there is real benefit for young researchers in attending international conferences to make contact with colleagues based overseas, and encourages research organisations and universities to maximise available opportunities for young researchers in attending these events.

3.23 Further, the Committee is dismayed to hear of cases where Australian researchers, especially young Australian researchers with potentially innovative research, win time on facilities located overseas, but are then unable to use these facilities due to a lack of funding for travel.

3.24 The Committee believes that when unique opportunities like these are presented to early-career researchers, they should be taken as often as possible, and recommends that the Department of Innovation, Industry, Science and Research investigate the viability of a small grants scheme to be established to support the travel expense of Australian early-career researchers who win time on foreign instruments and facilities that are unavailable in Australia.

Recommendation 1

The Committee recommends that the Department of Innovation, Industry, Science and Research investigate the viability of a small grants scheme to be established to support the travel expense of Australian early-career researchers who win time on foreign instruments and facilities that are unavailable in Australia.

4

Impediments to incoming researchers

4.1 This chapter examines the role that is played by researchers coming to Australia from overseas, and impediments faced by incoming researchers. The chapter examines the following issues:

- Incoming researcher trends and the benefits of incoming researchers
- Visa and immigration difficulties
- Additional costs for incoming researchers.

Trends and benefits

4.2 There have been many emerging trends identified in researcher development and mobility throughout the course of the inquiry.

4.3 While Australia benefits from sending its researchers overseas to forge links with their colleagues, another method for fostering international research collaboration is to have researchers brought into Australia to collaborate with their counterparts.

4.4 Bringing researchers into Australia to collaborate with their counterparts can have several advantages over sending Australians overseas.

4.5 It can take advantage of foreign sources of funding with overseas researchers using their grant funding to travel to Australia, which provides a saving for Australia. It can also allow foreign researchers to take advantage of the expertise of Australian researchers and to gain an understanding of Australia, and also showcase Australia as a potential place for an overseas researcher to take their skills as a permanent resident or citizen.

4.6 The Committee also heard that foreign researchers may also be drawn to Australia to take advantage of some of its unique features that will enhance their research, such as climate, or to use world class facilities, instruments or equipment only available in Australia.[1]

4.7 It was also reported that a number of international researchers had chosen after studying or working in Australia to remain in Australia permanently as skilled migrants.[2]

4.8 One witness suggested that bringing researchers into Australia had approximately the same value as sending an Australian researcher overseas to collaborate on a research project.[3]

4.9 Bringing foreign researchers into Australia to tap into their expertise was also examined through the lens of talent recruitment. The University of Adelaide (UoA) noted that Australia would be more able to compete with the rest of the world in recruiting intellectual talent by embracing overseas PhD students to improve Australia's global competitiveness,[4] a point supported by the Group of Eight.[5]

4.10 Recent trends in intake of researchers from overseas were discussed:

> Whereas we used to have a large number of North American and European, particularly German, postgraduate doctoral fellows come to Australian universities, it has almost dried up. Our postdoctoral fellows now come from developing countries. The interaction between the top laboratories in the US, Germany and Britain that we used to have has become more difficult because we are not exchanging our younger people between these laboratories.[6]

4.11 Witnesses had observed Australia had lost researchers to other countries, due to better opportunities being available overseas.[7] The Committee also heard that a trend had emerged in which the number of domestic students undertaking PhDs had been in decline, leading to a situation in which there were more international than local students undertaking PhDs.[8] As a

1 ANSTO, *transcript of evidence*, 8 April 2010, p. 67; Deakin University, *submission 19*, p. 4; Universities Australia, *submission 61*, p. 4; IODP, *submission 6*, p. 6.

2 Victoria University, *submission 45*, p. 2; Universities Australia, *submission 61*, p. 5.

3 Professor Fiona Stanley AC, *transcript of evidence*, 13 April 2010, p. 8.

4 UoA, *submission 11*, p. 5.

5 Go8, *submission 40*, p. 2.

6 UoN, *transcript of evidence*, 8 April 2010, p. 5.

7 ANSTO, *transcript of evidence*, 8 April 2010, p. 67.

8 AMSI, *transcript of evidence*, 9 April 2010, p. 42.

result of this trend senior Australian researchers were now seeking to access PhD students from other countries:

> … in many science and technology areas it is extremely hard to find domestic students to do PhDs. That is one reason that researchers are driven to get their PhD students from other countries.[9]

4.12 This practice has some clear benefits for senior Australian researchers. It was identified by some as being a way of addressing the trend of talented Australian academics heading overseas, commonly called the "brain drain".[10]

4.13 The Committee heard from several witnesses that incoming foreign researchers played an important role in revitalising their organisations, because as senior staff were approaching retirement age, there were risks that there were few domestic researchers able to replace them.[11]

4.14 Instead, these organisations saw foreign researchers as a potential salvation, as did many submitters. Bringing researchers in from the Asia-Pacific region has the potential to build relationships and increase the face to face meetings and networking opportunities that are vital in establishing research collaboration.

4.15 The World Vegetable Centre based in Taipei, noted the value for Australia and for the region in having the next generation of scientists sourced from both a domestic and foreign intake:

> Declining horticultural enrolments by Australian nationals in Australian universities mean that the next generation of scientists to work in Australian departments of agriculture and universities are more likely to come from overseas. Strengthening research collaboration now can help ensure that future graduates of overseas universities have the skills, background and expertise that is most likely to be of value to Australia in the future.[12]

4.16 The Committee was advised that even if overseas PhDs did not stay in Australia after their graduation they would become people of influence in

9 Deakin University, *transcript of evidence*, 9 April 2010, p. 21.

10 Monash University, *submission 59*, p. 13; COSA *transcript of evidence*, 8 April 2010, p. 74.

11 COSA, *transcript of evidence*, 8 April 2010, p. 73; ACIAR, *transcript of evidence*, 24 February 2010, p. 5.

12 World Vegetable Centre, *submission 4*, p. 3.

their countries of origin with strong links to Australia.[13] One witness noted that overseas PhDs contributed a net benefit to Australia:

> I think any PhD students that we get here do tend to be of net benefit to Australia, regardless of whether they stay or go back. They have connections. There has been research done on this. It is really an important part of our relationship. I think what we and most other universities are trying to do is bring our research training recruitment much more in line with where our research strengths are and to develop that in a broader kind of relationship.[14]

4.17 These potential benefits were also explored by the NTEU:

> … when students – whether they be undergraduate, postgraduate or higher degree research students – come to study in Australia they have got that connection. When they go back to their home countries, I think it is important to try and maintain those links. Those sorts of links are really useful, I think, and actually support the whole agenda in terms of increasing the level of research collaboration which I think will happen as the numbers of international students increase over the years.[15]

4.18 Professor Fiona Stanley AC advised that she had successfully brought researchers in from overseas to work on projects, and though many had returned to their countries of origin they still played a positive role for Australia-based research:

> I have had considerable success in recruiting people here to Western Australia to four to five years of their careers. They have been headhunted – bugger it! – back to the UK or Canada for chairs. But that is good because we get at least four or five years of them when they are most productive and then they have gone back and they continue to be ambassadors. So to have visiting people come here is a hugely important aspect of all of this, not just for us to go there, because that cements the relationships.[16]

4.19 The Committee also heard that Australian research strengths and the offering of scholarships[17] had attracted overseas researchers to Australia to work. Witnesses from Dairy Australia noted that a Chair at Monash

13 JCU, *submission 8*, p. 3.

14 UoM, *transcript of evidence*, 9 April 2010, p. 22.

15 NTEU, *transcript of evidence*, 9 April 2010, p. 79.

16 Professor Fiona Stanley AC, *transcript of evidence*, 13 April 2010, p. 8.

17 ACIAR, *transcript of evidence*, 24 February 2010, p. 22.

University supported by Dairy Australia had been filled by an academic from Auckland University in New Zealand. The witnesses added:

> When you attract a chair, you attract their students and some of their team as well, so you get that transfer of a team.[18]

Committee comment

4.20 The Committee notes the benefits that incoming researchers have had to the development of Australian scientists and research, and believes that if Australian researchers are unable to travel overseas to learn from gifted researchers, that research organisations should aim to bring experts in from overseas, even for short periods of time, to maximise the exposure of young researchers to world class scientists and to take advantage of their expertise.

4.21 Australia is clearly home to several world class scientific facilities, and these facilities are a great incentive for foreign researchers. These facilities give Australia a comparative advantage in fields like nuclear science and astronomy, and facilitate researcher mobility and the exposure of young researchers to global science.

4.22 Maximising the exposure to foreign researchers has clearly had benefits to Australian research. While evidence indicates that Australia is receiving less researchers from Europe, it now appears to be bringing in more researchers from the Asia-Pacific region. While this has both advantages and disadvantages, it marks Australia as a potential regional research hub.

4.23 While Australia has historically seen its best academic talent move to the United States and Europe, it has quite often been able to replenish those stocks with young up and coming researchers. However, the sciences have seen less PhD candidates in recent years, and with an ageing research workforce, Australian research organisations and universities have been compelled to look at recruiting researchers from overseas.

4.24 Aside from addressing personnel shortages, bringing in PhD candidates from overseas has clear advantages for Australia if domestic students are unable or unwilling to fill available places. Accepting international PhD students can open up opportunities for research collaboration back in the researcher's country of origin, or at the very least improve networks between research institutions. Quite often, talented researchers have elected to remain in Australia as permanent residents, keeping their expertise in Australia.

18 Dairy Australia, *transcript of evidence*, 9 April 2010, p. 69.

Visas and immigration difficulties

4.25 One area that was clearly identified by many witnesses and submitters[19] as an area in which the Australian government could increase support for research collaboration at little cost was to revise a bureaucratic[20] or 'rigid and difficult'[21] visa system.[22]

4.26 The Committee heard many examples of onerous visa requirements or extended delays in processing for experienced researchers or high quality PhD candidates from a range of countries, which had posed a major impediment to international research collaboration.[23]

4.27 Witnesses advised that the visa application process often took a long time. A witness advised the Committee that his organisation operated on the assumption that the process would take approximately 12 months.[24]

4.28 Visa applicants were rejected from a variety of countries of origin, some considered high risk for overstaying, and others considered low risk. These countries of origin included Germany,[25] Argentina,[26] Canada,[27] Pakistan[28] and China[29] sometimes without any explanation. An unexplained rejection of a visa application was reported to have caused significant embarrassment when an eminent researcher was refused entry to Australia.[30]

4.29 The Committee was told of a situation in which an eminent Chinese researcher was only able to get a visa after direct lobbying at the Australian embassy by an Australian researcher who happened to be in China at the time:

> … I was attending a workshop in Beijing at one time and we had a famous member of the Chinese Academy of Sciences who wanted to come to Australia for six months to visit ANU and the

19 QUT, *submission*, p. 3; USYD, *submission*, p. 5.
20 RMIT University, *submission 31*, p. 4.
21 Victoria University, *transcript of evidence*, 9 April 2010, p. 6.
22 UoM, *transcript of evidence*, 9 April 2010, p. 3; QUT, *submission 15*, p. 3; Victoria University, *submission 45*, p. 4; UoM, *submission 51*, p. 7.
23 Professor Adrian Baddeley, *submission 21*, p. 1.
24 Professor Adrian Baddeley, *transcript of evidence*, 13 April 2010, p. 19.
25 ANSTO, *transcript of evidence*, 8 April 2010, p. 59.
26 Dr Mehmet Cakir, *transcript of evidence*, 13 April 2010, p. 42.
27 AMSI, *transcript of evidence*, 9 April 2010, p. 42.
28 AMSI, *transcript of evidence*, 9 April 2010, p. 42.
29 Professor Adrian Baddeley, *transcript of evidence*, 13 April 2010, p. 18.
30 ANSTO, *transcript of evidence*, 8 April 2010, p. 57.

> University of New South Wales, where I was located at the time. While we were having a workshop there he got a letter from the Australian embassy saying his application had been rejected. Because I happened to be there, I rang the Australian embassy and they told me 'Oh no, we reject everybody from China who wants to stay more than three months.' I said 'You probably don't know who this person is but he is a very eminent scientist who has done a lot of work in Australia and wants to continue working with Australians.' So I followed it up with them and we got it through, but I think it is probably because I was there and I was able to ring up people. I did not see his application so I do not know what was in it, but it shocked me that he just got a straight no because he wanted to stay more than three months and he was Chinese.[31]

4.30 Visa problems caused trouble for the vast majority of witnesses, both in universities and in other areas of research and for both short[32] and long term visas.

4.31 The University of New South Wales reported that they had established a bilateral relationship with a university in China that had been adversely impacted by the current visa system:

> Visa requirements for Australian and Chinese academics and students for short stays in China and Australia (up to 6 months), respectively, are very onerous and have directly affected the core partnerships associated with the recently established UNSW Confucius Institute in partnership with Shanghai Jiao Tong University in China.[33]

4.32 Delays in processing researcher visa applications by the Department of Immigration and Citizenship had, in one case, forced a witness from AMSI to use a migration agent to accelerate the process:

> I have had a lot of postdoctoral research associates come from overseas and at some stage we had two options: we could go through the usual channels at the university, and then it would take longer but if we paid extra then there was some sort of consultant who manoeuvred the way or something like that.[34]

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31 ANSTO, *transcript of evidence*, 8 April 2010, p. 59.

32 RMIT University, *transcript of evidence*, 9 April 2010, p. 23.

33 UNSW, *submission 28*, p. 5.

34 AMSI, *transcript of evidence*, 9 April 2010, p. 42.

4.33 The application process was also questioned:

> [The invitee] is then in the position of having to write a paragraph or a page about why his visit to Australia will benefit Australia and I think that is unnecessary. I do not understand why it is necessary to even have that question asked. I am not sure that anyone actually evaluates the answer to that question or is qualified to evaluate the answer to that question, and it is really not part of the essential core of the immigration process. I think that could easily be eliminated or modified without relaxing Australia's broader security issues.[35]

4.34 The Committee was also told of an unusual case where Department of Foreign Affairs and Trade officials questioned a host institution regarding a proposed visit by a researcher from India. The host institution, the Centre for Antimatter-Matter Studies, was under the impression that, after the discussions and questions, any issues had been resolved. CAMS was surprised to subsequently find that the visa for the visiting researcher was refused.[36]

4.35 CAMS added:

> It's extremely embarrassing. As I said, we have a bilateral research program with India that is administered through the Academy of Science … I found it most unusual at the time.[37]

4.36 CAMS was concerned that any future proposed visit by that researcher would be in doubt, with a refusal existing on that person's record.[38]

4.37 CAMS also provided an example of a researcher that had experienced a significant delay in obtaining a visa:

> We have had a lot of delays recently, I might add, particularly from one of my colleagues from the US. He had to cool his heels for a week in New Zealand because the visa did not come through in five weeks … It is embarrassing. He was treated, in my view—I should be careful—poorly. Yes, he was treated poorly. It does not do our image as international science collaborators or as a country any good.[39]

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35 Professor Adrian Baddeley, *transcript of evidence*, 13 April 2010, p. 18.
36 CAMS, *transcript of evidence*, 2 June 2010, pp. 14-15.
37 CAMS, *transcript of evidence*, 2 June 2010, p. 16.
38 CAMS, *transcript of evidence*, 2 June 2010, p. 16.
39 CAMS, *transcript of evidence*, 2 June 2010, p. 17.

4.38 Evidence was also presented that some promising international students were unable to take up PhD scholarships due to visa difficulties:

> It is not just the visa, it is also the visa requirement for evidence of a very large amount of money now. Since most of our PhD students are coming in on scholarships that are funded by the universities – and that is a very limited amount of money – it really makes it almost impossible for some students to take those up.[40]

4.39 The role Australia plays as a leader in research in the Asia-Pacific and the diplomatic and aid benefits that can flow from collaboration have also been potentially damaged by problems with visas. The Committee heard that difficulty obtaining visas had impacted on a researcher from Papua New Guinea attending a conference in a third country:

> We have a very strong relationship with the Institute of Medical Research in Papua New Guinea, and some of the visa arrangements there have been absolutely pathetic. We have just had an experience with one of the top PhD students from that institute, an indigenous Papua New Guinean. We wanted him to go to a conference in Italy on pneumococcal disease, which all of our people were presenting at, and he had to come via Australia. Australia would not give him a visa in time to get him to Italy, so he did not go to the meeting … The fact is that he would not have become an illegal immigrant. He has been on a student visa. Now he is a postdoc. It was unacceptable.[41]

4.40 Many witnesses that discussed visa difficulties indicated that decisions by the Department of Immigration and Citizenship to reject visa applications from applicants at the PhD candidate level or higher were disappointing. The witnesses were upset that applications from dependable academics, who were coming to Australia only to work on research projects and were no risk of overstaying had their applications rejected.[42]

4.41 Witnesses noted that there was a difference between PhD candidates and students studying at other levels, noting that Universities were discerning

40 Deakin University, *transcript of evidence*, 9 April 2010, p. 23.

41 Professor Fiona Stanley AC, *transcript of evidence*, 13 April 2010, p. 9.

42 Professor Fiona Stanley AC, *transcript of evidence*, 13 April 2010, p. 9; Deakin University, *transcript of evidence*, 9 April 2010, p. 23.

in offering PhD places to all students[43], and they had to have research proposals approved before they were offered a place.[44]

4.42 A witness from Monash University compared bringing in overseas researchers to hiring highly skilled workers coming to Australia to do a particular job.[45]

4.43 Another witness agreed that officials from the Department of Immigration and Citizenship should look more favourably on applications from highly qualified academics and PhD candidates:

> … we should assume that they are going to be beneficial in the main. That makes commonsense. The majority of the scientific community would like to see almost immediate granting of visas where the nature of the visit is quite clear and there are not expected to be any unusual problems.[46]

4.44 Visa difficulties did not just prevent researchers from coming to Australia. The Committee heard that some eminent researchers and academics had refused to come back to Australia after experiencing so many difficulties in getting to Australia in the first instance.[47]

4.45 Victoria University noted there was already a visa category for PhD and visiting scholars, but noted the rigid processes and long processing times were the primary impediments to bringing researchers in on this visa class.[48]

4.46 Another witness noted that in the past, when they had been seeking to bring academics in for short-term visits that they would just use tourist visas, but over the past few years, there had been an increase in use of the 419 (Visiting Academic) visa subclass.[49]

4.47 The cost of applying for 419 visa was discussed, and a witness considered the approximately $250 cost expensive, as there were often additional costs incurred to obtain certified copies of documents, registered postage and travel to the Australian consulate.[50]

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43 Professor Adrian Baddeley, *transcript of evidence*, 13 April 2010, p. 23.

44 Monash University, *transcript of evidence*, 9 April 2010, p. 24; UoM, *transcript of evidence*, 9 April 2010, p. 24; Victoria University, *transcript of evidence*, 9 April 2010, p. 24.

45 Deakin University, *transcript of evidence*, 9 April 2010, p. 25.

46 Professor Adrian Baddeley, *transcript of evidence*, 13 April 2010, p. 19.

47 Professor Adrian Baddeley, *transcript of evidence*, 13 April 2010, p. 17.

48 Victoria University, *transcript of evidence*, 9 April 2010, p. 25.

49 Professor Adrian Baddeley, *transcript of evidence*, 13 April 2010, p. 19.

50 Professor Adrian Baddeley, *submission*, p. 3.

4.48 By way of contrast, the Committee asked several witnesses about their experiences travelling abroad asking about visa processing times. Professor Adrian Baddeley reported:

> For a visit of less than six months I have usually turned up at the airport without any paperwork and been admitted to the UK, the Netherlands, the United States, Canada and so forth. For some other countries I have been a bit more circumspect to make sure that I have got some kind of documentation … it would be rare for me to take more than a month to get everything together.[51]

4.49 Having been asked whether he had experienced similar visa frustrations when heading overseas, Dr Mehmet Cakir replied:

> Actually, no, I must admit. The countries that I have visited, no. The only visa that I had to get from here was the one when I was going to China a few months ago. Otherwise, every other country that I went to, if there was a visa, I got it on the border. It was just quick, yes; no problem.[52]

4.50 The Department of Immigration and Citizenship (DIAC) gave evidence to the inquiry. DIAC found it regrettable that immigration processes were an impediment to research:

> We are really sorry that some academics have experienced delays and that they see immigration procedures as a major impediment to international research collaboration. Of course, that was never our intention. We do have our role in terms of implementing government policy to have an orderly managed migration program and to protect our community from all sorts of risks—health, character and all of that. But we would not want to impose any more red tape than is absolutely necessary.[53]

4.51 DIAC explained recent changes in visa sub-class requirements:

> Recent changes have applied from 14 September 2009 under the worker protection framework. New sponsorship requirements were introduced to a range of 400 visas to align with the 457 changes. That included changes to the visiting academic subclass 419 visa to apply the sponsorship requirements. The reason for applying the sponsorship requirements to the 419 visiting academic visa was that there was a review in 2002 that was

51 Professor Adrian Baddeley, *transcript of evidence*, 13 April 2010, p. 19.

52 Dr Mehmet Cakir, *transcript of evidence*, 13 April 2010, p. 42.

53 DIAC, *transcript of evidence*, 24 May 2010, p. 31.

> commissioned by the then government and then Minister Philip Ruddock, which asked an external reference group—a very prominent external group—to recommend changes to a range of small boutique visas, such as those in the 450 series, including the visiting academic visa. That 2002 review recommended that subclass 419 should not be exempt from sponsorship requirements that should generally be required across the visa categories in that 400 series. The reason for that was that we needed a standardised approach across all temporary work visas to reduce the complexity found in having differentials for different visas. As you know, we have 149 visa subclasses. We needed to apply consistent rules to introduce some simplification and to reduce the client confusion and administrative inefficiency.[54]

4.52 DIAC admitted that, as with any changes, there had been teething problems in the first couple of months since implementation. DIAC explained further:

> I think that when we change the way we process visas there is always an appearance of there being a problem, because it takes people a while to get used to a new process. In fact, the average processing times for the nomination and the visa are not substantially longer. The ones cited in the submissions are the outliers. What has been reported is people whose visas are taking an extremely long time. Whereas there are a lot of visas processed that are delivered within service standards—that is, less than three months.[55]

4.53 In the light of recent visa changes, DIAC discussed the roles of the applicant and sponsor:

> With the recent changes introducing the sponsorship requirements and under the workers protection legislation we do not think we have added any more compliance steps for the visa applicant. What we have done is shift some of the compliance and administration effort from the applicant to the universities and education facilities and their human resources sections. Some of the questions we previously asked are now in the nomination sponsorship stage, and that is clearly the responsibility of the universities and their human resources sections. The effort

54 DIAC, *transcript of evidence*, 24 May 2010, p. 31.

55 DIAC, *transcript of evidence*, 24 May 2010, p. 32.

> required by the applicant in answering the questions on the form has now been reduced.[56]

4.54 DIAC further explained the role for host institutions, and discussed a new information campaign:

> We are hearing concerns raised by the universities because I do not think their human resource sections are using the visa pathways as they should and on occasion they do not have all the information. Over the next few weeks we will be engaging with Universities Australia on an information and education awareness raising campaign. We will be also be working closely with Universities Australia to look at what we can do within the current legislative arrangements to simplify the process for the benefit of low-risk education institutions and low-risk applicants.[57]

4.55 How recently this education awareness initiative was established was not discussed.

4.56 DIAC suggested that visa applicants were choosing the wrong sub-class of visa for their visit:

> When I read some of the concerns that were raised and some of the examples that were mentioned, clearly those examples point to the fact that they were using wrong visa pathway.[58]

4.57 In discussions concerning quicker visa processing for hosts with proven track records of sponsoring people in and out of the country successfully, DIAC stated:

> We will do that as part of our risk-management framework. That is what we are doing with the 457 visa. We will have low-risk sponsors with much more streamlined requirements. The same will happen across the 400 visa series—low-risk sponsors who have an established track record in complying with the obligations will have a much more streamlined process. That is exactly the way forward from now on and that is what we are going to do in consultation with Universities Australia.[59]

4.58 DIAC explained that the visa nomination, rather than the application, requires the documentation of what the benefit to Australia will be as a result of a particular person's visit. When asked whether the department

56 DIAC, *transcript of evidence*, 24 May 2010, p. 35.
57 DIAC, *transcript of evidence*, 24 May 2010, p. 36.
58 DIAC, *transcript of evidence*, 24 May 2010, p. 32.
59 DIAC, *transcript of evidence*, 24 May 2010, p. 36.

has qualified people able to assess the scientific benefit to Australia, DIAC stated that they do not have staff with specific training in research and academics.[60]

4.59 DIAC further explained the need for such questions:

> I think the benefit to Australia is a standard question that applies across the visa categories. It is part of the overall integrity framework. We require the sponsors and applicants to explain in what way it will benefit Australia if we grant the visa. It is part of the overall decision-making process. It is one of the many questions that we put to sponsors and applicants.
>
> I understand the concerns but, as I said, it is part of the overall risk-management framework and the decision-making process. Members would be surprised how many integrity issues we have come across by asking all sorts of questions that on the face of it might not sound reasonable, but these questions and the responses provide a trigger for further investigation and the overall risk management.[61]

Committee comment

4.60 The Committee was disappointed to hear that promising PhD students were unable to take up scholarships due to an inability to obtain a visa. Further, the Committee heard of cases where academics with a higher level of qualification were unable to enter the country to take up positions due to having their visa applications rejected.

4.61 The Committee was alarmed to hear that research organisations had so much trouble bringing researchers in from overseas due to problems with visas. That research collaboration opportunities have been lost due to bureaucracy and delay is extremely regrettable and the Committee hopes that these instances will be lessened and eventually eradicated.

4.62 The Committee heard substantial evidence that universities had had trouble bringing researchers in on 419 class visas. The Committee was indeed surprised to learn from the Department of Immigration and Citizenship that many universities have been using the wrong visa subclass and should have been using the 457 visa instead.

60 DIAC, *transcript of evidence*, 24 May 2010, p. 37.

61 DIAC, *transcript of evidence*, 24 May 2010, p. 37.

4.63 While the Committee is heartened to learn that the Department of Immigration and Citizenship anticipates applications under the 457 visa class should be processed faster, it is extremely disappointed that the Department did nothing to address the misconception many universities were under that the 419 visa was the only one applicable for their use. Accordingly, the Committee recommends that the Department of Immigration and Citizenship make formal contact with the human resources sections of all relevant universities and research institutions explaining the most appropriate visa that should be used for visiting researchers.

Recommendation 2

The Committee recommends that the Department of Immigration and Citizenship make formal contact with the human resources sections of all relevant universities and research institutions explaining the most appropriate visa that should be used for visiting researchers.

4.64 The Committee also remains concerned that visa application processes take far too long. Opportunities for collaboration have been lost due to the long lead time on visa application processes. That some research organisations operate on the assumption that a visa application will take 12 months until final approval indicates that there are significant concerns in the academic community about processing times. Closer relationships and more communication between research bodies and the Department of Immigration and Citizenship would improve processing times and the confidence of academia in the Department's processes. Further, it would mean more opportunities for problems with applications to be addressed.

4.65 Accordingly, the Committee recommends that the Department of Immigration and Citizenship remain in close contact with the human resource departments of universities and research institutions that are responsible for visa applications, reporting to these bodies monthly on the progress of active visa applications.

Recommendation 3

The Committee recommends that the Department of Immigration and Citizenship remain in close contact with the human resource departments of universities and research institutions that are responsible for visa applications, reporting to these bodies monthly on the progress of active visa applications.

4.66 Universities and research institutes undertake serious vetting of the academic qualifications of applicants, and ensure that applicants have approved research proposals before being offered a place.

4.67 Academics identified as having useful contributions to make by universities are unlikely to overstay their visas, as they are trusted members of the scientific community with clear ties in their countries of origin.

4.68 The Committee has drawn the perception from the evidence that visa applicants from certain countries considered to be "high risk" have had their applications rejected solely due to the length of the visa and the nationality of the applicant. That this perception even exists amongst witnesses and submitters is unacceptable. As Australia becomes more of a hub for research collaboration in the Asia-Pacific, more researchers will continue to come from non-European, and more "high-risk" sources. The Department of Immigration and Citizenship must do more to address this perception and to consider visa applications on their merits, making special note of the sponsoring organisation and the risk assessments already performed by the academic body sponsoring the application.

4.69 The Committee heard evidence on the application process. It was advised that visa applications required the applicant (or sponsor, depending on who was filling out the application) to inform the Department of Immigration and Citizenship on how the researcher's visit would benefit Australia.

4.70 The Department of Immigration and Citizenship was asked whether any departmental staff were qualified to assess the merits of these applications, and the Committee was informed that this was not the case. As there are no Immigration staff qualified to assess the merits of the statements on visa applications, the Committee believes this portion of the application to be of little use to either Department of Immigration and Citizenship or the applicant.

4.71 The Committee was surprised and somewhat puzzled that Department of Foreign Affairs and Trade officials had also been involved in scrutinising particular applications. The Committee is of the opinion that the role of this department in assessing migration visa applications should be clarified.

4.72 Accordingly, the Committee recommends that the Department of Immigration and Citizenship streamline the visa application process for visiting researchers by replacing the section that requires applicants to detail the benefits to Australia of their planned visit with a simplified section consisting of check boxes containing common reasons for academic visits.

Recommendation 4

The Committee recommends that the Department of Immigration and Citizenship streamline the visa application process for visiting researchers by replacing the section that requires applicants to detail the benefits to Australia of their planned visit with a simplified section consisting of check boxes containing common reasons for academic visits.

Additional costs for incoming researchers

4.73 Overseas researchers working in Australia also are subject to additional costs that are generally not supported by research grants or the sponsoring research institution, with witnesses identifying a need to not only facilitate the transfer of researchers to Australia, but to also ensure they are not subject to excessive additional costs.[62]

4.74 Witnesses and submitters noted several financial barriers to bringing researchers in from overseas, including health insurance,[63] school fees, and non-resident tax rates.

4.75 Researchers who choose to bring their families out to Australia with them are met with expenses for school fees, even if they choose to enrol their

62 ACU, *transcript of evidence*, 8 April 2010, p. 4.

63 ANSTO, *transcript of evidence*, 8 April 2010, p. 60.

children in public schools.[64] Imposing sizeable school fees on visiting researchers can act as a disincentive, especially if the researcher has several children.[65]

4.76 This extra expense has the potential to reduce Australia's competitiveness as a destination for overseas researchers:

> [School fees] can be quite substantial. They are about $5,000 a year for a primary school in New South Wales, for example, and this can be quite off-putting for somebody considering coming to Australia versus some other part of the world where that is not a serious constraint to them.[66]

4.77 In its submission, James Cook University noted that New Zealand had eliminated fees for research students, and encouraged Australia to do the same.

> Australian universities should be further assisted to attract the highest calibre international research students. Such students are operating in a genuinely global market for the enrolment; it does not serve Australia well to discourage them through high costs.[67]

4.78 Some research institutions covered the education expenses of the children of their overseas researchers:

> One of the appointees we have made from Austria – and this is the first I have become aware of this – has two primary school age children, and suddenly we are up for $10,000 in fees for the children. I am paying that out of our budget, so that is a cost I do not really welcome being added to us.[68]

4.79 Another issue identified as an impediment to visiting researchers was non-resident tax rates. High non-resident tax rates can clearly act as a disincentive for researchers to visit Australia. While tax rates were reduced when the visiting researchers secured tax file numbers, they still paid higher taxes than their domestic counterparts. The disincentive was particularly true for younger researchers, who didn't earn the same salaries as their more senior counterparts:

> It is actually very difficult for young international scientists and researchers to come to Australia. It is difficult because of our

64 AINSE, *submission*, p. 6; UoN, *submission*, p. 5.
65 ACU, *transcript of evidence*, 8 April 2010, p. 16.
66 ANSTO, *transcript of evidence*, 8 April 2010, p. 57.
67 JCU, *submission 8*, p. 4.
68 ANSTO, *transcript of evidence*, 8 April 2010, p. 60.

> taxation system. When they come here they pay a higher tax rate than Australians because of their non-resident status. And until they get a tax file number it can be extremely high. But even then, after getting a tax file number, it is still a much higher tax rate than their Australian counterparts pay. These are people with young families. They are in their early 30s. They are not on high salaries.[69]

4.80 Combining the issues of taxation and school fees, a witness added:

> It just seems to me that, if the person is here and paying taxes, they should be eligible for the benefits that other Australians who pay taxes get.[70]

Committee comment

4.81 The additional costs faced by visiting researchers also serve as a clear disincentive to research collaboration. Even once a researcher has secured a tax file number they still pay a higher rate of tax placing more strain on young researchers who earn less than their senior counterparts. The Committee understands the rationale behind higher tax rates for non-residents but considers it unfair for taxpayers, Australian residents or not, to be unable to access free public education for their children.

4.82 Recognising that taxpayers in the Australian tax system have the right to access free public education for their children, the Committee recommends that the federal Minister for Education formulate a proposal for consideration through COAG recommending that visiting researchers that have an Australian tax file number and are contracted to work on research projects for more than six months be eligible to receive public education for all school age children.

Recommendation 5

The Committee recommends that the federal Minister for Education formulate a proposal for consideration through COAG recommending that visiting researchers that have an Australian tax file number and are contracted to work on research projects for more than six months be eligible to receive public education for all school age children.

69 UoN, *transcript of evidence*, 8 April 2010, p. 5.

70 AINSE, *transcript of evidence*, 8 April 2010, p. 61.

5

Access to domestic and bilateral research grants

5.1 The primary source of funding for Australian researchers is research grants offered by Australian research institutions. The two major grant providers supported by the Australian Government are the Australian Research Council (ARC) and the National Health and Medical Research Council (NHMRC).

5.2 This chapter examines:

- Access to funding for early career researchers
- The ARC and NHMRC
- The International Science Linkages Program
- Spending Australian grant funding overseas
- Bilateral research grant schemes.

Early career researchers

5.3 One of the main impediments to building strong research collaborations identified by submitters and witnesses was the difficulty faced by many early-career researchers in securing funding for research projects, especially when they were competing against experienced researchers with proven track records.[1]

5.4 Research funding has been found to have the tendency to invite further funding. As research continues, and publication and citations increase,

1 ASSA, *submission 38*, p. 3.

researchers are more likely to be successful in funding rounds, but many younger early-career researchers have found it difficult to break into the funding regime. Professor Fiona Stanley AC described the experience:

> This is the early career path of research and it is so difficult. You have to be a really advanced researcher with international publications and all the rest of it to even get on the first rung of a pathway that says, 'I'm going to be in NHMRC and funded as a scholar, as a fellow' – that career path. To get onto that first rung is so competitive now because of numbers.[2]

5.5 Professor Stanley also noted:

> For a country the size of Australia, the proportion of grants and fellowships that are given is way behind every other country in the OECD that I know of.[3]

5.6 Professor Stanley reported that she had developed a process to assist her early-career researchers:

> It is track record that wins you the grant. How do you get your track record if it is so competitive to get the grant? We are walking the tightrope with or young people where I use my track record to get the grants and I go on the grants with them, try to make them the first CIA, if you like – we call if chief investigator A – on the grant, because if they do not have a CIA grant they are not competitive for any of the fellowships … you have to prove that they are independent of me; that they are independent researchers. So we have to use our track record to get them funded. It is, I think, very hard and it would be very good if we had more funding for the younger people at earlier stages of their careers.[4]

The ARC and NHMRC

5.7 The ARC and NHMRC are the two major Australian Government providers of funds for research. They are responsible for several different grant schemes, and conduct regular funding rounds for Australian researchers.

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2 Professor Fiona Stanley AC, *transcript of evidence*, 13 April 2010, pp. 11-12.

3 Professor Fiona Stanley AC, *transcript of evidence*, 13 April 2010, p. 12.

4 Professor Fiona Stanley AC, *transcript of evidence*, 13 April 2010, p. 13.

5.8 The ARC focuses on a wide variety of research endeavours, while the NHMRC focuses on health and medical research.

5.9 The structure of the ARC was examined, with the Committee being informed that the ARC was run on a lean budget and structure:

> The ARC has, I think, five executive directors or people that manage each of the panels – there are only five panels now; there used to be six – but those people are really overwhelmed. They do not really have time to think about where that whole sector of research activity is moving.[5]

5.10 Deakin University commented further:

> There has been an attempt, I think, to keep their administrative budget at something like two or three per cent which, given what they do, is incredibly lean, but as a result I do not think that they are really doing the kind of service they could into understanding research in the country.[6]

5.11 The Committee was advised by witnesses that ARC funding was limited,[7] and that the funding application process was becoming more competitive. A witness from Deakin University that also sat on the ARC College of Experts explained how demands for ARC funding had changed:

> I think Australia has to have that kind of competitive process. It should have a process. The number of grant applications the ARC has received annually is increasing at an incredible extent with the pool of money that is available for project funding being pretty static. Most of the new funding has been put towards career development, new fellowships and increases in funding for scholarships, which is fantastic and very welcome, but the pool of funding for research discovery and linkage projects has not really increased, while the interest and the applications have increased dramatically.
>
> Because we are focusing on a 20 per cent success rate, there is less and less money available to researchers that are being funded – and people are not padding their grants; they are very reasonable for the most part. There are occasionally outliers.[8]

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5 Deakin University, *transcript of evidence*, 9 April 2010, p. 19.
6 Deakin University, *transcript of evidence*, 9 April 2010, p. 20.
7 NTEU, *transcript of evidence*, 9 April 2010, p. 82.
8 Deakin University, *transcript of evidence*, 9 April 2010, p. 10.

5.12 The witness continued:

> There is real recognition of what the cutting edge in research is in Australia and I think that is great. I think the ARC is really hamstrung by both the amount of money and the necessity, in distributing that, to go for low risk because researchers have to be accountable and there are not schemes to fund high-risk research.[9]

5.13 The Committee also heard from several witnesses that the budgets of successful ARC grants were often cut:

> While the success rate [of ARC grant applications] is 20 per cent, the bulk of those grants are severely cut in terms of the budget requested. Unfortunately, in my experience – and I do need to state that this was a number of years ago – many of the items that were typically cut from the budget were the travel and the international collaboration aspects. Again, the perception that is given is that these areas are less important, and that is a very wrong message.[10]

Committee comment

5.14 The challenges faced by early career researchers and securing full funding of research are areas the Committee previously considered in its *Building Australia's Research Capacity* report. The Committee reiterates its recommendations in these areas to aid Australian researchers.

Recommendation 6

The Committee recommends that the Australian Government implement a quota of 10 per cent of ARC and NHMRC successful grants to be allocated to early-career researchers who are first-time awardees.

9 Deakin University, *transcript of evidence*, 9 April 2010, p. 11.

10 UNSW, *transcript of evidence*, 8 April 2010, p. 10.

Recommendation 7

The Committee recommends that the Australian Government specify that competitive grants, in particular all National Health and Medical Research Council grants, fund the full cost of research in each program to which a grant has been awarded.

Centres of Excellence

5.15 CAMS was asked to contrast the nature of normal ARC grants with funding for Centres of Excellence, and to discuss the advantages of Centres of Excellence:

> With respect to the centres, certainly in our case the funding is probably—if I look at the experts that we have within our centre—not any more than we might expect collectively to have received out of standard ARC grants; the difference is that this funding comes centrally, and it has brought together people who, in some sense, were collaborators but also, in some sense, were vying for the same funds in the past. It has put us into the one pot and has really brought us together to do collaborative research within Australia … The other thing is that it is longer term … Centre funding was for five years and we have just been extended for 3½ years. So, that gives us 8½ years to put in place—we are very infrastructure intensive in our centre—the infrastructure and then to do the world-leading research, which we are doing.[11]

5.16 CAMS explained further:

> [Centre of Excellence funding] hasn't allowed us to do as much international collaboration as we would have, but that is where the ISL has really been a significant advantage to us.[12]

5.17 When asked if the Centre of Excellence model was one that we should be expanded, CAMS stated:

> … an unqualified yes. I think that is happening in the current round of centres which are about to be assessed At least, that is what we have been told will happen.[13]

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11 CAMS, *transcript of evidence*, 2 June 2010, p. 11.
12 CAMS, *transcript of evidence*, 2 June 2010, p. 12.
13 CAMS, *transcript of evidence*, 2 June 2010, p. 11.

5.18 CAMS was asked to discuss any problems or issues with follow-on funding for Centres of Excellence:

> One of the things which comes with having a Centre of Excellence, is a lot more scrutiny from the ARC. There is no question about that. Some of us weight this up. You take on a Centre with perhaps a little more funding than you might otherwise have had, but you take on something like, I would estimate, four or five times the level of scrutiny. That is fine—it is not something that I am complaining about—but it does add a lot of time into the management of the research. We have had two reviews during the life of our Centre in order for us to get over the hurdle and to be continued. They take a lot of time and a lot of effort. Again, I do not begrudge that time and effort but it does affect the way in which you can prosecute your research. There is no question about that … But I am perfectly happy for us to be judged regularly on our performance. That is not an issue. The issue that I would weigh up is whether the funding that we have sits appropriately with the level of scrutiny that is applied to it.[14]

Committee comment

5.19 It is quite clear from this inquiry that early career researchers face significant disadvantages in securing funding for research. There are few opportunities for early career researchers and they are often competing against experienced researchers with proven track records.

5.20 Funding bodies seek to secure the best possible expenditure of funds and are more likely to choose to fund experienced researchers with a clear track record of success in research. The Committee is pleased to hear that some senior researchers are supporting their junior staff in securing funding, but notes that there are other mechanisms to support early career researchers.

5.21 The Committee acknowledges the evidence that suggests there are more and more researchers competing for a diminishing funding pool, but understands the current budgetary position prevents any major adjustment of funds for the ARC or NHMRC.

5.22 Given the size of the funding pool available to the ARC, the Committee understands why the ARC has to cut funding for successful grants, but notes that cutting travel and the other aspects that support international

14 CAMS, *transcript of evidence*, 2 June 2010, p. 12.

collaboration prevent the full potential of some research projects being reached.

5.23 Notwithstanding the above, the Committee does not support any proposal to fully fund the travel component of several grants. Doing this may improve the success of research projects, but will greatly reduce the number of successful grants. Given the rate of grant approval is already so low, and getting lower as the number of grant applications increases further, the Committee would prefer to see more projects funded.

International Science Linkages program

5.24 The International Science Linkages (ISL) program, administered by the Department of Innovation, Industry, Science and Research, supports Australian scientists from both the public and private sector to collaborate with international partners on cutting edge science and technology with the purpose of improving Australia's economic, social and environmental wellbeing.[15]

5.25 Submitters discussed the benefits the scheme had provided, especially for research projects with smaller budgets:

> Our project and collaboration funding is largely supported by discovery based competitive grant schemes. This includes the former International Science Linkages Scheme, which was very good for small to medium scale enterprises but had limitations in scope and scale.[16]

5.26 The Centre for Antimatter-Matter Studies (CAMS), an ARC Centre of Excellence, noted that an ISL grant had provided many Australian researchers with the funding needed to establish research collaborations with European Research Networks.[17]

5.27 CAMS stated that ISL funding had brought the centre tremendous advantage:

> [CAMS is] one of the largest, in fact, of the 20 or so ARC Centres of Excellence—but one of the Centres with the smallest amount of funding. So what the grant has allowed us to do is to engage internationally with our research partners, particularly in Europe

15 grants.innovation.gov.au/isl/Pages/Home.aspx, accessed 31 May 2010.

16 ITER Forum, *transcript of evidence*, 10 March 2010, p. 17.

17 CAMS, *submission 5*, pp. 2-3.

> in a way in which we not otherwise have been able to do … We are clearly engaged internationally and the reason we are engaged internationally is we've had access to these focussed funds to allow us to do that.[18]

5.28 CAMS added:

> The particular advantage of the ISL funding has been its focus, and the fact that it is, I think, extremely well managed. They look very carefully at outcomes and the focus is on developing the interaction of Australian science—in our case, with our European colleagues.[19]

5.29 CAMS discussed the flexibility of the ISL funding program:

> It had a six monthly application cycle … It is opportunistic. Quite often I will travel to a conference and give a talk and someone will come up to me—in particular it might be someone from outside my field like a biomedical scientist—and start to talk about possibilities for collaboration. They are the sorts of things you would like to jump on as quickly as you can … So having a relatively short cycle opportunity to go to a funding body that was focused on collaborative research I think would be the best way to do it.[20]

5.30 CAMS explained further:

> One of the rally nice things about the ISL program was flexibility after the fact, and so once you were in the program you take advantage of these opportunities as they came up, in negotiation with the department and we found them to be very responsive and very flexible in the way that we could take those up.

5.31 CAMS also appreciated the length of funding periods under the ISL program:

> [There is a] possibility of getting significant amounts of funding over a longer term … That really does allow you to set up and establish collaborations and relationships with international partners.[21]

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18 CAMS, *transcript of evidence*, 2 June 2010, pp. 1, 8.
19 CAMS, *transcript of evidence*, 2 June 2010, p. 1.
20 CAMS, *transcript of evidence*, 2 June 2010, p. 4.
21 CAMS, *transcript of evidence*, 2 June 2010, p. 4.

5.32 CAMS explained the process it had recently been through, considering that the future of the ISL program is uncertain beyond June 2011:

> We went to the department about six months ago and said, 'We're winding up. We understand that things are on hold. Are there any ways in which we can put a proposal to you about how we can continue this, because if you look at what we have done we think it is worth continuing'. They were very receptive to that and they pointed towards a much smaller fund which was to fund research into and out of Europe. So we made an application to that … That was a much shorter term. It was funding for one year. But then the funds dried up within that European program.[22]

5.33 When asked what will happen to the work the Centre is doing internationally, with no ISL funding, CAMS responded:

> It'll mean that we will have to reassess the way in which we engage with Europe. We are looking at other opportunities, of course … we are looking more into opportunities within the EU to get reciprocal funding of the sort that we have been supplying through ISL to our European collaborators. So there are other ways to do it, but it is a little patchy and it would involve engaging in a number of different programs. In the long run it is going to mean a lot of the relationships that we have built up will probably dry up.[23]

5.34 Monash University also noted that the end of the ISL program had impacted on collaboration with Europe:

> International Science Linkage support is no longer available, particularly in the middle of the European Union's 50 billion Euro Framework 7 funding cycle. This discourages collaboration and the investment in resources to build linkages, and it risks encouraging researchers back to working domestically.[24]

5.35 Submitters also talked about improving the ISL program to ensure it keeps pace with international research trends. The University of Adelaide suggested:

> … we feel the International Science Linkages program needs to be updated substantially in order to keep pace with the developments that are taking place in major countries within the

22 CAMS, *transcript of evidence*, 2 June 2010, p. 7.

23 CAMS, *transcript of evidence*, 2 June 2010, p. 7.

24 Monash University, *submission 59*, p. 15.

> Asia-Pacific region, most especially in China and Indonesia where the lack of Australian Government support for bilateral research collaboration is a very serious impediment … Furthermore, in considering the successor to the International Science Linkages program after 2010-2011, it would be worthwhile giving some priority, not just to countries, but for areas of research …[25]

5.36 The Australian Academy of Technological Sciences and Engineering called for the ISL program to have its funding increased to $30m per annum, and called for three year funding terms:

> Three year funding enhances the administrative efficiency in delivery as it allows for longer term planning and provides a "message" of ongoing commitment to bilateral partners and their academies and research institutes.[26]

5.37 The Department of Innovation, Industry, Science and Research indicated that it is currently reviewing the ISL program:

> … we have actually evaluated elements of the ISL program in the past, but now we are looking at an overarching evaluation of the entire program. What we have are a number of elements that have almost accreted over time, so they are parts of the program that started right at the beginning and then some that have come in along the way. So it will be a thoroughgoing independent evaluation. I think we are looking at trying to streamline the program. I think we would like to have something that says we have a range of target countries and then we have a range of program offerings, which is a little bit more narrow than we have had in the past.
>
> That is not to say that we think any of the particular elements that we have been supporting up until now have been a poor investment or in fact not delivered. We have a sense—and that needs to be underpinned with the evaluation—that each of the elements in its own way has delivered very useful outcomes, but we would like to streamline the process a little bit I think. So we are looking at that as part of the evaluation and then we will make propositions to government, but they will also take account of what this committee recommends about what might be an appropriate form for an ISL program going forward.[27]

25 UoA, *submission 11*, p. 4.

26 AATSE, *submission 63*, p. 14.

27 DIISR, *transcript of evidence*, 26 May 2010, p. 13.

5.38 When asked how long the ISL program had been under review, DIISR explained:

> Only in the last few months, because you basically want the program to be as far advanced in its funding cycle as possible before you do an evaluation. It is a routine process. We do it on all funded programs towards the end of the life …[28]

5.39 DIISR discussed the conduct of the review:

> At the moment we are collecting information internally, but we are going to appoint some independent panel members to help us with conducting the review. There is a difficulty, because most of the stakeholders who would have, I guess, the most informed view … are deeply involved in the program. So we are trying to think about how we might conduct a very independent assessment while still making the most of people who have been very closely involved with the program for a long time. It will take us another two or three months before it is finished …[29]

5.40 The Committee was deeply concerned that the ISL program is to wind up at the end of the 2010-11 financial year, and sought clarification from DIISR on the status of the program:

> We would hope, because of the anecdotal evidence we already have, that it will say that the program has been very effective, efficient … The real value of the evaluation is to tell us how we might improve the program going forward.
>
> There are ongoing programs that also are subject to review but they have ongoing funding in the forward estimates. Then … there are lapsing programs which do not have ongoing funding in the forward estimates and have to be re-funded through a budget initiative. This program fits into the latter category.
>
> We have no certainty of funding beyond June 2011 at the moment, but the government intends to consider this, we understand, in the upcoming budget, and I think our minister is hopeful that this inquiry will feed into that consideration.[30]

28 DIISR, *transcript of evidence*, 26 May 2010, p. 15.

29 DIISR, *transcript of evidence*, 26 May 2010, p. 15.

30 DIISR, *transcript of evidence*, 26 May 2010, pp. 16-17.

5.41 When asked what kind of impact the discontinued ISL program will have on our existing scientific collaboration and linkages, and how that impact would be managed, DIISR explained:

> Obviously we are planning on one stream, on the probability that there may be ongoing funding. If there was not ongoing funding, I think we would be looking at what we could do in terms of using mainstream programs to continue international scientific engagement.
>
> I do not think there is any question that the government wants to continue, and that the scientific community wants to continue, with a strong program of international scientific engagement ... ISL in itself is quite a small amount of money and leverages off all sorts of work that CSIRO does and that the ARC does et cetera. That small amount of money is very useful. If we did not have it, I think we would be trying to leverage more heavily from the mainstream programs and mainstream institutions.
>
> In terms of referring people to other programs, we are thinking about processes such as twinning, which I think CSIRO referred to. We work through the MOUs and the relationships we have with other governments to work with scientists who have funding from other programs—for example, ARC grants—to 'match them' with scientists in other countries who have funding from programs within their country. So there is an element of that that can be undertaken which will actually help us through this time, too.[31]

5.42 The Committee was concerned that there would be a very short time between the end of the current ISL program and any proposed funding in the 2011 Budget. DIISR was asked to comment on the confidence scientists would have in a program where there is a 'maybe' issue only a month before the program would otherwise be terminated:

> … we have funded a range of projects that will not all come to a stop at June 2011. I think what has been impacted is our ability to forward commit to new projects. So we would require new funding and that is what we cannot have certainty about at the moment … Until we get certainty, we cannot forward commit.
>
> I imagine [scientists] will be waiting for us to tell them what is happening and we will be ready to swing into action very quickly.

31 DIISR, *transcript of evidence*, 26 May 2010, pp. 17-18.

> I am not sure that it actually looks like a running down of the program from the outside. I think that is a characterisation of people that are deeply involved in it.[32]

5.43 When asked about the possibility of the ISL program continuing, DIISR stated:

> Our data is positive about the program and we will use that data. This final evaluation is to talk about the directions for the future, so I think we have a positive and optimistic view of how we think the program should proceed and that is what we will put to government.[33]

5.44 Witnesses and submitters called for the reinstatement of the International Science Linkages program beyond June 2011[34], and expressed disappointment that the program was in the process of being wound up with no clear alternative scheme on the horizon.[35]

Committee comment

5.45 The Committee believes that the evidence received overwhelmingly supports the International Science Linkages program as a method for supporting international research collaboration. The Committee heard that the ISL scheme enabled early career researchers to secure funding to build collaborations, in many cases in Europe, and that the scheme also supported researchers who required smaller amounts of grant funding.

5.46 Witnesses and submitters expressed their disappointment that there was no clear future for the ISL program, and while the Committee notes the future of the program is under review and there is every possibility that a successor program will be introduced, the Committee recommends that the Department of Innovation, Industry, Science and Research announce a successor program to International Science Linkages as soon as practicable.

32 DIISR, *transcript of evidence*, 26 May 2010, pp. 18-19.

33 DIISR, *transcript of evidence*, 26 May 2010, p. 19.

34 Faculty of Science, UoM, *submission 33*, p. 2.

35 NCA, AAS, *submission 35*, p. 4; ITER Forum, *submission 36*, p. 2; UNSW, *submission 28*, p. 5; UoM, *submission 51*, p. 5; CAMS, *submission 5*, p. 5; Go8, *submission 40*, p. 7.

Recommendation 8

The Committee recommends that the Department of Innovation, Industry, Science and Research announce a successor program to the International Science Linkages program as soon as practicable to address the concerns of the research community.

5.47 The Committee has also considered the form a future program might take. It should retain the accessibility of the ISL program, but should also be modernised. The Committee supports the idea that the program should target the Asia-Pacific region, but also notes the successes had by applicants in breaking into European Union research networks.

5.48 The Committee also supports the suggestion that the ISL program has its funding increased, as it has proven to be invaluable in supporting early-career researchers. The more successful researchers are early in their careers, the more chance they have to secure funding through other means, including through larger overseas-based research.

5.49 Therefore, the Committee recommends that the successor program to the International Science Linkages program has its budget increased and indexed, and, pending proven success of the new program, that the Department of Innovation, Industry, Science and Research seek to have funding increased further in future budgets.

Recommendation 9

The Committee recommends that the successor program to the International Science Linkages program has its budget increased and indexed, and, pending proven success of the new program, that the Department of Innovation, Industry, Science and Research seek to have funding increased further in future budgets.

Small grants programs

5.50 Some scientific disciplines noted that the existing grant schemes did not suit their needs, as they were seeking less than the minimum grant funding amount. The needs of these researchers would be better met with a small grants system. This was especially true of areas of science that already had top of the line facilities, such as nuclear physics, and areas that required little in the way of equipment, like mathematics.

5.51 AMSI told the Committee:

> … the ARC has a minimum of $20,000 and actually, for a lot of this research collaboration, you can make do with less …[36]

5.52 Another member of AMSI added:

> When the small grants scheme was operating in the past, towards the end of its life it was locally administered and there were reporting requirements back to the ARC.[37]

5.53 AMSI suggested a small grants scheme to support mathematics would attract approximately 300 applications in a year, and to fund them fully via a small grants scheme would cost $6m if every application happened to be successful.[38]

5.54 In its submission, AMSI suggested duplicating the small grants model used in Canada:

> In Canada there is a two tiered funding system with a small grant scheme with a relatively high success rate which, in the mathematical sciences, funds individual researchers and allows them to undertake the basic international collaboration that is essential to the discipline (conference attendance and reciprocal visits to colleagues).[39]

5.55 This example highlights that collaboration does not necessarily have to be expensive once networks have been established and researchers are communicating using the appropriate technology.

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36 AMSI, *transcript of evidence*, 9 April 2010, p. 40.

37 AMSI, *transcript of evidence*, 9 April 2010, p. 40.

38 AMSI, *transcript of evidence*, 9 April 2010, p. 40.

39 AMSI, *submission 53*, p. 3.

Committee comment

5.56 The Committee was surprised to hear that some researchers were unable to use existing research schemes as the minimum grant funding amounts were too high. More should be done to support disciplines that require less funding, as more projects can be funded with less money. While quantity of research does not necessarily equate with quality, disciplines that can be researched cost-effectively should not be disadvantaged.

5.57 The Committee therefore recommends that the Department of Innovation, Industry, Science and Research investigate the operation of the Canadian small grant scheme and report on its effectiveness and the potential benefits to Australia of duplicating the scheme in its review of the International Science Linkages program.

Recommendation 10

The Committee recommends that the Department of Innovation, Industry, Science and Research investigate the operation of the Canadian small grant scheme and report on its effectiveness and the potential benefits to Australia of duplicating the scheme in its review of the International Science Linkages program.

'Blue-sky' research

5.58 Several witnesses noted that the ARC and NHMRC tended to fund research that was seen to be more likely to deliver value for money,[40] by supporting grants from researchers with a clear track record in publishing papers.[41] Another witness expressed the belief that the ARC funding process tended to cut out risky, or 'blue-sky' research.[42]

5.59 The Committee noted that Dr Robin Warren and Dr Barry Marshall, winners of the Nobel Prize for Medicine in 2005 for their research on the role of *Helicobacter pylori* bacterium in stomach ulcers, were unable to

40 Deakin University, *transcript of evidence*, 9 April 2010, p. 11.

41 UoN, *transcript of evidence*, 8 April 2010, p. 9.

42 UoM, *transcript of evidence*, 9 April 2010, p. 11.

secure funding from the NHMRC, as their research was considered too risky. Newcastle University told the Committee:

> … NHMRC panels often discussed the fact that in 1989 they missed out on an NHMRC grant on the work they subsequently won the Nobel Prize for. That had an influence on future panels and is well discussed. It is even discussed in the briefings of those panels.[43]

5.60 The NTEU believed that more should be done to support researchers working in areas considered to be "risky":

> Principles and strategies for improving international research collaboration should also seek to encourage individual researchers and research students to engage in blue-sky, curiosity-driven and risky research. The policy environment must provide incentives to enable distinctive, individual and differentiated collaborative arrangements.[44]

5.61 RMIT University observed that a lack of short-term funding was an impediment on 'blue-sky' research, as three year grants required researchers to spend a lot of time on grant applications.[45]

5.62 NHMRC did indicate that it will support more 'blue-sky' research:

> This year, for the first time, we have advertised that we would like to support a small number of truly left-field grants, which you will not be surprised to hear that we have called the Warren and Marshall Project Grant Award. We are hoping that we can identify just a small number of really left-field grants. You might ask why a small number. How innovative the grant is is a factor in all the granting schemes. It is a small number because these days we will be funding only about 20 per cent of applications and those 20 per cent are all outstanding grant applications already. The usual argument is that, if you do something really left of field, what is a really good grant moves out. But I think it is very important. Since I have been CEO, at each briefing of our panels before they start I have emphasised that we really do want them to look for truly innovative and potentially paradigm-breaking research.[46]

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43 UoN, *transcript of evidence*, 8 April 2010, p. 10.

44 NTEU, *submission 26*, pp. 8-9.

45 RMIT University, *transcript of evidence*, 9 April 2010, p. 12; Flinders University, *submission 56*, p. 2.

46 NHMRC, *transcript of evidence*, 24 May 2010, p. 24.

Committee comment

5.63 The Committee understands the tendency of research funding organisations to fund "safe" research from researchers with proven track records. However, many great scientific discoveries have occurred due to "risky" research. The Committee believes the ARC and NHMRC should allocate a portion of research funding to 'blue-sky' research in acknowledgement that sometimes the riskiest research delivers the biggest innovations. The Committee recommends that both research councils allocate a fixed percentage of research funding to 'blue-sky' research.

Recommendation 11

The Committee recommends that the Australian Research Council and the National Health and Medical Research Council allocate a fixed percentage of research funding to 'blue-sky' research.

Spending Australian grant funds overseas

5.64 Another issue identified by submitters and witnesses was the inability of the winners of Australian research grants to use their funding overseas.[47] There are clearly reasons to justify this policy, namely ensuring that research is performed in Australia to maximise the exposure of the research to the Australian scientific community, and that the funds are spent in the Australian economy.

5.65 However, the global nature of scientific research means that there are also benefits to spending Australian research funds overseas. It is possible that there may be more value for money spending funds in an overseas market, and it is also possible that funding could be leveraged[48] with overseas funding to make larger research projects that deliver better outcomes.

5.66 The University of Melbourne noted the way in which restricting the expenditure of funding to Australia had the potential to hamstring research:

47 NTEU, *submission 26*, p. 4; JCU, *submission 8*, p. 4.

48 CAMS, *submission 5*, p. 4.

> The emphasis on the value of a research project to Australians as opposed to the benefits for international research and policy, and the focus of the Australian National Research priorities also result in limitations being imposed on the value of the research to the international community.[49]

5.67 The Committee was also told of an instance where research could not be conducted in a collaborative manner due to the research body's inability to spend Australian grant money overseas:

> … we have a trial which we wanted to do with the Canadians. It is a clinical question about gastric cancer, cancer of the stomach, and we want to know what is the role of radiotherapy in gastric cancer. The Canadians think it is an important question; we think it is an important question; the surgeons, the medical oncologists and the radiation oncologists all think it is an important question. We take a leadership role and we developed the trial. We take it to the Canadians and say 'Let's do this together.' They say, 'Yes, but we need some money.' They do not have any money. We cannot send any Cancer Australia money out of the country and the trial is foundering on philanthropic donations.[50]

5.68 The desire to spend Australian research funds overseas is especially strong when looking at the field of medical research. The Menzies School of Health Research noted the emphasis on spending Australian research funding in Australia:

> In the past, funding for international medical research has fallen between the crack of two different organisations. The funding priorities of the NHMRC (the primary source of funds for medical health research in Australia) have tended to be Australian; and AusAID (the primary Australian source of funds for international development work) has been reluctant to fund research.[51]

5.69 Menzies School of Health Research concluded:

> NHMRC barriers to international collaborations should be removed permanently, not just for the finite period of time that Global Health may be listed as a strategic priority.[52]

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49 UoM, *submission 51*, p. 6.

50 COSA, *transcript of evidence*, 8 April 2010, p. 75.

51 Menzies School of Health Research, *submission 3*, p. 3.

52 Menzies School of Health Research, *submission 3*, p. 4.

5.70 Research Australia identified difficulties in the current scheme:

> … there is a lack of parity between funding schemes within Australia and the ability for researchers to use their grant monies to facilitate international participation and patient recruitment in research activities. An example of this is Cancer Australia funding which may be used within an Australian setting but not to facilitate patient recruitment in countries with which our own researchers are collaborating.[53]

5.71 Research Australia also supported a more flexible funding regime:

> We would like to see opportunities to co-fund health and medical research. I think there have been advances in terms of co-funding, but we would like to get over the notion of Australian taxpayer dollars funding research just in Australia. We need flexible funding borders. Part of that would be to have a pool of funding earmarked for international research, which is assessed and administered by an international panel acceptable to all parties. An example of this is the Juvenile Diabetes Research Foundation and its funding with the NHMRC, so it is done in a global sense.[54]

5.72 The University of Melbourne praised recent developments in NHMRC funding to relax their guidelines:

> [The] NHMRC appear to be heading in the right direction, with a relaxation of eligibility guidelines such that overseas investigators are able to be named Chief Investigators on projects.[55]

5.73 However, support for the notion of enabling Australian funding to be spent overseas was not restricted just to the medical research sector. RMIT University identified the inflexible funding regime as an impediment to collaboration, and suggested allowing Australian researchers based overseas to access funding:

> [Researchers would benefit if the Government were to] Allow greater flexibility in funding arrangements to support international collaborations, including allowing researchers who are based overseas but plan to work at Australian universities the opportunity to apply for Australian funding schemes to ensure that they maintain a continuous research program.[56]

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53 Research Australia, *submission 62*, p. 55.

54 Research Australia, *transcript of evidence*, 9 April 2010, p. 55.

55 UoM, *submission 51*, p. 6.

56 RMIT University, *submission 31*, p. 3.

5.74 The Tasmanian Department of Primary Industry, Parks, Water and Environment noted the ARC funding system acted as an impediment to collaboration:

> A major impediment in engaging with international collaborators within the standard ARC funding system is the lack of ability to provide financial support to activities being undertaken offshore.
>
> While ARC discovery (and linkages) aims to support Australian researchers, there is often considerable benefit in engaging with overseas research agencies, however there is no financial support available for overseas collaborators. This often limits the involvement significantly (or precludes it if the agency for which they work demands the provision of infrastructure costs).[57]

5.75 The Department proposed a way forward:

> Provision for a proportion of the total budget that could be spent offshore on legitimate expenses (for example, travel for collaborators, offshore trial work, compulsory infrastructure costs) would enable greater participation within these schemes.
>
> Another developmental area for consideration would be the creation of new framework level funding to support major international program initiatives centred in Australia but with major input from key international researchers and groups targeting key priority areas.[58]

5.76 There is some merit in this approach and while it is preferred that the majority of Australian research funding not head offshore there are benefits in spending Australian research funding overseas to maximise the utility of the funding.

5.77 The Committee was also informed that non-Australian residents were unable to act as Chief Investigators on ARC Discovery projects, and that there were further restrictions on non-resident researchers:

> [Non-residents] can only be included as a Partner Investigator if they 'secure a significant contribution of cash, or in-kind or other resources from the researcher's organisation for the proposed project'. There is also the restrictive requirement that the Chief Investigator must reside predominately in Australia for the full term of her/his participation in the project.[59]

57 Tasmanian Dept. of Primary Industries, Parks, Water & Environment, *submission 42*, p. 4.

58 Tasmanian Dept. of Primary Industries, Parks, Water & Environment, *submission 42*, p. 4.

59 UoM, *submission 51*, p. 6.

Committee comment

5.78 The issue of spending Australian grant money overseas is an important issue especially for medical research bodies. The arguments in favour and against spending Australian grant funds overseas are both understandable, but research funding bodies should do their best not to impede scientific research especially when an issue like global health is listed as an Australian research priority.

5.79 The Committee believes that Australian research funds under the ARC and NHMRC should be permitted to be spent overseas at least for a trial period to ascertain the positive and negative impacts of a shift in policy.

5.80 Accordingly, the Committee recommends that the Australian Research Council and the National Health and Medical Research Council relax the restrictions on researchers spending funding overseas on a trial basis for the next two funding rounds, and that the organisations review the impacts of this policy to determine whether it should be a permanent feature of research funding.

Recommendation 12

The Committee recommends that the Australian Research Council and the National Health and Medical Research Council relax the restrictions on researchers spending funding overseas on a trial basis for the next two funding rounds, and that the organisations review the impacts of this policy to determine whether it should be a permanent feature of research funding.

Bilateral funding schemes

5.81 The Committee also discussed ways to improve bilateral funding schemes. Currently Australia has bilateral research funding schemes with a range of countries in Europe and Asia.

5.82 These bilateral schemes were supported by submitters and witnesses,[60] as they have been found to have several key advantages, encouraging close

60 NCA, AAS, *submission 35*, p. 2.

links between research communities in Australia and overseas, as well as providing opportunities for leveraging funding.[61] Additionally, by sharing the benefits of bilateral research, both contributors to a project benefit by sharing in the results of their research.[62]

5.83 One of the problems observed with Australia's current bilateral agreements was that there was a significant amount of duplication of effort going on in Australia and the bilateral partner country, and that this was an area where there could be improvement. UNSW noted:

> Even with the current Australia-India scheme, for example, there are two lots of applications. You can have two lots of rankings here which are judged at different panels there. To have them judged and assessed in a single, integrated fashion seems fundamentally obvious, but it does not happen. So one party might rank one application No. 2 and the other might say it is unfunded. This is inefficient.[63]

5.84 The University of Melbourne,[64] and University of Wollongong identified similar problems when examining the French Australian Science and Technology Program (and similar bilateral programs):

> Our understanding is that this program requires that (i) applicants in both countries submit separate applications to their respective governments, and (ii) both applications must be successful in order to secure project funding. This is a very cumbersome process and the inherent difficulties discourage applications.[65]

5.85 The University of Wollongong also proposed a method to streamline the bilateral scheme process:

> Could the French and Australian governments not agree to set aside a defined amount of funds each towards bilateral collaborative projects and each country separately administer the granting process? This would allow the team to apply only once in a single country, streamlining the entire process, thus encouraging (rather than discouraging) applications and the resulting outcomes. Furthermore, the requirement that proposals fall into one of a small number of changing Priority Areas is also rather limiting to this scheme – we suggest that to encourage more

61 JDRF, *transcript of evidence*, 8 April 2010, p. 26.
62 JDRF, *transcript of evidence*, 8 April 2010, p. 27.
63 UNSW, *transcript of evidence*, 8 April 2010, p. 12.
64 UoM, *submission 51*, p. 6.
65 UoW, *submission 12*, p. 1.

> internationalisation activity, the Priority Areas should be dropped.[66]

5.86 The Committee was informed of opportunities for bilateral agreements that were currently being unfulfilled, possibly due to difficulties on the side of the Australian government:

> DAAD, the German organisation, have been wanting to engage with Australia and put money into supporting undergraduates, and they are getting no traction from Australia. They just want the matching funding for the seeding funding. From my understanding of the situation, they appear to be unable to locate the right person in government to go to to set up that mechanism …[67]

5.87 The Australian Academy of Technological Sciences and Engineering identified bilateral agreements as an important basis for research collaboration, but noted that while Australia had bilateral agreements with India, France, South Korea and China, that these schemes were underfunded and oversubscribed. They noted the funding in the agreement with China ($1.2 million per annum) was especially insufficient.[68]

Committee comment

5.88 The Committee sees great potential in bilateral funding schemes, but notes the observation that they are paralysed by bureaucracy and inefficiency. Schemes with France, India and China all require funding applications to be submitted separately in both countries to be assessed by separate panels in each country. While one can see the reasoning behind this system (to ensure that both countries consider the same application on its merits, with both countries having the same power to accept or reject an application), difficult application processes actually pose as a disincentive to applicants.

5.89 The Committee believes that these bilateral funding schemes can benefit greatly from the use of technology. The Committee believes there should be attempts made to streamline the application process while still endeavouring to give both countries equal say over the expenditure of funds.

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66 UoW, *submission 12*, p. 2.

67 USYD, *transcript of evidence*, 8 April 2010, p. 17.

68 AATSE, *submission 63*, pp. 6-7.

5.90 The Committee recommends that the Department of Innovation, Industry, Science and Research propose to Australia's bilateral funding scheme partners a streamlined application process consisting of both countries setting aside a defined total amount of funds, with each country separately administering the granting process.

Recommendation 13

The Committee recommends that the Department of Innovation, Industry, Science and Research propose to Australia's bilateral funding scheme partners a streamlined application process consisting of both countries setting aside a defined total amount of funds, with each country separately administering the granting process.

5.91 Another common theme of the inquiry was the emergence of China as an important research partner for Australia. The existence of a bilateral agreement to undertake scientific collaborations with China is most welcome; however, a total funding pool of $1.2 million per annum is clearly insufficient for an area as important as China to Australia's future. The more Australia can forge research links with China now, the more benefits will be felt in the future.

5.92 Accordingly, the Committee recommends that the Australia-China Science and Technology Program has its funding increased and indexed, and that the Department of Innovation, Industry, Science and Research seek to increase funding to the scheme as its budgetary situation improves.

Recommendation 14

The Committee recommends that the Australia-China Science and Technology Program has its funding increased and indexed, and that the Department of Innovation, Industry, Science and Research seek to increase funding to the scheme as its budgetary situation improves.

6

Access to overseas-based grant schemes

6.1 This chapter examines the access to overseas-based grant schemes by Australian researchers, namely:

- US funding schemes
- European funding schemes
- Funding from overseas philanthropic organisations.

6.2 Another consequence of international research collaboration is that Australian researchers have the potential to gain access to funding from overseas-based schemes.[1] This allows Australian researchers to pursue funding that isn't available through domestic schemes, and to increase their contacts and exposure overseas.

6.3 The Committee was advised by several witnesses that researchers were still behind their overseas counterparts in accessing offshore research grants, but that Australian researchers had begun to seek funding from foreign sources:

> What I am noticing on the ground in my research community is that researchers are starting to talk about international research funding and international research collaboration in a way they were not doing five years ago. They are seeing it more as a possibility, rather than something that is just too hard.
>
> … In the past I think they would have considered it too hard because of lack of funding and lack of knowledge, and because it was too time-consuming to engage in the collaborations.[2]

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1 QUT, *submission 15*, p. 1; Universities Australia, *submission 61*, p. 8.

2 ARMS, *transcript of evidence*, 8 April 2010, p. 49.

6.4 The Committee asked witnesses why there were so few applications to overseas ventures, with one witness noting that bureaucracy was a difficulty faced by researchers and that many researchers still remained unaware of foreign funding opportunities or lacked an understanding of how these funding schemes operated.[3]

US funding schemes

6.5 Two of the largest US-based research institutes that have funding schemes open to Australian researchers are the National Institute of Health (NIH) and the National Science Foundation (NSF). Given the limited amount of funding available to Australian researchers through the ARC and NHMRC, several witnesses believed Australian researchers should be doing more to access funding through these schemes when eligible:

> In relation to this inquiry, I think another implication of this is that we should be facilitating people to try and get into more international schemes. We are always, in a way, going to be limited by the pot of money that the ARC and the NHMRC have. Some of those American funds in particular are huge. We are not always eligible, but we should be facilitating people to get into some of those big funds.[4]

6.6 A witness from RMIT University added:

> If you look at the NIH, Australia actually features – I cannot remember now – about sixth of external people getting money from them. They do not care if it stays in the USA or not. They are quite happy to fund Australian researchers. We do not have as much funding, so we can understand that you are not wanting it to go offshore. The ARC and NHMRC have opened up to having international, so that is a really good move in the right direction, but we are still limited by the length of the grant proposals, by the core funding that we have.[5]

6.7 It was noted that there were opportunities available for Australian researchers to secure funding from the United States, as the US institutes were far more willing to fund researchers based overseas, but that they would only fund top-quality science:

3 UoN, *transcript of evidence*, 8 April 2010, p. 13.

4 UoM, *transcript of evidence*, 9 April 2010, p. 12.

5 RMIT University, *transcript of evidence*, 9 April 2010, p. 12.

> The only reason you get some US money into something – and we do in Australia – is because you have got expertise that is not available in the States.[6]

6.8 The benefit of accessing US funding and using it to improve the diversity of Australian knowledge and the strength of Australian research was also discussed:

> So you come back to this fundamental question 'Why spend money on international collaboration?' and the answer is dead simple: because it is actually a more effective way of getting whatever it is, the science area, up to being absolutely world class. That is the demonstrated track record. You can expand into all sorts of areas – two per cent [of global knowledge generated in Australia], which allows us to tap into the other 98, or three per cent and 97, whatever arithmetic you care to use, but it is that sort of order, and you can expand it in terms of, we get more ideas than we give and all sorts of quite valid arguments.[7]

6.9 Examining NIH and NSF funding opportunities from the tertiary education sector, the Committee heard that grants took two forms:

> Essentially there are two sorts of NIH and NSF opportunities. One is the open grant opportunity, similar to our ARC Discovery grants or NHMRC project grants. To participate in those you have to have an American colleague and be part of an American application, but as well as those applications, there are so-called contract applications – I have forgotten the official names for the two schemes – in which there is work that needs to be done and the Americans are more than willing to fund that work anywhere in the world. You have to put up a very strong case that you can do it. We have some very good examples. The Bionic Ear Institute at Melbourne University, formerly led by Graeme Clark, in funding the cochlear implant largely depended on that sort of work for their fundamental development of the electrode interface with hearing and, subsequently, with the brain. With that sort of work the Americans were interested in funding the best place in the world that would do the work. They did not mind where it was.[8]

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6 AATSE, *transcript of evidence*, 9 April 2010, p. 48.

7 AATSE, *transcript of evidence*, 9 April 2010, pp. 48-9.

8 UoN, *transcript of evidence*, 8 April 2010, pp. 12-13.

European funding schemes

6.10 Many submitters and witnesses noted there were many cutting edge projects that were well funded taking place in Europe under the European Union Framework Program 7. The Committee heard that the focuses of Framework Program 7 were areas of Australian strength, including biotechnology, food security, climate change, and energy.[9]

6.11 The Committee heard that it was very difficult for Australian researchers to break into Europe to participate in Framework Program projects due to the inward looking nature of the program.[10]

6.12 The Committee was informed that it was possible to take part in Framework Program projects, but that it required strong relationships with partners in Europe and joint grant applications.[11]

6.13 The University of Melbourne reported that Australian researchers had difficulty getting involved in European Union Framework Program projects as they were generally unable to bring sufficient research funds to the table.[12] It noted there was one funding body that was the exception, as the NHMRC offered $2m in funding specifically for collaboration in Framework Program projects.[13]

6.14 Monash University indicated that this lack of funding for leverage had the potential to act as a disincentive to European research organisations to involve Australian research bodies.[14]

6.15 Noting the strong linguistic and cultural links between Australia and Europe, the Committee inquired whether these links were being exploited adequately to maximise opportunities for Australian researchers. A witness from the University of Sydney indicated that he believed Australian universities did not have a cohesive strategy, and that there was room for improvement in this area.[15]

6.16 The NTEU noted that European institutions and researchers were somewhat unaware of the internationalised nature of Australia, with the

9 USYD, *transcript of evidence*, 8 April 2010, p. 14.
10 USYD, *transcript of evidence*, 8 April 2010, p. 14; CRCA, *submission 2*, p. 4.
11 USYD, *transcript of evidence*, 8 April 2010, p. 14.
12 UoM, *submission 51*, p. 5.
13 UoM, *submission 51*, p. 6.
14 Monash University, *submission 59*, p. 16.
15 USYD, *transcript of evidence*, 8 April 2010, p. 15.

NTEU suggesting that there was capacity through several EU programs for Australia to develop more effective research linkages.[16]

Funding from overseas philanthropic organisations

6.17 Australian researchers, especially those in the field of medical research, are now also starting to explore funding options from philanthropic organisations based overseas.[17]

6.18 The University of Adelaide noted that universities and other research organisations needed to begin to consider non-governmental sources of funding such as the Bill and Melinda Gates foundation as a source of funding in addition to the usual sources.[18]

6.19 Several of these organisations are focused on obtaining research breakthroughs for patients and are less restricted in where they can send funding. Witnesses from Research Australia noted the untapped potential of philanthropic organisations for Australian researchers:

> The other area where there is potential for collaboration is in the area of international philanthropy. We have seen success from the Gates Foundation and from other international philanthropic agencies. Research Australia believes that there is a greater source of funding available if only we had the capacity to tap it. We have set up Research Australia Philanthropy as a unit of our organisation which is building capacity within Australia to link grant makers and researchers in a more effective relationship that will in turn provide further inducement and attraction to Australian philanthropy and we believe that this is a model that could be applied internationally.
>
> International collaboration on health and medical research is a messy, uncoordinated and complex challenge, but there are signs of how we might build on what we currently have and ensure that our nation benefits from it. It would be an enticing opportunity to grasp if only we knew more about how to do it, but we need the legwork to tackle it strategically.[19]

16 NTEU, *transcript of evidence*, 9 April 2010, p. 75.

17 Professor Graeme Batten, *submission 7*, p. 2.

18 UoA, *submission 11*, p. 4.

19 Research Australia, *transcript of evidence*, 9 April 2010, p. 56.

6.20 The witnesses from Research Australia noted there was still no strategic approach to attracting philanthropic funding from overseas:

> We do not tap into it particularly, other than through a few of the well-known channels – the Gates Foundation and we receive a little bit of funding from the Wellcome Trust in the UK. But we have no strategic approach to attracting international philanthropic funding. We know that in the UK and the USA a high proportion of research is funded from philanthropic sources; less so here in Australia. So it is a very large question mark. We have only, in the last 12 months, got a handle on philanthropy in Australia in terms of health and medical research. We did not understand it, but we think we do now – we are starting to – but it is just a big question mark in terms of opportunities overseas.
>
> No-one has actually gone over and done a tour and talked to some of the major philanthropic organisations to understand whether they would be interested in supporting Australian researchers, particularly as the boundaries between borders break down and countries are not tending to want to go and invest where there is excellence to invest in. You would have to say that philanthropy is well suited. We do know that Australians are very sought after in terms of global health improvement and infectious disease. We do receive philanthropic funding to resolve global health issues for the Third World and developing nations, so I would expect there would be opportunities to explore that further.[20]

Committee comment

6.21 Just as researchers and information flow relatively freely across borders, funding for research has begun to do the same. The more sources of funding available for Australian researchers, the more chance they have of having research funded and of being involved in successful research projects with overseas collaborators.

6.22 The Committee believes it is clear that universities and research organisations have to do more to familiarise themselves with offshore sources of research funding, and with the relevant application processes.

6.23 Accessing the US-based National Institute of Health and the National Science Foundation funding schemes would benefit Australian researchers in several ways. Firstly, they could secure funding for projects that were

20 Research Australia, *transcript of evidence*, 9 April 2010, p. 61.

not funded under Australian funding schemes. Secondly, they could more readily find partners based in the United States with similar research interests, increasing chances for international collaboration, and thirdly, involvement in these schemes naturally increases the exposure of Australian scientists and Australian science.

6.24 One witness observed that the United States funding bodies were no longer interested in where a project came from, just that it was coming from top quality scientists with relevant expertise. Given Australia has considerable strength in several areas of scientific endeavour, there is merit to suggest these fields of science should, first and foremost, seek to be funded through the more lucrative United States schemes to reduce demand on Australian funding schemes.

Recommendation 15

The Committee recommends that the Department of Innovation, Industry, Science and Research familiarise itself with the grant application requirements of the US National Institute of Health and the US National Science Foundation and make this information available to Australian universities and research institutions.

6.25 A commonly made observation by witnesses and submitters to the Committee was that it had become increasingly difficult to collaborate with European Union member states, as they had become more 'Eurocentric', in part due to the successes of their Framework Program schemes.

6.26 It is a natural consequence of European integration that some of their international bodies should become more inward-looking as they seek to consolidate the strength of their resources into one strategic direction, however, Australian research bodies should still seek to engage with Europe to remain on the cutting edge of global science.

6.27 Several areas chosen by the EU in the last European Framework Program were Australian areas of strength, such as biotechnology, food security and climate change. Witnesses and submitters were of the impression that Australia had somewhat 'missed the boat'.

6.28 It is regretful that Australia has been unable to participate fully in the European Framework Program schemes, as there have been many successful breakthroughs made through the program and the nature of the

program means that all participants benefit from discoveries made through the program.

6.29 Australia has considerable strengths and advantages to exploit in improving scientific links with Europe. Strong linguistic and cultural linkages and scientific strengths in areas desirable to Europe have to be taken advantage of, and the Committee encourages the university sector to develop a cohesive strategy for engagement with Europe.

6.30 The Committee heard the only way to access the program was to have strong relationships with partners in Europe, and to submit joint grant applications. Establishing partnerships and preparing joint grant applications requires knowledge of collaborative opportunities with European colleagues, time, and the ability to travel to forge real links with potential collaborators. The Committee is of the belief that the implementation of its recommendations will improve the opportunities for Australian researchers in the European sphere.

6.31 The lack of funding available for leveraging against European funding is an impediment to working with European research groups on Framework Program projects. The Committee believes that implementation of its recommendation supporting the expenditure of Australian research funds offshore will help alleviate this problem.

6.32 Philanthropic organisations are a natural source of funding for Australian researchers. By their nature, philanthropic organisations are more interested in outcomes for their beneficiaries than where research is conducted, or who it is conducted by.

6.33 More often than not, philanthropic organisations are concerned with medical research and finding cures and making breakthroughs on disease. Australia has some considerable areas of strength in medical research and the successes of organisations such as the Juvenile Diabetes Research Foundation should be studied and duplicated by Australian medical research organisations.

6.34 The Committee notes that research organisations are now beginning to concentrate on improving their knowledge of funding opportunities through international philanthropy, and their contacts in the philanthropic sector. We support their endeavours on this front and encourage them to improve their links and maximise their opportunities through this sector, as it benefits the philanthropists, researchers, and, most importantly, patients and their families.

7

Strategies and Opportunities

7.1 This chapter examines strategies for supporting research collaboration and opportunities for the Australian Government to provide assistance for the Australian research community. These strategies and opportunities consist of:

- Research support
- Science counsellors
- Technology
- Joint agreements
- A national approach
- An overarching body
- Support for applications to overseas funding bodies.

Research Support

7.2 The Australasian Research Management Society (ARMS) noted that grant application processes impacted on the ability of researchers, and reduced the amount of time they could actually spend conducting research. They suggested researchers should ideally be supported by specialist research managers and administrators.[1]

7.3 There is merit to this view. Researchers should focus on their strengths where possible, and support should be provided to researchers where

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1 ARMS, *submission 10*, p. 2.

possible. Unfortunately for many researchers there is not the funding available to conduct research and to also retain support staff. While this does have an impact on time available for research,[2] it is an unfortunate reality.

7.4 Monash University noted that this role was played by several professional bodies in the UK and US:

> In the UK, and it is certainly true in the US, a number of organisations have jumped in to fill that void, and again it is part of this integration – the peak bodies, for example, the professional bodies, and then there are externals and consultancies. There are a lot of people in the system who have taken up the slack of notifying people and then helping them manage through the process of accessing funds.[3]

7.5 RMIT University identified the grant application process as an impediment to researchers, and informed the Committee of a process taken overseas through the United States' National Institute of Health:

> There has been a discussion about an American mechanism – through the NIH, I think – where you would put an application in, you work with a couple of advisers to your grant, until you get it to the stage where it is absolutely right, then you move forward; and it is an open application system. But our system is too small to be able to do that … [4]

7.6 RMIT highlighted the potential benefits of research support coupled with long term funding:

> … There is a five year established team that absolutely does innovative work and does not have to keep racking out a project or an application every year. There is no money for that at the moment in any of the systems.[5]

Committee comment

7.7 The Committee believes that in an ideal world, researchers would be able to concentrate solely on their research and not have to focus too heavily on the mechanics of grant application aside from preparing their research

2 UoM, *transcript of evidence*, 9 April 2010, p. 11.
3 Monash University, *transcript of evidence*, 9 April 2010, p. 14.
4 RMIT University, *transcript of evidence*, 9 April 2010, p. 12.
5 RMIT University, *transcript of evidence*, 9 April 2010, p. 12.

proposals. Research managers and administrators have the potential to provide important assistance to researchers, but the reality in many cases is that funds aren't available to both conduct and support research, leaving many researchers responsible for every aspect of their project, from grant application management to the conduct of research.

7.8 The Committee encourages universities and research organisations to provide research support to researchers wherever possible, as by removing administrative responsibilities from researchers they have more opportunities to conduct research and to make breakthroughs.

Science counsellors

7.9 In its submission, the Australian Academy of Technological Sciences and Engineering (AATSE) reported that an Australian science counsellor network located in several foreign missions had been scaled back:

> Australian science counsellors located at overseas posts fulfil a vital role in international research collaboration: Under the previous Government, responsibility for these matters rested with the former Department of Education, Science and Training (DEST). That department had inherited an overseas counsellor network from one of its predecessors. In the late 1990s the science counsellor network included full-time science positions in London, Washington, Tokyo, Seoul, Bonn, Brussels (EU), Jakarta, and Paris (OECD). Positions in India, China and Taiwan were added subsequently. DEST changed the nature of some of these overseas positions to put greater emphasis on marketing Australia's education to overseas students and reducing their capacity to serve the needs of international science collaboration.
>
> We understand that when the science responsibility was transferred to the present Department of Innovation, Industry, Science and Research, most of these positions remained with the new Department of Education, Employment and Workplace Relations and ceased having a science function. Whatever the reasons for this change, Australia is now seriously under-represented overseas. Australia needs science counsellors in our key embassies who understand the different elements of our

national science and innovation system and can facilitate connections with counterparts in other countries.[6]

7.10 AATSE also noted the benefits of science counsellors located at embassies overseas:

- Ensuring that Australia is appropriately represented in science-related activities in these countries;
- Providing assistance to visiting Ministers, science and technology-related delegations, and other high level visitors;
- Assisting links between Australian research performing and funding agencies and their foreign counterparts;
- Representing Australia in various science-related activities including local science counsellor networks;
- Assisting Australian researchers to obtain funding and other support from foreign sources; and
- Supporting major Australian science projects such as the Square Kilometre Array and initiatives such as the Global Carbon Capture and Storage Institute.[7]

7.11 At its appearance before the Committee in a public hearing, AATSE noted the importance of having expertise on the ground overseas to make the most of international opportunities:

> At the level of head of institutions, it is really a very senior network, and that allows us to be able to get people into a country. You also need to be able to have the equivalent of DIISR, the bureaucracy of that country, also supportive, also putting in their matching funds to sustain that process. International collaboration is not a one-way street in terms of funding.
>
> We have always relied on posts to help us with those. In China we read about various territorial things, whether it is the Academy of Sciences or the Academy of Engineering in China that virtually run and host all of the research money – they are like the CSIRO really – yet different provinces have different protocols for how you would engage with them. We would always go through our post to smooth the way in there so that people know we are coming and that we do not offend by not going somewhere.
>
> I think they play an important role. They used to always sort out visa issues for us, too, when we had people coming and going. Having someone in the country to assist with that and to alert us is

6 AATSE, *submission 63*, pp. 12-13.

7 AATSE, *submission 63*, p. 13.

> very helpful. The Academy of Science has just recently published an analysis of the number of science counsellors that were in various posts, and you can see it continuing to go down.[8]

7.12 The Group of Eight observed the functioning of the science counsellors of the United Kingdom based in China and India:

> The UK Research Council's China office works at the funding-agency level to fill the gap between high-level ministerial ambitions for closer collaboration and the bottom-up drive by individual researchers and institutions to build productive links. It aims to enhance the capacity of research funders in the UK and China to work together, to shape funding opportunities so that collaborations involve the best groups in each country, and to enhance mutual understanding of research systems and national priorities so that collaborative activity can be built around complementary strengths and shared ambitions to tackle global challenges.[9]

Committee comment

7.13 The Committee was dismayed to learn about the fate of science counsellors over the years. These positions provided a valuable conduit between science ministries and research bodies in both Australia and their countries and regions of residence.

7.14 It is disappointing to learn that a role that maximised the exposure of Australian science and research at key posts overseas gradually evolved into positions that market Australian education to overseas students. While bringing students to Australia is of benefit to research collaboration, not all of these students are higher degree researchers; many are vocational education and training students.

7.15 The Committee heard that some European institutions and researchers were unaware of the culturally diverse nature of Australian research, and did not consider Australia to be a natural collaborative partner. To improve the knowledge of what Australia has to offer to Europe, reinstated science counsellors should promote the strengths of Australian science and to encourage European research organisations to consider Australia as a potential collaborative partner. Amalgamating cutting edge science, a change in lifestyle, reduction of bureaucracy in visa application

8 AATSE, *transcript of evidence*, 9 April 2010, p. 50.

9 Go8, *submission 40*, p. 3.

processes and increased support for visiting researchers could increase interest in Australia as a collaborative partner.

7.16 The change of role for science counsellors has weakened Australia at a time when interaction with research hubs in Europe is at its most important point through the European Framework Programs. Science counsellors based in Europe, including the one specifically set aside for the European Union itself would be vital conduits in aiding Australian researchers to become involved in Framework Program projects and it is imperative that Australia addresses this issue as soon as possible to rebuild Australian research connections with Europe.

7.17 Many of the problems identified in making Australian researchers aware of collaborative opportunities overseas and of making overseas-based researchers aware of Australia and our areas of strength could be at least somewhat rectified with the reinstatement of science counsellors. The Committee believes a reinvigorated science counsellor program targeted at Australia's most important and emerging collaborative research partners would have immediate benefits to Australia, increasing the exposure of Australian research and researchers and making Australian researchers more aware of potential foreign sources of funding.

7.18 An additional benefit of science counsellors based in emerging research partner states is a mechanism to address visa application difficulties. Having expertise in a researcher's country of origin and being able to act as an advocate during the visa application process would smooth potential troubles and ease entry, especially for eminent researchers, reducing some of the potential for embarrassment that visa refusal has caused in the past.

7.19 The Committee believes there is clear support for a national direction in research development, primarily to support and promote Australian research, rather than to completely direct it from above. The Committee supports this view, as most research is primarily driven by researchers, and should continue to be so.

7.20 There is currently inadequate governmental support for international collaboration and revitalising a science counsellor program would go some way to addressing this problem.

7.21 Such a program requires a balance to be struck between developed scientific powers and emerging nations that will be the powerhouses of the future to maximise the potential gains for Australia.

7.22 The Committee recommends that the science counsellor program be reinstated.

Recommendation 16

The Committee recommends that the science counsellor program be revitalised, initially on a smaller scale than the previous program, with full-time science counsellor positions for the European Union, United States, China, and India. Additionally, the Department of Innovation, Industry, Science and Research should seek to expand the program to other relevant areas of significance to Australian research as is necessary.

Technology

7.23 The Committee heard from witnesses and submitters that advances in communication technology had negated some of the disadvantages of Australia's distance from potential collaborators, and had other benefits for researchers,[10] but the Committee also commonly heard that modern communication technologies primarily helped existing collaborations,[11] and were no substitute for face to face contact in establishing collaborations.[12]

7.24 A witness reported that though he had established his collaborative network via face to face contact, technology enabled them to keep the collaboration going:

> To achieve anything now with any colleague, between me and that colleague is only a phone call and email really, and that goodwill is so important. I cannot stress that enough.[13]

7.25 Some research disciplines benefited greatly from collaboration via e-research facilities. AMSI reported that with facilities designed for e-research, Australian mathematicians were able to collaborate in real time with colleagues in the next building, or on the other side of the world.[14]

10 QUT, *submission 15*, p. 3; John Wightman, *submission 32*, p. 3; RMIT University, *submission 31*, p. 3, UoM, *submission 51*, p. 4.

11 Professor Fiona Stanley AC, *transcript of evidence*, 13 April 2010, p. 7.

12 Monash University, *submission 59*, p. 18.

13 Dr Mehmet Cakir, *transcript of evidence*, 13 April 2010, p. 36.

14 AMSI, *submission 53*, p. 4.

7.26 The Committee also heard that technology had enabled Australian researchers to take data from facilities overseas, and to analyse it in Australia.[15] It was also told that technology had allowed an international partnership to function in a similar manner to a local collaboration.[16] These examples serve to illustrate the decentralised nature of modern research.

7.27 The Committee also heard that e-research facilities were comparatively cost effective,[17] and were especially useful for theoretical disciplines, and that Australia should continue to develop its e-research facilities.[18]

Committee comment

7.28 The Committee is pleased to hear that some disciplines are taking full advantage of e-research facilities. E-research facilities and e-research techniques should be utilised as much as possible where actual physical travel is impossible for researchers. Additionally, e-research has proven to be beneficial to sciences like mathematics, which requires minimal extra facilities.

7.29 Theoretical disciplines should do their utmost to access and develop e-research facilities as a comparatively low-cost strategy to improve their links to their colleagues. While e-research is no substitute for face to face contact to facilitate collaboration, as technology improves, it will play more of a role in supporting research collaboration and Australian researchers should look at building their e-research capacity.

Joint agreements

7.30 Another technique for supporting international collaboration is formal agreements with overseas institutions or research groups. A witness observed that while these links were useful, to be truly successful, they required a lot of effort to establish:

> It also takes a long time to foster a lot of these collaborations and links and therefore we need to be nimble in terms of being able to take advantage of these opportunities, but we need to be out there

15 AARNet, *submission 37*, p. 2.

16 BoM, *submission 34*, p. 4.

17 AMSI, *transcript of evidence*, 9 April 2010, p. 38.

18 UNE, *submission 68*, p. 4; USYD, *submission 18*, p. 9.

> fostering these links on a continuing basis. Even to get a major link with an overseas institution at a research group level often takes a number of years to get it to the stage where you have got good exchange of staff and students and joint grants and things. It is quite a major effort just to get it to that stage. If you are then trying to build links across a number of different institutions in a certain area then that is an even bigger task.[19]

7.31 Related to joint agreements, several witnesses suggested that template agreements may prove to be useful in fostering collaborations. One witness observed that Cooperative Research Centres had developed template agreements and they had made it easier for groups to reach agreement because there was already an agreed format for discussions.[20]

7.32 The Australian Academy of Technological Sciences and Engineering (AATSE) noted the success of formal agreements entered into by the CSIRO:

> It is where the CSIRO have been quite successful, because of their partnership linkages, and they involve end users in their research as well. I was surprised – I knew they did a lot of international collaboration, having roughly a thousand international collaborative activities in any one year. It is the scale of it that has allowed them to, I think, really focus.[21]

A national approach

7.33 A large number of contributors to the Committee's inquiry indicated that government could play more of a role in supporting international research collaboration. The level of governmental involvement varied, but the desire to see government provide more support to researchers and institutions through a national approach[22] was a common theme.

7.34 Several witnesses and submitters noted there was a lack of a strategic national direction in research development,[23] while others suggested that there needed to be a national approach to supporting and promoting

19 UoW, *transcript of evidence*, 8 April 2010, p. 15.

20 ARMS, *transcript of evidence*, 8 April 2010, p. 52.

21 AATSE, *transcript of evidence*, 9 April 2010, p. 48.

22 Victoria University, *transcript of evidence*, 9 April 2010, p. 6; ANU, *submission 14*, p. 4.

23 Deakin University, *transcript of evidence*, 9 April 2010, p. 14; NT Department of Resources, *submission 39* , p. 5.

Australian researchers, rather than the current fragmented[24] or ad hoc approach.[25]

7.35 James Cook University noted the current state of play regarding government involvement in research collaboration:

> … most research conducted in Australia has an international character but it is fair to say that government support for international collaboration in research, in the recent past, has been limited and this has been a constraint upon the realisation of opportunities for transnational partnerships.[26]

7.36 Monash University extolled the virtues of a national approach:

> … at a larger scale, the sort of one-nation approach to science I think is still lacking a bit here. That involves projecting your national networks and your national approaches to things. The fact that a number of universities can sit in a room together and work collectively and project that message externally is a great win. It really does excite external players to know that you are doing it in this very coordinated way.[27]

7.37 Monash University noted the difficulties scientists faced in projecting their ideas outside of a scientific environment:

> Good scientists will do good science; they are not necessarily great leaders. They are also not necessarily the best at projecting their own ideas nationally and internationally. That junction is, I think, the one that culturally is a little bit disconnected here.[28]

7.38 The Australian International Thermonuclear Experimental (ITER) Forum highlighted the fragmentation of responsibilities between government agencies when it came to large-scale international scientific engagement, and proposed a remedy:

> … responsibility is fragmented across the Australian government – across the Department of Resources, Energy and Tourism, the Department of Climate Change, the Department of Foreign Affairs and Trade. Such splintering creates a disconnect between the

24 Flinders University, *submission 56*, p. 1.

25 USYD, *transcript of evidence*, 8 April 2010, p. 12; RMIT University, *transcript of evidence*, 9 April 2010, p. 15; Professor Fiona Stanley AC, *transcript of evidence*, 13 April 2010, p. 5; Go8, *submission 40*, p. 4.

26 JCU, *submission 8*, p. 8.

27 Monash University, *transcript of evidence*, 9 April 2010, p. 4.

28 Monash University, *transcript of evidence*, 9 April 2010, p. 18.

> domestic and international research community and the Australian government. What do we propose as a solution? We propose the solution to major international engagement is to evolve the International Science Linkages scheme to create a new program to assess and support projects outside the scope of existing programs. The new program would cater for small-to large-scale international engagement and enable small projects to evolve to large-scale funded projects, act as the single contact and legal engagement agency between the Australian government, Australian scientists and international consortia and coordinate policy response from the Australian government and have an advisory function to government.[29]

7.39 Several witnesses, including the Group of Eight also observed this fragmentation and called for sole Ministerial responsibility for research collaboration.[30]

7.40 The Academy of the Social Sciences in Australia also supported a 'whole-of-government' approach,[31] with Research Australia noting that a national approach may yield a more effective use of international philanthropy.[32]

An overarching body

7.41 In its submission the University of Sydney suggested that a single Minister be placed in charge of international research collaboration at the intergovernmental level:

> 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 also work closely with all government departments (including Immigration and 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,

29 ITER Forum, *transcript of evidence*, 10 March 2010, p. 18.

30 Go8, *submission 40*, p. 7.

31 ASSA, *submission 38*, p. 4.

32 Research Australia, *submission 62*, p. 10.

> programs, intellectual property opportunities, and the location of research expertise in Australia.[33]

7.42 The University of Sydney suggested that an interdepartmental committee be given stewardship over driving the mechanisms to support research collaborations:

> I suggest an interdepartmental committee that would keep to strategic guidelines and would put options for instruments that catalyse international partnerships.[34]

> I was thinking more that this could be with very strong academic participation, and therefore quite practical, but with participation from the lead departments in international engagement. So it would be very much content driven rather than systems driven, and maybe it could be a fairly short lived committee, which would lend urgency. I think these issues are urgent.[35]

7.43 The Australian Catholic University and Professor Adrian Baddeley saw this interface between government and academia as a way of resolving some of the visa and immigration problems that had been experienced.[36]

7.44 ARMS also saw a body similar to an interdepartmental committee as a useful model:

> I am thinking of an administrative or management committee here that is compromised of people from the various government agencies that are offering international funding opportunities and having them manage those international collaborations.[37]

7.45 The University of Melbourne supported the idea of more coordination,[38] but cautioned against anybody having tight control over the research agenda:

> I think there can be danger in trying to too-tightly control the research relationships that go on, so you need strategy and support. But I think we have a tendency in Australia to try to dictate too specifically what needs to be done.[39]

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33 USYD, *submission 18*, p. 3.

34 USYD, *transcript of evidence*, 8 April 2010, p. 3.

35 USYD, *transcript of evidence*, 8 April 2010, p. 16.

36 ACU, *transcript of evidence*, 8 April 2010, p. 16; Professor Adrian Baddeley, *submission 21*, p. 7.

37 ARMS, *transcript of evidence*, 8 April 2010, p. 50.

38 UoM, *submission 51*, p. 17.

39 UoM, *transcript of evidence*, 9 April 2010, p. 16.

Support for applications to foreign funding bodies

7.46 One method identified to ensure Australian researchers continued to secure more funding from foreign research organisations and philanthropic organisations was a proposed national support body to assist researchers with information on funding opportunities and to assist with funding applications.[40]

7.47 The University of Melbourne supported the concept:

> An office that would be a single source of advice to universities and research in Australia and the coordination of our presentation to the rest of the world would be an enormous practical step forward.[41]

7.48 The Group of Eight advised the Committee that they had a European Liaison Officer based in the Australian Embassy in Berlin who also played a similar role.[42]

7.49 The benefits of application support were also canvassed. The University of Sydney reported that they had staff based in Europe to search out funding sources and to assist researchers in applying for funding from those sources:

> [The University of Sydney has a] representative in Europe, and here, who gain intelligence around all the funding systems and assist our colleagues to put grants together in the correct way. It is hard work, especially the first two or three times. But I think we need to understand that, because the sums are huge.[43]

7.50 The Committee was informed that CSIRO had an office with a similar function:

> CSIRO has an international office and actually does a pretty good job of being aware of those opportunities and liaising with the EU and liaising with US bodies.[44]

40 UoN, *transcript of evidence*, 8 April 2010, p. 13.
41 UoM, *transcript of evidence*, 9 April 2010, p. 5.
42 Go8, *submission 40*, p. 2.
43 USYD, *transcript of evidence*, 8 April 2010, p. 13.
44 NSW DECCW, *transcript of evidence*, 8 April 2010, p. 41.

7.51 ARMS saw some benefit in government informing researchers of opportunities overseas:

> If I start with the offshore funding that potentially researchers here in Australia and New Zealand are trying to tap into, my experience to date is that every research organisation ends up going through the same terrible process of learning about how to access those funds. They all have to go through the same administrative nightmare even to register to be able to start allowing researchers to put submissions in. I am sure there is a better way for us all.[45]

7.52 In its submission, Victoria University noted that Australia could increase its global bargaining power if research institutions acted cohesively rather than competitively.[46]

Committee comment

7.53 The Committee notes the fragmentation of responsibility for Australian scientific collaboration and believes this fragmentation has resulted in Australia somewhat falling behind its colleagues in supporting research collaboration. There needs to be a clear ministerial responsibility for international research collaboration to prevent this important issue 'falling between the cracks', and the Committee believes the Minister for Innovation, Industry, Science and Research is the logical choice for this role.

Recommendation 17

The Committee recommends that the Minister for Innovation, Industry, Science and Research be given full ministerial responsibility for supporting international research collaboration.

7.54 Further, it is clear there should be an advisory body to support and encourage international research collaboration, overseen by the Department of Innovation, Industry, Science and Research and the Minister for Science.

45 ARMS, *transcript of evidence*, 8 April 2010, p. 50.

46 Victoria University, *submission 45*, p. 6.

7.55 The overwhelming weight of evidence supports more involvement from the Australian Government in supporting research collaboration. It is clear that the research community does not wish to have the government take a heavy handed approach, dictating the direction of Australian research from above. Rather, the research community has overwhelmingly called for a body to be established to centralise the knowledge surrounding research collaboration and to develop strategies to support Australian researchers in establishing and maintaining research collaboration.

7.56 A governmental role in assisting researchers greatly complements a revitalised science counsellor program. An advisory body chaired by government can provide the link between researchers and science counsellors and the Committee believes that a conduit in this area is greatly needed.

7.57 Additionally, the Committee is of the belief that a research support body could play an important role in Australia to prevent bureaucracy and visa and immigration concerns from acting as a disincentive to research collaboration.

Recommendation 18

The Committee recommends that the Department of Innovation, Industry, Science and Research seek the funding to establish an International Research Collaboration Office to consult with stakeholders in Australian research and to act as a conduit between Australian researchers and overseas research organisations and funding bodies.

7.58 The Committee believes that the International Research Collaboration Office should serve as an organisation to direct Australian researchers to relevant offshore bodies, rather than to act as a permanent 'middle man'. Its purpose should be to connect Australian researchers and research bodies with relevant overseas groups.

7.59 Further, the International Research Collaboration Office should seek to support Australian science counsellors and provide them with the information and resources necessary to act as advocates for Australian research overseas.

7.60 The Committee envisages the International Research Collaboration Office having close contact with the Australian Research Council and the

National Health and Medical Research Council, and believes these major funding bodies should keep the Office engaged with the projects they are supporting with funding.

7.61 Additionally, to be at its most effective, the International Research Collaboration Office needs to familiarise itself with opportunities for Australian researchers through overseas research foundations and philanthropic funding schemes. These sources of funding have the potential to greatly improve the financial standing of Australian research, and to enhance international research collaboration, and the Committee is of the opinion that Australian scientists have to be better informed about offshore funding opportunities including philanthropy.

7.62 The Committee is of the opinion that the establishment of an International Research Collaboration Office will also enable more Australian researchers to access European Framework Program funding. Access to these projects requires a collaborative partner in Europe. Locating an Australian science counsellor in Brussels at the EU will enable the counsellor to remain up to date on cutting edge European science and able to connect Australian researchers to their European counterparts. The great strength of the Framework Program is that it enables all who contribute to a project to share in the results, and to improve Australian access to world class science we must involve ourselves as much as possible at the cutting edge.

7.63 Science counsellors and an International Research Collaboration Office will enable Australian researchers to maintain some knowledge of what is happening in the emerging research powers of India and China. Collaborative agreements with these states give Australia a head start on their western counterparts, and research in the emerging science powers is also more cost effective due to shorter travel distances and lower costs for research. Further, the desirability of Australia as a destination for Chinese and Indian researchers creates a natural collaborative relationship that should be maximised for mutual benefit.

7.64 The Committee does not envisage the International Research Collaboration Office as a large body requiring a high level of funding. It should be modestly staffed, and use information communication technology to its maximum potential. Further, it should regularly consult with the university and research sector to remain abreast of developments in Australia and to relay overseas developments to Australian researchers.

7.65 It is clear that Australia needs to project its scientific strengths and to actively find collaborative partners and to forge links with states seeking to do the same. In the long run, this saves Australia money and assists it in achieving its scientific and research goals. Quite often Australia is

described on the international stage as 'punching above its weight'. The Committee believes it is time that Australian researchers were given the support to step up to the next weight division.

Maria Vamvakinou MP

Committee Chair

June 2010

A

Appendix A – List of Submissions

1	ACT Government
2	Cooperative Research Centres Association Inc
3	Menzies School of Health Research
4	AVRDC - The World Vegetable Centre
5	Centre for Antimatter-matter Studies
6	Australian Integrated Ocean Drilling Program Consortium - Australian National University
7	Hon Prof Graeme D Batten
8	James Cook University
9	Prof Johannah Kenway and Dr Jane Fahey
10	Australasian Research Management Society
11	University of Adelaide
12	University of Wollongong
13	Dr Lindsay C Campbell
14	The Australian National University
15	Queensland University of Technology
16	Western Australian Museum
17	Prof Bob Dewar and Prof Paul Pearce
18	University of Sydney
18-1	University of Sydney (Supplementary to Submission No. 18)

19 Deakin University

20 Australian Institute of Nuclear Science and Engineering

21 Prof Adrian Baddeley

22 University of South Australia

23 Prof Vladimir Bazhanov and Prof Murray Batchelor

24 University of Newcastle

25 Australian Nuclear Science and Technology Organisation

26 National Tertiary Education Union

27 Australian Centre for International Agricultural Research

28 University of New South Wales

29 Grains Research and Development Corporation

30 Prof Fiona Stanley AC

31 RMIT University

32 John Wightman

33 Faculty of Science - The University of Melbourne

34 Bureau of Meteorology

35 National Committee for Astronomy

36 Australian ITER Forum

37 AARNet Pty Ltd

38 Academy of Social Sciences in Australia

39 Department of Resources (Northern Territory Government)

40 The Group of Eight Limited

41 Dairy Australia

42 Department of Primary Industries, Parks, Water and Environment (Tasmanian Government)

43 Central Queensland University

44 Australian Catholic University

45 Victoria University

46 Prof Andrew Smith

47	Northern Territory Research and Innovation Board
48	Department of Innovation, Industry, Science and Research
49	National Committee for Chemistry
50	Clinical Oncological Society of Australia
51	University of Melbourne
52	Juvenile Diabetes Research Foundation
53	Australian Mathematical Sciences Institute
54	Council of Rural Research and Development Corporations Chairs
55	Department of Further Education, Employment, Science and Technology (Government of South Australia)
56	Flinders University
57	Australian Academy of Science
58	Department of Environment, Climate Change and Water (NSW Government)
59	Monash University
60	Prof Brian J O'Brien
61	Universities Australia
62	Research Australia
63	Australian Academy of Technological Sciences and Engineering
63-1	Australian Academy of Technological Sciences and Engineering SUPPLEMENTARY (to Submission No. 63)
64	National Health and Medical Research Council
65	CSIRO
66	Centre for Dialogue (Latrobe University)
67	British High Commission (Canberra)
68	University of New England
69	High Commissioner of the Republic of Singapore
70	Swiss Australian Academic Network
71	Department of Education, Employment and Workplace Relations

72	Australian Research Council
73	Forum for European-Australian Science and Technology Cooperation
74	Queensland Government
75	Embassy of Cuba in Australia
76	AusAid
77	New Zealand High Commission
78	Australian Institute of Marine Science
79	Assoc Prof Stuart Pearson
80	Australian Academy of the Humanities
81	Minister for Environment Protection, Heritage and the Arts
82	Dr Mehmet Cakir
82-1	Dr Mehmet Cakir (Supplementary to Submission No. 82)
83	AMIRA International
84	Business Events Council of Australia
85	Name Withheld

B

Appendix B – List of Exhibits

1 Cooperative Research Centres Association Inc

Increasing Australia's level of international research collaboration via the CRC Program

(Related to Submission No. 2)

2 Prof Johannah Kenway and Dr Jane Fahey

Brain Drain or Mind-Shift? Reconsidering Policies on Researcher Mobility

(Related to Submission No. 9)

3 Prof Johannah Kenway and Dr Jane Fahey

Academic mobility and hospitality: the good host and the good guest

(Related to Submission No. 9)

4 Mr Jeroen Prinson

Table: Thomson Reuters data

5 Dr Edward Bertraim and Dr Steve Winslade

Case Study Report of the China-Australia Centre for Phenomics Research

6 Australian ITER Forum

A strategy for Australian fusion science and engineering

(Related to Submission No. 36)

7 Dr Sophie Arkoudis

The impact of English language proficiency and workplace readiness on employment outcomes and performance of tertiary international students

8 Prof John White

Submission to the ICSU Foresight exercise from AONSA (Asia-Oceania Neutron Scattering Association)

9 Clinical Oncological Society of Australia

Joint Submission to the Clinical Trials Action Group on enhancing Australia's position as a preferred destination for clinical trials

(Related to Submission No. 50)

11 New Zealand High Commission

The Innovation Relationship between New Zealand and Australia

(Related to Submission No. 77)

12 Cooperative Research Centres Association Inc

Collaborations with Europe

(Related to Submission No. 2)

13 Cooperative Research Centres Association Inc

Cooperative Research Centres: Australian science from the Centre to the city

(Related to Submission No. 2)

14 National Tertiary Education Union

FP7 in Brief

(Related to Submission No. 26)

15 National Tertiary Education Union

Evidence Ltd: Patterns of international collaboration for the UK and leading partners (Summary Report)

(Related to Submission No. 26)

16 National Tertiary Education Union

European Commission: Reinforcing Strategic Partnerships

(Related to Submission No. 26)

17 National Tertiary Education Union

European Commission: Drivers of international collaboration in research

(Related to Submission No. 26)

18 National Tertiary Education Union

International research collaboration: opportunities for the UK higher education sector

(Related to Submission No. 26)

19 Business Events Council of Australia

Delivering Innovation, Knowledge & Performance: The Role of Business Events

(Related to Submission No. 84)

20 Business Events Council of Australia

International Association Events - April 2010

(Related to Submission No. 84)

C

Appendix C – List of Public Hearings

Wednesday 24 February 2010 - Canberra

Australian ITER Forum

Dr Matthew Hole, Chair

Cooperative Research Centres Association Inc

Mr Michael Hartmann, Chief Executive Officer

Australian Institute of Nuclear Science and Engineering

Dr Dennis Mather, Managing Director

Wednesday 10 March 2010 - Canberra

Australian Centre for International Agricultural Research

Dr Simon Hearn, Principal Adviser

Dr Deborah Templeton, Program Manager

Ms Lisa Wright, Manager, Governance and Communications Program

Thursday 8 April 2010 - Sydney

Australian Catholic University

Prof Thomas Martin, Pro-Vice Chancellor, Research

Australian Nuclear Science and Technology Organisation

Prof John Dodson, Head, Institute for Environmental Research

Ms Karin Laxale, Government Affairs Adviser

Australasian Research Management Society

Dr Mark Hochman, Member, International Committee

Mrs Gillian Nicholson, President

Clinical Oncology Society of Australia

Prof John Zalcberg, Member

Department of Environment, Climate Change and Water (NSW Government)

Dr Gillian Dunkerley, Science Coordinator

Dr Kate Wilson, Executive Director, Scientific Services

Juvenile Diabetes Research Foundation

Dr Dorota Pawlak, Head of Research Development

Ms Margaret Ryan, Head of Government and Community Relations

Mr Mike Wilson, Chief Executive Officer

Australian Institute of Nuclear Science and Engineering

Dr Dennis Mather, Managing Director

University of New South Wales

Prof Margaret M Harding, Pro Vice-Chancellor (Research)

University of Newcastle

Prof Mike Calford, Deputy Vice Chancellor, Research

University of Sydney

Prof John Hearn, Deputy Vice-Chancellor, International

University of Wollongong

Prof William Price, Dean of Science

Friday 9 April 2010 - Melbourne

Australian Academy of Technological Sciences and Engineering

Prof Robin Batterham, President

Dr Margaret Hartley, Chief Executive Officer

Australian Mathematical Sciences Institute

Prof Geoff Prince, Director

Prof Reinout Quispel, Member

Ms Jan Thomas

Dairy Australia

Ms Isabel MacNeill, Group Manager, Value Chain Innovation

Mr David Roche, Business Manager

Deakin University

Professor Lee Astheimer, Deputy Vice-Chancellor, Research

Monash University

Mr Abid Khan, Director, Monash Institute for Nanosciences, Materials and Manufacture

National Tertiary Education Union

Dr Carolyn Allport, President

Mr Paul Kniest, Policy and Research Coordinator

Mr Jen Tsen Kwok, Policy and Research Officer

Research Australia

Dr Gabrielle Fennessy, Manager, Policy and Strategy Program

Ms Rebecca James, Chief Executive

RMIT University

Prof Daine Alcorn, Pro Vice-Chancellor (Research & Innovation)

University of Melbourne

Prof Lyn Yates, Pro-Vice Chancellor, Research

Victoria University

Bhanuka Wanasinghe, Office of the Deputy Vice Chancellor (Research and Region)

Tuesday 13 April 2010 - Perth

Individuals

Prof Adrian Baddeley

Dr Mehmet Cakir

Prof Brian J O'Brien

Prof Fiona Stanley AC

Western Australian Museum

Assoc Prof Alexander Bevan, Head, Department of Earth and Planetary Sciences

Ms Diana Jones, Executive Director, Collections and Content Development

Wednesday 12 May 2010 - Canberra

Australian Academy of Science

Prof Kurt Lambeck AO, President

Mrs Nancy Pritchard, Manager, International Science Programs

CSIRO

Ms Juliet Bell, Manager, International Engagement

Mr Paul Harris, General Manager, Government and International Engagement

Monday 24 May 2010 - Canberra

Australian National University

Prof Lawrence Cram, Deputy Vice-Chancellor

Dr Mark Matthews, Director of Policy Engagement, Centre for Policy Innovation

Australian Research Council

Prof Margaret Shiel, Chief Executive Officer

Ms Elizabeth Visher, Director, Program Coordination

Department of Immigration and Citizenship

Mr Kruno Kukoc, First Assistant Secretary,
Migration and Visa Policy Division

Ms Deirdre Russack, Acting Assistant Secretary,
Education and Tourism Branch

National Health and Medical Research Council

Prof Warwick Anderson, Chief Executive Officer

Wednesday 26 May 2010 - Canberra

Individual

Prof Andrew Smith

Department of Innovation, Industry, Science and Research

Dr Anne Byrne, General Manager, Research Funding and Policy Branch

Mr Damir Ivkovic, Manager, India and Program Management Section

Ms Patricia Kelly, Deputy Secretary

Ms Anne-Marie Lansdown, Head of Division, Science and Infrastructure

Wednesday 2 June 2010 - Canberra

Centre for Antimatter-Matter Studies

Prof Stephen Buckman

Dr Colin Taylor