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.

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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.