

Submission to Inquiry into Australia's International Research Collaboration House of Representatives Industry, Science and Innovation Committee

To the Committee Chair, Maria Vamvakinou,

Thank you for the opportunity to make a private submission to the Inquiry into Australia's International Research Collaboration. My perspective comes as an academic who is now reflecting on my experiences in 2005-2009 working in Australian Government natural resource research management. In two contexts:

1. **Land & Water Australia** (a Rural Research & Development Corporation, closed in Dec 2009) provided limited support for international visitors to travel to Australia to engage in natural resource science and management. The cost and value of these visits varied – often the cost was a few thousand dollars and the value limited to additional publications and profile for a conference. In other cases the visits influenced policy and developed new research capacity. They did not support reciprocal visits. The proposals for international collaboration came from a few heavily committed academics in response to an advertised call. The annual budget allocation was about \$20000.
2. The **Australasian Joint Agency Scanning Network (AJASN)** consists of officers from a number of Australian and New Zealand government and research agencies, facilitated by a professional futurist. The members of the network scans media and science literature to identify emerging issues and new ideas and to find early indications of change affecting known issues relating to the 'environment' in the broadest sense of the term. The group focuses on environmental issues (agriculture, climate change, water, energy and social change), but extends its areas of interest to research technology; knowledge, skills and innovation; and the 'one health' concept that considers animal, human and environmental health to be inextricably linked.

From those contexts I will comment on the impediments, benefits and strategies.

Impediments: Need to include people from throughout the knowledge system (researchers, research managers and research users).

The kinds of international research engagement and collaboration should be deliberately diverse and include scope for engaging people working in research management and application of research in government and other fields.

There is an urgent need for research that is useful, adoptable and draws on and contributes to local problem-solving and innovation. This means that some of the new international research paradigm should engage in the whole mapping of research – from the problem to the solution and engage with all the people involved in making it happen. There is for natural resources and agriculture for example a need for science to be closely connected to the problems of the practitioners so that innovations can be shared both ways. That is people from the whole knowledge systems should be involved where the research is meant to have an impact.

As examples drought research, scientific water management and agricultural policy research needs to be done in collaboration with international researchers. I was involved in workshops

facilitated by Bureau of Rural Sciences that involved researchers and agency staff who worked in drought research in both countries who could share research results and policy applications.

Impediments: Need for an opportunistic broker to foster international collaboration

International research meetings involving 40 people took about 8 months to assemble and had to be done opportunistically due to the prior commitments of many researchers and policy makers. There was no ready funding or organisational mechanism to organise them. Nor was there a way to convert them into ongoing collaborations or make reciprocal visits. In the case of the drought workshop it was out of scope for the Bureau and too international or applied for Australian Research Council to fund. Yet these kinds of research collaborations are potentially very valuable because the issues such as drought, stewardship and water management are very similar.

Similarly, it was hard to get funding for international collaboration on the emerging issue of endocrine disrupting chemicals in waste water. When leading researchers could come to Australia (both US Geological Survey and UK Scientists were well supported to travel) the Universities and CSIRO really struggled to meet costs. Only well-placed senior Australian researchers, who draw bigger discretionary funds, could support travel and accommodation costs for the kind of sustained and intense skills and knowledge transfers that are needed in the biophysical and experimental sciences. This worked very well when younger staff (post docs) were available from both countries during the collaboration.

A good example of such an international research collaboration was Dr Larry Barber's visit to Australia in 2008 (<http://lwa.gov.au/projects/3519>). He gave research seminars in Melbourne, Sydney, Adelaide, Brisbane and Canberra and with CSIRO set-up a mobile laboratory for 2 months in regional NSW to share his technical knowledge and skills in assessing reproductive disruption of fishes due to waste water treatment effluent. The visit was only possible through the support of Land & Water Australia and CSIRO (Dr Rai Kookana).

Globalisation ensures there is a growing need for more international scanning of issues and support for applied research collaboration to support agriculture, forestry and natural resource management.

Impediments: Need for an independent broker to foster international collaboration

Agencies that select and fund visits to and from international researchers need to be separate (or at arms length) to government and individual research providers to avoid exclusive benefits of the visit. For example if CSIRO or one state or University had alone funded the visit of Larry Barber it would have had narrower impact. Instead Land & Water Australia (as broker) was able to (without prejudice) invite state agencies, researchers and industry to hear about the research.

Benefits to Australia from engaging in international research collaborations

I felt the EDC Stewardship and US drought research was 2-5 years ahead of Australia and the application of the science to policy and on-ground action is 10-15 years ahead. In addition each US State had run policy experiments in drought management. There are obviously things to

learn from such a comparison and in the case of Larry Barber's visit to achieve a very rapid improvement in Australian science capability.

Strategies for supporting international research collaboration: Australasian Joint Agency Scanning Network as an example of international research collaboration

I as a member of the Australasian Joint Agency Scanning Network (AJASN), consider the horizon scanning we do with colleagues from New Zealand using research journals and other sources does fit within the definition of Australia's international research engagement and collaboration. The ability to detect and develop agency and collective understanding of issues is an important part of the work done by the AJASN members.

The kinds of issues we discuss include the research and emerging scientific and policy issues of biosecurity, energy, agriculture, marine resources, environmental protection and policy options. The meetings are of mid-level bureaucrats who aspire to executive roles and the reports they produce are used to inform boards and senior executives. Scanning the horizon is a key activity for scientific collaborators and critical to breakthroughs from knowledge sharing between governments, institutions and researchers.

The policy and research collaboration that is explicitly fostered by AJASN includes New Zealand members who are supported to travel to Australia for meetings. This allows New Zealanders to benefit from the research critical mass in Australia but also lets Australians see how quickly science and management policy reforms can be implemented in New Zealand.

The contrasts and similarities in both US and NZ research collaborations have been striking. The innovative culture that grows in such collaboration is remarkable. I think the AJASN strategy helps create capacity for international collaboration and engagement and is a useful model for enhancing the impact of knowledge. It is, unfortunately, a constant battle to sustain executive and budget commitment to this strategic investment in staff.

Summary

This submission has provided evidence to support claims that international research collaboration is highly desirable. It can be done better using an adequately resourced independent broker to achieve considerable advantage. Furthermore the engagement needs to include more than science-science collaboration but involve the whole knowledge chain to have great impact. The evidence provided shows the value of AJASN in building the future capacity of agencies to use the new research and contribute to its transformative power.

Of course I would be happy to provide clarification and further information to the Committee.

Yours Sincerely,

A/Prof Stuart Pearson
Australian Defence Force Academy
University of New South Wales
stuart.pearson@adfa.edu.au