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12 March 2010

Ms Maria Vamvakinou MP
Chair
House of Representatives Industry, Science and Innovation Committee
PARLIAMENT HOUSE ACT 2600

Submission – Inquiry into Australia's international research collaborations

Dear Ms Vamvakinou

Thank you for the opportunity to provide a submission to the Committee. I am pleased to present the enclosed submission on behalf of the Federation of Australian Scientific and Technological Societies (FASTS).

Founded in 1985 FASTS is Australia's peak body in science and technology and its three formal objectives are to:

- encourage scientific dialogue between government, the science and technology community, and industry;
- promote public understanding of science; and
- foster close relations between the societies.

FASTS believes the critical role of the Australian Government within international research collaborations is that of an enabler, developing essential inter-country agreements at the highest level to ensure that research is able to be undertaken through endorsed partnerships.

These simple yet critical government-to-government, country-to-country links provide scientists and researchers with a solid foundation on which to undertake their work, providing both reassurance and stability for all participants. When such agreements are in place barriers preventing success are significantly reduced.

Yours sincerely

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Executive Director

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INTRODUCTION

FASTS welcomes the Inquiry into Australia's international research collaborations. We believe that there is a need for a more strategic approach to assessing needs and support for research and innovation, a process which should be set in an international context.

We support inter-country exchanges and the development of linkages to ensure Australia remains both connected with the international science community and a key player within it.

In 2010 FASTS is celebrating 25 years of science advocacy. The organisation was founded in 1985 to unite the science community for the first time as a direct result of then Federal Minister for Science, The Hon Barry Jones AO, labeling scientists 'wimps'. Funding to scientists had been cut in the 1984 Budget and Mr Jones argued scientists had to become better at promoting their work and demonstrating the value Australia received for the public funding they received, rather than simply call for more funding.

Science is key to solving the big issues facing the planet, issues which threaten our very existence – climate change, access to safe drinking water, sustainability and poverty . However, in an Australian context, the work of scientists is under-valued and often misunderstood. Despite the dedication of talented men and women devoting their careers and lives to research and innovation over many decades, the public standing of science is low when compared to other more high-profile careers.

This significantly threatens Australia's contribution to the global knowledge economy. It also reduces the future viability of the entire science sector by alienating the young minds of tomorrow. If the portrayal of science and its important linkages is not more clearly defined domestically then Australia faces a very serious risk of knowledge drought. The challenge is to begin to shape public opinion in support of scientific achievement and discovery in a world where fame and relative fortune is easily and cheaply gained simply by appearing on television or the internet.

Parallel to the inquiry is a stream of potential action to boost the profile and outcomes of Australian scientists which in turn will re-invest public confidence and support to the sector. In doing so this will address perceptions that science does not contribute to the economy, our livelihood or the standing of Australia within a global context.

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

FASTS represents 60,000 working scientists and technologists, and promotes their views on a wide range of policy issues to government, industry and the community. It has representation from all areas of the physical and XXXXX sciences through 12 cluster groups.

The very nature of science is that of global collaboration. Our member societies are actively engaged in direct international research collaborations through existing networks. While these relationships exist without the direct involvement of FASTS it is critical for these peer-to-peer relationships to be developed and extended. Advocating and representing these interests is the core business of FASTS to ensure the health and longevity of science in Australia.

The competitive pressures of globalisation have made innovation a key policy concern for governments around the world. Australia is part of an increasingly open world where trade in labour, ideas, capital, goods and services are all part of an emerging single global market. This is occurring at the same time as there is a growing focus on key global and national challenges to address the risks and uncertainties of climate change, water and food security, environmental degradation and energy futures.

Australia produces 2 percent of world research [source *Australian Innovation System Report 2010*]. This provides a basis for growth and also gives Australia an opportunity to add-value and benefit economically through the commercialisation of research.

However, a working paper for the OECD prepared by Josh Lerner of Harvard University, [Innovation, Entrepreneurship and Financial Market Cycles] recently made the following observations-

'While hard data is difficult to find, the financial crisis appears to have had a substantial negative effect on investors'

willingness to finance innovative entrepreneurship. This dearth of capital is particularly worrisome in light of the widely recognised need for innovative ventures — the so-called “green shoots” — to reignite economic growth after the worldwide recession’ [p6].

‘The current global crisis is having a dramatic effect on the financing of innovation. Venture firms and other investors are suffering from the inability to exit investments or raise follow-on capital and many institutional and individual investors are raising questions about the prospect of returns going forward. Meanwhile entrepreneurs running high-potential firms worry about the inability to raise capital and the difficulty of gaining traction in the product market [p34].

Government officials and policy advisors are naturally concerned about spurring innovation. Encouraging financing for entrepreneurs and venture capital is an increasingly popular way to accomplish these ends: numerous efforts to spur such intermediaries have been launched in many nations in Asia, Europe, and the Americas. But far too often, these efforts have ignored the relationships.

As we have highlighted, entrepreneurial finance is intensely cyclic, and the impact of venture capital on innovation is likely to be different within this cycle. Yet government programmes have frequently been concentrated during the time periods when venture capital funds have been most active, and often have targeted the very same sectors that are being aggressively funded by venture investors. Rather it is in periods such as today where such efforts should be concentrated [p35].

<http://www.oecd.org/dataoecd/29/27/44840087.pdf>

These observations highlight the critical investment needed from government for innovation to ensure the viability of Australian science.

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

Collaboration enhances Australia’s global standing and reputation within the knowledge economy, connecting our scientists in partnerships across the world. It allows them to link with others to share and test ideas, concepts and innovations. Increasingly collaborations are developing as a thriving export for Australia with successive achievements positioning the science sector as ‘punching above its weight’ within an international context.

This leads to science as a direct contributor to the national economy through the financial windfall gained from the commercialisation of research, innovation and ideas.

It also advances benefit to Australia diplomatically, socially and politically with multi-layered relationships stretching from academia, defence, trade and tourism.

Critical for Australian scientists is the ability to work with partners from around the globe towards common goals. With more than five million researchers in the world the reality for Australia is that we have to engage outside our national borders. While technology assists in linking individuals from laboratory to laboratory it can never replace the benefit to Australian scientists of secondment or short-term placement with overseas research partners. This not only stretches the professional, and personal, development of individuals who participate in such exchanges but also it enhances the reputation of the employer and the nation too.

With the reality that all science is global, young scientists working with partners from other countries stretches the mind and acceptance that scientific results are almost always achieved in a process of interaction.

A clear benefit for science students is overseas study placements and exchanges to expand their knowledge and horizons. The harsh reality is that most will be unable to self-fund such activity but this presents opportunities for governments, research partners and investors to significantly expand scholarships and bursaries. Relationships formed in this way can also gain sponsors access to students who may be presented with employment offers immediately or post-graduation and this too assists in the mentoring and development of the sector.

There are also benefits to be gained by allowing international students and researchers access to visiting scholarships and fellowships – both in other countries and also through Australian institutions. By providing access this positively

positions Australia as supporting global academic endeavour and within a social sphere also gives access to Australian endeavour to people from emerging economies.

Bringing international investment into Australian science by allowing the participation in CRCs and Centres of Excellence of international firms and research organisations has significant advantages. Not only does it expose Australian science to global partners within a domestic framework it also demonstrates global confidence in our people, further enhancing our reputation for excellence.

It can bring thinking that may not have been possible, allows the participating investors an opportunity to see Australian scientists at work in their 'home' environment but it is also a direct investment within the economy.

As well, successful collaborations create benchmarking opportunities while at the same time opening the horizons of other potential investors – and not only from those with an interest in science. Through the demonstration of partnerships which are successful, respectful and operating within a shared vision other investors gain evidence of the benefits of business investment in Australia.

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

Collaborative research efforts must present value-for-money and

Science is, in its basic character, international.

The people involved must know about and understand findings that are made by others.

Scientists themselves are excellent at networking and creating international communities.

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

Maintaining international collaboration at current levels is essential. There needs to be greater strategic thinking around how to further increase the opportunity for Australian scientists to represent the sector internationally. Initiatives which ensure our 'best and brightest' have access to mentoring and development programs that will extend their knowledge and experience which can then be utilised domestically.

Central to this is ensuring the employment of Australian scientists is globally competitive. Australia cannot fully benefit from its participation in the knowledge economy if our finest minds are tempted to permanently leave because salary, conditions and opportunities are greater overseas.

This 'brain drain' is a constant and increasing threat as Australia's reputation in science continues to grow. While it is certainly ideal for our leading minds to be highly considered within an international context, if local employers are unable or unwilling to retain this knowledge through competitive employment packages it will be a nett loss to Australia. This, in turn, has ramifications for the existence of the sector as a whole. While unlikely to occur, it does raise the prospect of reductions in funding if skilled scientists opt to move overseas after completing studies in Australia.

5. Principles and strategies for supporting international research engagement.

- much greater commitment to strategic investments in major international research projects such as the ITER fusion reactor or the Integrated Offshore Drilling Program

increasing the number of international PhD students

- providing funding to significantly boost the number of Australian students

There is a great opportunity for FASTS to contribute to the strengthening and enhancement of private sector involvement in Australia's international research collaborations. To date the scope of the organisation has been to represent and advocate for the sector, and this has been undertaken successfully. With a 'strategic review' of FASTS underway and an internal reassessment of its strengths and capabilities

Facilitate private sector involvement

recommend further (see NIS submission from FASTS).

Next level is bilateral collaboration. Commend india

Next level multilat big projects, need govt to govt interaction. Commend science counsellor appointees. Recommend in other countries too.

Need top level to allow big projects

Facilitate private sector involvement

** consult with FEAST, member soc in international research- astrological etc

need strategic not ad hoc approach:

- Play a lead role in international R&D efforts
- Strongly position Australia to follow international developments quickly
- Position Australia to monitor international developments and follow as needed