



Australian Government

AUSTRALIA'S CHIEF SCIENTIST

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**Australia-EU Joint Science and Technology
Cooperation Committee meeting**

15-MINUTE SPEECH

BRUSSELS, BELGIUM - OCT 16

***** CHECK AGAINST DELIVERY *****

Good morning / evening

Thank you for inviting me to speak here today / tonight.

In some respects being in Brussels is like coming home for me.

I lived in Belgium, in Ghent, for two years in my early academic life, and enjoyed a very happy and productive professional life. It was not too bad in my personal life either; I married a young woman from Ghent (which is not the start of a limerick) and have been a frequent visitor here ever since.

I was, and am, regularly reminded of Robert Browning's poem, described as a rollicking good read, that ends with the lines:

As I pour'd down his throat our last measure of wine,

Which (the burgesses voted by common consent)

*Was no more than his due who brought good news from
Ghent.*

In my case it is news to Ghent these days, but happily the rewards are the same - although given to me not the horse.

But time has moved on. I am no longer a young academic who would never have predicted his future - and would never have thought to plan one. And if somebody had said that I would end up in this job, at any time up until last February, I would have questioned their sanity, not mine.

My present role is quite different from any that I have had in the past. It is fascinating, stimulating and invigorating - and brings me into regular contact with some of the people whose work will doubtless give this world a better future than might otherwise be the case.

As the Chief Scientist of Australia, one part of my role is to advocate for science. And while the environment to do that can occasionally prove challenging, I'm always happy to engage.

And I always enjoy the opportunity to speak with colleagues from around the world, face-to-face

It's at gatherings like this that I'm reminded of just how important science is to the future of this planet and to all

the people and all the animals and plants that live on it. And I am reminded just how common are the problems we face.

We understand increasingly that many of the solutions to the big problems facing humanity will have some form of science at their core. And we know through meetings like this that we need to work together to face them down.

Of course the challenges are many, so how do we decide which ones require our urgent attention?

I'd like to touch on one of the ways we in Australia are working towards this, in response to a review last year that looked at focusing our publicly-funded research.

One of the key findings of the review was that it is critical for Australia to have a national, strategic approach and better coordination of effort and investment in research.

This led to the establishment of the Australian Research Committee (ARCom) and my appointment as its chairman.

ARCom is currently developing a whole of government National Research Investment Plan (NRIP)

This plan, this framework, will inform decisions by the Australian government in relation to its level and balance of research investment over the next three years.

This will be the first in a series of three-year plans which will set our priorities for the decade ahead and aims to provide a national framework against which future major and strategic research funding decisions can be taken.

It will consider all of the fundamental elements of the research system, including publicly-funded research, research workforce, infrastructure, collaboration and business research.

Ultimately, the plan aims to provide advice on how the Australian Government can direct its research investment to ensure national capability which is broad in its base and can be targeted and focussed to respond to national priorities. How we can ensure that we allocate funding to issues that the nation must address, while not precluding quality research in other areas, including that which might seem a bit idiosyncratic, even off the wall. I don't need to be told about the importance of the latter. But nor do I need to be told that there are some areas where we simply must conduct research of quality in a quantity that

will help directly with the problems we confront today and can expect to confront tomorrow.

ARCom is expected to develop a process to determine strategic research priorities that can be used to ensure that investment.

And it's clear to me that this approach has parallels with what is happening elsewhere.

For example, I've just been in the U.S. and met representatives from the Office of Management and Budget and the Office of Science and Technology Policy.

Their recent memorandum to all heads of department and agencies has set the science and technology priorities for the 2014 budget and built on the President's *Strategy for American Innovation*.

These multi-agency priorities include: -

Advanced manufacturing - with a particular emphasis on government-industry-university partnerships and enabling technologies like robotics, materials development, and additive manufacturing.

Clean energy – striving for clean-energy technology R&D to help reduce dependence on oil and to help reduce air

pollution and greenhouse gas emissions while creating jobs and new businesses

Global climate change – looking for agencies to advance their understanding of vulnerabilities in human and earth systems and their relationships to climate extremes, thresholds, and tipping points

R&D for informed policy-making and management – getting all agencies, but especially those not focused on R&D, to give priority to it so that they strengthen their scientific basis for decision-making, particularly with regard to health, safety, and environmental impacts

Information Technology Research and Development – getting agencies to give priority to investments that address the challenges of, and tap the opportunities afforded by the Big Data revolution

Nanotechnology - encouraging its safe, effective, and responsible development and use

Biological Innovation – giving priority to R&D that enhances translational science and assists the Federal STEM-education strategic plan (a plan might I add that is similar in intent to ours in Australia)

Innovation and commercialisation – having agencies promote innovation and commercialisation from Federal R&D investments, through support for inducement prizes, early-stage technology development and university-industry partnerships

While these are priorities for the US, I am sure that the grand challenges that face us in Australia are similar, as are those that face Europe. There may be nuances that make subtle differences, but as I said before, the commonality is striking.

And while we strive to improve our competitiveness through innovation, and while we strive to improve the lot of our own community, and as we contribute to the betterment of humanity through research, we must also look for new opportunities in international collaboration.

Again, what's happening in Australia, reflects a broader global trend.

The UK Royal Society confirms this in its report from March, 2011 - *Knowledge, Networks and Nations: Global Scientific Collaboration in the 21st Century*.

It found that 35 per cent of articles published in international journals are now internationally collaborative.

Fifteen years ago, that figure was just 25 per cent.

And I'm pleased to say that Australia on average performs well in international collaboration.

An analysis of total Australian publications for 2010 (using Web of Science/Thomson Reuters data) suggests that more than 40% were co-authored with international collaborators.

In Australia, we believe it's the quality of our scientific research, and some of the special conditions that prevail in Australia that underpins the interest of many of our international partners.

And we're working hard to ensure that hard won reputation is preserved.

It's for this reason The Excellence in Research for Australia (ERA) initiative was established, and Patricia has already spoken about that.

We in Australia have always felt that combining our research resources with colleagues here in Europe is a good idea.

As Patricia has mentioned, the European-Australian bilateral collaboration is the most prolific and has the greatest impact in a number of areas.

But we're particularly keen to establish more pathways for collaborative research & development with EU countries and another part of my job is to make sure that continues to happen.

To this end, my office publishes an Occasional Paper Series and the second in the series deals with Australia's Position in the World of Science, Technology & Innovation.

This paper interprets the data available in the Organisation for Economic Co-operation and Development's 10th edition of its Scoreboard on Science Technology and Innovation.

The good news is that Australia has increased its R & D spending by 51 per cent in recent years and Australian universities produce 2.6 per cent of the OECD's total number of science and engineering graduates at doctorate level.

And while we need to remain vigilant about Australia's R&D effort and position on the world stage, the Health of

Australian Science report released by my office (in May) also identified international collaboration as one of our great strengths.

It found that between 2002 and 2010, the number of internationally co-authored publications in Australia more than tripled; just under half of all Australian scientific publications are co-authored with overseas collaborators. and the citations per paper are nearly tripled if there are two or more international co-authors.

It's why I continue to advocate for more international collaboration, and why many others in Australia's scientific community have already joined that chorus.

Late last year, the Australian Academy of Science, released its paper - *Australian Science In A Changing World: Innovation Requires Global Engagement*

It speaks of the need for Australia to remain engaged with our scientific partners here in Europe, and gives several examples of European-Australian research co-operation.

One of them is tackling a problem that, until a few years ago, was practically unheard of – cyber bullying.

The European Cooperation in Science and Technology program, better known as COST, decided to tackle the cyber bullying problem and inform decision-makers with a scientific evidence base.

A global COST network was set up, with the participation of Australian researchers.

This COST network was made possible through a reciprocal agreement between the Australian Academy of Science and the COST Office right here in Brussels.

There have already been some tangible results and while there are many other case studies of scientific collaboration between Europe and Australia, I like this one because of the way it has moved so quickly to address an emerging global problem and improve people's lives.

Perhaps another example some of you might be aware of is that Australia is the first Associate Member of the European Molecular Biology Laboratory (EMBL).

EMBL is the most cited scientific institution outside the U.S. in molecular biology and genetics, with an extremely high impact of an average of 66.02 citations per paper

Initiated in 2008 and running until 2014, Australia's Associate Member status allows our institutions to benefit from activities such as funded research positions, collaborative ventures and the formation of research institutes.

EMBL Australia seeks to connect and internationalise Australian research through integrated networks that connect to global partnerships.

It aims to enhance research quality through the development of world-class scientific leaders.

And it's initiatives like this that prompts me to look for that next opportunity to work together.

As we know, science contributes to the betterment of society and often in ways we cannot foresee.

I suggest that the challenge for us all is to work together in ways that will actually allow us to see see further than we might otherwise, and to see more quickly.

The world needs science now, possibly more than ever. and if we are to give this world a better future than otherwise might be the case, I suggest that most problems, not all but most, will be confronted by teams

working across disciplinary boundaries and across international borders. And the commitment from all the parties has to be there to meet them, head on.

It's a challenge I hope you might share with us and I look forward to discussing it with you.

Thank you.