Australian Government

Chief Scientist

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ADDRESS TO THE

Australia China Business Council Networking Day

10.00am – 10.30am

25 MARCH 2015

Our science partnership – A partnership of influence

Parliament House, Canberra

Main Committee Room

Thank you John, and thankyou to the business council for having me here today.

I am one of many scientists wandering the corridors for Science Meets Parliament, an annual event that recognises the importance of science and research in the making of a nation.

One of its contributions is economic: the building of strong and resilient industries staffed by innovative and intelligent people.

I just had the pleasure of releasing a report that suggests advanced scientific knowledge, from a subset of the core disciplines - physical and mathematical sciences - accounts for as much as a quarter of the Australian economy.

The direct impacts alone contribute something in the order of $145 billion to our GDP.

That's the sort of number I find that people in Parliament remember.

But I think that science is far more than a means to prosperity. It is about new knowledge and progress – however we define that word - it is about aspiring to something magnificent.

Nowhere is that better expressed than China, which looks set to overtake the United States as the world's top R&D investor before the decade is out.[1]

And so I think it is no coincidence that in the four decades since formal diplomatic relations began, China has not only become Australia's largest trading partner, and our most significant education partner - but also a growing research partner.

[1] OECD Science and Technology Outlook 2014.

Our scientific engagement began even before diplomatic relations were established. And I believe it underpins our trade relationship.

Back in 1963, through an exchange between our respective Academies of Science, radio-astronomer Professor Wilbur "Chris" Christiansen visited China for the first time [2]. Since then science and scientists have helped us relate, country to country, in an enduring way.

And science is a universal 'language' and it isn't political. Although we have seen how it can be politicised.

But it is the issues that draw us together; it is the issues that encourage Australia and China to collaborate. The shared 'language' makes it possible.

It is, I think, self-evident that as we face challenges: whether it is our climate, our health, our food supply, our economy or our security, it will be scientific discovery and the use of scientific knowledge that will form the core of our ability to respond.

Some problems are uniquely Australian. We can't expect researchers in other countries to be interested in coming up with ways to manage the Murray Darling Basin in a sustainable way.

But many of the problems that confront us here in Australia are global in nature: issues related to climate are **not** uniquely Australian problems, nor are pandemics, antibiotic resistant microbes, and food security, to name just a few.

[2] https://www.science.org.au/node/451224

No one country can find the way to solve, or mitigate any of these huge problems on their own. But it will be science at the core of the solutions.

I don't argue that science will be there on its own; but it will be a constant. And I can't possibly argue that it will be Australia on its own; but I will and do argue that Australia - as a respected, and able partner in science - will help find solutions and define the pathways we need to take.

Australia's partnership with China in science has been based on mutual interests and on mutual benefit – and we should make sure that it continues to be so, as China's position in global science strengthens.

China is moving up the global ladder in terms of the number of research publications. It is now the second-ranked country in scientific publication output, and a growing share – now fourth-ranked- in the top 1 per cent of cited publications [3]

And China is collaborating more - particularly with Australia:

- Between 1995 and 2010, Australia-China collaboration grew faster than China's overall collaboration with the world, and faster than China's collaboration with USA. [4]
- In several fields of research - such as mathematics, engineering and chemistry – China is Australia's leading partner in collaboration.
- And it is the second-top partner in agricultural and veterinary science and immunology.[5]

[3] Benchmarking Australian Science, Technology, Engineering and Mathematics, Office of the Chief Scientist, November 2014, p8.& p19
[4] Health of Australian Science (HAS), Office of the Chief Scientist, May 2012, p145.
[5] HAS p142.

So Australia and China have complementary research foci, and we share challenges and concerns. The question is: how do we identify areas where we want to work together, put the processes in place, share know-how, and both get benefit?

What we need to do is ensure we have sufficient **alignment, focus and scale** in order to increase the level and impact of the China-Australia partnership.

It is a partnership which has much to gain through firm scientific relations - particularly at the government-to-government level - that are built around shared research priorities in areas of mutual benefit.

China has a long tradition of setting research priorities. In their latest Medium and Long-Term Plan for Science and Technology (2006-2020) China unveiled their research priorities in detail. These included:[6]

- 68 priority themes in 11 priority fields;
- 16 mega-engineering projects;
- 8 cutting-edge technological areas;
- 8 cutting-edge scientific areas; and
- 4 mega-science projects.

This recognition of national priorities has not come at the expense of the sort of basic, curiosity-driven research that underpins all scientific endeavours. China is adding to the stock of global knowledge and understands this is to be critical to the national interest.[7]

However, Australia does not have an equivalent set of science and research priorities – but we have reached a point where we

[6] http://www.vinnova.se/upload/EPiStorePDF/va-09-21.pdf p7
[7] http://www.nature.com/news/china-goes-back-to-basics-on-research-funding-1.14853

know we need them - to sit alongside our investments in curiosity-driven research.

So over the past few months I have been working to develop some. I have been consulting expert working groups and other key stakeholders to identify the practical research challenges that we face in those nine priority areas.

We finalised our consultations earlier this week, and from that I can appreciate the words from someone involved in the Chinese priority setting process when they said their *"priorities had been the result of "bargaining".*[8]

I am optimistic for their implementation as I believe they are not only essential for making sure Australian research is addressing the questions we need it to, but they will also be a key part in strengthening Australia's relationships with our international partners – particularly in areas where our research strengths align and where we face shared challenges.

It is also important to think of the Australian science and research priorities in the context of a new trade agreement – (if and) when the dotted line is signed – which opens up opportunities - not just for trade with China, but also for the research that underpins that trade.

For example, if we have the opportunity to export more dairy products… China is already Australia's largest market for dairy exports and the market is rapidly expanding…So we need to make sure we do the research we need to do, to make sure we can produce and maintain a high quality of dairy products to

[8] http://www.vinnova.se/upload/EPiStorePDF/va-09-21.pdf p28

meet that growing demand and make the most of the opportunity that the trade agreement gives us.[9]

To finish off, I will add that I didn't visit China before diplomatic relations were established. I first went there in 1987. It was clear even then the importance that China put on science and research – on international connections widely, including with Australia – as its pathway to a better future.

And now, we too should place just as much importance on the science relationship as we do with our trade relationship. We have much to gain from an effective science partnership – a partnership between friends and colleagues - and a partnership of influence in world affairs.

[9] http://www.dfat.gov.au/trade/agreements/chafta/fact-sheets/Pages/fact-sheet-agriculture-and-processed-food.aspx
Note: diary was used as an example as wheat missed out on a deal in the FTA. Barley and Sorghum were successful grains.