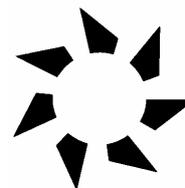




Australian Academy of Science



Australian Academy of Technological
Sciences and Engineering

26 May, 2005

Ms Jessica Shaw
A/g Principal Research Officer
Senate Foreign Affairs, Defence and Trade Committee
Australian Senate
Parliament House
Canberra ACT 2600

Dear Ms Shaw,

Australia's Relationship with China in Science and Technology

The Australian Academy of Science (AAS) and the Australian Academy of Technological Sciences and Engineering are well placed to comment on the increasingly strong links in Science and Technology (S&T) between Australia and China, and are actively involved in strengthening these links. This area was not highlighted in the Senate Foreign Affairs, Defence and Trade Committee's terms of reference but is of fundamental importance both in its own right and in underpinning economic, environmental and social developments in both countries, so-called triple bottom line (TBL) issues. The links in S&T are being fostered by recognition of their importance at levels that include Governments, research institutes and universities, and individual scientists.

In this context, it is no oversimplification to say that as far as China is concerned, Australia is 'the right place at the right time' for developing links in S&T; and vice versa for Australia, even though population densities are very different. The 'right place' factors include:

- Eastern hemisphere location and landmasses that include tropical, arid, semiarid, temperate and subalpine zones in both countries
- Strong underlying economic resources, including minerals, animal and crop products, and fisheries
- Environmental threats in common, that include drought and human-related threats to quality of water and soils.

'Right time' factors include:

- Needs in China, as perceived by Government and institutions, for better recognition of Chinese S&T outside China, and for upgrading skills that at present lag behind those in developed countries
- New high-level Australia-China Government contacts and agreements for collaboration in S&T

- Increasing availability to Chinese scientists of funding for overseas travel and research collaboration and hence realistic matching of funds from Australia
- Chinese investment in cutting edge research infrastructure, eg in Synchrotron research, and in radio astronomy, of which Australians could be users
- Successful Governmental initiatives in China to encourage Chinese scientists resident overseas to return to China but maintain their overseas research contacts and networks
- The traditional wish of Chinese people who are not resident in China to maintain links with their ‘mother country’ irrespective of political differences, also now being encouraged by China for S&T collaborations
- Political developments that now favour Australia as a partner country for S&T (including training) over the USA
- Time-zone similarities that are not a trivial matter in facilitating ‘neighbourliness’, e.g. in travel.

Some tangible examples that illustrate these points include:

- Funding programs set up by the Commonwealth Department of Education, Science and Training in consultation with agencies in China. These include the grants for scientific visits that are administered by AAS, the Australia-China Special Fund for Scientific and Technological Cooperation, and in 2003 the one-off Chinese Higher Education Strategic Initiative (CHESI). Competition for funding from these schemes from Universities, research agencies and business organisations (depending on eligibility in individual schemes) is intense, far exceeding the funds available.
- A visit in 2003 by a delegation from the Chinese Academy of Sciences (CAS), led by its distinguished President, Professor Yonxiang Lu, that resulted in the establishment of a series of high-level Australia-China planning Symposia, supported by DEST, CAS and the China Natural Science Foundation. These are administered for Australia by AAS and ATSE. The aim is explore key issues and identify approaches taken by one nation that will assist the other, and hence to foster new collaborations in S&T. The first Symposium was held in October 2004 at Red Hill, Victoria, followed by visits to institutes in Adelaide, and dealt with the theme ‘Living sustainably – what does it mean for you?’. The second will be held in Beijing in October 2005 on the topic of plant and animal biotechnology and nanotechnology.
- To recognise Professor Lu’s ongoing mission to strengthen China-Australia ties he was elected a Corresponding Member of AAS in April 2005.
- The visit by Prof Lu has also led to Dr Ben Wallace, an Australian researcher with the National Botanic Gardens in Canberra, assisting with the design and implementation of an Australian flora garden at the South China Botanical Gardens in Guangzhou.
- There are now many individual agreements for S&T collaboration between Universities and institutes in Australia and their counterparts in China. One example is the jointly badged laboratories for soil biology (‘healthy soil’) at the University of Adelaide Waite Campus, and the Research Center for Eco-environmental Sciences, CAS, Beijing. The research leaders, Professor Sally Smith FAA and Yongguan Zhu, hold reciprocal adjunct Professorships.
- More generally, there are increasing numbers of postdoctoral researchers and postgraduate students from China. We see these as a valuable future resource for development of ongoing collaborations among future research leaders. Institutes in China are taking steps to encourage reciprocal visits by young researchers from Australia.

- Researchers in China are under increasing pressure to publish their research in international English-language S&T journals. Hence there is a strong need to improve their ability to meet requirements of these journals, which differ from those in China. Another initiative from the University of Adelaide, requested by CAS, funded partly under the DEST CHESI program, and involving Professor Andrew Smith FAA, is the provision of 6-day training workshops to meet this demand in the areas of environmental and agricultural sciences.
- Australia has strong ties with China in the area of Antarctic research. There is a MOU between the Polar Research Institute of China in Shanghai, the Australian Antarctic Division in Hobart and the University of Newcastle to undertake joint research in atmospheric and space physics. This was motivated by the close location of the Australian Davis and the Chinese Zhong Shan research stations in Antarctica. The University and Antarctic Division have instrumentation at Zhong Shan and collaborate on data usage. Under the MOU the University and the Polar Research Institute of China undertake exchange visits.
- Beyond the immediate interests of AAS, other R & D agencies in Australia are focusing on China. For example, the Australian Centre for International Agricultural Research (ACIAR) has highlighted its commitment in its April 2005 Newsletter: 'Sharing the load in China', summarising programs in agricultural and environmental sustainability.
- In early 2005 BHP Billiton and CAS reached an agreement for joint research, development and education in scientific and technical areas of relevance to the minerals and energy industry. The agreement will involve an academic and scholarship program with the Graduate School of the Chinese Academy of Science (GSCAS), collaborative research with relevant institutes and joint efforts to commercialise research results in the global market.

We believe very strongly that maintaining (and as far as possible increasing) funding dedicated to strengthening links in S&T is an excellent investment to help ensure strong and mutually beneficial relationships with China, and that practical commercial outcomes will eventuate in many areas. Tensions that may arise (as between China and Taiwan or Japan) have little direct impact on collaboration in S&T, although Government priorities for funding international S&T collaborations can of course be influenced by political events. There is no doubt that scientists in Australia and China will continue along the present track of increasing collaboration. The person-to-person interactions required in these collaborations form one basis for improved relations between the two countries.

The Academies hope that this submission is useful. The Academies would be pleased to meet with the Senate Foreign Affairs, Defence and Trade Committee to discuss any of the above issues.



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