

## Research and development

### Changing nature of the relationship

- 7.1 Australia has a long and evolving history of research and development collaboration with Malaysia. Initially the relationship was founded on developmental projects and provision of traineeships and advice through the Colombo Plan.<sup>1</sup>
- 7.2 DEST told the Committee:
- ... early interactions took place within the context of development projects funded through Australia's aid program. Australian scientists working in CSIRO and the Australian Centre for International Agricultural Research were providing technical assistance to their Malaysian counterparts primarily. ... That early period of technical aid has drawn to a close; and, for almost a decade, Australian and Malaysian scientists have been working collaboratively in areas such as agricultural research and transboundary infectious disease control.<sup>2</sup>
- 7.3 CSIRO noted that, in terms of number of its international interactions, Malaysia's ranking had varied from between 7th and 12th in 1997 to 2001, dropping to 18th in 2004, but returning to 12th 2005. Malaysia

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1 CSIRO, *Submission No. 2*, p. 8.

2 Ms Sarah Cowen, *Transcript 4 December 2006*, p. 18.

was, however, the second most important partner in ASEAN. CSIRO's submission added:

... part of Malaysia's ranking fluctuation can be attributed to the changing nature of CSIRO's relationship with Malaysia, mirroring to an extent Malaysia's transition from an Australian aid recipient to a partner country and a contractor or purchaser of research. This has been particularly evident in the Division of Petroleum Resources which saw a marked increase in contract research with Malaysia during 2005.<sup>3</sup>

- 7.4 Further, CSIRO told the Committee that the current relationship with Malaysia was 'one of partnership, working together collaboratively to solve issues of mutual interest rather than engagement tailored towards capacity building.'<sup>4</sup>

## Malaysia's new policies and directions

- 7.5 Malaysia's Second National Science and Technology Policy was announced in 2003. The policy aimed to increase research and development (R&D) spending as a proportion of gross domestic product to 1.5 per cent by 2010. Figures provided by DEST showed that, while there was an overall increase in R&D spending of 47 per cent between 2000 and 2002 (equivalent to \$857 million in 2002), R&D only amounts to some 0.69 per cent of Malaysia's GDP.<sup>5</sup>
- 7.6 DEST told the Committee that the Malaysian Government had announced funding for biotechnology development through a long-term national biotechnology policy, and the development of centres of excellence for agriculture, molecular and pharmaceutical biotechnology. Consequently, DEST foresaw that future collaboration in science and technology was promising.<sup>6</sup>
- 7.7 A substantial amount of research is carried out at the postgraduate PhD research level. The AVCC told the Committee that Malaysian universities wished to increase the proportion of their staff with PhDs from the current 30 per cent to about 60 per cent.<sup>7</sup>

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3 CSIRO, *Submission No. 2*, pp. 10–11.

4 Dr Kleanthees Yannakou, *Transcript 4 December 2006*, p. 2.

5 DEST, *Submission No. 14*, p. 116.

6 Ms Sarah Cowen, *Transcript 4 December 2006*, p. 18.

7 Professor Roger Dean, *Transcript 4 December 2006*, p. 10.

- 7.8 As noted in Chapter 6, these developments mean that there will be opportunities for Australia's universities and research institutions to increase their engagement with Malaysian researchers.

## Provision of research funding

- 7.9 Major sources of funding for Australian researchers include:
- the Australian Research Council (ARC) which administers the National Competitive Grants Program (NCGP);
  - the National Health and Medical Research Council (NHMRC) which provides funding for research relevant to human health and medical research;
  - DEST which administers the Endeavour Programme; and
  - AusAID which administers development assistance scholarships.
- 7.10 The NCGP which funds researcher-initiated projects contains various elements, including:
- Discovery Projects which enabled researchers to work with partner organisations worldwide;
  - Linkage Projects which enabled researchers to work with partner organisations in Australia and other countries;
  - Linkage International which enabled researchers to receive awards to travel to other countries and overseas researchers to travel to Australia; and
  - ARC Centres of Excellence, which were required to undertake highly innovative research in areas of national importance.<sup>8</sup>
- 7.11 The ARC told the Committee that between 2000 and 2007 it had funded 43 collaborative projects involving Malaysian researchers. Most were funded under the Discovery scheme (25 projects) and the Linkage schemes (11 projects) with a total allocation being just over \$9.25 million. In 2007, six projects with Malaysian collaboration were to be funded, valued at around \$1.3 million.<sup>9</sup>

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8 Professor Elim Papadakis, *Transcript 4 December 2006*, p. 3.

9 Professor Elim Papadakis, *Transcript 4 December 2006*, p. 4.

- 7.12 Statistics provided by the NHMRC indicated that between 2001 and 2005 three grants were provided to researchers for projects involving collaboration with Malaysia. The researchers were from the University of Western Australia and the grants totalled \$0.91 million.<sup>10</sup>
- 7.13 DEST advised the Committee that in 2006 there had been 46 Endeavour Postgraduate Research and Study Awards granted to Malaysians. Of these, 45 were awarded to Malaysians studying in Australia, with the remainder being for Australians to study in Malaysia. The submission noted that July 2005 saw the announcement of six new Endeavour Malaysia Awards for postgraduate studies, and four new Endeavour Malaysia Research Fellowships for student exchanges. Two awards were reserved for Malaysian students from the International Islamic University Malaysia to study in Australia, and two for Australian students to study at that university.<sup>11</sup>
- 7.14 DEST added that many Australian universities were also actively involved in providing exchange scholarships at either the PhD or undergraduate level, hence did not rely on government scholarships.<sup>12</sup>
- 7.15 Regarding the AusAID developmental scholarships, DEST commented that they would be 'almost down to a trickle' given the stage of economic development Malaysia enjoys.<sup>13</sup>

## **Collaboration between research institutions**

- 7.16 There are varying degrees of formality in the relationship between Australia's and Malaysia's premier research institutes.
- 7.17 For example, the Australian Academy of Science and the Australian Academy of Technological Sciences and Engineering have a joint MoU with the Academy of Sciences Malaysia.<sup>14</sup> On the other hand, the Australian Nuclear Science and Technology Organisation (ANSTO) may be moving towards a MoU with its counterparts in Malaysia.

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10 NHMRC, *Submission No. 34*, p. 272.

11 DEST, *Submission No. 14*, p. 110.

12 Ms Fiona Buffinton, *Transcript 4 December 2006*, p. 21.

13 Ms Fiona Buffinton, *Transcript 4 December 2006*, p. 20.

14 DEST, *Submission No. 14*, p. 116.

- 7.18 ANSTO and Malaysian research institutions participate in the Regional Cooperative Agreement and the Forum for Nuclear Cooperation in Asia. Collaborative work includes radiologic safety and radioactive waste management. Malaysians also comprise some five per cent of placements in Australia under the International Atomic Energy Agency Scientific Visits and Fellowships program.
- 7.19 In May 2006, discussions were held between ANSTO and the Malaysian Institute of Nuclear Technology Research over potential areas for cooperation and collaboration.<sup>15</sup>
- 7.20 CSIRO has had a long history in joint research involving Malaysia and has a series of formal relationships:
- a MoU signed in May 2003 with Petronas Research and Services Sdn Bhd;
  - a Relationship Agreement signed in August 2001 with the Malaysian Palm Oil Board;
  - a Letter of Agreement signed in June 1998 between the Universiti Putra Malaysia to facilitate cooperation in the field of human nutrition;
  - a Scientific and Technological Cooperation Agreement signed in 1993 with the Council of the Standards and Industrial Research Institute of Malaysia (SIRIM Berhad), which resulted in the 'standardisation of the Malaysian building code and other metrology areas'; and
  - a Relationship Agreement signed in July 2000 with SCS Computer Systems Sdn Bhd.<sup>16</sup>
- 7.21 CSIRO advised the Committee that it, SIRIM Berhad (CSIRO's sister institute in Malaysia), and seven other international research organisations had established the Global Research Alliance (GRA). The GRA aimed to:
- ... facilitate international research and development cooperation in an effort to address the problems facing the world especially in areas of water, health, energy, transportation and digital divide. ... GRA has developed a water resources strategic plan of action for the ASEAN region that recognises drivers such as climate change, environmental

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15 DEST, *Submission No. 14*, p. 117.

16 CSIRO, *Submission No. 2*, p. 10.

risk, safe drinking water and sanitation, in-country capacities and future sectoral demand and at the same time delivers some real outcomes in terms of building capacity within ASEAN member nations.<sup>17</sup>

7.22 Other collaborative work with Malaysia being undertaken by CSIRO includes:

- Research with the Universiti Pertanian Malaysia on newly-emerging viruses with potential to infect humans. The Pulau virus, a new virus from bats, had been identified.
- Development of treatments for the Nipah and Hendra viruses.<sup>18</sup>
- Research on the termite genus *Coptotermes*. This genus includes some of the most invasive termite species known. Research includes examination of resistance of plastic materials to attack by the termites and experiments on wood consumption and survival, and inter-species colony interactions.
- Research with the Malaysian Palm Oil Board on novel products recovered from palm oil biowaste.<sup>19</sup>

7.23 The Committee was also advised by DEST that the Queensland Department of Primary Industries and Fisheries was leading a new collaborative project with Malaysia on improving screw-worm fly traps and detection systems. The project was funded by the animal industry and administered through Meat and Livestock Australia with collaborators from the Department of Veterinary Services Malaysia and researchers in Indonesia.<sup>20</sup>

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17 CSIRO, *Submission No. 2*, p. 10.

18 These closely related viruses are thought to be harboured by flying foxes. In 1994–95, the Hendra virus killed 2 people and 16 horses in Queensland. In 1999, the Nipah virus killed more than 100 people in Malaysia.  
CSIRO, Media Release 06/36, *Vaccine in sight for Hendra and Nipah virus*, 27 February 2006.

19 CSIRO, *Submission No. 2*, pp. 10–11.

20 DEST, *Submission No. 14*, p. 118.

## Committee comment

- 7.24 The Committee considers that Australia has a very productive R&D relationship with Malaysia. The research is directed at solving practical problems which will benefit both countries.

Senator Alan Ferguson

Chair

March 2007

