

CHAPTER 5

Outcome 3: Research, Science and International Education

Australia has a strong science, research and innovation capacity and is engaged internationally on science, education and training to advance our social development and economic growth.

Description

Australia produces only a small share of the world's science, research and innovation. International engagement is essential to effectively employ knowledge and innovation produced elsewhere in the world. A strong national and internationally-connected science, education, research and innovation capacity will lead to the development of new businesses, higher productivity, jobs growth, a more sustainable and vigorous intellectual environment, and higher levels of social wellbeing. International engagement promotes innovation, develops people-to-people links and underpins Australia's competitiveness, trade, skilled migration, foreign relations and national security.

Australia's science, research and innovation system is diverse, pluralistic and decentralised. Its funders and providers include Australian Government departments, state government and private research agencies and organisations, universities, health and medical research laboratories and organisations, and industry research and development organisations.

Australia's international education activities are also diverse. All sectors of the education system are engaged, including both public and private providers; there are onshore and offshore activities involving international

and domestic students, researchers and educational professionals. They also cover government-to-government activities, including memoranda of understanding, and engagement with multilateral forums, such as the Organisation for Economic Co-operation and Development (OECD), World Trade Organisation (WTO), and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

The Commonwealth's role

The Commonwealth has four key roles in Australian research, science, and innovation. They are to:

- ▶ invest in research, science and innovation to support the development and use of new knowledge;
- ▶ stimulate and strengthen awareness throughout the community of the need for, and the value of, research, science and innovation;
- ▶ foster domestic and international collaboration; and
- ▶ provide leadership in the global development of skills and knowledge.

The Commonwealth's framework for research, science and innovation is articulated in the Research White Paper *Knowledge and Innovation*, announced in 1999, and in *Backing Australia's Ability – An Innovation Plan for the Future*, announced by the Prime Minister in 2001. *Backing Australia's Ability* sets out a \$3 billion, five-year strategy for research and innovation.

As its investment in the science, research and innovation system is spread across a number of portfolios, the Commonwealth has established a range of mechanisms for whole of government or multi-portfolio decision making and coordination. Of particular importance is the Science and Innovation Committee. The Minister for Science has day-to-day responsibility for monitoring the successful and timely implementation of *Backing Australia's Ability*. Portfolio Ministers also contribute to the Sustainable Environment Committee of Cabinet, the Biotechnology Australia Ministerial Board, the National Oceans Ministerial Board and the National Food Industry Council.

The Commonwealth has a key role in facilitating a sustainable education and training export industry through collaboration with overseas and domestic governments and agencies, industry providers and other stakeholders. The regulatory framework provided under the *Education Services for Overseas Students (ESOS) Act 2000*, the Commonwealth Register of Institutions and Courses for Overseas Students (CRICOS) and the National Code of Practice for Registration Authorities and Providers of Education and Training to Overseas Students (National Code), assures the quality of the education and training industry for overseas students studying in Australia.

In its work to assist the Commonwealth in achieving its strategy for research, science, innovation and international education and training, the department has three distinct but closely interrelated foci:

- ▶ policy advice and other support provided to the Ministers;
- ▶ efficient programme management; and
- ▶ fostering and achieving cooperative and effective partnerships with international, state and territory governments, research organisations, education and training providers and other stakeholders.

Policy advice to the Minister is underpinned by the department's range of in-depth research, analysis and evaluation, which also informs the policy debate within the research, science, innovation and international education communities.

The department also administers a range of programmes and legislation and uses its influence to negotiate and liaise with stakeholders to achieve the best possible outcomes for the Commonwealth.

Resources

In 2002–03, total resources allocated for Outcome 3 were \$529 million. The department administered \$472 million (Administered Appropriation) on behalf of the Commonwealth through three administered output groups:

- ▶ Output Group 3.1 – funding for higher education research;
- ▶ Output Group 3.2 – assistance for science collaboration and innovation; and
- ▶ Output Group 3.3 – support for the Australian education and training export industry and international relationships.

The department used Departmental Appropriations of \$44 million and raised \$15 million in revenue to total almost \$60 million for five departmental outputs:

- ▶ administration;
- ▶ policy advising;
- ▶ ministerial and parliamentary service;
- ▶ research, analysis and evaluation; and
- ▶ service delivery.

Table 26 sets out the resources invested in Outcome 3 for 2002–03.

Table 26: Resources invested in Outcome 3

Administered Appropriations	Budget (inc AEs ^a) 2002–03 \$'000	Actual 2002–03 \$'000	Variation (column 2 minus column 1) \$'000	Budget Estimate 2003–04 \$'000
Funding for higher education research	278 421	253 436	-24 985	307 026
Assistance for science collaboration and innovation	187 438	184 724	-2 714	252 666
Support for the Australian education and training export industry	6 278	5 962	-316	15 054
Total Administered Expenses	472 137	444 122	-28 015	574 746
Departmental Appropriations				
Funding for higher education research	3 179	2 056	-1 123	4 458
Assistance for science collaboration and innovation	14 285	19 028	4 743	20 065
Support for the Australian education and training export industry	29 357	23 322	-6 035	35 671
Total Revenue from Government (Appropriation) Contributing to Price of Departmental Output	46 821	44 407	-2 414	60 194
Revenue from other sources^b	10 054	15 201	5 147	13 956
Total Price of Departmental Outputs	56 875	59 608	2 733	74 150
TOTAL ESTIMATED RESOURCING FOR OUTCOME 3 (Total Price of Outputs and Administered Expenses)	529 012	503 730	-25 282	648 896
Average Staffing Levels (Number)			2002–03 336	2003–04 380

^a AEs – Additional Estimates

^b Revenue from other sources does not include resources provided free of charge

Notes:

Administered: The difference of \$28.0 million (six per cent) between the actual for 2002-03 and the budget for Administered Expenses is due mainly to the transfer of the Small Grants Research programme to Outcome 2 during the year.

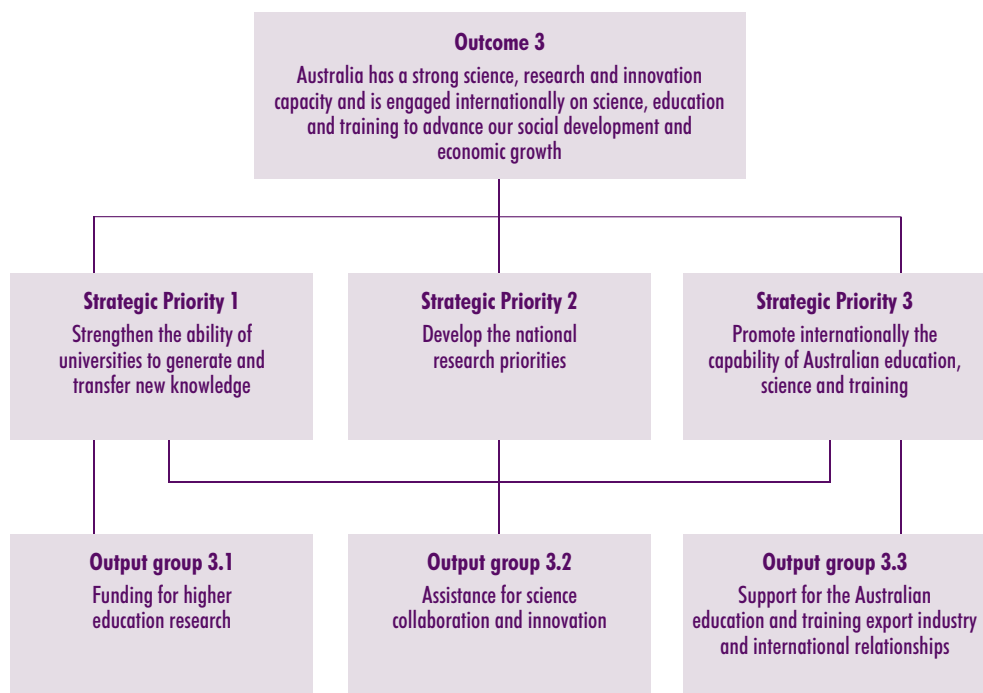
Departmental: The total price of output exceeded budget by \$2.7 million. Variances at the output group level reflect the process of attributing costs to outputs on an actual basis. In particular, the actual figure for assistance for science and innovation, where the budget figure was based on the direct resources transferred from the Industry, Training and Resources Portfolio, has been based on full cost attribution.

Source: Department of Education, Science and Training.

Planning for resource usage

To provide a business planning framework and operational focus within the department to support the Commonwealth's long-term outcome for research, science, innovation and international education and training, three strategic priorities, or medium-term goals, were identified for 2002–03. As can be seen from Figure 28, output groups can contribute to more than one strategic priority. The departmental outputs are also applied across all of the strategic priorities.

Figure 28: Alignment of Strategic Priorities and Output Groups for Outcome 3



Achievements against the Strategic Priorities

The deliverables for each of these strategic priorities were outlined in the 2002–03 Portfolio Budget Statements, along with performance measures and planned performance targets for the year. The discussion following outlines what the department did through the year to support Outcome 3 and how well the department performed in relation to its total resources.

Departmental outputs

Performance information on the departmental outputs is only available at the outcome level.

The department administered grants and payments to higher education institutions and other organisations and individuals, in relation to research, science and innovation and international education. It also administered the regulatory framework for international education and training under the *ESOS Act*. Payments made under the *Higher Education Funding Act 1988* are subject to compliance with payment and management processes as measured through the Administered Funds Quality Assurance Packages developed for selected programmes, based on a risk assessment process.

The department implemented a new payments system, Unipay, in November 2002. The system was designed and implemented in accordance with the department's software development methodology and subjected to pre-implementation testing. A post-implementation audit has not yet been completed and therefore results for higher education administration are not available in relation to payments made through Unipay.

The department takes a lead role in whole of government policy development and coordination. The Prime Minister and Ministers were satisfied with the timeliness and usefulness of advice received from both the Chief Scientist and the Prime Minister's Science, Engineering and Innovation Council (PMSEIC) and the conduct of the annual Science Prizes awards ceremony.

During 2002–03 the department provided in excess of 660 briefs to the Minister and prepared over 1700 replies to Ministerial correspondence for Outcome 3. It also responded to over 900 Parliamentary questions.¹ The department's performance in delivering these services is assessed against a number of criteria. The Minister rates briefings against a five point scale with regard to timeliness, presentation and quality, and ministerial and parliamentary services are assessed according to timeliness. Ministerial briefings received a rating of good or excellent in 87 per cent of cases for presentation and quality and 79 per cent for timeliness (see Table 27).

¹ Total Parliamentary questions for the department. A breakdown by Outcome is not available.

Table 27: The department's performance on services to the Minister and Parliament

Performance Measure		2002–03	2002–03			Total
		Planned %	Satisfactory	Good	Excellent	
Policy advising	Minister's satisfaction with:					
	- Presentation	90	11	72	15	98
	- Timeliness	90	18	74	5	97
	- Quality	90	11	71	16	98
Ministerial and parliamentary services	- Timeliness	90				96

Source: Department of Education, Science and Training

The department continued its ongoing research and analysis on a range of policy issues. Three publications were produced and specific details of these are reported under each strategic priority. The effectiveness of research, analysis and evaluation activities is also reported under each strategic priority.

Strategic Priority 1: Strengthen the ability of universities to generate and transfer new knowledge

Universities, as major producers of basic and applied research, have a central role to play in building Australia's competitive strengths in generating and using new knowledge.

Funding arrangements for university research changed significantly following the release of the Research White Paper *Knowledge and Innovation* in 1999 and were further enhanced in 2001 with the additional funding provided under *Backing Australia's Ability* for the period 2001–02 to 2005–06.

The Commonwealth provides funding for Major National Research Facilities (MNRFs) and Cooperative Research Centres (CRCs) to provide infrastructure and support the commercialisation and utilisation of ideas from industry research collaboration. Universities are key partners in these collaborative ventures. Both the MNRF and CRC programmes received enhanced funding under *Backing Australia's Ability*.

Output Group 3.1: Funding for higher education research

The department administers a number of sources of funding for university research and research training activities. The Research Training Scheme reported under Outcome 2 is the primary source of funds for research training. The major performance-based block grants that are used to underpin the fabric of universities' research capacity are the Research Infrastructure Block Grants and the Institutional Grants Scheme. The Systemic Infrastructure Initiative reported under Outcome 2 also contributes.

The department continued to ensure the quality of universities' research and research training arrangements through the requirement for Research and Research Training Management Reports as part of universities' Educational Profiles. To encourage a greater focus on the utilisation of university research, from 2002 universities have been required to report on intellectual

property management and processes for the commercialisation of research. These reports must be in place before block grants are approved. All universities provided an acceptable report in 2002, for 2003 funding as indicated in Table 28. The level of research infrastructure funding, as also indicated in Table 28, has been maintained.

Table 28: Performance information for Output Group 3.1

Performance Measure	2001–02 (Actual)	2002–03 (Planned)	2002–03 (Actual)
Ratio of funding for project-specific research infrastructure to competitive grants	\$0.20:\$1.00	\$0.20:\$1.00	\$0.20:\$1.00
Percentage of Research Training Management Reports determined to be of acceptable quality by the Minister	100%	100%	100%

Source: Department of Education, Science and Training

The department also encouraged universities and researchers to adopt a more entrepreneurial approach to the commercialisation of university research by commissioning Knowledge Commercialisation Australasia to plan and present a three-day Commercialisation Forum and Fair of Ideas in March 2003. The event brought together researchers from publicly-funded institutions and potential investors and built commercialisation expertise.

The information and communications technology infrastructure initiatives under the Systemic Infrastructure Initiative supported under Outcome 2, such as the Australian Research and Education Network and projects to improve access to online information resources, also contribute significantly to the higher education sector's ability to generate and use new knowledge.

Our Universities: Backing Australia's Future, the outcomes of the Commonwealth's review of Australia's higher education system (see Outcome 2) included measures for evaluating and streamlining the current research arrangements. The following initiatives will be progressed during 2003–04:

- ▶ evaluating programmes funded until 2005–06 under *Backing Australia's Ability*;
- ▶ developing a national strategy on research infrastructure, which will apply to publicly-funded higher education institutions and research agencies. This will be undertaken by a taskforce established by the Commonwealth, involving universities, the Australian Research Council (ARC), the Commonwealth Scientific and Industrial Research Organisation

(CSIRO), other Commonwealth-funded research agencies, and the state and territory governments;

- ▶ reviewing the scope for facilitating greater collaboration between universities and other Commonwealth-funded research agencies. A high level taskforce consisting of leading figures in research and industry has been established to undertake the review. The taskforce is due to report its findings in late 2003; and
- ▶ evaluating the *Knowledge and Innovation* reforms. This activity is being oversighted by an External Reference Group comprising representatives from universities and the ARC.

These reviews, combined with a strategic exercise to map Australia's science and innovation activities across the public and private sectors (see Strategic Priority 2 for details), will provide a firm basis for establishing the Australian Government's research policy directions.

Output Group 3.2: Science collaboration and innovation

The MNRF programme funds expensive, large equipment items or highly specialised laboratories, which add strategic capability to Australia's research infrastructure. The programme received funding under *Backing Australia's Ability*. By the end of 2002–03, the department had finalised contracts with all 15 MNRFs (see Table 29).

The CRC programme brings together universities, research organisations, government agencies and industry, to undertake activities in world-class research and innovation. During 2002–03, the department managed ongoing contracts for over 60 CRCs (see Table 29).

The department also supported the CRC Committee and Expert Panels in a major selection round which was completed in December 2002. Record funding of more than \$478 million was approved by the Minister for Science for 30 successful applicants, resulting in 12 new CRCs, nine centres to be developed from existing CRCs, and nine centres receiving supplementary funding. Contract negotiations with the successful CRCs were undertaken in the first half of 2003.

The department commenced an evaluation of the CRC programme in 2003, to ensure that it continues to provide the most effective support for research that will benefit the Australian community, environment and economy. The results of this evaluation will inform the 2004 round of the programme.

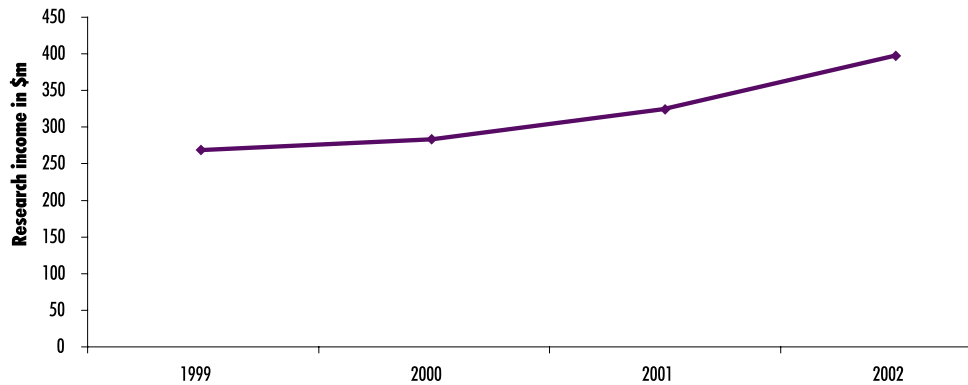
Stakeholder satisfaction with the MNRF and CRC programmes was measured through the department's stakeholder survey. The benchmark was set at 80 per cent, indicating high levels of satisfaction.

Table 29: Performance information for Output Group 3.2

Performance Measure	2002–03 (Planned)	2002–03 (Actual)
Number of grant recipients:		
- Cooperative Research Centres	63	62
- Major National Research Facilities	15	15

Source: Department of Education, Science and Training

Figure 29: Universities' research income



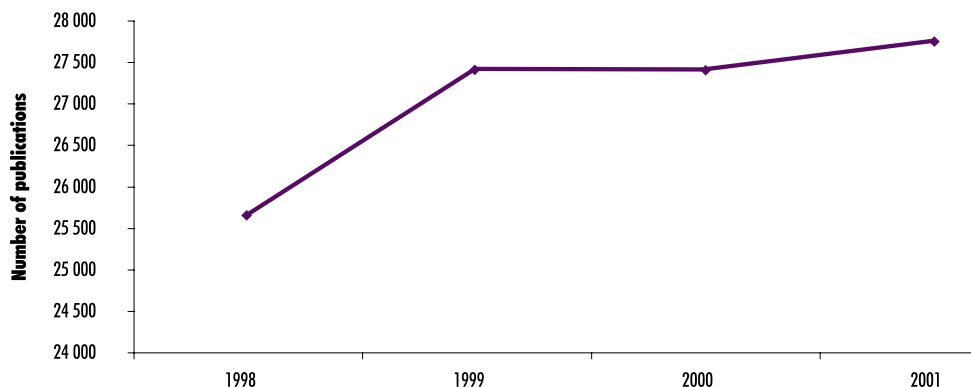
Source: Department of Education, Science and Training

Effectiveness of Output Groups 3.1 & 3.2 in achieving the Outcome

The ability of universities to generate and use new knowledge is demonstrated through their ability to win competitive research grants and research and development contracts. Universities' ability to contribute

to the stock of knowledge is measured by the number of research publications produced. The performance of Australian universities in both of these areas continues to improve as shown by the increases indicated in Figure 29 and Figure 30.

Figure 30: Number of research publications produced by higher education institutions

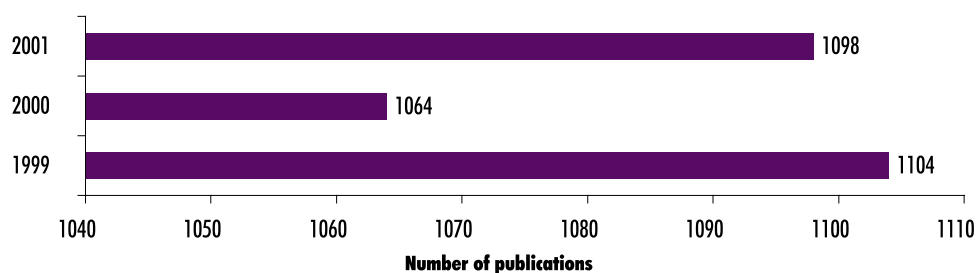


Source: Department of Education, Science and Training

The number of scientific and technical publications and the number of patents issued to Australian residents in Australia, all indicate the extent to which research

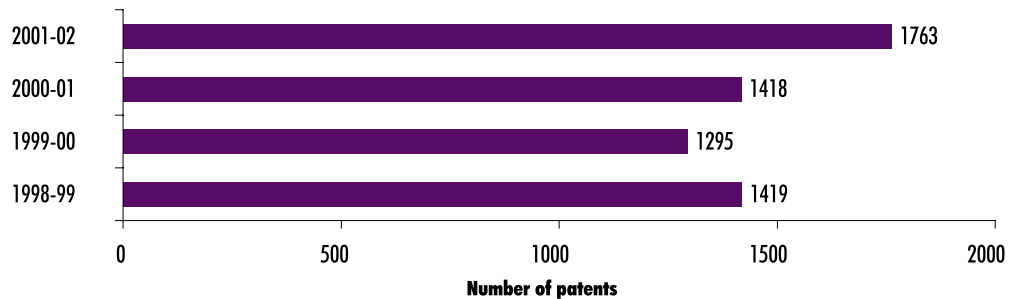
is providing an effective base from which Australia gains economic growth and social development (see Figure 31 and Figure 32 respectively).

Figure 31: Number of scientific and technical publications per million population



Source: National Science Indicators Database 1981-2001, Institute of Scientific Information, cat. no. 3101.0, ABS, Canberra

Figure 32: Number of patents issued to Australian residents in Australia



Source: IP Australia

International comparisons of the commercial exploitation of Australia’s research can now be made following the release in September 2002 of the *Year 2000 National Survey of Research Commercialisation*. This survey collected information on invention disclosures, patents and plant breeder rights, licensing activity and income, and start-up company formation. The key findings of the

survey and an international comparison are shown below in Table 30.

The survey demonstrated the substantial contribution to the commercialisation of research being made by universities, medical research institutes and the CSIRO, and forms a benchmark against which future performance can be assessed.

Table 30: Key findings of the Year 2000 National Survey on Research Commercialisation

In 2000, for every \$US100 billion in GDP	Australia	USA	Canada
US patents issued to institutions	11.2	36.7	23.3
Licences executed by institutions	37.7	41.0	49.5
Adjusted gross income from licences received by institutions	US\$10.3 million	US\$12.9 million	\$US4.7 million
Start-up companies formed by institutions	5.2	4.0	10.1

Source: Year 2000 National Survey of Research Commercialisation

Strategic Priority 2: Development of the national research priorities

Output Group 3.2: Science and collaboration

A national approach

The Commonwealth, in *Backing Australia's Ability*, recognised that a coordinated approach to research would galvanise the research and broader community around a national vision of Australia's research strengths and competitive potential or opportunity, and identify areas of need. It recognised that a shared national agenda would also facilitate increased collaboration across institutional boundaries.

A priority for the Australian Government is that world-class research be encouraged and supported whether it be an area of strength, emerging strength, or in specialised niche areas.

The Commonwealth has established a number of mechanisms to ensure a whole of government approach to these issues, and the department has the principal responsibility for supporting their activities, including the:

- ▶ PMSEIC, the Commonwealth's principal source of independent advice on issues in science, engineering and innovation and relevant aspects of education and training;
- ▶ Coordination Committee on Science and Technology, which facilitates exchange of information and coordination of activities involving Commonwealth departments and agencies with an interest in science and technology;
- ▶ Science and Innovation Committee, which oversees implementation of *Backing Australia's Ability*; and
- ▶ Chief Scientist.

The department published *Backing Australia's Ability – Real Results Real Jobs*, the Commonwealth's Innovation Report for 2002–03, as well as the annual science and innovation budget information which details the Commonwealth's spending on science and innovation on a whole of government basis.

National research priorities

The Prime Minister announced Australia's first set of national research priorities on 5 December 2002. The establishment of national research priorities is intended to integrate Australia's research effort more closely with the community's economic, social and environmental aspirations, and to focus research capacity into areas of strength, opportunity, or need. The priorities were selected following extensive consultation and consideration of international experience. Over 160 submissions were received and considered by an Expert Advisory Committee. The national research priorities are:

- ▶ an environmentally sustainable Australia;
- ▶ promoting and maintaining good health;
- ▶ frontier technologies for building and transforming Australian industries; and
- ▶ safeguarding Australia.

These priorities are broad and thematic and each is supported by a number of priority goals.

The priorities will be applied to Commonwealth research and research funding bodies, as well as competitive programmes for public sector research. The department facilitated the development of implementation plans for Commonwealth research agencies and research funding bodies, convening a major forum in April

2003, to promote the priorities and to provide an opportunity for the members of the research community to discuss their implementation. An Expert Advisory Assessment Committee, chaired by the Chief Scientist, considered more than 20 implementation plans and reported to the Australian Government on whether the plans would achieve the goals of the national research priorities initiative.

The department will coordinate ongoing monitoring of the progress of the implementing agencies against the agreed performance measures, and will provide assessments to the Australian Government on how effectively priorities are being progressed.

The department also worked with the social science and humanities research communities, through their learned academies, to explore ways the priorities

could be enhanced to better reflect the research perspectives and strengths of the social sciences and humanities to ensure full engagement with the national research priorities. In March 2003, the department facilitated a conference for key researchers and policy makers, and a report on the proposed enhancements to the priorities was prepared for the Australian Government.

During 2002–03, portfolio science agencies were consulted on the development of new Triennium Funding Agreements. Existing Agreements have been extended for a further year, with an additional \$20 million to fund the *CSIRO National Research Flagships Programme*. The new Agreements will incorporate aspects negotiated with the Department of Finance and Administration, and will include, performance measures, approaches to commercialisation of research and the application of the national research priorities.



The Minister for Science, the Hon Peter McGauran MP and Dr Richard Richards of the CSIRO Division of Plant Industry.

Science and innovation mapping

In November 2002, the Prime Minister announced a major exercise to map Australia's science, technology and innovation activities and performance. The department established a taskforce to undertake the task, the outcome of which will be vital in underpinning a strategic direction for science and innovation. Six discussion papers were produced and informed a Science and Innovation Mapping Experts Forum, held on 31 March 2003. An interim report is due mid-2003.

Awareness raising

The National Innovation Awareness Strategy (NIAS) raises community awareness and appreciation of the role of science and technology in enhancing our quality of life. NIAS is managed jointly by the Industry portfolio and the Education, Science and Training portfolio, and includes Questacon's *Smart Moves* programme. Key achievements during 2002–03 included:

- ▶ the Prime Minister's Prizes for Science which included for the first time awards for excellence in science teaching in primary and secondary schools;
- ▶ National Science Week 2002, held from 17 to 25 August. NIAS grants totalling \$300 000 were made to 25 National Science Week projects across Australia. Survey data for National Science Week 2002 indicates:
 - 54 per cent public awareness of National Science Week amongst Australians, an increase of 5 per cent from 2001;
 - media coverage valued at \$3.8 million, representing a three-fold increase;
 - over 385 000 known visitors at scheduled events, with an audience composition dominated by school children; and

- total event numbers in excess of 1000, of which almost 40 per cent were outside major urban centres; and
- ▶ 'Science Meets Parliament', an annual event arranged by the Federation of Australian Scientific and Technological Societies, and financed in part through NIAS, which brought more than 130 parliamentarians and 160 scientists together over two days in forum discussions and meetings.

The department contracts the Australian Broadcasting Commission (ABC) to host a website to foster science awareness. The ABC's *The Lab* continues to be one of the world's most visited science websites. In February 2003, visitor hits for the first time reached 1 500 000 per week, and have continued above this figure. The ABC has continued to meet its contractual obligations for this project.

Radioactive waste management

Australia generates a small amount of radioactive waste through the beneficial use of radioactive materials in medicine, research and industry. National facilities are the safest and most cost-effective option for Australia to manage its radioactive waste, and the Australian Government is progressing two projects to establish purpose-built radioactive waste management facilities; the national repository for disposal of low-level waste and the national store for storage of intermediate-level waste.

The Minister for Science announced on 9 May 2003, that the repository facility would be established on Site 40a, located in the Stony Desert approximately 20 km east of Woomera. The announcement followed environmental approval of two sites. Consultation with the general public was part of the environmental assessment process

and 667 public submissions were received on the draft Environmental Impact Statement (EIS). A supplementary report responding to public comment was published. In addition, negotiations in relation to land tenure were undertaken with native title claimant groups with claims over the repository site.

Assessment of Australian Government land for the national store is progressing. Following advice from the National Store Advisory Committee, an expert advisory committee advising on the site selection process, the Minister for Science ruled out siting the national store in South Australia, as no sites in that state had been identified as being highly suitable for the facility. A short-list of sites for the facility will be announced in 2003–04.

During 2002–03, negotiations progressed with the South Australian Government and Maralinga Tjarujta on a possible handback of the Maralinga site to the traditional owners. The final report of the Maralinga Rehabilitation Technical Advisory Committee on the clean-up of the former Maralinga nuclear test site was tabled in Parliament in March 2003. The report concluded that the rehabilitation had successfully met its objectives.

Strategic Priority 3: International promotion of the capability of Australian education, science and training

The international promotion of Australian science, technology and education and training is essential to enhancing research collaboration and to ensuring a sustainable education export industry.

Output Group 3.2: Science collaboration and innovation

During 2002–03, the Minister for Science approved guidelines for the operation of the *Innovation Access Programme – International Science and Technology*. The programme facilitates the accessing and take-up of global science and technology by:

- ▶ funding international cooperation activities and showcasing Australia's science and technology;
- ▶ using bilateral agreements with other countries to promote international science and technology cooperation; and
- ▶ supporting participation in multilateral forums, and the activities undertaken under their auspices, such as the OECD Global Science Forum and the Asia-Pacific Economic Cooperation (APEC) Industrial Science and Technology Working Group.

An estimated 1000 Australians were employed or involved in projects supported under the *Innovation Access Programme – International Science and Technology* in 2002–03. The programme component providing access to major research facilities is expected to produce over 70 publications involving collaboration with 88 international scientists.

The activities undertaken through fellowships and awards enabled Australian scientists to work in North America, Europe and Asia. Australian researchers were also supported through the:

- ▶ Australia-China Special Fund for Scientific and Technological Cooperation, which supported five research projects with funds totalling \$250 000 over three years; and

- ▶ Australia-Korea Pilot Industrial Technology Fund, which supported one research project with funding of \$250 000 over three years.

Workshops were held involving Australian and international researchers in the following areas:

- ▶ synchrotron spectroscopy, railway technologies, and ecotoxicological tools for environmental management (Italy);
- ▶ medical devices and diagnostics, nuclear medicine and bio-nanotechnology (France);
- ▶ quantum computing and artificial photosynthesis (USA); and
- ▶ nanotechnology and biomedical sciences (Japan).

Achievements against planned outcomes are detailed in Table 31. A stakeholder satisfaction survey undertaken during 2002–03 set a benchmark of 98 per cent, indicating very high levels of satisfaction.

Table 31: Performance information for Output Group 3.2

	2002–03 (Planned)	2002–03 (Actual)
Number of grant recipients for collaborative research	252	252
Number of workshops and bilateral meetings	36	36
Number of show events	6	6

Source: Department of Education, Science and Training

The department conducted a series of public presentations to increase Australian researchers' involvement in the European Union's 6th Framework Programme for Research. It also supported the participation of 35 Australians in the launch of the programme in Brussels in late 2002. Following an evaluation of this participation, the department commenced negotiations with the French government on a programme to support joint science and technology activities, as a successor to the *French-Australian Industrial Research Programme*.


The department is continuing its negotiations with Indonesia, South Africa and the United States of America on new science and technology agreements.

During 2002–03, the department participated in OECD and APEC forums on science and technology, including the March 2003 meeting of the OECD Committee for Scientific and Technological Policy. The department's work on this committee will significantly contribute to the OECD Science and Technology Ministerial Meeting in January 2004.

A key outcome of the department's APEC activities will be the 4th APEC Industrial Science and Technology Ministerial meeting in March 2004. This meeting will be a significant opportunity to identify, and progress at ministerial level, policy issues and strategic goals of relevance across the region.

Output Group 3.3: Australian education and training export industry

The 2002–03 year was one of immense change for Australian Education International (AEI) flowing from the results of the AEI Review released in April 2002. The recommendations covered three broad, interrelated areas:

- 
- ▶ restructuring AEI business activity;
 - ▶ ensuring a sustainable future for the international education and training industry; and
 - ▶ government-to-government education and training activity.

A programme of research that has informed whole of government policy included:

- ▶ modelling the economic benefits of international education;
- ▶ consultation with education and training providers on international higher education demand scenarios in 2025; and
- ▶ quantification of offshore delivery in the vocational education and training sector.

International Education Package

The importance to Australia of international education and training was emphasised in the May 2003 Budget announcement of a comprehensive package of initiatives, worth more than \$113 million over four years, to support and expand Australia's involvement in international education and training.

Key elements of the package include:

- ▶ the establishment of four International Centres of Excellence at Australian universities or consortia, covering Asian and Pacific Studies and Diplomacy, Mathematics Education, Water Resources Management, and Sports Science and Administration;

- ▶ funding to increase promotion and government-to-government work in new overseas countries to further develop export opportunities; and
- ▶ the establishment of a new National Language Centre to boost the language and business cultural skill level of Australian exporters, business, professionals and the tourism industry.

On 6 June 2003, the Minister announced that the International Centre of Excellence in Asia-Pacific Studies and Diplomacy will be located at the Australian National University. The remaining Centres will be selected through a competitive process, submissions for which close in August 2003.

Restructuring AEI business activity

During 2002–03, AEI business activity was restructured to achieve more effective integration of export facilitation services and government-to-government activity; to build more effective partnerships with industry, stakeholders and across governments; and to provide better information to the export market. Funding for AEI moved from subscription revenue to fee-for-service revenue, in order to signal that its services value-add to the industry.

The department initiated a new high-level cross-sectoral interdepartmental committee which developed a Memorandum of Understanding between relevant Commonwealth departments and agencies, specifying respective roles and responsibilities in overseas markets to ensure consistent and complementary arrangements in service provision to the industry.

The department also enhanced formal dialogue with the Department of Immigration and Multicultural and Indigenous Affairs (DIMIA) and the Affiliation of International Education Peak Bodies forum. A key achievement in November 2002 was the opening of a dialogue with the states and

territories through the new International Education Network.

AEI Consultancy Services, available through the department's counsellor network services, was established during 2002–03 to enable Australian institutions and organisations to access critical assistance with marketing and other activities on a fee-for-service basis.

In January 2003, nine languages other than English were added to AEI's virtual Australian Education Centre: traditional and simplified Chinese, Japanese, Korean, Thai, Indonesian, Vietnamese, Spanish and Portuguese.

The AEI Industry website, <http://aei.dest.gov.au>, has been transformed into an international education and training portal. The portal, launched on 1 July 2002, provides a one-stop shop for information on international education and training. An eNewsletter is sent twice weekly to 730 industry representatives. There are approximately 28 000 individual visits to the site each month.

AEI is more active in its support of vocational education and training and international education in the schools sector. A promotional video, showcasing Australian vocational education and training, was produced in consultation with the key vocational education and training stakeholders. In March 2003, AEI updated its publication *Getting Started Internationally – Tips for Schools Entering the International Market*. An AEI strategy for the international promotion of the Australian school sector also commenced.

Sustainable growth

As enunciated in the International Education Package, the platform to achieve a sustainable education export industry includes demonstrating quality, increasing diversification and supporting exports through stronger international relationships.

AEI undertook research to identify the most effective brand position for Australian education and training in overseas markets. The new AEI brand, launched by the Minister in December 2002, applies to all offshore promotions of Australian education and training undertaken by the Australian Government. The official Australian Government website for advice on studying in Australia, <http://studyinaustralia.gov.au>, was updated to reflect the new brand.

In 2002–03, the department, in partnership with others, enhanced both the quality and future of international education and training products and services by:

- ▶ improving compliance. The department worked closely with DIMIA and the industry to develop a set of enhancements to the student visa system;
- ▶ ensuring only genuine providers are in the market. The department implemented a monitoring and enforcement strategy aimed at increasing compliance with the *ESOS Act* and the National Code. The department:
 - undertook 33 monitoring visits to providers of education and training services to overseas students;
 - issued 46 monitoring and enforcement notices to providers. Three providers were removed from CRICOS and three providers had conditions imposed on their registration;
 - conducted a series of cross-sector information workshops to improve providers' understanding of the *ESOS Act* and National Code;
 - enhanced the Provider Registration and International Students Management System (PRISMS) by the electronic Confirmation of Enrolment (eCoE). There was

improved accessibility to PRISMS by providers, greater acceptance of the system and better monitoring of providers' compliance with the *ESOS Act* and National Code.

The eCoE project, conducted jointly by DEST and DIMIA, was acknowledged by a special commendation in the 2002 Prime Minister's Awards for Excellence in Public Sector Management.

The department, through the AEI-National Office of Overseas Skills Recognition (AEI-NOOSR), helps sustain and build quality through its work on educational and professional standards. During 2002–03, it assessed 2706 applications for recognition of overseas qualifications and completed Country Education Profile Updates for the People's Republic of China, USA and Thailand, to be published in 2003–04.

The department also commenced a review of the Assessment Fee Subsidy for Overseas Trained Professionals in February 2003. New arrangements were introduced from 1 July 2002 for overseas professionals unable to meet Australian qualification recognition standards. Overseas-trained

professionals wishing to undertake fee-paying bridging courses now have access to income-contingent loan arrangements, with repayment arrangements similar to the Higher Education Contribution Scheme (HECS), through the Bridging for Overseas Trained Professionals Loan Scheme (BOTPLS). During 2002–03, 204 overseas-trained professionals received a BOTPLS loan.

AEI is responsible for a range of industry and professional development seminars (see Table 32). The 2003 data reflects the changes being implemented by the department to improve professional development content and delivery. The AEI-NOOSR Professional Development programme was under review during 2002–03 and will change from 2003–04. As a result of the review, no university seminars were held during 2002–03, which resulted in fewer participants undertaking the programme. AEI Industry Seminars are also conducted to convey the latest developments and trends in offshore student markets to the international education and training industry. The satisfaction scale for AEI Industry seminars was revised during 2002–03, to allow for greater differentiation in perceptions of registrants.

Table 32: Administered output performance for Output Group 3.3

Indicator	2001–02 (Actual)	2002–03 (Planned)	2002–03 (Actual)
AEI-NOOSR Professional Development seminars for State and Territory Overseas Qualifications Units, professional and regulatory bodies and assessing authorities	362 participants	825 participants	40 participants
AEI Industry seminars	810 registrants	> 800 registrants	850 registrants
Satisfaction of registrants with AEI Industry seminars – average rating (between 1 and 5)	4.2	A rating above 4	Average rating of 3.7

Source: Department of Education, Science and Training

Diversification is essential in order to realise Australia's potential to service the growing demand for international education and to maintain the industry's sustainability over the long term. Diversification is occurring in:

- ▶ the range of countries with which Australia engages;
- ▶ the fields and levels of study in which international students participate; and
- ▶ the modes of delivery on offer from Australian providers.

The department will continue to encourage industry diversity. Offshore delivery increased by 45 per cent from 1999 to 2001 (see Table 33), and all major sectors of education experienced increases in overseas student numbers during the same period. The traditional Asian markets remain strong. New markets are being fostered, particularly in Europe and South America (see Table 34).

Table 33: Overseas student enrolments by sector 1999 to 2001

Sector	1999	2000	2001	Per cent Change 1999–2000	Per cent Change 2000–2001
Higher Education					
Onshore	60 914	72 717	86 269	19.4	18.6
Offshore	29 481	34 905	42 802	18.4	22.6
Total Higher Education	90 395	107 622	129 071	19.1	19.9
Vocational Education	29 593	30 759	39 845	3.9	29.5
School Education	13 651	13 129	15 112	-3.8	15.1
ELICOS	29 226	36 767	49 380	25.8	34.3
Total	162 865	188 277	233 408	15.6	24.0

Source: DEST Overseas Student Statistics Collection 2001

Table 34: Overseas student enrolments from top 10 source countries 1999 to 2001

Country	1999	2000	2001	Per cent Change 1999–2000	Per cent Change 2000–2001
China	8 859	14 948	26 844	68.7	79.6
Hong Kong	18 833	20 739	24 602	10.1	18.6
Singapore	19 207	20 866	23 164	8.6	11.0
Malaysia	16 544	19 602	20 231	18.5	3.2
Indonesia	19 172	17 868	18 619	-6.8	4.2
Korea, South	9 633	11 485	18 051	19.2	57.2
Japan	9 828	10 220	12 869	4.0	25.9
Thailand	6 709	8 179	11 125	21.9	36.0
India	9 581	10 572	10 416	10.3	-1.5
Taiwan	5 912	6 104	7 191	3.2	17.8
Sub-total	124 278	140 583	173 112	13.1	23.1
Other Countries	38 587	47 694	60 296	23.6	26.4
Total	162 865	188 277	233 408	15.6	24.0

Source: DEST Overseas Student Statistics Collection 2001

International government-to-government activity

The imperative for, and benefits from, diversification, partnerships and a quality industry extend to strengthening our international relationships. Cooperative bilateral and multilateral relationships will:

- ▶ create an environment that supports export of education and training services;
- ▶ support the internationalisation of Australia's education and training system; and

- ▶ support government diplomacy, providing a platform for national security and trade relationships.

The Australian Government's negotiation of agreements with other countries will result in stronger trade flows, income from lecturers and consultants travelling overseas, increased commercialisation of research, and boosting skills formation in regional economies. Memoranda of understanding that cover programmes of cooperation in education and training, based on reciprocity and mutual benefit, were signed between the Australian Government and the governments of:



The Hon Dr Brendan Nelson MP, Australian Minister for Education, Science and Training and Mr Wang Zhan, Chinese Vice-Minister for Education, signing Memorandum of Understanding on Education and Training Co-operation, December 2002.

- ▶ Columbia in August 2002;
- ▶ the Socialist Republic of Vietnam in February 2003; and
- ▶ United Mexican States in March 2003.

A Memorandum of Understanding was also signed with the government of the People's Republic of China on 7 December 2002. This gives emphasis to developing the bilateral relationship in the schools and vocational education and training sectors. The Indian Government is also considering a draft Memorandum of Understanding.

The bilateral relationship with Indonesia was strained after the Bali bombing and subsequent Australian Government activities to address potential terrorist activity within Australia. However, the Australia-Indonesia Ministerial Forum in March 2003 indicated that, at a whole of government level, the relationship is returning to previous positive levels. In terms of the education relationship, the department achieved agreement on

directions for cooperation over the next 18 months to two years.

The department enhanced international relationships with its *International Awards and Exchanges Programme*. During the year 524 awards were made, slightly more than the 492 awards in the previous year, and exceeding the target of 450.

The elimination of offshore barriers that inhibit the cross-border delivery of education services by Australian education exporters, is pursued through a variety of multilateral forums, bilateral agreements and other international education initiatives. Significant achievements were:

- ▶ the tabling of an initial offer for the World Trade Organisation General Agreement on Trade in Services round, aimed at reducing the barriers to trade in education and training services. Negotiations of the agreement are expected to conclude in 2005;

- ▶ ratification of the Lisbon Recognition Convention on 22 November 2002. This convention facilitates arrangements for the international recognition of qualifications, particularly in the European region. This in turn supports the international mobility of students within more comparable higher education systems in the Lisbon Convention signatory countries. The department is now proceeding to fulfil Australia's obligations under the convention, including conveying the text of the convention to higher education institutions;
- ▶ the Singapore-Australia Free Trade Agreement, which includes an Education Chapter. Singapore will make commitments to full national treatment and market access for university, adult and vocational and technical education, with only limited exceptions. Singapore Government overseas scholarships will be tenable at Australian universities. The number of Australian universities whose law degrees are recognised in Singapore will increase from four to eight;
- ▶ the 2002 round of the *Australian University Mobility in Asia and the Pacific Programme (UMAP)*. The

Commonwealth provided \$1.4 million to AEI to fund 348 student mobility subsidies and 62 staff visits. Support was provided to 79 projects from 26 Australian higher education institutions;

- ▶ support for an electronic academic recognition network for the Asia-Pacific region from the UNESCO Regional Recognition Convention (Asia/Pacific); and
- ▶ mutual recognition arrangements for the professions under the *Professional Services Development Programme (PSDP)*, including the APEC Architect project.

Effectiveness of Output Group 3.3 in achieving the Outcome

International education generates long-term benefits for Australia in the areas of economic competitiveness, social development, trade, foreign relations, national security and geographical stability. Financial benefits generated by overseas students studying at Australian institutions come directly from fees to institutions and indirectly from the purchase of goods and services. With an estimated contribution to the Australian economy of \$5.14 billion for 2002 (see Table 35), education exports are now Australia's third largest services export.

Table 35: Export contribution to the national economy 2000–02

	2000	2001	2002
Export earnings from education-related travel	\$3.717 billion	\$4.120 billion	\$4.179 billion
Income derived from international education and training ^a	\$4.265 billion	\$4.661 billion	\$5.141 billion

^a Department of Education, Science and Training estimates

Sources: DEST Overseas Student Statistics 2001

ABS Table 5302.0 Balance of Payments and International Investment Position

The export of education and training services is an area of the education sector that continues to experience considerable growth (see Table 36).

Table 36: Overseas student enrolments 1994 to 2001

Year	1994	1995	1996	1997	1998	1999	2000	2001
Student enrolments	102 153	122 306	147 789	154 728	151 444	162 865	188 277	233 408

Sources: *DEST Overseas Student Statistics 2001*

Although consolidated statistics on overseas student enrolments in Australian institutions are not yet available for 2002, information from each of the major sectors indicates that there was an overall increase in the number of enrolments. Overseas student enrolments in higher education courses increased significantly in 2002. Both the school and vocational education and training sectors also appear to have had increases, although it is probable that the English Language Intensive Courses for Overseas Students (ELICOS) sector experienced a small decline in student enrolments.

In 2002, at least 42 650 people were employed in support of education exports, an increase of 3710 over 2001. Additionally, visits to Australia by families of overseas students generated a further \$1.84 billion of spending for the economy from tourism and additional household consumption spending.

