



CHAPTER 1

INTRODUCTION

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HIGHLIGHTS OF THE YEAR

On 1 July 2001, the Australian Research Council (ARC) was established as an independent agency under the *Australian Research Council Act 2001*. Under the Act, the ARC is responsible for providing the Minister for Education, Science and Training with policy advice on research matters and managing the National Competitive Grants Program.

PROGRAMS

- In 2002, the ARC will invest over \$272 million in excellent research and research training activities, an increase of approximately 10 per cent over the 2001 budget of \$246 million. The increase reflects the additional funding announced in January 2001 as part of the Government's innovation statement, *Backing Australia's Ability*.
- Additional funding provided in 2002 enabled:
 - a doubling of the number of postdoctoral fellowships awarded
 - an increase in the salaries of new and existing fellowship recipients
 - an increase in the number and average size of grants under Discovery–Projects and Linkage–Projects.
- In addition:
 - the first Federation Fellowships were awarded under a prestigious new program aimed at attracting to and retaining in Australia leading researchers whose research is demonstrated to be of national benefit
 - the successful proposals for two new world-class centres of excellence were announced after a comprehensive selection process: the National Stem Cell Centre in biotechnology, and National ICT Australia in information and communications technology.
- The funding allocated for 2002 includes support for over 1,280 new research projects and fellowships commencing in 2002, including 786 Discovery–Projects, 470 Linkage–Projects, 25 Federation Fellowships and 70 infrastructure grants. One hundred and sixty-one Early Career Researchers will be funded in 2002.
- A preliminary analysis conducted by the ARC of the output of publications in 2000 from ARC-funded Large Research Grants indicates that a Commonwealth dollar invested through the ARC results in at least five times more publications than a Commonwealth dollar allocated to university research through non-contestable processes.
- The ARC joined with the Grains Research and Development Corporation (GRDC) to establish the Australian Centre for Plant Functional Genomics. The new Centre, which will be established at The University of Adelaide, is being supported by the ARC, the GRDC, the South Australian Government, the Victorian Department of Natural Resources and Environment, The University of Adelaide, The University of Melbourne and The University of Queensland.

- A sample of 614 grants (including *Discovery* and *Linkage*) initially funded in 1998 produced a total of 7,829 academic outputs, including 12 patents. The same grants supported 993 personnel, including postgraduate students, research assistants and research associates or fellows.
- The ARC released the funding rules for the new ARC Centres of Excellence program in June 2002. The Centres of Excellence will maintain and develop Australia's international standing in the Government-designated priority areas.

POLICY

- On 29 January 2002 the Government announced that 33 per cent of the total funds allocated to research programs under the National Competitive Grants Program in the 2003 new funding round would be allocated to four priority areas: nano-materials and bio-materials, genome/phenome research, complex/intelligent systems, and photon science and technology.
- The ARC, in partnership with the National Health and Medical Research Council (NHMRC) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO), commissioned the first National Survey of Research Commercialisation. The results of the survey are expected to be released in September 2002.
- The Government announced two major reviews into higher education and national research priorities. The ARC provided submissions to these reviews in July 2002.
- The *ARC Strategic Action Plan 2002–04* was tabled in both Houses of Parliament on 19 June 2002. The plan sets out the ARC's vision for research and research training over the next three years.



INTRODUCTION BY THE CHAIRMAN

I am pleased to present the Australian Research Council (ARC) Annual Report for the year ended 30 June 2002. It has been a challenging year for the ARC but I'm pleased to say, a year of great achievement.

On 1 July 2001, the ARC became an independent organisation. A new Board was appointed and new governance and accountability structures came into force. At the same time, applications were being assessed under the new National Competitive Grants Program for the first time and initiatives supported by additional funding under *Backing Australia's Ability* were being implemented.

As the year progressed, the focus of the Board moved to the future and consideration of those issues that every organisation grapples with in trying to optimise its performance—where will we be in ten years and how will we get there? Elements of these discussions informed development of the ARC strategic plan and we were very pleased in June to provide the Minister with a detailed and comprehensive plan for the next three years. Deliberately ambitious, the plan is our blueprint for action aimed at meeting the needs of the research sector and the expectations of stakeholders.

Most importantly the strategic plan includes a range of performance indicators to enable the ARC to assess its performance in meeting its key objectives. A critical priority for the new Board in its first year has been to ensure that the ARC has processes in place to enable it to demonstrate to the Government and to the community the value of its investment in research. While we are still at an early stage, I believe this report is an important first step in an ongoing process which will enable the ARC, over time, to build up a picture of the impact of its investment in research.

As the 'new' ARC moves into its second year of operation, the Board is looking to build on the base of performance established during its first year. Funding for the ARC's National Competitive Grants Program has increased in 2002–03 in line with the commitment outlined in *Backing Australia's Ability* and we will be continuing to closely monitor the impact of these developments.

We will also continue to participate in ongoing policy discussions about higher education and research matters. With the reviews of higher education and national research priorities underway, it is a challenging time for the sector.

Peter Wills, AC
Chairman
Australian Research Council



THE YEAR IN REVIEW

STATEMENT BY THE CHIEF EXECUTIVE OFFICER

The Australian Research Council's (ARC) mission is to advance Australia's capacity for quality research to the economic, social and cultural benefit of the community. It plays a key role in the Commonwealth Government's investment in the future prosperity and well-being of the Australian community. It is a primary source of policy advice to the Australian Government on investment in the national research effort. Under the National Competitive Grants Program, it supports the highest quality research and research training, through open competition, in all fields of science, social sciences and the humanities. It brokers partnerships between researchers and industry, government and community organisations as well as the international community.

The continuum that ends with significant jobs growth in new industries begins with research activity, which through links between researchers and the users of research enables industry to seize the benefits of new knowledge. Together with the training and provision of highly skilled people able to recognise applications of new knowledge, research leads to greater employment opportunities, economic growth and enhanced quality of life for all Australians. Agencies like the ARC, which support the best research, will support the research most likely to contribute to innovation.

The National Competitive Grants Program is the ARC's umbrella research funding program, providing research grants and awards under two main elements: *Discovery* and *Linkage*. In 2001–02 the ARC allocated and administered some \$270 million in funding. ARC-funded researchers are making discoveries that advance global knowledge and support growth in emerging industries, the creation of new jobs and enhancements to the quality of life.

The spirit of discovery and innovation is a long-established Australian tradition. Australian innovation has shaped the world in many fields for many years. The rewards for Australia and Australians have been rich with major advances in health, quality of life, industry and economic prosperity. The evolving information age, however, has changed the rules and recipe for economic security and social advancement. Knowledge and ideas are becoming the world's most valuable commodities. A successful transition from a predominantly natural resources-based economy to a knowledge-based economy is necessary to ensure that Australia holds its place as one of the world's great nations.

This report, the first for the 'new' ARC, is situated within that broad context.

A Watershed Year

2001–02 was a watershed year for the ARC. In 2001, implementation of the vision for the ARC set out in the Government's White Paper *Knowledge and Innovation* commenced. On July 1, 2001 the ARC became an independent body under the *Australian Research Council Act 2001* within the then Education Training and Youth Affairs portfolio (now the Education, Science and Training portfolio). Also, in 2001 the Government in a major innovation statement *Backing Australia's Ability* announced, as part of a package of measures totalling \$2.9 billion over five years, the doubling of the ARC's funding for research by 2006.

To give effect to these Government initiatives, and enable the Government's high expectations of the ARC to be fulfilled, the ARC's first Strategic Plan as an independent body was developed, approved by the Minister and tabled in Parliament and a new program and organisational structure were implemented. Change management, therefore, both internal and external, has been the major focus for the ARC in the past year and is likely to continue during the year ahead. In addition to these issues which directly affect the ARC, 2002 has also provided several critically important opportunities for the ARC to contribute to major national level policy debates associated with the introduction of national research priorities and a wide-ranging review of higher education.

A New Organisational Structure

The ARC implemented a new organisational structure in 2001–02. The new structure comprises three Branches—Disciplines and Programs Branch, Policy and Planning Coordination Branch and Corporate Branch. The Disciplines and Programs Branch comprises six discipline clusters of Biological Sciences and Biotechnology; Engineering and Environmental Sciences; Humanities and Creative Arts; Mathematics, Information and Communications Sciences; Physics, Chemistry and Geoscience; and Social, Behavioural and Economic Sciences. Each cluster is headed by an Executive Director, an SES-level appointment for a limited term of two to three years, drawn from the ranks of active researchers.

These appointments have enabled the ARC to improve its liaison and communication with the research community and the users of research and to identify emerging disciplinary and cross-disciplinary developments and innovative approaches to research. Management of the ARC's new program structure, the National Competitive Grants Program, has been overlaid on this strategic disciplinary and cross-disciplinary function. Staff, in general, have responded well to the challenge of operating in a matrix structure, although it is likely that the implementation of the new structure has contributed to a relatively high turnover of staff during 2001–02. Having made the transition from the old structure and bedded down the new structure, I am confident that the ARC will reap the future benefits of adopting this approach to managing the cross-cutting nature of its strategic and program responsibilities.

The Accountability Framework

The accountability framework spelled out in the ARC's governing legislation includes a strategic plan, prepared annually by the Board and approved by the Minister, which sets out the goals, priorities, policies and strategies to be adopted by the ARC in performing its functions. The plan must include performance indicators for the assessment of the ARC's performance of its functions and this performance must be reported against the indicators in the ARC's annual report. Considerable effort has been devoted in 2001–02 to establishing data collection systems, collecting data for use in this Annual Report and preparing the ground for data collection for use in future annual reports. Our data collection systems will enable the ARC and the Government to monitor the impact of the increases in funding flowing from the Government's 2001 innovation statement *Backing Australia's Ability*.

We have adopted a modified balanced scorecard approach to our planning and reporting functions, which has led to the construction of a scorecard for presenting data in an "at a glance" format on the ARC's progress against its 34 key performance indicators (KPIs). In the interests of transparency and accountability, this scorecard is included in this report, so the reader can make judgements about the ARC's progress in achieving its core objectives. There are still many gaps in the scorecard, as many of the KPIs require a specific study or survey to be conducted to yield the relevant data. Planning for these studies and surveys is well advanced and data from them will be available for inclusion in next year's Annual Report and scorecard.

Research Funding Highlights

At any one time the ARC is supporting four to five thousand high-quality research projects across its two main funding programs—*Discovery* and *Linkage*. Funding allocated in 2002 includes support for more than 1280 new research projects and fellowships. Success rates for the largest program element, *Discovery–Projects*, at 25.4 per cent are still too low, but due to increased funding arising from *Backing Australia's Ability* it has improved from 21.1 per cent the previous year, and the ARC is optimistic that it will continue to improve in future years. With the injection of the additional funding the average grant size for 2002 has also increased to \$72,684, up from \$59,728 in 2001.

Knowledge, ideas and skills are the resources most critical to innovative competitiveness. The national research and research training effort is of fundamental importance to our capacity to continue to generate and renew these resources. One of the key purposes of the additional funding in *Backing Australia's Ability* was to improve the competitiveness of researchers' salaries. In 2002, the salaries of new and existing fellowship recipients increased by between 15 and 43 per cent. Also, under a prestigious new program aimed at retaining leading researchers in Australia and

attracting back those who have left for overseas, 25 Federation Fellowships, which attract a salary of \$1.25 million over five years, will be funded in 2002. Approximately one-third of the successful candidates are Australian citizens returning to Australia and one is a foreign national. We must try harder in the coming year to achieve a better balance by attracting more expatriate Australians and top overseas researchers to our shores.

The ARC strongly believes that the quality of Australia's research system in the future will depend heavily on the degree to which individual researchers, teams and research centres are integrated into networks of excellence at local, regional, national and international levels. To remain internationally competitive, Australia must build this sort of scale and focus in its research effort. The ARC is pursuing this goal and seeking to maintain and develop Australia's international standing, specifically in areas of national priority, through the new ARC Centres of Excellence program, the funding rules for which were released in June 2002. The ARC is also a partner in Australia's two national world-class centres of excellence in information and communications technology and biotechnology, announced by the Government in *Backing Australia's Ability*. The ARC is contributing \$62.5 million and \$22.5 million respectively to the two centres over the next five years.

In 2001–02, the ARC has also developed a new, targeted research-funding model by joining with the Grains Research and Development Corporation (GRDC) to co-fund a centre in plant functional genomics. The University of Adelaide's Waite campus won the bid for the new centre, which in addition to attracting support from the ARC, the GRDC and the University of Adelaide has also attracted funding from the South Australian Government and the Universities of Melbourne and Queensland. A novel aspect of this funding model is that it provides for the conduct of basic research, alongside applied research and development within the one organisational structure, thus enhancing the likelihood that the research will contribute to innovation by producing commercialisable outcomes.

Commercialising Research Outcomes

Australia's major strength is its publicly funded excellent research, conducted in universities and other research organisations. It is imperative that this competitive advantage be maintained and enhanced. However, while a strong research system is critical to the generation of new knowledge, gaining full benefits from that knowledge requires greater levels of commercialisation of that research and is a vital aspect of any national innovation system. In the past, Australian discoveries and inventions have been allowed to wither, or have been lost offshore, because they were not transferred effectively to Australian industry.

The ARC does not claim the right to the intellectual property of the research that it supports, but recognises the common law right of universities as employers to the intellectual property arising from ARC-funded research. Therefore, the ARC does not currently play an active role in causing the research funded under its schemes to be commercialised. However, it can play a role in improving Australia's success rate in commercialising the outcomes from university research by conducting benchmarking studies and encouraging national debate on these issues.

During 2001–02, the ARC conducted a joint survey with the NHRMC and the CSIRO of the research commercialisation performance of Australia's universities, medical research institutes and CSIRO. Using a comparable methodology to that used in the survey by the Association of University Technology Managers (AUTM) in the United States and Canada, the survey results have enabled Australia's performance for each sector to be internationally benchmarked. The report, expected to be released in September 2002, will enable Australia for the first time to develop policy and programs to stimulate the commercialisation of public sector research on the basis of firm data.

The ARC also promotes innovation by brokering interaction and collaboration between researchers and the users of research. An example of the brokerage role played by the ARC which also contributes to the commercialisation of research outcomes is a project which would make available to venture capitalists information held by the ARC on high-quality research which is likely to deliver national benefit. Access to this information could assist venture capitalists to make decisions about whether or not to pursue the owners of intellectual property of research sponsored by the ARC, with a view to investing in the commercialisation of that research. By making this information

available through a searchable database, the ARC would be performing, in the national interest, the role of broker between the performers of the highest-quality basic research in Australia and the users of that research. The dissemination of this information can be expected to improve the rate of commercialisation of university research, contribute to an improvement in the investment by the Australian business sector in R&D and promote innovation in Australia. A project establishing such a database has commenced and will be completed in 2002–03.

Research Priorities

In announcing additional funding for the ARC in *Backing Australia's Ability*, the Government indicated its intention to direct some of the funding into priority areas of research in which Australia enjoys or seeks to establish a competitive advantage. Subsequently, in January 2002, the Minister directed the ARC to allocate at least 33 per cent of funding in the 2003 funding round to four priority areas: nano-materials and bio-materials; genome/phenome research; complex/intelligent systems; and photon science and technology. In response the ARC issued amended funding rules for the 2003 round of applications for its two major programs—Discovery—Projects and Linkage—Projects—to reflect the Minister's direction. However, the main mechanism for implementing the designated priority areas of research will be through our newest program, the ARC Centres of Excellence program. About eight centres of excellence, attracting up to \$80 million over five years, will be selected for commencement in 2003, in the four designated priority areas of research. Details on these new centres will be provided in the ARC's next Annual Report.

The Minister for Education, Science and Training, Dr Brendan Nelson, and the Minister for Science, Mr Peter McGauran, announced on 2 May 2002 the Federal Government's intention to set national priorities for government-funded research. The ARC made a submission to the National Research Priorities Taskforce, which is assisting the Government to develop a framework for identifying and implementing national research priorities. The ARC's submission set out its views on the best approach to developing priorities, which includes the importance of supporting research excellence and recognising structural priorities, such as support for people and infrastructure. The national priority setting process and the outcomes from it are to be finalised later in 2002.

Higher Education Review

At the end of 2001, the Minister for Education, Science and Training, Dr Brendan Nelson, announced that he would conduct a review of higher education in 2002. The ARC made a submission to the review which advocated that, in order to improve the quality of Australian higher education research, the share of research funding that is allocated through contestable processes should be increased, consistent with the trend in most OECD countries. In particular the ARC advocated that:

- The current system for funding university research involving block funding on the one hand, and targeted funding specifically for research such as that provided by the ARC and the NHMRC on the other hand, requires reform to improve the quality of the research and the transparency, accountability, effectiveness and efficiency of the funding allocation processes. Under the current system the ARC funds only 34 per cent of the full costs of the research it sponsors;
- An alternative system of largely fully funded research through the competitive programs of the ARC and the NHMRC would, in addition to the public policy benefits of enhanced transparency and accountability for the funding of university research, improve the quality and enhance the coordination of people, projects and infrastructure to build critical mass and focus in the national research effort, particularly in areas of national priority. Under this system the ARC would be funding approximately 78 per cent of the full cost of the research it sponsors;
- To accompany this reform it would be necessary for the ARC to continue to reform its own granting processes to enable the best and most creative researchers with excellent track records to undertake larger, longer-term programs of research.

In preparing its submission to the review the ARC conducted a preliminary analysis of the output of publications in 2000 from ARC-funded large grants research and compared it with the output from university research conducted outside the ARC's contestable process. The results of this preliminary analysis indicate that a Commonwealth dollar invested through the ARC results in at least five times more publications than a Commonwealth dollar allocated to university research through non-contestable processes.

Corporate Overview

2001–02 was the first year in which the ARC operated in essence as a separate entity within what is now the Education, Science and Training portfolio. From July 2001, the ARC has been a statutory agency under the *Public Service Act 1999* and a prescribed agency under the *Financial Management and Accountability Act 1997*, as well as having a statutory set of responsibilities under the *Australian Research Council Act 2001*.

Under the ARC's new legislative base, the Chief Executive Officer (CEO) has a set of responsibilities and accountabilities under those laws analogous to those of the head of a department of state. For example, for the first time, the ARC's annual report is required to comply with the guidelines applying to Commonwealth departments.

Accordingly, the ARC spent some time in 2001–02 developing and implementing administrative processes and guidelines to allow it and the CEO to satisfy the newly imposed requirements. During 2001–02, it examined the appropriateness for the ARC in continuing to use a range of corporate services provided by the Department of Education, Science and Training (DEST) and its predecessor department. In some cases, it has ceased to use the services provided by DEST—for example, in 2001–02, DEST provided the ARC with services relating to budgeting, cash management and financial processing and reporting. From 1 July 2002, the ARC has been using its own financial system (an implementation using Microsoft Great Plains, which is more cost-effective for a small organisation than DEST's SAP-based financial system) for its budgeting, management, transaction processing and reporting.

Whereas the ARC's financial statements included in this report relied heavily on services provided by DEST, the new arrangements will better align the accountability for producing such statements in future with control over the processes leading to their production.

The ARC will negotiate its own Certified Agreement to cover the terms and conditions of employment of its people who are not covered by Australian Workplace Agreements—the transitional arrangement applying in 2001–02 where ARC people were covered by the DETYA Certified Agreement lapses in the first half of 2002–03.

The ARC will continue in 2002–03 to develop its own knowledge management strategy. The aim is to develop and implement an improved information architecture, including better integration of its systems for grant application, management and reporting. The ARC receives several thousand grant applications annually, which require to be managed through an extensive competitive peer-reviewed process, and manages four to five thousand 'live' grants at any time, which are subject to significant progress and final reporting requirements. We aim to have a more client-friendly, informative and cost-effective system in place by early 2004.

The ARC will continue to use some services provided by DEST, such as legal services, for the foreseeable future. The two agencies are negotiating a revised memorandum of understanding to reflect the progressive reduction in services provided to the ARC by DEST.

A Retrospective and Prospective View

My overview in last year's Annual Report identified three priorities for the new ARC in 2001–02. These were:

- implement the ARC's new organisational structure;
- implement the requirements flowing from the establishment of the ARC as an independent statutory agency; and most importantly
- implement the initiatives relevant to the ARC, announced in the Government's 2001 innovation statement *Backing Australia's Ability*.

I invite the reader to judge whether the ARC has delivered on these priorities. I believe we have, but more remains to be done. In the year ahead, we need to complete the transition to the independent 'new ARC', particularly with respect to the installation of systems to enable us to independently manage our finances and personnel matters as well as developing a new integrated electronic grants application, management and reporting system. We will also be developing our first certified agreement as an independent agency. This provides us with an opportunity to develop an agreement which reflects our particular organisational objectives and values.

At a policy level, 2002–03 is likely to be a challenging one, with the outcomes from the national priorities issue and the higher education review having a bearing on the ARC and its operations. In the coming year the ARC will also continue to focus on delivering results from the substantial additional investment in it arising from *Backing Australia's Ability* and further develop its capacity for demonstrating the return on the Government's investment in the future prosperity and well-being of the Australian community.

Vicki Sara
Chief Executive Officer
Australian Research Council