



**Contributing  
to the  
prosperity of  
South Australia,  
Australia and  
the world**



**July 2002**

**RESEARCH  
AND  
RESEARCH  
TRAINING  
MANAGEMENT  
REPORT**

# Section A

RESEARCH AND  
RESEARCH TRAINING  
MANAGEMENT  
REPORT



# INTRODUCTION

*The University of Adelaide's mission is to advance knowledge, understanding and culture through scholarship, research, teaching and community service of great international distinction and integrity.*

Adelaide is a comprehensive University, encompassing a broad range of research activities spread over four campuses: North Terrace, the Waite, Roseworthy and Thebarton. The University intends to maintain its breadth of expertise, and will continue to address significant research questions by encouraging inter- and intra-institutional linkages. It will also continue to undertake research that provides a direct benefit to Australia's economic and social wellbeing, and contribute to the national and international consideration of issues facing today's society.

Adelaide's research activities occur within five Faculties: (i) Sciences; (ii) Engineering, Computer and Mathematical Sciences; (iii) Health Sciences; (iv) Humanities & Social Sciences; and (v) The Professions (including Economics, Law, the Graduate School of Management, Commerce, the Graduate School of Education, and Architecture, Landscape Architecture and Urban Design). In 2001 the University of Adelaide employed 2,281 staff, including 724 teaching and research staff and 519 research-only staff. Of the total student population of 13,603, 1,205 (or 9%) were higher degree research students.

While not a large university, the quality of Adelaide's research is such that it attracts one of the highest levels of per capita research funding in Australia. In order to build critical mass in key areas of research strength, the University has been able to capitalise on the quality of its research to build strategic partnerships with other research organisations and with industry, both nationally and internationally.

The key achievements in research and research training over the last twelve months for the University of Adelaide have been the establishment of Adelaide Research and Innovation, the establishment of the Adelaide Graduate Centre, the restructuring of the Faculties of Sciences and Humanities and Social Sciences, and the award of two new national research centres in the Australian Centre for Plant Functional Genomics, for which Adelaide is the lead site, and the Biotechnology Centre of Excellence for Stem Cells and Tissue Repair, in which Adelaide is a key partner. The University is also a participant in three recently announced Major National Research Facilities: the National Wine Industry Research Cluster, the Australian Genome Research Facility (agricultural node) and the National Tele Test Facility for Integrated Systems.

In 2001 the University of Adelaide specified four core research and research training objectives and associated priority tasks for 2001/2002. The progress achieved towards these objectives over the past twelve months can be summarised as follows:

### *Objective 1*

*To address big research questions by encouraging the conduct of research of the highest quality, developing and supporting sufficient critical mass in areas of research strength and building alliances with national and international research institutions, industry groups and companies.*

#### *Restructure of the Faculty of Sciences*

In 2002 the University merged its former Faculties of Science and Agricultural and Natural Resource Sciences to create a new Faculty of Sciences. The Faculty now comprises four new schools as follows: The School of Agriculture and Wine, The School of Biomedical Sciences, The School of Physics and Chemistry and the School of Earth and Environmental Sciences. Professor Peter Rathjen, an internationally renowned biochemist, has recently been appointed as Executive Dean to lead the new Faculty. The new structure provides the opportunity to create new internal and external research linkages that will enhance research performance. Existing departments are to be consolidated within the four schools and new Heads of Schools will be appointed in 2002/2003.

#### *Restructure of the Faculty of Humanities and Social Sciences*

In 2002 the University restructured its Faculty of Humanities and Social Sciences into four new schools and two centres. The Faculty now comprises: the School of History and Politics, the School of Social Science, the School of Humanities and the Elder School of Music. In addition there will be two major centres in the Centre for Australian Indigenous Research and Studies and the Centre for Social Science Research. Professor Mike Innes, formerly Professor of Psychology and Director of Social Change and Social Equity Research, Murdoch University, has recently been appointed as Executive Dean to lead the Faculty.

#### *The Establishment of the Santos School of Petroleum Engineering and Management*

The School of Petroleum Engineering and Management commenced in 2002, with \$25 million assistance from Australian energy company Santos Ltd, and has already attracted high-quality staff and students from around the world. The School is headed by Professor Peter Behrenbruch, former Chief Reservoir Engineer with BHP Billiton. Students and staff will work from the recently completed, state-of-the-art, petroleum engineering building.

#### *Establish Research Institutes*

The University is committed to building the scale and focus of its research effort through the consolidation of linkages with other Adelaide based research organisations. Four multi-institutional research institutes are currently under consideration in the areas of Women's and Children's Health, Population Health & Primary Health Care, Biodiversity and Evolutionary Science and Animal Functional Genomics.

#### *National Research Centres*

The University has been successful in attracting funding as the lead site for the Australian Centre for Plant Functional Genomics and is a key partner in the new Biotechnology Centre of Excellence for Stem Cells and Tissue Repair.

## **Objective 2**

*To provide postgraduate and postdoctoral researchers with educational and professional development opportunities which will enable them to undertake high quality research and prepare them for leadership roles in their chosen professions, thereby meeting the expectations of their future employers.*

### *Review of the Higher Degree by Research*

The University of Adelaide graduates around 200 research students each year. Recognising the changing needs of graduates and their employers, the University undertook a comprehensive external review of its higher degree by research programs in late 2001. Academic Board endorsed many of the recommendations arising from the Review early in 2002.

### *Allocation of RTS Places*

The University has not made any significant changes to the allocation of research places in 2002 as most of our research students are currently within areas of research strength. The University is offering an increased number of scholarships to attract doctoral students to the University.

### *Establish the Adelaide Graduate Centre*

At the beginning of 2002 the University established the Adelaide Graduate Centre, which has institutional-wide responsibility for ensuring that research students have the resources they require to undertake their research, receive the highest quality of supervision, and have support for professional development. The Adelaide Graduate Centre provides support and professional development for postgraduate co-ordinators and supervisors to enable them to deliver the best possible quality of supervision.

### *Review of Supervision*

In 2001 the University undertook a major internal review of the supervisory performance of every supervisor over the period 1990 to 2000, including total enrolments, completions, separations, average completion times, publication points and average grant income. The data provided by this review is informing the development of University initiatives to improve the quality of supervision and ultimately increase new research student enrolments and reduce attrition.

## **Objective 3**

*To provide for the long-term sustainability of our research and education programmes by broadening the research-funding base to include a range of national and international funding agencies and long term partnerships with industry, as well as through the exploitation of intellectual property.*

### *Increase Research Funding*

The University of Adelaide exceeded its research revenue target of \$60 million for research income in 2001. The revenue target for 2002 is \$67 million. Developments such as the Australian Centre for Plant Functional Genomics provide recent evidence of the success of the University's strategies. The University is also a participant in a new wheat breeding company, Australian Grain Technologies (AGT), which aims to place the wheat breeding program at the University of Adelaide and the South Australian Research & Development Institute (SARDI) on a sound commercial footing through the development and commercialisation of new wheat varieties. Both the Australian Centre for Plant Functional Genomics and AGT receive substantial industry support through the GRDC.

### *Adelaide Research and Innovation*

In 2001 the integration of the activities of the University's Research Branch with most of the functions previously undertaken by Luminis (the University's commercial company) was completed. The rationale behind merger was to provide a "one stop shop" for University researchers requiring support for any of their research, consulting or commercialisation activities. The new entity, Adelaide Research and Innovation (ARI), became fully operational at the end of 2001.

*Revise the policies and procedures governing contract research, consultancies, IP management and commercialisation*

University IP policies and processes were reviewed in 2001/2002 to ensure that they adequately address the needs and expectations of the commercial sector and the University. New policies, including those involving intellectual property policy, are currently being finalised. A Commercial Advisory Group will be established to provide advice to the DVC(R) on commercialisation strategies and will monitor the operation of the University's consulting and contract research activities.

#### ***Objective 4***

*To communicate the outcomes and benefits of University research effectively to the wider community, both nationally and internationally.*

A key element in the achievement of the University's objectives is the effective communication of the University's research capability. The University promotes research outcomes to the wider community through its publications, such as the Adelaidean and Lumen. A review in 2001 of the marketing and communication of research at the University of Adelaide recommended the development of a new suite of communication tools to effectively promote the University's research strengths and capacity to industry and the wider community. The University has since produced a number of brochures promoting its biotechnology capability, and delegations of Adelaide scientists have attended both Bio2001 in Seattle and Bio2002 in Toronto. Standardised promotional tools, such as a University PowerPoint presentation, are now available to researchers who can customise the presentation to promote their research internationally.

In 2001 representatives of the US Office of Naval Research visited the University of Adelaide to gain a better understanding of the University's defence related research capability. A comprehensive Capability Statement was prepared encompassing research in Engineering, Mathematical and Computer Sciences, Sciences and Health Sciences.

Also in 2001, a video was jointly developed with CSIRO Division of Health Sciences and Nutrition (titled "A Healthy Partnership") profiling our collaborative research over the last century.

## ***ADELAIDE'S RESEARCH STRENGTHS***

The University is developing and implementing strategies and plans to enhance its research performance by building on its research strengths and by continuing to support individual academics who contribute to research networks that are addressing research questions of national and international significance.

In determining areas of research strength, the University takes the view that scale of research effort is a necessary, although not sufficient criterion. Research fields falling within the general research clusters of Science and Technology or Medical and Health Sciences are only eligible for consideration as a "strength" if the University is attracting more than \$1 million of research income per annum. This is considered to be a reasonable indicator of research capacity. For fields within the Arts, Humanities and Social Sciences the research income hurdle is set at \$500,000. The University then considers output indicators (such as publications) and quality indicators (such as publication impact). Based on this analysis ten fields of research strength have been distinguished in 2001. Recent performance within these fields of research can be summarised as follows:

## *FIELDS OF RESEARCH STRENGTH*

### **Agriculture and the Environment**

In 2001 the University attracted over \$11 million of research funding to support both basic and applied research in Agriculture and the Environment, in addition to the research funding it obtained through its involvement in six Cooperative Research Centres (CRCs). This is testimony to the reputation of the Waite and Roseworthy campuses as centres of excellence in plant and animal science, and the quality of the research undertaken by Adelaide's environmental scientists.

From 2002, the University of Adelaide will host the \$32 million Australian Centre for Plant Functional Genomics at the Waite campus. The new bioscience plant research centre will be funded by the ARC, the GRDC and the South Australian state government. The Centre will play a key role in the growth of the agricultural bioscience industry, developing molecular breeding technologies for the grain industries. It builds upon an earlier collaborative project with the University of Melbourne that attracted \$5.6 million of support from the GRDC. The Centre will be the only one of its kind in Australia and will employ approximately 100 scientists. A new building is to be constructed at the Waite campus to house the Waite-based research team together with commercial bioscience venture partners.

The University of Adelaide is an international leader in diverse aspects of environmental research and management including environmental degradation and water-related issues of interest to South Australia, the nation and developing countries in Asia. University research into recent sea level change and coastal zone management issues has received significant state and national funding. It has been supported by the Asia Pacific Network for Global Change and has resulted in the appointment of an Adelaide researcher to Vice-Chair of the International Scientific Steering Committee for Land Ocean Interactions in the Coastal Zone (LOICZ) based in The Netherlands. The University is a participant in the CRC for Plant Based Salinity and the CRC for Water Quality and Treatment. It also has a significant number of University designated research centres in this area including the Land Technologies Alliance, the Centre for Applied Modelling in Water Engineering and the Centre for Evolutionary Biology and Biodiversity.

### **Biological Sciences**

During 2000 the University consolidated its research in genetics, biochemistry, microbiology & immunology by establishing the Department of Molecular Biosciences. This department represents the largest concentration of molecular/cell biology research and education in Australia and includes the ARC-funded Special Research Centre for the Molecular Genetics of Development. Two companies founded on intellectual property developed by Adelaide's biochemists, GroPep Ltd and BresaGen Ltd, have listed on the Australian Stock Exchange.

Adelaide's national pre-eminence in the biological sciences continues to grow. In 2001 the University of Adelaide attracted \$15 million to support biological sciences research and over 50% of the research articles published by Adelaide researchers in this field during are accepted by high impact journals.

In 2002 the University of Adelaide became a key partner in the new \$43.5 million Biotechnology Centre of Excellence which also includes the Adelaide-based spin-off company BresaGen Ltd as one of the Centre's key commercial partners. The Centre will consolidate national research and development efforts in stem cell biology and medicine. It will bring together the two most substantial groups in the field - Monash University's Centre for Stem Cells and Tissue Repair (which will host the new Centre) and the University of Adelaide's molecular biosciences research team. Commercial benefits will be derived from product development by BresaGen and other spin-off companies.

### **Earth Sciences**

In 2000 Adelaide was part of a successful bid to establish a new CRC for Landscape Environments & Mineral Exploration. This involvement, together with the establishment of the Santos School of Petroleum Engineering and Management, increases the capacity of Adelaide researchers to underpin the Australian mining and petroleum industries.

The University of Adelaide's earth scientists are continuing to perform well in winning national competitive grants and are sought after by industry and government. Their outstanding record of achievement in research fields that are central to human concerns about earth resources and earth environments is evidenced by consistently high levels of international publications and conference presentations, ARC funding and links with international research groups. Adelaide's National Centre for Petroleum Geology and Geophysics (NCPGG), a node of the Australian Petroleum CRC, prides itself on providing leading-edge petroleum geoscience technology to industry, government and the tertiary education sector. The continuing success of NCPGG research students in winning Grants-in-Aid from the American Association of Petroleum Geologists testifies to the strong international standing of earth sciences research at Adelaide. These highly competitive grants are awarded to only the top 4-5% of postgraduate applicants worldwide.

### **Engineering and Technology**

In 2001 the University attracted over \$3 million to support both basic and applied research in this field. Researchers in this discipline participate in two CRCs (Clean Power from Lignite and Welded Structures). Adelaide is home to Australia's leading research group in the multidisciplinary area of turbulence, energy and combustion. The University is also internationally recognised for the quality of its acoustics and vibration research. Research relevant to the control of excessive noise and vibration is of particular interest to many industries and Adelaide is the world leader in the use of active systems for the control of such problems.

The University of Adelaide's Road Accident Research Unit (RARU) is highly respected self-sustaining unit that conducts multidisciplinary work into the prevention and control of human and economic losses from road traffic accidents. The SA Government, in collaboration with Mitsubishi and the SA Universities, is seeking to establish the SA Centre for Automotive Safety as an international centre of excellence in occupant and pedestrian safety. It is anticipated that the successful development of the Centre will be underpinned by the core contribution of the expertise of the RARU team.

As a result of sponsorship totalling \$25 million from Santos Ltd., a major new multi-discipline research and teaching School of Petroleum Engineering and Management enrolled its first undergraduate students in 2002.

### **Mathematics**

Adelaide's mathematicians have a national and international profile for the quality and originality of their research. They consistently attract a disproportionately large share of ARC large grants and research fellowships available for the support of mathematics research in Australia. Their basic research excellence is complemented by consulting activities undertaken through AdStat Solutions, an industry-funded statistical consulting group within the Department of Applied Mathematics. Research in the mathematics of geometry is one of the fastest growing fields of pure mathematics at the University of Adelaide. Researchers at Adelaide have been internationally recognised for their elegant solutions of multidimensional systems.

### **Medical and Health Sciences**

In 2001 Adelaide attracted \$22 million in support of research in the medical and health sciences, including \$15 million in NH&MRC funding. This performance has been maintained in 2002, with the University of Adelaide attracting a total of \$25.7 million in NH&MRC funding, the highest level of NH&MRC funding per capita in Australia, and second only to the Universities of Sydney and Melbourne in terms of total funding.

The University's research performance in the medical and health sciences is underpinned by a highly productive and mutually supportive relationship with the South Australian Department of Human Services, through close relationships with the teaching hospitals. This is evidenced by the award of two NH&MRC Program Grants in 2001/2002. The grants were awarded to University staff and affiliates located in the Women's and Children's Hospital (i) to investigate the early origins of adult disease and characterise the effects of the early environment of the development of the structure and function of the key organs and body systems in the fetus, neonate and young adult, and (ii) to understand the human genome and the molecular mechanisms of genetic disease.

Over fifty percent of the research articles published by Adelaide researchers in the medical and health sciences during 2001 were accepted by high impact journals. Areas of research strength include reproductive medicine, population health, internal medicine, anaesthesia, rural health, and addiction studies, with the latter supported by substantial funding from the National Institute on Drug Abuse (NIDA) in the USA.

The University's Faculty of Health Sciences remains the lead site in Australia for a large number of multicentre international clinical trials. For example the University of Adelaide is at the forefront of research into Hormone Replacement Therapy (HRT) and was recently awarded the Australian arm of a major international study to look at the long-term effects of HRT. The study is one of the world's biggest and longest randomised clinical trials, stretching over 15 years and involving 34,000 women internationally. The project, known as WISDOM (Women's International Study of long Duration Oestrogen after Menopause) will see the Adelaide team joining an international team to study aged women aged 50 to 69 years to review the long term effects of HRT.

The Adelaide Dental School is home to the Australian Research Centre for Population Oral Health and the Colgate Clinical Dental Research Centre. The Colgate Clinical Dental Research Centre is the most advanced dental research and clinical facility of its kind in the southern hemisphere. The Centre encourages practicing dentists to participate in clinical and laboratory research of dental materials and provides a mechanism for liaison with the dental industry.

### **Physical Sciences**

The quality of our research in the physical sciences is recognised internationally. Staff working in atmospheric physics, high energy astrophysics and theoretical physics serve on international discipline committees and each group has projects linking them to major international projects. The National Institute for Theoretical Physics at the University of Adelaide is host to the World Institute for Space Environment Research (WISER), linking nations for the peaceful use of the space environment. The high energy astrophysics group is closely associated with the Pierre Auger Observatory project, and their collaboration with the Institute for Cosmic Ray Research of the University of Tokyo resulted in the recent construction of a 10m gamma ray telescope at Woomera as part of the CANGAROO project.

ATRAD, a University of Adelaide spin-off company, recently signed three contracts worth more than two million dollars confirming Adelaide as an international centre of meteorological expertise. The radar technology developed by scientists in Adelaide's Department of Physics and Mathematical Physics produces a vertical profile of the wind directly above the radar, information that has traditionally been gathered by instruments launched by balloons as often as four times each day. The Japanese Aeronautical Laboratory is acquiring one radar from Adelaide to be used in flight trials of a model supersonic transport aircraft. ATRAD will also supply a very powerful VHF radar to Wuhan University in China. There are perhaps only three other radars in the world of comparable ability.

The ARC-funded Special Research Centre for the Subatomic Structure of Matter (CSSM), located within the University's Faculty of Sciences, works closely with the Department of Physics and Mathematical Physics and the University Centre for High Performance Computing and its Applications. In 2000 CSSM established a partnership with Sun Microsystems and the National Computing Facility for Lattice Gauge Theory to construct the Orion Supercomputer which is ranked among the world's fastest supercomputers. All current lattice gauge theory groups in Australia are represented in the Centre, which competes at the forefront of international research in this area.

### **Studies in Human Society**

Adelaide researchers have been very successful in attracting funding for research in the field of Studies in Human Society. Their share of the ARC Large Grant income available to the discipline is disproportionately high and is a reflection of the outstanding quality of their research. The University is home to the Geographic Information Systems Cooperative of Adelaide (GISCA) which brings together University researchers and expertise from private companies such as Communications Systems, Silicon Graphics, Maptek, Kinhill Engineers and Oracle Systems Australia. GISCA is nationally and internationally renowned for its research and consulting work in the application of GIS technologies to social, population and community planning programs.

GISCA research supports the development of “smarter” public and private sector planning in Australia while its consultants provide expertise to federal, state and regional authorities in the areas of health and aged care, populations projections, demographic analysis, spatial analysis and modelling, and web technologies. The University’s Department of Geographical and Environmental Studies is internationally recognised for its research on population trends, agricultural developments and environmental change within Australia and the South-East Asian region.

Researchers in human society at the University also make important contributions to our national debates in areas such as the impact of globalism, labour markets and workplace change, gender and reproductive politics, and human rights. Adelaide researchers’ work in Australia and overseas has underpinned the establishment of women’s studies programs in India, the West Indies and Laos, training and enterprise development planning for government bodies, revision of abortion law and health policies, and domestic violence prevention programs.

### **Behavioural and Cognitive Sciences**

This area was identified as an area of emerging or potential strength in the University’s 2001 Report. In the past 12 months research income and publications in this area have shown further substantial growth, and justify it being designated now as an established strength. Not only did researchers again enjoy a high rate of success with individual NCG applications, and another marked increase in overall funding in 2002, but the University of Adelaide was also a major partner with the University of Queensland and other Australian universities in the successful application for the renewal of the ARC Key Centre in Human Factors and Applied Cognitive Psychology. Adelaide had the second highest level of earnings for human factors contract research of any of the nodes within this national Key Centre last year. This achievement reflects the growing involvement of University researchers in two industries of major importance in South Australia, namely, defence and automobile manufacturing.

Researchers at the University of Adelaide are renowned for their work on the perceptual and cognitive processes that underlie human decision making and Adelaide is known internationally for its research into the measurement of mental speed and the understanding of individual differences in human intelligence. These lines of research have yielded scientific findings of major theoretical importance and have led to many applied research projects ranging from the enhancement of human systems integration in industry to the development of a new approach for assessing the support needs of people with disabilities.

### **Economics**

University of Adelaide economists perform well in attracting national competitive grants and over the last few years the University has appointed a sizable cohort of young economists with promising research careers. The University hosts two specialist research centres in this area: the Centre for International Economic Studies (CIES) and the South Australian Centre for Economic Studies (SACES). Trade related research at CIES includes work on the economics of agricultural biotechnologies (particularly genetically modified organisms), open economy macroeconomics and international finance, and the World Trade Organisation (WTO). Complementing the University’s strengths in agriculture, Adelaide’s economists have attracted substantial funding for research in agricultural economics in China and Indonesia, and wine industry economics.

Adelaide economists are sought after by a wide range of government and business organisations in Australia and overseas to undertake contract research and consulting. SACES, a self-funding joint research and consulting centre of the University of Adelaide and Flinders University, provides specialist consulting services in the broad field of applied economics with a principal role to review, research and report on economic and public policy issues of relevance to the South Australian and Australian economies. In recent years the Centre has expanded its scope of operations to also undertake economic studies outside Australia, including in New Zealand, China, Indonesia and other countries of the Asia Pacific region.

# ATTRIBUTES OF ADELAIDE RESEARCH GRADUATES

The University of Adelaide's PhD graduates are expected to have the following attributes:

## **Attribute**

The capability to conduct research independently at high level of originality, quality and creativity.

## **Evidenced by**

*The conceptual design and implementation of a research project that leads to an original contribution to knowledge or to the production of a body of creative work. Indicators will include peer review, milestones set and goals achieved, the ability to frame questions and explore emerging issues and, where appropriate, to identify solutions using a wide range of analytical methods.*

A deep knowledge of the field of study.

*The ability to review critically, information from a wide range of sources, and develop a comprehensive understanding of relevant prior research. Demonstration of a sound theoretical basis of knowledge, as evidenced by the arguments presented within the thesis, or a series of publications, produced during candidature.*

The ability to communicate research significance clearly and concisely with audiences at all levels and to demonstrate its relevance to the broader community.

*Successful examination of the doctoral thesis; peer-reviewed publications; participation in specialist and generalist conferences and public forums. A capacity to apply theoretical knowledge to discipline-specific practical activity, where appropriate. Sought after by employers.*

The University aspires to equip its PhD students to become leaders in their chosen field, be that within academia, industry or the wider community, and seeks to provide an environment whereby graduate students are supported to develop self confidence, independence of thought and creativity. During the course of their program, the PhD student is expected to add to knowledge through the discovery of new information, the formulation and defence of new theories, the innovative reinterpretation of known data and established ideas, or the production of a body of creative work.

The University of Adelaide's research policies aim to encourage and sustain research programs that command an international reputation for their originality and impact. The University believes it can make a significant contribution to the Australian economy through strategic alliances and partnerships with industry, and through the creation of spin-off companies based on intellectual property developed by its staff. Most importantly, the University aims to provide its research students with an education that equips them to undertake innovative research, thereby enhancing Australia's future competitiveness in the global economy.

To achieve its four core research and research training objectives the University continually reviews its priorities in response to changes to the internal and external environment. The priority tasks for 2002/2003 are as follows:

### **Objective 1**

*To address big research questions by encouraging the conduct of research of the highest quality, developing and supporting sufficient critical mass in areas of research strength and building alliances with national and international research institutions, industry groups and companies.*

#### *Research Institutes*

Over the next twelve months the University plans to bring a number of the proposals for research institutes specified above to the formal agreement stage. Once established, the institutes will be encouraged to explore opportunities for significant research contracts and will be supported to create spin-off companies.

#### *National Research Centres*

We aim to further improve our focus on big research questions by building critical mass and enhancing interdisciplinary linkages through active involvement in national research centres. This includes the establishment of the Australian Centre for Plant Functional Genomics on the Waite campus and the recruitment of key scientific staff. The University aims to attract up to 25 additional research students in functional genomics. The University will also consolidate its investment in stem cell research through the establishment of the South Australian node of the ARC National Biotechnology Centre of Excellence for Stem Cells and Tissue Repair. This initiative is also expected to attract additional research students.

### **Objective 2**

*To provide postgraduate and postdoctoral researchers with educational and professional development opportunities that will enable them to undertake high quality research and prepare them for leadership roles in their chosen professions, thereby meeting the expectations of their future employers.*

*Develop and monitor new policies and procedures governing Higher Degree by Research Education in response to recommendations of the 2001 review*

Many of the recommendations of the external Review of the Higher Degree Program are to be implemented through the new Graduate Centre in 2002/2003, including changes to the Code of Practice and alternative pathways to the PhD. A new Dean of Graduate Studies is to be appointed and the composition of the Board of Research Education and Development is to be revised in a manner consistent with that proposed by the Review.

**Financial Support for Research**

In 2001 the University of Adelaide's research activities were funded by research grants, contracts or consultancies and a component of the Operating Grant received from the Commonwealth. In 2001 the University attracted \$69.4 million of research funding, which included national competitive grants, CRCs and funding from other public sector industry and international sources. The Operating Grant included \$13.6 million from the Research Quantum and a notional component for research and research training. An additional \$5.6 million was received through the Research Infrastructure Block Grant.

The University has been particularly successful in winning national competitive grants for its basic research programs and its three principal research sponsors to date have been the ARC, the NHMRC and the GRDC. In addition, in 2001 Adelaide earned approximately \$7 million in research income by way of contract research and consulting, reflecting the institution's commitment to supporting innovation within industry and a desire to broaden the funding base supporting research and research infrastructure.

The University participates in fifteen CRCs and the Biotechnology Centre of Excellence, and hosts four ARC funded Research Centres (The Special Research Centre for the Subatomic Structure of Matter, The Special Research Centre for the Molecular Genetics of Development, The National Key Centre for Social Applications of Geographical Information Systems and the ARC/GRDC Australian Centre for Plant Functional Genomics).

In 2001 the University supported areas of research strength through the distribution of Research Quantum and Research Infrastructure Block Grants (RIBG) funding to faculties in proportion to funds earned (refer section A.3 below for details) and also through institutional contributions to CRCs, Special Research Centres and University research centres. These funding arrangements also ensure that emerging areas of strength are supported.

The University provides funding for staff and student professional development programs such as the Special Studies Program and the Overseas Conference Scheme, overseas travel grants for research students and the provision of set up grants for new staff. These programs are complemented by departmental mentoring of staff, including peer review of grant applications.

The University, with the support of its industry partners, has a significant ongoing investment in infrastructure. On North Terrace, \$20 million has been invested in the new building for the Department of Molecular Biosciences, together with \$8 million for the new building to house the Santos School of Petroleum Engineering and Management. A further \$9.2 million will be expended to construct a special purpose facility to house the Australian Centre for Plant Functional Genomics and the agricultural node of the Australian Genome Research Facility on the Waite campus. The research infrastructure on the Waite campus will be further augmented by the establishment of the Wine Cluster Major National Research Facility, which is a partnership between the University of Adelaide, the Australian Wine Research Institute, the CSIRO, the Grape and Wine R&D Corporation, SARDI, the CSIRO Viticulture, and the SA and Victorian State Governments.

### *Revise policies for allocation of research training places and scholarships*

In future it is anticipated that fewer places will be allocated to areas of the University where there are low completion rates. Policies that will provide a framework for the internal allocation of RTS places are currently being modelled and the intention is to phase in performance based allocative measures over the next four years. A scholarship strategy is under development in order to optimise the number of scholarships available to commencing students. This strategy will be linked to the internal policy for the allocation of RTS places.

### *Professional development for students*

The Adelaide Graduate Centre is to take a lead role in the development and co-ordination of a University-wide professional development program for research students. Students will select programs that are appropriate for their discipline and stage of candidature, and outcomes will be monitored at the time of the annual review of progress. An area of particular emphasis for research student professional development will be commercialisation awareness.

### *Co-locate the Adelaide Graduate Centre*

The staff of the Adelaide Graduate Centre are currently located in four separate buildings. It is planned that the Centre will be housed in a refurbished building and will be collocated with the University's Staff Club (which will offer postgraduate student membership) and the Postgraduate Students' Association. This co-location will create a vibrant hub of services for postgraduate students by early 2003.

## **Objective 3**

*To provide for the long-term sustainability of our research and education programmes by broadening the research-funding base to include a range of national and international funding agencies and long term partnerships with industry, as well as through the exploitation of intellectual property.*

The University intends to further capitalise on its research strengths to build a revenue base that will help support ongoing investment in research infrastructure and research education. This will involve a greater focus on research with a commercial application, while at the same time ensuring the University's fundamental research base remains nationally and internationally competitive. Initiatives in 2002/2003 will include implementation of revised policies and procedures governing contract research, consultancies, IP management and commercialisation.

The University, in collaboration with BioInnovation SA and SARDI, will be appointing a Director, Agricultural Biotechnology in 2002, to be located on the Waite campus to support new business development and the commercialisation of IP in agricultural biotechnology.

## **Objective 4**

*To communicate the outcomes and the benefits of University research effectively to the wider community, both nationally and internationally.*

The University aims to develop a wider range of promotional tools to support its staff travelling overseas and to target key international promotional opportunities. Building on the successful strategy of involving University researchers directly in promoting Adelaide biotechnology research capabilities at Bio2002, the University will extend the opportunity to additional scientists for Bio2003 and develop marketing materials on specific University spin-off opportunities. The University's technology and commercialisation practices will also be showcased at the 2003 national conference of the Licensing Executives Society, which the University of Adelaide is helping to organise.

The University will be developing strategies and marketing tools by which it can promote its expertise and research partnerships in key thematic areas. A "business portal" is being developed as part of our web strategy to provide better information and access to people outside the University on Adelaide technology and expertise.

## Resource Allocation

The University's budget process aims to reward excellent performance, while ensuring flexibility to support new ventures and developing new research fields. RIBG funding and the Research Quantum were allocated in 2001 to faculties in proportion to earnings. The RIBG was distributed in its entirety to faculties and was expended predominantly on computing and other research related equipment and technical support, library acquisitions and non-project specific research maintenance. 50% of the RQ was retained centrally and used to fund the salaries of central research management and support staff, certain research infrastructure such as the library, and various research initiatives (e.g. special studies programme, postgraduate scholarships, contributions to Commonwealth funded centres, contributions to the salaries of Commonwealth Research Fellows who are not fully funded). The remaining 50% was distributed to faculties to support faculty specific research initiatives.

With the change to formula funding under the IGS/RTS scheme the University has changed its funding allocation principles but has continued to ensure that research excellence is rewarded and research students are well supported.

## Institutional Structures supporting Research

In 2000/2001 the DVC(R) reviewed the operation of her portfolio, including Luminis Pty Ltd, the University's commercialisation company, and made some structural adjustments to better address the University's key research objectives.

These structural adjustments included:

- the establishment of Adelaide Research and Innovation;
- the establishment of the Board of Research Education and Development to replace the previous Board of Graduate Studies;
- expansion of the role of the Dean of Graduate Studies to include the oversight of the development of the University's early career researchers;
- the appointment of a Commercial Director; and
- the appointment of Business Development Managers to increase the University's revenue from industry sponsored research and University IP.

The establishment of Adelaide Research and Innovation provides for better capture and management of intellectual property, and identification of opportunities for attracting industry investment in research. It is a focal point for marketing the University's research capabilities nationally and internationally, and improving access by industry to University researchers.

With the establishment of the Adelaide Graduate Centre in 2002, the major aspects of the restructuring of the DVC(R)'s portfolio were complete, although internal operations within business units are still evolving. The portfolio includes the following operational units and advisory groups:

***Adelaide Research and Innovation*** – responsible for maximising the University's research and commercialisation performance by supporting academics to obtain research funding from government and industry sources and through the commercialisation of intellectual property generated by University research.

***The Adelaide Graduate Centre*** – responsible for graduate administration and quality assurance, including ensuring that research students have the highest quality of supervision and have opportunities for professional development.

*The University Research Committee* – responsible for providing advice on the development, implementation and dissemination of institutional policy on key research issues. Research management issues from the faculties are brought to the Committee for consideration, sharing of good practice and the formulation of strategic initiatives. The University Research Committee also provides advice on the management and commercialisation of intellectual property.

*The Board of Education Research and Development* – responsible for providing advice on the University's research education and training policies and processes. The Board currently has four working parties which provide advice on priority issues. They are: The Doctoral Education Working Party; The Professional Development for Early Career Researchers Working Party; The Quality Issues for Research Education Working Party; and The Students Matters Working Party.

*The Graduate Scholarships Committee* – responsible for providing advice to the DVC(R) on research scholarship policy and allocations.

### **Planning Processes**

The planning process at the University of Adelaide, which guides resource and management decisions, comprises a long-term strategic plan, a rolling five-year operational plan, and a suite of area and special purpose plans. The University is continuing to invest in the improvement of its planning processes, support systems and databases, and has recently implemented Research-Master as one of four integrated management information systems to improve the efficiency of research management activities and reporting.

Responsibility for overseeing the development and implementation of the University's Research and Research Education Plan and related policy rests with the Deputy Vice-Chancellor (Research). The DVC(R) and the senior research managers meet regularly with the Executive Deans and Associate Deans (Research) and/or Associate Deans (Commercialisation) of each faculty, and the DVC(R) chairs the University Research Committee. One of the major purposes of these meetings is to ensure that faculties develop annual research plans incorporating faculty-based strategies to deliver on the research performance objectives of the University and to monitor the faculty's progress against their specified targets. The DVC(R) is supported in these activities by the newly established Office of Planning and Development.

### **Monitoring of Research Performance**

The DVC(R) undertakes an annual analysis of the research performance of all departments. This analysis identifies those areas of the University are performing well and those that need to improve. It provides a basis for developing faculty research plans and priority setting. The University's Office of Planning and Development regularly monitors progress against both faculty and university-wide objectives. Protocols and reporting frameworks are under development.

### **Benchmarking**

The University has compared its overall performance with other Australian universities for the last eight years and has consistently ranked highly on a per capita basis, particularly in terms of its ability to win National Competitive Grants to support its basic and strategic research activities, and in its publications output (refer to Appendix 1).

### **Incentives to Reward Research Performance**

Research performance is a key criterion for promotion at the University of Adelaide and Executive Deans are able to set salaries at levels that will attract good researchers to the University and retain those that are already employed.

The University seeks to encourage its staff, where appropriate, to carry research through to commercial application. Accordingly, it offers staff a significant share of the financial benefits that are derived from successful commercialisation of intellectual property arising from their research. Once direct initial costs have been recovered, income is shared equally between the inventor(s), the department(s) and Adelaide Research and Innovation.

### **Support for Staff Development**

With the establishment of the Board of Research Education and Development the University extended the focus of University policy covering research education beyond research students to also include early stage career researchers. As part of this initiative, programs supporting the professional development of researchers were developed. Short courses in commercialisation were trialled in 2001 with a view to developing a regular program. The University continues to sponsor several staff to undertake the University's Diploma in Science & Technology Research Commercialisation course, and contracts external groups to run commercialisation awareness programs.

The Adelaide Research Staff Association was founded in November 2000 to represent the interests of those University staff whose primary function is to conduct research. It provides an integrated, supportive network for the University's research staff and will have an important role in setting priorities for future professional development programs for researchers.

The policy framework for research education is provided by the University's *"Code of Practice for Maintaining and Monitoring Academic Quality and Standards in Higher Degrees"* which outlines the expectations of performance of all sections of the University community involved in research education. The Code contains a number of key elements:

- Academic staff who seek confirmation of tenure are required to attend at least one postgraduate supervision course run by the University;
- All PhD students undertake a mandatory Structured Program;
- A Postgraduate Coordinator must be appointed in any department/school where there are postgraduate students;
- International postgraduate students are required to complete an Integrated Bridging Program which forms an important part of their Structured Program.

For further information, please refer to the University website at [www.adelaide.edu.au/graduatecentre/poladmin.html](http://www.adelaide.edu.au/graduatecentre/poladmin.html)

### **The Structured Program**

The University recognised in the 1990s that not all students commencing a PhD programme are adequately equipped to define, plan and complete a major research project within the required timeframe. The challenge was to identify any areas of need and to provide appropriate support to allow a rapid and productive commitment to the research. This was achieved through the development of a Structured Program. The University has overall generic requirements for the Structured Program, but the guidelines enable departments and faculties to develop discipline-specific programmes. The Structured Program was subject to a major review in 2001 and the recommendations to improve its effectiveness are currently being implemented through the Graduate Centre.

### **The Integrated Bridging Program**

The Integrated Bridging Programme is a specific component of the Structured Program for international research students. It is designed to help students develop a range of discipline-specific research skills together with the written and oral language requirements appropriate for their expression. The program is provided in collaboration with the research supervisor(s) in the first full semester after enrolment and entails the production of a brief literature review, the research proposal and the presentation of a seminar on the student's chosen research area. As well as the assistance students receive in the conceptual development of a research project, the Program provides a forum for improving cross-cultural awareness and strategies for communication between student and supervisor.

### **Access to Resources**

The University has a clear policy for ensuring that research students have adequate resources to undertake their research. Students cannot be enrolled into a higher degree by research program unless the Head of Department/School in which the research is to be undertaken has confirmed that the student will have access to the resources required to undertake the particular research program.

### **Contact with Supervisors and Learning Support**

The relationship between a research student and supervisor(s) is highly individual and is crucial to proper progress and the ultimate success of the research degree. The responsibilities of both student and supervisor in this interaction are detailed in the Code of Practice. Support in developing the interaction is provided by departmental Postgraduate Coordinators, induction programmes for staff and students and training workshops.

Learning support for research students is now provided through the Graduate Centre. Students can access the Centre for individual consultations and can attend thesis-writing workshops. Departments also run programs to support the development of their research students. The Graduate Centre is developing a strategy to enhance the professional development programs available to postgraduate students and co-ordinate the programs currently available across the University.

### **Student Grievances**

Higher degree students are included within the University Student Complaints policy which is available on the University website at [www.adelaide.edu.au/student/current/complaint.html](http://www.adelaide.edu.au/student/current/complaint.html)

### **Supervisor Development**

Academic staff inexperienced in supervision are required to act as co-supervisor with an experienced colleague in the first instance and the University offers a training course on postgraduate supervision for new academic staff. The University is a member of the 'Consortium for Supervisor Development', which provides continuing on-line support for professional development of academics undertaking supervision of research students.

### **Allocation of Research Places**

Up to and including 2002, research places have been awarded solely on the basis of continuing and estimated commencing load. As outlined in Section A2, the University is reviewing this practice and in the future, the allocation of research places may also take into account such factors as a supervisor's ability to support research students (through research income) and the past completions performance of the department.

### **Monitoring of Progress**

A formal process of annual review assesses the success of the supervisory relationship both from the student's and the supervisor's points of view and evaluates the progress of the research project itself. The review provides the opportunity for both student and supervisor to comment on progress and to agree on milestones for the next year. It also provides a formal process to identify impediments to progress.

### **Exit Survey**

The University's Postgraduate Exit Survey captures data from completing students, those whose candidature has expired, and those who have withdrawn from candidature. The Survey includes questions relating to the adequacy of information provided to students about research degrees, facilities, supervision and financial support, and the resolution of grievances. These data are collected centrally and made available to faculties/departments in a manner that prevents identification of individual student contributors. Some aggregated Exit Survey responses collected over the last eight years are shown in Section B. This information supplements data from the Postgraduate Research Experience Questionnaire (PREQ), which is benchmarked against the ANU and UWA by mutual agreement. The responses to the Exit Survey indicate that, in general, our research students have been positive about their research experience at Adelaide.

### **Research Student Surveys**

In 2001/2002 the University implemented for the first time two surveys of students in their first year of candidature and also in mid candidature, to supplement information gained from the Exit Survey and PREQ, and allow time for intervention where issues of serious concern arose. These surveys will be administered annually to these cohorts of students. Both first year and mid-candidature students express high levels of overall satisfaction (89% for first year; 75% for mid-candidature) with their experience as research students at the University of Adelaide. Students rate the availability of supervision (96/90%), feedback received on their progress (89/82%) and the development of their ideas and written work (89/87%) highly. They are being strongly encouraged to give conference papers and to publish (81/76%). The surveys also revealed some uncertainty or dissatisfaction about the Structured Programs which the University has addressed in this year's programs. A summary of outcomes is shown in Section B.

### **Graduate Destination Survey**

The majority of recent Adelaide research graduates who were available for full-time work have succeeded in finding full-time employment within a year of completing their qualification. Of those who indicated they were not available for full-time work, most were either studying or in part-time employment. Only 4% of those seeking fulltime work in 2000 were not employed. For details of the responses to the 2001 Graduate Destination Survey and a summary of the aggregated Survey results of 1998 to 2000, please see Section B.

The University of Adelaide has established many mutually beneficial relationships with global and local research partners (public and private, commercial and educational). The University also has a large number of “adjunct”, “affiliate” and “clinical” title-holders within external organisations who are actively involved in the teaching, research and research education activities of the University and whose contribution and expertise is formally recognised.

### **Regional Alliances**

#### *The North Terrace Campus*

Research in the basic sciences, health sciences, engineering, the arts, the professions, humanities and social sciences takes place on the University’s North Terrace campus. The University has capitalised on the proximity of this campus to other South Australian research institutions by developing cross-institutional research programs that are internationally competitive and nationally relevant.

In the biological and health sciences, the University has long-standing links with the CSIRO Division of Health and Nutrition. The CSIRO/University of Adelaide Nutrition Trust provides seed funding (\$100,000 in 2001) to support collaborative research projects involving both institutions. Biotechnology company GroPep Ltd was founded on collaborative research between CSIRO and the University of Adelaide.

The University has a long-standing relationship with the Institute of Medical and Veterinary Science (IMVS) and the Royal Adelaide Hospital through their joint support of the Hanson Centre for Cancer Research. The IMVS, the Hanson Centre and the Royal Adelaide Hospital are collocated around the North Terrace campus. There is increasing co-investment by these institutions with the University in research infrastructure to consolidate this precinct as one of Australia’s significant biomedical research clusters. Important links between the University and major health services in South Australia include The Royal Adelaide Hospital, The North Western Adelaide Health Service, The Women’s and Children’s Hospital and the Adelaide Dental Hospital.

The University of Adelaide also works closely with the South Australian Art Gallery and the South Australian Museum, both of which are adjacent to the North Terrace campus in the cultural and educational heart of the city. In 2001 the University and the SA Museum established a number of jointly funded research positions to further strengthen our combined expertise in molecular and evolutionary systematics. The collective research capacity and resources of the two institutions represent a unique research capability within Australia that will have an increasingly important role in characterising and monitoring biodiversity within Australian ecosystems.

There is a long history of collaboration with the DSTO. Over the last few years DSTO has contributed over \$1 million in support of research and research training at the University.

#### *The Waite Campus*

The Waite is widely recognised both nationally and internationally as one of Australia’s largest and most effective research precincts with strong synergistic relationships with co-located partners. Wide-ranging collaboration occurs between the University and several CSIRO divisions, the SA Department of Primary Industries and Resources (PIRSA), the Australian Wine Research Institute and the SA Research and Development Institute (SARDI). The Waite Campus is headquarters to three Cooperative Research Centres (Viticulture, Molecular Plant Breeding and Weed Management Systems).

### *The Roseworthy Campus*

On the Roseworthy campus, the University has worked closely with PIRSA, SARDI, the Department of the Environment, Heritage and Aboriginal Affairs, TAFE (SA) and rural industries to develop the campus as a centre of excellence of research in dryland agriculture and animal production as well as a hub of information transfer, communication, learning and new technologies for the rural community. Researchers from PIRSA, SARDI, and TAFE (SA), and the SARDI network of regional research centres and farms in major livestock producing regions of South Australia, have recently developed the Integrated Livestock Management Initiative. The Initiative is designed to build on the research strengths of the participants and enhance research in areas such as livestock nutrition, reproductive technologies, health and welfare, genetic selection, wool growth and quality and meat production.

### *Thebarton Research Precinct*

The University of Adelaide's commitment to effective interaction with industry is patently demonstrated by its investment in the Thebarton Commerce and Research Precinct. The Precinct is home to the University's Office of Industry Liaison, commercial tenants, research centres and some 22 spin-off companies of staff and graduates. Commercial and industrial tenants are encouraged to participate with the University in cooperative education and in postgraduate student programs, to become involved in joint research activities with University staff members and to provide work experience to students. In return, tenants have access to University facilities and expertise.

### **National Alliances**

The University has established many significant national alliances through participation in CRCs, national research centres and other research collaborations.

Adelaide has a particularly close relationship with the Australian wine industry. The Hickinbotham Roseworthy Wine Science Laboratory on the Waite campus is unique as a teaching institute, and one of a few such research centres internationally. These facilities are complementary to the already substantial wine research amenities based at the Waite, making this a focal point of wine research in Australia. A 200 hectare property in the southern suburbs of Adelaide, Glenthorne Farm, has been acquired by the University who, in partnership with BRL Hardy, one of the world's fastest-growing wine companies, will be using the property to establish a commercial vineyard. This development will complement the state of the art laboratories and equipment on the Waite campus, ensuring that the University and the Australian wine industry stay at the forefront of viticulture and oenology research and education.

The University works closely with the Rural Research Corporations particularly the Grains Research and Development Corporation (GRDC), which invested approximately \$8 million in Adelaide research in 2001. This reflects the confidence of the grains industry in the quality and relevance of Adelaide's research and builds upon a significant historical investment by the GRDC. In addition to this, from 2002 the GRDC is providing a substantial investment in the Australian Centre for Plant Functional Genomics, in partnership with the ARC, the Universities of Adelaide, Melbourne and Queensland, the Victorian Department of Natural Resources and Environment and the SA State Government.

The University of Adelaide is a key partner in the recently announced ARC National Biotechnology Centre of Excellence for Stem Cells and Tissue Repair. Monash University is the lead institution, with other key partners being the Victor Chang Cardiovascular Research Institute, the Peter MacCallum Research Institute, the Universities of NSW, Queensland, Melbourne, ANU and Swinburne, the Australian Genome Research facility and the commercial operations of ES Cell International and BresaGen Ltd. The establishment of a node in South Australia recognises the significant role that the University plays in stem cell research.

## **International Alliances**

Adelaide academics actively collaborate with their colleagues around the world. For example, Adelaide is a participant in The Pierre Auger Observatory Project. This project has the endorsement of key science research funding agencies in many countries and involves over 300 scientists from 19 countries with key sites in the USA and Argentina.

Adelaide staff are increasingly sourcing research funding from international agencies such as NIH, NSF, the World Bank and the Wellcome Trust and the University is the Australian arm of a major international study to examine the long-term effects of HRT. The UK Medical Research Council, which has already provided the University with over \$1 million, is supporting this study and a further \$10 million of funding is to follow.

The Road Accident Research Unit (RARU) has undertaken extensive international collaboration with, for example, Wayne State University in Detroit, Universite' Louis Pasteur in Strasbourg and the Japan Automobile Research Institute in relation to the biomechanics of brain injury. The International Task Force on Child Restraints led to collaboration with Renault and the Unit also participated in an OECD program on motorcycle accidents. The Takata Corporation (Japan) is providing \$500,000 to support the continuation and further development of the work of the Road Accident Research Unit. The Unit also has links with the Japan Automobile Research Unit, Honda, the Global Traffic Safety Trust and the International Council on Alcohol, Drugs and Traffic Safety.

Colgate has provided the University with \$3 million to support its Clinical Dental Research Centre and given a further grant of US\$100,000 in 2001 to assist in the appointment of a full-time Director.

Atmospheric Radar Systems (ATRAD), a University spin-off company, recently secured a contract worth over \$1 million to provide one of the world's largest atmospheric research radars for Wuhan University, China. This project is leading to stronger links between the research groups in Atmospheric Physics at both universities.

The University of Adelaide has recently formalised a Memorandum of Understanding with the Chinese Academy of Sciences for collaboration in agricultural research, and has developed a close partnership with the Chinese Academy's Research Centre for Eco-Environmental Sciences (RCEES), with the recent opening of joint laboratories in Beijing and Adelaide for research into plant-soil interactions and environmental impacts.

## INTELLECTUAL PROPERTY, COMMERCIALISATION AND CONTRACTUAL ARRANGEMENTS

Key policies relating to intellectual property, commercialisation of research and management of contractual arrangements are under review and are nearing completion. The new policy will be found on the University website when approved.

The new policy will address:

- IP management – ownership and sharing of returns from commercialisation
- Consulting
- Contract Research
- Conflict of Interest

Up until mid 2001, Luminis Pty Ltd, the University's commercialisation company, held all University Intellectual Property (IP) and Luminis was responsible for entering into commercial arrangements to exploit this IP. University policy now requires all contract research and consulting with external parties to be conducted through Adelaide Research and Innovation (ARI) except where approval to do otherwise has been given by the University. ARI Pty Ltd contracts University staff to perform the services required under the contract research and consulting agreements.

Through its web site and personal contact, ARI Pty Ltd provides guidance to staff and students on contract research and consultancy, IP evaluation, patenting and licensing.

### **Identification of Intellectual Property with Commercialisation Potential**

The University's Business Development Managers work with the faculties and remain abreast of the research being undertaken within departments in order to identify IP which may have commercial potential. From time to time the Business Development Managers' activities are reinforced through the engagement of third parties to undertake an audit of the commercial opportunities arising from research programs.

### **Assignment of Intellectual Property Rights**

University staff assign to the University any IP that they develop during the course of research undertaken while they are employed by the University. However, under certain circumstances research sponsors or contractors may negotiate full or partial ownership of the research they fund.

In the absence of an employment relationship between the University and its students, students own the IP generated by their research. However, these results are frequently the product of a complex interaction between supervisor(s), student and other student(s) as part of a research team. For the protection of the rights of all participants, the University requires that higher degree students engaged in research likely to yield a commercial benefit, assign to the University the IP arising from that research by signing the Student Protection Participation Agreement (SPPA). This ensures that students share in any benefit in the same way as University staff. As part of their induction program, all higher degree research students are given a summary of the document "Higher Degree Students and Intellectual Property" and made aware that the document is an attachment to the *Code of Practice*.

### **Research Commercialisation Strategies and Related Governance Arrangements**

The University, through ARI, employs a range of strategies to commercialise its research, but typically it has either licensed its IP to third parties or created spin-off companies such as BresaGen and GroPep. In the case of licensing transactions it employs standard due-diligence procedures to be confident that the IP is unencumbered and will generally seek expert advice on the market value of the technology before engaging in negotiations. Spin-off companies in which the University, through ARI, is a shareholder are formed following detailed analysis of the commercial opportunity and risks, and only with the approval of the ARI Board and the University Council. The University's Executive Director of Finance and Infrastructure chairs the ARI Board.

### **Conflict of Interest**

Under the University Guidelines and Rules for Responsible Practice in Research researchers have an obligation to disclose (at the time of reporting and proposing research) any conflict of interest which has the potential to influence research, publications, or related activities. Please refer to:

[www.adelaide.edu.au/ari/researchers/responsibleresearch.html](http://www.adelaide.edu.au/ari/researchers/responsibleresearch.html)

### **Collaboration**

Business Vision 2010 has facilitated discussions between the three SA universities regarding the development of an "Institute of Innovation and Commercialisation". The three SA universities have held preliminary discussions with the Australian Institute for Commercialisation with regard to becoming the South Australian node for the national organisation. While all three universities have substantial activities relevant to the proposed Institute, they are largely complimentary rather than competitive, and together they provide a strong base on which to develop collaborative activity. These discussions have canvassed the possibility of the Institute having particular responsibility for national education and training in innovation and commercialisation, recognising the expertise base offered by the three universities.

# Section B

RESEARCH AND  
RESEARCH TRAINING  
MANAGEMENT  
REPORT



(i) Areas of research strength: research students (EFTSU) in 2001

	HDR STUDENTS <sup>1</sup>	HDR <sup>2</sup> COMMENCING STUDENTS
<b>ALL AREAS OF RESEARCH</b>		
Science & Technology	565.12	146.17
Health & Medical Research	203.00	55.00
Arts, Humanities & Social Sciences	257.99	85.91
<b>Total, All Areas of Research</b>	<b>1026.11</b>	<b>287.08</b>
<b>AREAS OF RESEARCH STRENGTH ONLY</b>		
<b>Science and Technology</b>		
Agriculture, Veterinary and Environmental Sciences <sup>3</sup>	87.00	19.50
Biological Sciences	210.25	57.50
Earth Sciences <sup>3</sup>	52.50	17.25
Engineering and Technology	104.49	28.87
Mathematics	30.00	4.00
Physical Sciences	33.55	11.55
<b>Sub-total Science and Technology</b>	<b>517.79</b>	<b>138.67</b>
<b>Health and Medical Research</b>		
Medical and Health Sciences	203.00	55.00
<b>Sub-total Health &amp; Medical Research</b>	<b>203.00</b>	<b>55.00</b>
<b>Arts, Humanities and Social Sciences</b>		
Behavioural and Cognitive Sciences	33.75	16.00
Economics	16.25	9.75
Studies in Human Society	44.25	9.75
<b>Sub-total Arts, Humanities and Social Sciences</b>	<b>94.25</b>	<b>35.50</b>
<b>Total Areas of Strength Only</b>	<b>815.04</b>	<b>229.17</b>

<sup>1</sup> Includes all categories of Higher Degree Research students.

<sup>2</sup> Includes all categories of Higher Degree Research students.

<sup>3</sup> Due to the introduction of ABS Field of Education codes for disciplines in 2001, approx 13 EFTSU of load in the Earth Science classification would previously have been classified as Agriculture in the RRTMR 2000 (using pre 2001 discipline codes).

## (ii) Areas of research strength: research income<sup>4</sup> in 2001

	CATEGORY 1 (\$000)	CATEGORY 2 (\$000)	CATEGORY 3 (\$000)	CATEGORY 4 (\$000)
<b>All Areas of Research</b>				
Science & Technology	23,774	5,520	8,443	3,244
Health & Medical Research	11,094	4,613	6,952	328
Arts, Humanities & Social Sciences	2,443	1,951	1,036	33
<b>Total, All Areas of Research</b>	<b>37,311</b>	<b>12,084</b>	<b>16,431</b>	<b>3,605</b>

## (iii) Research strength: research active staff in 2001

	Number of staff who generated research income <sup>5</sup>	Number of staff who generated publications <sup>6</sup>	Number of staff eligible <sup>9</sup> to supervise HDR students	Staff who supervised HDR students at principal supervisors <sup>9</sup>	Individuals who supervised HDR students as associate supervisors <sup>10</sup>
<b>All Areas of Research</b>					
Science & Technology	281	298	398	208	173
Health & Medical Research	89	122	170	68	51
Arts, Humanities & Social Sciences	86	122	265	134	85
<b>Total, All Areas of Research</b>	<b>456</b>	<b>542</b>	<b>833</b>	<b>410</b>	<b>309</b>

<sup>4</sup> Research income, and source of research income categories '1, 2, 3 and 4', are defined in accordance with the DEST Higher Education Research Data Collection (HERDC). The guidelines can be accessed at [www.dest.gov.au/highered/herdc.htm](http://www.dest.gov.au/highered/herdc.htm)

<sup>5</sup> Research income is defined in accordance with the DEST Higher Education Research Data Collection.

<sup>6</sup> Publications include books, book chapters, journal articles, conference publications, refereed designs, patents and major creative works, in accordance with the DEST Higher Education Research Data Collection.

<sup>7</sup> Drawn from staff in academic organisation units who are classified as 'research only' or 'teaching and research' as per the definitions of 'Member of Staff' in DEST Staff Help File.

<sup>8</sup> Eligibility to supervise HDR students as defined by the University of Adelaide.

<sup>9</sup> The categories of principal and associate supervisor are not mutually exclusive. For example, a member of staff may be the principal supervisor of one HDR student and the associate supervisor of a different HDR student.

<sup>10</sup> *Ibid.*

The following groups of staff are eligible to supervise postgraduate HDR students:

1. Academic teaching and research staff, Level A, current duty term 36 months or more
2. Academic teaching and research staff, Level B-E

The University determines that a principal supervisor must be a member or affiliate member of the academic staff of the University and from the Department/School in which the HDR student is enrolled. The principal supervisor carries the responsibility for co-ordination of all communication between the supervisors and the HDR student. Only staff with a proven and current research record and experience in supervision are normally permitted to act as a principal supervisor.

A co-supervisor may be appointed from the University, another institution or from industry and need not be a discipline specialist. Less experienced members of staff are appointed as co-supervisors with experienced staff in the first instance. A supervisor who is not an employee of the University and has no formal or affiliate association with the University. (such as an affiliate, adjunct or clinical title) is classified as an external supervisor; he or she may only act as a co-supervisor.

## (iv) Quality of the research training experience

**(iv)(a)1 The 2001 Graduate Destination Survey (GDS) Results**, and an aggregated summary of the GDS responses for the past three years, can be seen below:

### GRADUATE DESTINATION SURVEY FOR STUDENTS COMPLETING IN 2000

#### (iv)(a)1.1 Number of Responses by Discipline 2000

Discipline	Total avail. for Full time work	In Full time study	Not working; Seeking Part time	Working P/t Not seeking F/t	Unavailable for study or work	Total Responses
<b>1. Agriculture</b>	11	0	0	0	2	13
<b>2. Architecture</b>	1	0	0	0	0	1
<b>3. Hum&amp;SocSc</b>	10	3	0	0	0	13
<b>4. Bus,Adm,Eco</b>	1	0	0	0	0	1
<b>5. Education</b>	4	0	0	0	2	6
<b>6. Engineering</b>	8	0	0	0	0	8
<b>7. Health</b>	17	4	0	3	0	24
<b>8. Law</b>	0	0	0	0	0	0
<b>9. Science</b>	25	0	0	1	3	29
<b>Unknown</b>	1	0	0	0	1	2
<b>Total</b>	<b>78</b>	<b>7</b>	<b>0</b>	<b>4</b>	<b>8</b>	<b>97</b>

**(iv)(a)1.2 Those seeking full time work as a percentage of Total Responses 2000**

Discipline	Total Responses	Seek F/t & in F/t Employment	In F/t Employment Percentage	Seek F/t Working P/t	Seek F/t, Working P/t Percentage	Seek F/t, Not Working	Seek F/t Not Working Percentage
<b>1. Agriculture</b>	13	10	77	1	8	0	0
<b>2. Architecture</b>	1	0	0	1	100	0	0
<b>3. Hum &amp; Soc Sc</b>	13	9	69	1	8	0	0
<b>4. Bus, Adm, Eco</b>	1	1	100	0	0	0	0
<b>5. Education</b>	6	4	67	0	0	0	0
<b>6. Engineering</b>	8	8	100	0	0	0	0
<b>7. Health</b>	24	17	71	0	0	0	0
<b>8. Law</b>	0	0	0	0	0	0	0
<b>9. Science</b>	29	25	86	0	0	0	0
<b>Unknown</b>	2	1	50	0	0	0	0
<b>Total</b>	<b>97</b>	<b>75</b>	<b>77</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>

**(iv)(a)1.3 Those in full time employment as a percentage of those available for full time employment 2000**

Discipline	%	Number in F/t Employment	Total Number Available for F/t Employment
<b>1. Agriculture</b>	91	10	11
<b>2. Architecture</b>	0	0	1
<b>3. Hum &amp; Soc Sc</b>	90	9	10
<b>4. Bus, Adm, Eco</b>	100	1	1
<b>5. Education</b>	100	4	4
<b>6. Engineering</b>	100	8	8
<b>7. Health</b>	100	17	17
<b>8. Law</b>	0	0	0
<b>9. Science</b>	100	25	25
<b>Unknown</b>	100	1	1
<b>Total</b>	<b>96</b>	<b>75</b>	<b>78</b>

Source: Graduate Careers Council of Australia

## GRADUATE DESTINATION SURVEY FOR STUDENTS COMPLETING IN 1998-2000

### (iv)(a)1.4 Number of responses by Discipline over 3 years 1998-2000

	Total avail for Full time Work	In Full time Study	Not working, Seeking Part time	Working P/t, Not Seeking F/t	Unavailable for Study of Work	Total Responses
<b>1. Agriculture</b>	28	1	0	1	2	32
<b>2. Architecture</b>	2	0	0	0	0	2
<b>3. Hum &amp; Soc Sc</b>	26	6	0	2	1	35
<b>4. Bus, Adm, Eco</b>	9	0	0	0	0	9
<b>5. Education</b>	5	1	0	2	3	11
<b>6. Engineering</b>	26	2	0	0	0	28
<b>7. Health</b>	57	5	1	6	2	71
<b>8. Law</b>	2	0	0	0	0	2
<b>9. Science</b>	94	2	0	3	7	106
<b>Unknown</b>	6	0	0	0	1	7
<b>Total</b>	<b>255</b>	<b>17</b>	<b>1</b>	<b>14</b>	<b>16</b>	<b>303</b>

### (iv)(a)1.5 Those seeking full time work as a percentage of Total Responses 1998-2000

Discipline	Total Responses	Seek F/t & in F/t Employment	In F/t Employment Percentage	Seek F/t, Working P/t	Seek F/t, Working P/t Percentage	Seek F/t, Not Working	Seek F/t, Not Working Percentage
<b>1. Agriculture</b>	32	23	72	3	9	2	6
<b>2. Architecture</b>	2	1	50	1	50	0	0
<b>3. Hum &amp; Soc Sc</b>	35	21	60	3	9	2	6
<b>4. Bus, Adm, Eco</b>	9	9	100	0	0	0	0
<b>5. Education</b>	11	5	45	0	0	0	0
<b>6. Engineering</b>	28	25	89	0	0	1	4
<b>7. Health</b>	71	56	79	1	1	0	0
<b>8. Law</b>	2	2	100	0	0	0	0
<b>9. Science</b>	106	84	79	6	6	4	4
<b>Unknown</b>	7	6	86	0	0	0	0
<b>Total</b>	<b>303</b>	<b>232</b>	<b>77</b>	<b>14</b>	<b>5</b>	<b>9</b>	<b>3</b>

**(iv)(a)1.6 Those in full time employment as a percentage of those available for full time employment 1998-2000**

Discipline	%	Number in F/t Employment	Total number Available for F/t Employment
<b>1. Agriculture</b>	82	23	28
<b>2. Architecture</b>	50	1	2
<b>3. Hum &amp; Soc Sc</b>	81	21	26
<b>4. Bus, Adm, Eco</b>	100	9	9
<b>5. Education</b>	100	5	5
<b>6. Engineering</b>	96	25	26
<b>7. Health</b>	98	56	57
<b>8. Law</b>	100	2	2
<b>9. Science</b>	89	84	94
<b>Unknown</b>	100	6	6
<b>Total</b>	<b>91</b>	<b>232</b>	<b>255</b>

Source: Graduate Careers Council of Australia

**(iv)(a)2 Postgraduate Research Evaluation Questionnaire (PREQ)**

**(iv)(a)2.1 Postgraduate Research Evaluation Questionnaire (PREQ) 2000**

The 2000 Postgraduate Research Evaluation Questionnaire (PREQ) Survey is the most recent data available. 2001 PREQ Survey data is not yet available.

HIGHER DEGREE RESEARCH – PREQ RESULTS 2000 SURVEY	NUMBER	PERCENTAGE
Students Satisfied with the Quality of the Higher Degree Experience at Adelaide. Response = Agree or Strongly Agree	N = 76	84
Neither Agree nor Disagree (or Blank)	N = 7	8
Disagree or Strongly Disagree	N = 5	5

Source: 2000 PREQ Survey Data N = 91

(3 of the 91 did not respond to the overall satisfaction question.)

**(iv)(a)2.2 Postgraduate Research Evaluation Questionnaire (PREQ) 1999-2000**

The outcomes PREQ for both the 1999 and 2000 surveys are found in the following table. Questions have been grouped according to the issue addressed and University of Adelaide scores evaluated against the national mean scores in each question. The data has also been aggregated for the two years due to a low response rate. The University is currently taking measures to address the low response rate.

**1999 and 2000 PREQ Scale Score Means and SDs**

Group	Inst	1999 + 2000			1999			2000		
		All Universities	The University of Adelaide	The University of Adelaide	All Universities	The University of Adelaide	All Universities	The University of Adelaide	The University of Adelaide	
PREQ		Number	Mean	sd	Number	Mean	sd	Number	Mean	sd
1 Supervision	001 Avail	4499	57.0	49.4	2224	55.9	50.3	102	53.9	47.9
1 Supervision	007 Effort	4463	49.4	54.5	2213	48.6	54.6	102	44.2	53.5
1 Supervision	013 Addl info	4470	40.8	54.6	2214	40.0	55.3	102	38.9	52.4
1 Supervision	017 topic sel/ref	4366	27.6	55.9	2168	26.0	56.1	97	30.1	53.1
1 Supervision	021 feedback	4487	50.9	53.6	2222	49.5	54.0	103	50.0	49.8
1 Supervision	024 lit search	4412	23.7	55.2	2176	21.7	55.9	99	27.5	56.1
2 Skill Dev	006 problem solv	4489	70.6	35.5	2222	70.7	35.1	103	67.3	39.3
2 Skill Dev	010 dev ideas/present	4494	66.1	35.7	2230	65.9	35.4	103	64.9	33.4
2 Skill Dev	014 analytic skills	4501	70.6	34.5	2224	70.7	34.2	102	65.1	37.0
2 Skill Dev	020 plan own work	4482	63.1	38.7	2222	62.3	38.6	102	63.1	40.2
2 Skill Dev	026 tackle unfamil prob	4458	58.7	40.1	2209	58.2	39.9	102	58.3	41.5
3 Intellec climate	005 Soc cont pg students	4310	34.0	54.3	2136	32.5	55.0	99	34.5	53.0
3 Intellec climate	009 dept community	4223	25.3	58.0	2083	24.4	58.2	99	37.5	56.6

continued

3	Intellec climate	4311	20.4	56.9	89	30.5	52.9	2129	18.9	56.8	101	23.5	54.8	2182	21.9	56.9	82	39.3	49.7
3	Intellec climate	4303	23.6	56.2	90	32.8	54.9	2141	22.3	57.4	99	34.0	54.5	2162	25.0	55.0	83	32.2	55.7
3	Intellec climate	4237	14.4	57.3	87	23.0	54.7	2096	13.8	57.1	100	18.3	56.0	2141	15.0	57.5	81	29.3	53.1
4	Infrastructure	4115	47.2	55.1	85	62.2	43.0	2039	46.1	55.3	96	61.3	35.7	2076	48.3	54.9	74	63.5	50.2
4	Infrastructure	4246	32.4	53.6	85	38.3	56.4	2092	32.4	53.3	99	33.0	58.3	2154	32.3	53.8	80	45.3	53.8
4	Infrastructure	4090	41.8	47.6	83	52.2	48.2	2018	42.6	47.5	96	46.4	50.1	2072	41.0	47.7	75	59.6	45.2
4	Infrastructure	4141	34.9	56.3	86	44.6	56.8	2038	34.9	56.4	98	47.5	53.1	2103	34.9	56.2	73	41.9	60.8
4	Infrastructure	4206	22.1	60.3	83	29.4	61.3	2093	23.1	59.9	94	24.7	60.9	2113	21.0	60.6	76	35.5	61.7
5	Thesis exam	4478	59.5	44.2	87	63.2	43.5	2213	59.6	44.2	103	58.7	48.5	2265	59.5	44.2	88	69.0	36.0
5	Thesis exam	4463	49.8	53.6	87	54.2	52.5	2212	48.8	54.4	103	47.6	58.1	2251	50.8	52.8	90	62.6	43.9
5	Thesis exam	4500	26.7	66.9	87	38.4	67.6	2230	24.9	67.5	103	36.6	70.1	2270	28.4	66.3	90	41.4	64.8
6	Goals/Expect	4483	60.8	39.5	90	59.4	40.9	2219	59.6	38.9	101	56.4	40.8	2264	62.0	40.1	90	63.3	40.9
6	Goals/Expect	4491	59.2	42.0	90	56.3	45.0	2224	58.0	41.7	102	52.9	47.9	2267	60.4	42.2	90	60.6	41.4
6	Goals/Expect	4469	58.1	39.9	89	60.7	40.3	2211	57.5	40.0	103	57.7	41.7	2258	58.8	39.7	89	64.6	38.6
7	Overall satisfaction	4497	54.0	45.8	88	57.6	43.4	2230	53.2	45.9	102	54.9	43.5	2267	54.8	45.7	90	61.4	43.4

### (iv)(a)3 The University of Adelaide - Postgraduate Exit Survey - 1993-2001

In the University's Postgraduate Exit Survey students were asked to rate the facilities and support available to them and the effectiveness of their supervision (on a scale of 1 to 5 where 5 = very good, 4 = good, 3 = satisfactory, 2 = poor and 1 = very poor). Below is a summary of the responses for the years 1993 to 2001 (873 students):

#### (iv)(a)3.1 Resource satisfaction levels (mean over nine years) by Faculty/School

FACULTY/SCHOOL*	STUDY ENV	ADMIN	EQUIP	FUNDS	LIBRARY	TOTAL
<b>Ag. &amp; Nat. Res. Sc</b>	3.8	4.4	3.9	3.8	4.4	135
<b>Arch. &amp; Urban Des</b>	3.8	4	3.9	3.4	4.3	12
<b>Commerce</b>	4.1	4.9	4.9	2.8	3.8	8
<b>Dentistry</b>	3.5	3.7	3.5	3.1	3.6	25
<b>Economics</b>	4.4	4.4	4.4	4.6	4.4	11
<b>Elder Con.</b>	3.1	3.4	3.1	2.6	4.1	11
<b>Engineering</b>	3.8	4.4	3.8	3.7	4	116
<b>G.S.M.</b>	4.5	4.8	4.8	2.7	4.3	5
<b>Hum. &amp; Soc. Sci</b>	3.5	3.9	3.4	3.4	4.1	117
<b>Law</b>	3.2	2.8	2.8	2.8	4.6	7
<b>Math. Sciences</b>	3.5	3.9	4.4	3.6	4.2	37
<b>Medicine</b>	3.7	4	3.8	3.3	4	182
<b>Science</b>	3.8	4.3	4	3.4	4	198
<b>Not categorised**</b>	4.2	4.8	4.6	3.2	4	5
<b>Overall</b>	<b>3.7</b>	<b>4.1</b>	<b>3.8</b>	<b>3.5</b>	<b>4.1</b>	<b>873</b>

\* Faculty structures have changed somewhat since 1993. These categories date from that time.

\*\* Not categorised means that these respondents did not identify their faculty or department.

#### (iv)(a)3.2 Level of satisfaction by year

	STUDY ENVIR	ADMIN SUPPORT	EQUIP AVAIL	FUNDING	LIBRARY	SUPERVISION	TOTAL RESPONSES
<b>1993-95</b>	3.5	4.0	3.8	3.4	4.0	4.0	324
<b>1996</b>	3.8	4.2	4.0	3.5	4.1	4.2	117
<b>1997</b>	4.0	4.3	3.9	3.8	4.2	4.1	105
<b>1998</b>	3.7	4.3	3.8	3.4	4.1	4.0	114
<b>1999</b>	3.8	4.2	4.0	3.6	4.1	4.1	61
<b>2000</b>	3.8	4.2	3.9	3.5	4.1	4.0	92
<b>2001</b>	4.0	4.1	3.6	3.6	4.1	4.0	60
<b>Overall</b>	<b>3.7</b>	<b>4.1</b>	<b>3.8</b>	<b>3.5</b>	<b>4.1</b>	<b>4.0</b>	<b>873</b>

### (iv)(a)3.3 Nature of respondents

	NUMBER	PERCENTAGE
Language other than English	181	20.73
English first language	692	79.27
<b>Total</b>	<b>873</b>	<b>100.00</b>

### (iv)(a)4 First Year and Mid-candidature Postgraduate Student Surveys

In December 2001 375 higher degree by research students in the first 15 months of their candidature were surveyed by questionnaire about their experience as a postgraduate research student at the University of Adelaide; 137 responses were received. Then in February-March 2002 330 higher degree by research students who had completed at least one year of their candidature were surveyed by an online questionnaire; 165 useable responses were received.

### Sample Comparison of First Year & Mid-candidature Postgraduate Student Surveys 2000-2001

*First Year responses in plain text and Mid-candidature responses in italics.*

2001 - 2002 First Year P/G Student Survey & <i>Mid - candidature P/G Student Survey</i>	Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree	Not Relevant	Mean response	S.D.
	%	%	%	%	%	%	%	%
Q 2.1&3.1 Supervision is available when I need it	56.9 <i>44.9</i>	39.0 <i>45.5</i>	3.6 <i>3.6</i>	1.5 <i>3.6</i>	0 <i>0.6</i>	0 <i>1.8</i>	4.5 <i>4.34</i>	0.64 <i>0.77</i>
Q 2.6&3.5 My supervisor(s) provide the information I need for my topic	33.6 <i>20.0</i>	37.2 <i>43.6</i>	12.4 <i>13.3</i>	12.4 <i>10.9</i>	1.5 <i>3.6</i>	2.9 <i>8.5</i>	3.8 <i>3.86</i>	1.24 <i>1.16</i>
Q 2.18&3.14 My supervisor(s) provide helpful feedback on my progress	40.9 <i>37.0</i>	48.2 <i>44.8</i>	6.6 <i>7.9</i>	2.9 <i>6.1</i>	0.7 <i>0.6</i>	0.7 <i>3.6</i>	4.23 <i>4.18</i>	0.85 <i>0.88</i>
Q 2.19&3.15 The contact I have with my department postgraduate coordinator is sufficient for my needs	31.4 <i>31.5</i>	48.2 <i>52.1</i>	12.4 <i>6.1</i>	4.4 <i>4.2</i>	0.7 <i>1.8</i>	2.9 <i>4.2</i>	3.96 <i>4.15</i>	1.07 <i>0.88</i>
Q 4.1&5.1 I feel integrated into my department/research group's community	27.0 <i>21.8</i>	48.2 <i>47.3</i>	10.2 <i>9.1</i>	10.2 <i>10.3</i>	3.6 <i>4.8</i>	0.7 <i>8.5</i>	3.83 <i>3.86</i>	1.10 <i>1.18</i>
Q 4.4&5.4 My department provides a good seminar program for postgraduate students	24.1 <i>18.8</i>	51.1 <i>48.5</i>	13.1 <i>9.1</i>	4.4 <i>12.1</i>	2.2 <i>2.4</i>	2.3 <i>6.0</i>	3.93 <i>3.87</i>	1.01 <i>1.07</i>
Q 4.18&5.17 I have suitable office/study accommodation	22.6 <i>21.8</i>	56.2 <i>57.6</i>	7.3 <i>5.5</i>	4.4 <i>7.9</i>	2.9 <i>2.4</i>	5.1 <i>7.8</i>	3.79 <i>4.0</i>	1.24 <i>1.0</i>
Q 7.1&7.1 I have developed an understanding of the standard of work expected of me	29.9 <i>33.9</i>	60.6 <i>58.8</i>	8.8 <i>9.1</i>	5.1 <i>4.8</i>	0.7 <i>0.6</i>	2.2 <i>4.8</i>	4.0 <i>4.01</i>	0.91 <i>0.77</i>
Q 9.4&8.4 I have been encouraged to give conference presentations and to publish papers	27.7 <i>28.5</i>	51.1 <i>42.4</i>	5.8 <i>7.3</i>	5.8 <i>5.5</i>	2.2 <i>1.8</i>	5.1 <i>9.1</i>	3.85 <i>4.13</i>	1.26 <i>0.94</i>
Q 10.2&9.2 My research is developing my problem-solving skills	24.1 <i>23.6</i>	59.9 <i>58.8</i>	4.4 <i>6.1</i>	2.2 <i>0.6</i>	0.7 <i>1.2</i>	4.4 <i>4.8</i>	3.99 <i>4.2</i>	1.09 <i>0.7</i>

*continued on next page*

continued

2001 - 2002 First Year P/G Student Survey & Mid - candidature P/G Student Survey	Strongly Agree %	Agree %	Not sure %	Disagree %	Strongly Disagree %	Not Relevant %	Mean response %	S.D. %
Q 10.4&9.4 I am confident in my research abilities as a result of my research training	24.1 23.6	52.6 52.1	15.3 9.1	2.2 7.9	0.7 0.6	5.1 6.6	3.85 4.01	1.12 0.9
Q 10.6&9.6 Doing my research is helping me to develop my ability to plan my own work	32.8 31.5	57.7 55.8	2.2 6.1	2.2 1.2	0.7 0	3.6 5.4	4.1 4.26	1.05 0.64
Q 10.8&9.8 I am learning to develop my ideas and present them in my written work	35.8 29.7	53.3 57.6	4.4 5.5	2.9 1.8	0.7 0.6	2.9 4.8	4.12 4.21	1.02 0.7
Q 10.10&9.10 I generally enjoy my research work	44.5 33.9	41.6 45.5	9.5 7.3	2.9 6.7	0.7 1.2	0.7 5.5	4.27 4.11	0.81 0.91
Q 10.11&9.13 Overall, my experience as a research student at the Adelaide University has been satisfactory	31.4 20.0	57.7 54.5	5.8 8.5	3.6 7.3	0.7 2.4	0.7 7.3	4.0 3.9	1.0 0.92

### (b) Qualities of staff who supervised HDR students in 2001

	SHARE OF SUPERVISING STAFF (%)
The share of supervisors who hold research qualifications	95
The share of supervisors who undertook formal supervisor training in the year	7.8
The share of supervisors who have supervised HDR students to completion in the year	38

## (v) Patenting and related activities by the institution and/or related entities

	<i>Australian</i>	<i>International</i>
1. How many Australian and international patents were held by the university and/or its controlled entities, including the institution's commercialisation company at 31 December 2001? Include patents held by employees acquired in the course of their employment, but not students.	7 <sup>11</sup>	47 <sup>12</sup>
2. Of the patents referred to in question one above, how many were granted for the first time in 2001?	0	0
3. How many patents were granted during 2001 to a commercial subsidiary or the university or other affiliated institution, in addition to any patents accounted for in question 2 above? Include patents held by employees acquired in the course of their employment, but not students. <i>Cooperative Research Centres</i>	10 (new)	0
4. How many patents held by the institution or its controlled entities were sold or transferred to another entity or firm in 2001?	1	
5. How many licenses were issued by the institution or its controlled entities in 2001? How much revenue was generated by this license? (in 2001)	<i>Number</i>	<i>Value \$</i>
	1 <sup>13</sup>	\$10 399
6. How many spin-off companies did the institution or its controlled entities generate in 2001? In relation to each spin off company, what equity stake did the university take? What equity stake, if any, was allocated to the originator of the IP? Spin off company #1 <i>CRC for Smart Internet Technologies Pty Ltd</i>	1	
	<i>Equity by university</i>	<i>Equity by originator</i>
	5.8%	0

<sup>11</sup> In addition, in 2001, the University held 8 Plant Breeding Rights (1 issued in 2001).

<sup>12</sup> Granted patents. Numbers do not include patent applications in progress or Australian provisional patents.

<sup>13</sup> Total of 12 licenses in existence for cereal breeding in 2001, (1 of which was issued in 2001) and there are a further 10 licenses in existence that are associated with inventions.

# Appendix

RESEARCH AND  
RESEARCH TRAINING  
MANAGEMENT  
REPORT



## Research at the University of Adelaide: A Comparative Summary of Performance

	VALUE	NATIONAL SHARE	NATIONAL RANK	TOTAL PER FTE	NATIONAL RANK
<b>National Competitive Grants (Category 1 funding)</b>					
1998	28,293,494	6.97	7th	40,019	2nd
1999	29,760,072	6.73	7th	41,391	2nd
2000	36,320,955	7.66	5th	51,084	1st
2001*	37,310,239	N/A	N/A	51,180	N/A
<b>Other Public Sector Funding (Category 2 funding)</b>					
1998	9,847,474	7.47	4th	13,929	1st
1999	10,234,818	7.16	3rd	14,235	1st
2000	9,695,375	5.78	6th	13,636	2nd
2001*	12,083,840	N/A	N/A	16,576	N/A
<b>Industry and Other Funding (Category 3 funding)</b>					
1998	10,815,279	4.07	7th	15,297	7th
1999	13,228,494	4.72	7th	18,398	6th
2000	13,275,517	4.03	8th	18,672	6th
2001*	16,431,980	N/A	N/A	22,540	N/A
<b>Total Research Income</b>					
1998	48,956,247	6.09	7th	69,245	2nd
1999	53,223,384	6.15	7th	74,024	1st
2000	59,291,847	6.10	7th	83,392	1st
2001*	65,826,059	N/A	N/A	90,296	N/A
<b>Publications - Weighted</b>					
1998	1207.06	4.63	7th	1.71	3rd
1999	1146.43	4.26	7th	1.59	5th
2000	1136.35	4.24	8th	1.60	3rd
2001* <sup>1</sup>	1382.80	N/A	N/A	1.90	N/A

\* Some 2001 national comparative analyses are not yet available.

<sup>1</sup> 2001 Publications do not include the new categories [refereed designs (0), Patents (2.83) and Major creative works (2.0) to allow comparison with the previous years].

### SOURCE:

- Research income and publications are from the AV-CC statistics: national compilation of the HERD collection.
- National share based on the institutions included by the AV-CC.
- 2001 Research Income excludes CRC income of \$3.6 million for the purposes of comparison with previous years.
- Per capita measures are based on staff with an academic classification level B or higher.
- Staff Data from DETYA Staff Statistics <http://www.deet.gov.au/highered/statpubs.htm#staffpubs>
- The ANU is included in the absolute ranking but not in the per capita ranking due to IAS ineligibility for some funding schemes.

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