Research & Research Training Management Report 2003
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Abbreviations and Acronyms

NCG = National Competitive Grant
ARC = Australian Research Council
CRC = Cooperative Research Centre
URC = University Research Committee
RTS = Research Training Scheme
IGS = Institutional Grants Scheme (formerly the Research Quantum)
RIBG = Research Infrastructure Block Grant
APA = Australian Postgraduate Award
UPA = University Postgraduate Award
IPRS = International Postgraduate Research Scholarship
HDR = Higher degree research students
OofR = Office of Research
RS = Area of Research Strength
RE = Area of Research Excellence
EFTSU = Equivalent Full-time Student
FTE = Full-time equivalent
IP = Intellectual Property
RSMF = URC funded Research Student Maintenance
Academic Unit = Faculty, School or Department
Research Unit = Research Institute or Centre.
Executive Summary

The University of Wollongong is a medium-sized, research-intensive university, established in 1951. By the year 2000, the University of Wollongong had established a strong research reputation such that on a range of indicators our performance has been consistently and considerably ahead of our size. This was underpinned by a variety of factors including: a strong researcher base built up via recruitment as the University expanded during the 1990s; a flexible and responsive research management environment that encouraged a multidisciplinary approach to research; and the capacity and flexibility to develop strong partnerships with industry and other R&D organisations.

In 2002 we had approximately 20,000 enrolled students (13,764 EFTSU), 583 FTE academic staff, a government operating grant of $86 million, and a total income of $224 million (University only) or $275 million (consolidated).

UoW Research Units have been reviewed on a triennial basis. In 2000, UoW’s areas of research strength were defined as four themes viz. Materials & Manufacturing, Communication & the Information Society, Environment & Quality of Life, and Policy & Social Impact. Within these themes there were 31 units (including 24 URC Research Units; 3 ARC Key Centres and 4 Cooperative Research Centres (CRCs)). The research management plan outlined a matrix management approach to research that involved research units funded directly by the University Research Committee, whilst academic units were responsible for higher degree research students and career development of staff.

During the latter half of 2002 and the early part of 2003, UoW has been revising its research management planning and processes with the aim of retaining the best elements of the previous research management plan whilst identifying and rectifying the problems that have been arisen since its implementation in 2001. The review is timely given the end of the current triennium, the growth of our research effort, changes in the external environment and improvements in faculty planning.

The research themes as descriptors of research strengths served UoW well in a number of respects. The themes encouraged a culture of collaboration, encompassed a high proportion of our research activities and facilitated promotion of our research in terms understood by the general public. A disadvantage, however, was that the themes were so broad, and the 31 units largely undifferentiated, so that neither the four themes nor the 31 units could be used in any strategic way to direct planning in other areas of the University’s operations.

The previous management plans have described a centralised approach to research management planning. Consequently, the focussed URC budget has been the major tool used to drive change. More substantial, long term change, however, must be accompanied by integration of drivers for change within the broader (and much more substantial) budgets of faculties and other relevant units. Hence 2002/3 has seen UoW adopt a new approach to management of research and internal research funding (depicted in figure 1) that incorporates the following key elements:

I. Identification of 12 areas of research strength; supported by a base grant for three years and annual performance-based funding including funding for Higher Degree Research (HDR) students associated with the strength;

II. Adoption of a different approach to funding researchers outside these areas of strength that is competitive, allows for different levels/types of support and is aligned with, and levers support from, faculties;
III. Identification of, and support for individual excellence, developing areas of strength and/or new initiatives. These areas will need to be aligned to strategic directions of faculties but the URC will continue to have a strong role in supporting cross-faculty initiatives or areas;

IV. Further integration of HDR students and research training objectives with research strengths and faculty planning.

It follows from I. that we discontinued the process of defining our research strengths in four broad research themes and a large number of research units and endorsed new guidelines for defined research strengths. It follows from II. that we need to better articulate the relationships between URC funding and Faculty planning. Planning to facilitate III. and IV. is underway and will be reported on in next years RRTMR.

Current UoW Research Strengths are:

- ARC Key Centre for Asia Pacific Social Transformation Studies (CAPSTRANS)
- ARC Key Centre for Smart Foods
- BHP Institute for Steel Processing and Products
- Centre for Health Services Development
- Centre for Maritime Policy
- Engineering Manufacturing (including the CRC for Intelligent Manufacturing Technologies and the CRC for Welding)
- GeoQuEST Research Centre
- Institute for Biomolecular Science
- Institute for Conservation Biology and Law
- Institute for Superconductivity and Electronic Materials
- Intelligent Polymer Research Institute
- Telecommunications and Information Technology Research Institute (including the CRC for Smart Internet Technology).

Overall, these research strengths accounted for 85% of the research income to the University in 2002 and included 45% of HDR students.

We have continued to enhance support for the management of HDR students during 2002. This has included: a change in administrative practices so that the Office of Research now has responsibility for all aspects of HDR candidature, the introduction of a HDR module into the university’s on-line Student Management Package; and the opening of a new Research Student Centre in a highly visible location to provide a one-stop-shop for HDR inquiries and support.

Our Contract and Consultancy Policy, now the Commercial Research Policy, was revised and expanded during 2002. The Intellectual Property Committee was revamped and now meets regularly to review potential commercialisation opportunities. The University has invested in one of the Pre-Seed Investment Funds, SciVentures. In a development that has emerged from a joint venture with the CRC for Smart Internet Technology, we are currently developing a business plan for a potential spin-off company. We have developed a model for managing such activities whereby we introduce appropriate external expertise as the need arises rather than increasing resources for a stand-alone commercialisation unit.
1 Research and Research Training Objectives

1.1 Contribution of Research to the UoW Mission

The importance of research is clearly articulated in the vision and mission statements of the University.

University Vision: The University of Wollongong will achieve distinction as a research university with an international reputation for the high quality of its student-centred undergraduate and graduate education.

University Mission: The University of Wollongong aims to explore, develop and apply human and technological capacity for the benefit of its region, the nation and the international community.

1.2 Research and Research Training Objectives

UoW has had a centralised approach to research planning in place for more than 10 years. The success of the overall strategy is evidenced by a dramatic growth in our research performance.

**The overall objective of research planning is to facilitate the university vision and mission by supporting excellent research that has international and national recognition and that brings a sustained benefit to the community.**

In pursuit of this objective we specifically aim to:

- Direct research support towards areas of existing and emerging research strength;
- Provide a quality research environment for higher degree research students who provide a central and distinguishing focus of our research effort;
- Facilitate multidisciplinary research excellence;
- Promote effective partnerships with international, national and regional organisations and industry;
- Integrate research objectives into planning processes at all levels of University operations and across all relevant functions;
- Foster a “high performance culture” and implement strategies that encourage and reward both research excellence and effective collaboration.

1.3 A new planning framework

During 2002, a number of research management issues were identified as potential impediments to continued growth of our research effort. Hence some significant changes to our management structure have been implemented, or are planned, to assist in the development and promotion of research excellence and improve our relative position within the sector in the longer term. This has involved a consolidation of our previous Research Management Plan and a substantial and innovative revision of that plan. The planning process has been facilitated by a number of discussion papers (with further papers to follow) and extensive consultation between the PVC(R), faculties and key research leaders. The new plan both takes the concentration of resources in a limited number of research strengths to another
plane, while rethinking and rejecting features and processes that have become counter-productive. It encompasses reduced levels of reporting for research strengths and more flexibility for development of new ideas (which will no longer be dependent upon research unit triennial funding). A key feature of the new plan is the increased faculty involvement with research planning in a structurally identifiable way and renewed emphasis on innovation and excellence. An overview of the new planning framework is shown schematically in figure 1.

Figure 1: Schematic showing the proposed relationship between the URC, research strengths and faculties.

1.4 Areas of Research Strength
We have developed new guidelines for the determination and assessment of research strengths these are listed in attachment A.

Following a review of existing research units against these guidelines we have determined the 12 areas/units in table 1 best meet these criteria. All are multidisciplinary, involve staff from more than one academic unit and have had a sustained level of performance and external recognition over the past three years. The table shows the major disciplines represented in each area and the national research priority to which each area contributes.

From 2003, these areas will be funded with a base grant and performance-based funding. Further, from 2003 a number of scholarships for HDR students will be targeted to these areas.

Each area will be required to provide an annual progress report; however, these will be less onerous than previously and will be largely a report on expenditure and research training outcomes.
Table 1: UoW Areas of Research Strength

<table>
<thead>
<tr>
<th>Research Strength</th>
<th>Major External Funding Source(s)</th>
<th>Disciplines Represented</th>
<th>National Research Priorities¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC Key Centre for Asia Pacific Social Transformation Studies (CAPSTRANS)</td>
<td>ARC</td>
<td>sociology, comparative law, history and politics, accounting, economics, management,</td>
<td>Safeguarding Australia</td>
</tr>
<tr>
<td>ARC Key Centre for Smart Foods</td>
<td>ARC</td>
<td>dietetics, nutrition, physiology, pharmacology</td>
<td>Health</td>
</tr>
<tr>
<td>BHP Institute for Steel Processing and Products</td>
<td>BHP Steel, ARC</td>
<td>materials science and engineering</td>
<td>Frontier Technologies</td>
</tr>
<tr>
<td>Centre for Health Services Development</td>
<td>NSW Health</td>
<td>public health, finance, accounting, economics management,</td>
<td>Health</td>
</tr>
<tr>
<td>Centre for Maritime Policy</td>
<td>Australian Navy</td>
<td>oceans law, marine and environmental science</td>
<td>Environment Safeguarding Australia</td>
</tr>
<tr>
<td>Engineering Manufacturing</td>
<td>CRC for Intelligent Manufacturing Technologies CRC for Welding</td>
<td>mechanical, electrical and power engineering, materials science</td>
<td>Frontier Technologies</td>
</tr>
<tr>
<td>GeoQuEST Research Centre</td>
<td>ARC</td>
<td>geology, geography, environmental science, spatial technologies</td>
<td>Environment</td>
</tr>
<tr>
<td>Institute for Biomolecular Science</td>
<td>ARC and NHMRC</td>
<td>organic and medicinal chemistry, structural, cell and molecular biology</td>
<td>Health</td>
</tr>
<tr>
<td>Institute for Conservation Biology and Law</td>
<td>ARC</td>
<td>conservation and marine biology, ecology, natural resources and environmental law</td>
<td>Environment</td>
</tr>
<tr>
<td>Institute for Superconductivity and Electronic Materials</td>
<td>ARC</td>
<td>materials science, chemistry, physics</td>
<td>Frontier Technologies</td>
</tr>
<tr>
<td>Intelligent Polymer Research Institute</td>
<td>ARC</td>
<td>chemistry, materials science</td>
<td>Frontier Technologies</td>
</tr>
<tr>
<td>Telecommunications and Information Technology Research Institute</td>
<td>CRC for Smart Internet Technology</td>
<td>telecommunications engineering, computer science, education, graphic design, music technology</td>
<td>Frontier Technologies</td>
</tr>
</tbody>
</table>

¹ The national research priorities are environmentally sustainable Australia (environment); promoting and maintaining good health (health); frontier technologies for building and transforming Australian industries (frontier technologies); and safeguarding Australia.
2 Future Directions for Research and Research Training

2.1 Emerging Areas of Research Strength

The process of redefining our areas of research strength has seen a rethinking of the management and organisation of research in some areas. Further, two faculties, Engineering and Arts have undergone an internal restructure during 2002 resulting in the formation of three new schools in each case. The Faculty of Creative Arts will undergo a similar process in 2003. These restructures will also result in a several senior appointments and an inevitable realignment of research activities. Therefore, while the research strengths will be reviewed on a triennial basis, this will not preclude other areas making a successful case for recognition as a research strength during that period.

The Faculty of Engineering, in particular, has an extremely strong consistent research performance. In view of the recent reorganisation, further planning and new appointments made during 2003/4, there is likely to be further definition of research strengths from strong performing groups within the Faculty. In addition, the increased impact from substantial new funding from the CRC for Railway Engineering and Technologies has yet to be fully realised. Other emerging areas such as the Centre for Medical Radiation Physics and Sustainable Technologies already have an excellent base and strong potential for growth.

The Faculty of Informatics has undergone considerable growth resulting in a number of new appointments and a marked increase in performance in the past few years. Planning is well underway as to how best to integrate these new staff with existing strong groups within the faculty in areas such as mathematical modelling, applied statistics, computer security, applications of information technology (ebusiness, eHealth, eCommerce), intelligent systems, robotics, database management, decision systems and software engineering.

The Faculty of Health and Behavioural Science has a number of emerging areas in addition to their involvement with the Smart Foods Centre. Some of these include: the Illawarra Institute for Mental Health, biomechanics, schizophrenia research, public health and psychology. The Department of Psychology, in particular, provides an excellent training environment and facilities for HDR students and has consistently attracted and supported high quality students to their programs.

A difficulty with the previous management plan, with the emphasis on performance-based funding of coherent teams, was the problem of how best to integrate research in the arts, humanities, education and social sciences into these structures and reward mechanisms (see also 3.4 below). Our most successful examples involve cross disciplinary collaborations. For Example, in the ARC Key Centre CAPSTRANS; between lawyers and scientists in both the Centre for Maritime Policy and the Institute for Conservation Biology and Law; and between telecommunication specialists and researchers from education and creative arts in the Telecommunications and Information Technology Research Institute.

The Faculties of Creative Arts and Arts have a very successful Centre for Research into Image, Performance and Text which has a number of very high achieving individuals with national and international reputations in for example, creative writing, painting and music composition. Some of their work is experimental, innovative and hard to categorise. Such idiosyncratic and highly developed creative work, however, brings renown and attracts students. During 2004, the faculty will further develop collaborative research exploring new technologies and cultural orientations and
within a broader area that can loosely be described ‘Translating Asia: interactions between indigenous and contemporary arts’.

The challenges facing researchers in the arts, humanities and social sciences will be a major focus of research planning during the latter half of 2003. Again, this will be the subject of a University-wide discussion and debate that will proceed alongside planning within individual faculties as outlined in 2.2 below.

2.2 The URC and Faculties: a joint future

With a smaller number of focussed research strengths it is inevitable that some active and excellent researchers will fall outside our recognised research strengths. This presents several challenges. First, appropriate funding mechanisms to simultaneously support the activities of such staff and students must exist in parallel with the process of defining research strengths. Second, funding opportunities need to be balanced to ensure that we encourage and support current and emerging research strengths whilst still supporting individual excellence amongst students and academic staff i.e. there still needs to be clear financial incentives to reward those who are able to achieve the scale and focus resulting from collaboration.

The general thrust of the planning here is to shift the onus from the URC in providing specific guidelines to which researchers within faculties respond, to one where faculties develop specific plans and initiatives and then seek appropriate levels of funding to match these initiatives from the URC budget.

It is proposed that the way forward to address this is to create a joint pool of research development funding for each faculty. The size of the pool and the broad objectives for its expenditure would be negotiated for each faculty with some “buy in” from the faculty on an annual basis. Factors that will be taken into account include:

- the relative research performance of the faculty;
- the number and nature of emerging research strengths in the faculty;
- the number of research active staff in the faculty outside areas of research strength;
- the number of research students in the faculty outside areas of research strength;
- the number of new staff in the faculty;
- the current state of facilities for HDR students within the faculty;
- discipline-specific requirements and measures of research excellence;
- the faculty’s overall budgetary position;

The way such a scheme would articulate into the other activities of the URC is illustrated in Figure 1. During 2003 there will be further discussion about the types of URC funding available to researchers outside research strengths and precisely which of the current schemes are to be collapsed into (i) this pool and (ii) the pool used to fund research strengths and initiatives. As a starting point, however, it is envisaged that the new researcher scheme, the research student maintenance fund and some faculty-specific initiatives currently funded on an ad hoc basis would be combined and redistributed in this pool (noting that HDR student load and completions are factors in determining the overall funding to areas of research strength). The URC will retain some University-wide funding responsibilities including, but not limited to, the current pool for funding equipment via the RIBG, and the URC Strategic Development Grants (former the ARC small scheme).
Further issues surrounding the integration of URC-directed research management with that of faculties will be detailed in the 2003 RRTMR. It is envisaged that guidelines will need to be developed to clarify the way in which the faculty development pools will be allocated and operate and further explore the role of the URC, faculties, Deans, Head of Academic Units, Faculty Research Committee and Faculty Research Chairs (or Associate Deans, Research) in the planning process.

2.3 Strategic Initiatives

The URC retains the capacity to fund cross-faculty and major strategic initiatives. The starting point here is that internal research and faculty structures must not be an impediment to the development of new initiatives. A clear example of a strategic initiative is the investment in the CRC for Railway Engineering and Technologies and geotechnical engineering. We have a major involvement in this CRC (awarded in 2001) and it has provided substantial new funding which, combined with the on-going strong performance of the geotechnical group, will further strengthen this area in the near future.

In the past, funding of new initiatives and research collaborations outside research units was difficult because the performance-based funding model required researchers to commit to a particular unit for three years and administration of performance indicators for researchers who were members of more than one unit was problematic. Thus researchers often joined the unit where they perceived they might “get the best deal” rather than the one that represented a greater, but more uncertain, opportunity.

To circumvent this, the funding of strategic initiatives will be based on the case presented and the proposed budget, rather than strictly on performance indicators. Thus there will be more flexibility in the procedures used to assess the activity to be funded. Track record is still important in determining the success and level of funding of strategic initiatives, and it is used (i) as an indicator of whether the proponents have the necessary background to undertake the work; (ii) as a measure of the extent to which they are likely to produce appropriate outcomes and (iii) as a differential indicator when two equally worthy cases are presented for funding from a limited pool. This provides the URC with the flexibility to make decisions on track record relative to opportunity, in the same way as this is done within the ARC. Further, funding may be for periods of between 1-3 years, which should encourage more risk in the decision making. Similarly, a cross-faculty initiative involving activities for HDR students (assuming those within faculties are funded via the faculty development pool) would need to take into account the track record of the students and supervisors involved.

It is not envisaged that the strategic initiative pool will become a *de facto* mechanism for funding historical current units that did not meet the criteria for being an area of recognised research strength. More plainly, it is not designed to be the “B-level” funding source; however, it is likely that some of those units will seek funding from the pool on the basis that they wish to continue to work towards becoming an area of strength (see also 2.2). It is also envisaged that a strategic initiative might include proponents who are members of existing research strengths. In that case, the research strength(s) would need to “buy in” to the initiative. A model for this has already been provided by the University’s Digital Media Initiative. This cut across past research unit boundaries and was funded to initiate a specific activity over a limited time frame. The development of more precise guidelines for strategic initiatives will be a task for the URC during 2003.
2.4 Recognition of Research Excellence

In the past there was a strong nexus between URC funding levels and recognition of research activity which was not that surprising given that the old model had essentially only one reward mechanism (i.e. increased funding as performance increases). The new research plan provides an opportunity to breakdown this nexus if the entire strategy is managed well. The University recognises research excellence in a number of ways. First, there is an annual promotion round for levels B-D and a biannual round for professorial (Level E) promotions. Promotion to professor has a quota and is highly competitive. In the 2002 promotion round, the following staff were promoted to Professor in recognition of individual research excellence and other contributions to the University.

- Professor David Ayre, Director, Institute for Conservation Biology and Law
- Professor Sharon Beder, Science and Technology Studies, Faculty of Arts
- Professor Martin Bunder, School of Mathematics and Applied Statistics
- Professor David Griffith, Director, Centre for Atmospheric Chemistry, Faculty of Science
- Professor Anatoly Rosenfeld, Director, Centre for Medical Radiation Physics, Faculty of Engineering
- Professor Mark Walker, Institute for Biomolecular Science

Further, from 2003, each faculty will develop discipline-specific criteria for recognition of research excellence. Such recognition may involve either individuals or focussed, high performing, Centres that are below the critical mass of a research strength. Examples of current research units that fit into this category and that will clearly warrant recognition in this way include: the Centre for Atmospheric Chemistry and the Centre for Medical Radiation Physics.

3 Managing Research Performance

3.1 Research Management Committees

The responsibility for research management rests with the Pro-Vice-Chancellor (Research). The University Research Committee (URC) is the central body for research management at the University. It has the responsibility for developing policies and procedures regarding research and overseeing their implementation. The URC budget consists of the entire Institutional Grant Scheme (IGS) allocation with supplementation from international student fee income. The URC is also responsible for all systemic issues relating to research training, including liaison with faculties and research units in the implementation of University’s research training objectives, which encompass all aspects of a research student’s career at the University.

In 2002, the management structure for research within UOW was refined, with a reduction in the number of committees and the instigation of clearer reporting/communication lines into faculties. The structure of the URC and its subcommittees is shown in figure 2. The new URC membership includes representation of the key research decision makers on campus. This includes the Pro Vice-Chancellor (Research) as Chair, Chairs of Faculty Research Committees,
Chairs of URC Committees, Deans, Directors of Major Research Units, higher degree research student representatives, the librarian and up to 4 nominees of the PVC(R) to ensure representation from smaller research units. The roles and responsibilities of the major URC committees are outlined in more detail below.

Figure 2: Schematic showing the structure of the URC.

3.1.1 University Research Standing Committee (URSC)

The URSC is responsible for the allocation of research funds (within the guidelines, policies and formulae approved by the URC) to research units, individuals and research students (including scholarships). The URSC is also responsible for the auditing of performance and outcomes resulting from URC funding. The allocations will comprise funds that are awarded on the basis of submissions as well as funds allocated on the basis of past performance.

3.1.2 Postgraduate Research Policy Committee (PRPC)

The postgraduate policy committee is responsible through the URSC to the URC for the development and oversight of policies and procedures in relation to higher degree research students. The committee includes representatives of faculties, the Wollongong University Postgraduate Association (WUPA), the library and other stakeholders.

3.1.3 Thesis Examination Committee (TEC)

The thesis examination committee has oversight of higher degree research thesis examination outcomes and policy. The committee comprises a Chair, appointed by the PVC(R), and a representative from each faculty.

3.1.4 Ethics Committees

It is a statutory requirement on the University that it have a Human Research Ethics Committee, an Animal Ethics Committee, and a Biosafety Committee. These committees and their terms of reference are independently defined. The University

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In 2002, this was defined as Directors of Category A research units (6 total). During 2003 the membership will be amended to include leaders of all areas of research strength (up to 12).
Ethics Committee gives coherence to the work of the three separate ethics committees, to effect cross-linkages between them, and to serve as an advisory body on research-related ethical matters to other operational committees and to the URC.

The Human Research Ethics Committee is constituted and functions in accordance with the National Statement on Human Research Involving Humans (1999); the University of Wollongong Code of Practice Research, State and Commonwealth legislation, and other relevant policies and regulations.

The Animal Ethics Committee is constituted and functions in accordance with the NHMRC Code of Practice for the Care and Use of Animals for Scientific Research (6th edition, 1997), the NSW Animal Research Act (1985), the NSW Animal Research Regulation (1995), the University of Wollongong Code of Practice Research, and other relevant policies and regulations.

The Biosafety Committee is constituted and functions in accordance with statutory and regulatory functions identified in relevant Commonwealth and State legislation, including the Office of the Gene Technology Regulator, the University of Wollongong Code of Practice Research, and other relevant policies and regulations.

3.1.5 Faculty Research and Postgraduate Committees

Faculty Research and Postgraduate Committees liaise closely with the University Research Committee in developing the Faculty's research directions. The role of these committees will be enhanced in the revised plan. Faculty Research and Postgraduate Committees also assume an advisory role to the Dean on a range of matters concerning postgraduate research. These may include procedures for allocation of students to supervisors, and development and implementation of adequate guidelines to assist postgraduates throughout their courses. Faculty Research Committees may assist the Dean and Heads of Postgraduate Studies in reviewing postgraduate annual progress reports and putting in place procedures for handling unsatisfactory progress, changing supervisors, and suitable appeal procedures. They also undertake the preliminary ranking of scholarship applications.

3.1.6 Relationship of the URC to Other University Committees

The URC is a committee of Academic Senate. The Chair of the Faculty Research and Postgraduate Committee is a member of the URC and URSC and would normally be a member of the Faculty Executive. The URC has at least three points of contact with Faculty Executives (i.e. Deans, Faculty Research Chairs and Directors of Major Research Units). Management of research at the University requires cooperation and communication between all these parties and the URC.

3.2 Office of Research

All administrative functions are carried out by the Office of Research, which has a staff of 17 including the Director. The Director reports to the Pro-Vice-Chancellor (Research). The responsibilities of the Office include:

- Research grant and fellowship administration
- Financial management of research grants and URC funding allocations
- Management of Higher Degree candidature from enrolment through to graduation
- Research contract management
- Commercialisation of research
- Intellectual Property
• Ethics and Biosafety
• Secretarial support for all URC Committees.

3.3 Resource Allocation Mechanisms

3.3.1 Research Training Scheme

The major portion of the Research Training Scheme ($12.6 Million in 2002) is allocated to Faculties as shown in table 2.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuing Higher Degree Research Student Load (Domestic)</td>
<td>75</td>
<td>50</td>
</tr>
<tr>
<td>Research Income</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Research Completions (Total)</td>
<td>12.5</td>
<td>25</td>
</tr>
<tr>
<td>Publications</td>
<td>2.5</td>
<td>5</td>
</tr>
</tbody>
</table>

The rationale for these percentages was to approximate the allocative mechanism of the Research Training Scheme, whereby in 2002, the major proportion remains continuing load. For simplicity this is assumed to represent 75% of the total. The remaining 25% is divided in proportion to the RTS indices.

3.3.2 Institutional Grants Scheme (IGS)

In 2002 UOW received $5.348 million via the IGS. The IGS funds are allocated in total to the University Research Committee (URC) for their management. The IGS is supplemented by additional income derived from international student revenue. The URC approves the budget for the expenditure of the funds that are expended specifically on research related activities. The majority of the funding is used to support the university’s identified areas of research strength via internal grant schemes, research units and research student scholarships. (See attachment B)

3.3.3 Research Infrastructure Block Grants Scheme (RIBG)

In 2002, UOW received $2.023 million via the RIBG Scheme. The University has a policy to allocate these research funds to assist the long-term research development of its areas of research strength. The RIBG funds are allocated via two mechanisms:

Pool 1 - $1,426,235 (see breakdown at attachment C)

Pool 1 funds are used to provide university support to externally-funded research initiatives i.e. ARC Linkage-Infrastructure and DEST Systemic Infrastructure Initiative (SII) applications. A component of the funding is also used to provide additional infrastructure support to HDR students via the Research Student Maintenance Fund. Submissions for Pool 1 funding are made at the appropriate times of the year to the PVC(R).

Pool 2 - $597,070 (see breakdown at attachment D)

UOW has an internally competitive RIBG Pool 2 Grants Scheme as a means of allocating part of its RIBG funds. Guidelines and application forms were developed, with applications invited from all UOW academic staff. (Specific details are available at attachment E)
In keeping with commonwealth government policy on directing funds towards areas of established and emerging research strength applicants were responsible for demonstrating that the proposed infrastructure met the objectives of the Scheme as described in the DEST RIBG Scheme Guidelines.

In 2002, applications were assessed using the following selection criteria:

- The demonstrated need for the support positions/equipment and, for Research Support Positions, the specialist nature of the expertise.
- The extent to which the infrastructure will support areas of research strength or research development identified as priorities by Research Units and Faculties;
- Evidence of a coherent management plan for the proposed infrastructure, including how it will be made available to, and used by, a wide range of primary users, and for Research Support Positions, evidence of plans for financial sustainability.
- The extent to which the proposed infrastructure will enhance the prospects of future successful Australian Competitive Grants funding.
- The number, type and spread of Australian Competitive Grants held by the research team during the last 3 years.
- The quality and quantity of publications of the Co-ordinators and proposed Primary Users over the last 3 years and the spread of those publications across the membership of the application team.
- The number of postgraduate research students and postdoctoral staff associated with the application team.
- The level of the financial contribution from Research Units, Faculties or other funds.

3.3.4 Research Support Positions

In 2002, funding was made available for a small number of limited-term Research Support Positions where it was clearly demonstrated that such support would enhance research activities in areas with substantial projects funded from Australian Competitive Grant Schemes. Three such positions (Animal House Manager, NMR Professional Officer, Superconductivity Research Fellow) were supported in 2001 for up to 3 years. No new Positions were created in 2002; however, RIBG funding was used to create a new position of Research Training Librarian within the library to enhance training programs for research students in accessing information resources.

4 Ensuring a Quality Research Training Experience

UoW regards research students as collaborators in, and research training as an integral part of, the research endeavour of the University. Research students are enrolled within a faculty, not a research unit. While most of the university-wide policies for research students are developed by the PPRC, much of the responsibility for executing these arrangements rest with the faculties, who are required to submit annual Faculty Research Training Management Plans. From 2003 the Faculty Research Training Management Plans will be integrated into faculty research plans and be an essential prerequisite for URC contributions to the URC-Faculty development pool.
4.1 A student-centred approach to research training

Our student-centred approach to research training focuses on all aspects of research candidature including recruitment, enrolment, induction, supervision, support, examination, exit and follow-up. The measures taken to ensure a quality research training experience for our students include the following.

**Recruitment**

Recruitment policy aimed at attracting and retaining students whose research interests match our research strengths (in conjunction with UniAdvice)

**Enrolment**

The Research Student Centre manages the process of enrolment and annual progress reports (in conjunction with the Faculties)

**Induction**

The Research Student Centre coordinates a number of induction activities for research training, such as:

- Orientation and Generic Skills programmes
- Postgraduate Seminar Series
- Research Student Day
- Supervisor training

**Support**

All research students have free access to:

- The Statistical Consulting Service
- Workshops, courses and on-line information technology services provided by the Library and the Learning Development Centre
- A Graduate Certificate in Business, which can be done in modular form concurrently with higher degree studies
- An “Introduction to Tertiary Teaching” course for students interested in an academic career
- Resource allocation to research students include a Research Student Maintenance Fund, as well as a Conference Travel Fund
- Our Wollongong University Postgraduate Association (WUPA) provides a collegial environment for research students, and is represented on the URC and the PRC

**Examination**

We provide a “Step-by-Step Guide” to thesis submission and an on-line thesis examination tracking service.

**Follow-up**

We conduct regular student satisfaction surveys

4.2 UoW Research Graduate Attributes

All of these arrangements contribute to the effectiveness of our research training. We measure effectiveness in terms of the attainment by graduates of our Research Graduate Attributes. (These should be read in conjunction with the “Attributes of a
Wollongong Graduate”, with the assumption that the graduate attributes will be further enhanced during the course of postgraduate research.)

- The ability to make a significant and continuing contribution to knowledge, whether disciplinary or interdisciplinary.
- The ability to conduct independent research and report its outcomes to a range of national and international audiences in a scholarly manner.
- The ability to work collaboratively with individuals and groups across diverse levels and cultures.
- Demonstrating intellectual honesty and professional integrity, and a knowledge of appropriate ethical standards.
- The ability to adapt to changing research and work situations in local, national and international environments.
- The ability to seek out opportunities and apply knowledge in new and emerging fields of research that will provide social, cultural or economic benefit.

To ensure that these attributes are attainable and measurable, we back them up with a table listing, for each attribute, the relevant research competencies, the support provided to attain those competencies, and the required evidence that those competencies have been attained. These competencies are used by faculties and support units in the development of effective research training programs, including coursework subjects and workshops. This “competencies table” can be found on the web at [http://www.uow.edu.au/research/rsc/hdrhb/graduate-attributes.html](http://www.uow.edu.au/research/rsc/hdrhb/graduate-attributes.html)

**4.3 Management of HDR Students**

We have continued to streamline our management of higher degree research (HDR) students during 2002. A significant step forward in this respect has been a change in administrative practices so that the Office of Research now has responsibility for all aspects of HDR candidature (previously enrolment, administration of variations in candidature and research student progress reports were the responsibility of the Academic Registrar’s Division). Further, we have introduced a HDR module into the university’s on-line Student Management Package which both enables students to enrol on-line and gives faculties much better access to student and supervisor information. These changes have been consolidated with the opening of a new Research Student Centre in a highly visible, central location to provide a one-stop-shop for HDR inquiries and support. We have appointed a Research Training Librarian who will both develop modules for research training and provide support for faculty librarians in supporting research student needs.

We conducted a market research survey in 2002 focussed on HDR student recruitment and motivation. One outcome of that survey was an indication that honours students typically only have a limited awareness of postgraduate research opportunities. To redress this we held two successful functions for honours students (a breakfast and a thesis writing workshop followed by a cocktail party) at which current and past research students shared their experiences with the honours students. At each function, representatives of the Office of Research and faculties provided information and answered questions concerning postgraduate research.
Finally, we introduced a “fast-tracking” procedure for scholarship applications from students with first class honours in areas of research strength.

4.4 Future Research Training Objectives

We commissioned a major research project on “Practicing Research Supervision” during 2002 which has produced a number of important recommendations to improve the supervision experience and these will be implemented during 2003 and the early part of 2004. The Postgraduate Research Policy Committee is currently reviewing the Code of Practice Supervision for implementation of a new Code in 2004. The revised Code will streamline procedures for dispute resolution, probation and termination of candidature and that articulate more clearly the roles and responsibilities of those involved in the supervision and management of research students.

At a more strategic level, we aim to increase the proportion of our students associated with research strengths from the current 45% to approximately 70% over time. To this end we will:

- Enhance HDR recruitment activities for areas of strength;
- Target more scholarships to areas of strength;
- Enhance support for emerging research strengths and initiate strategic initiatives that will develop into research strengths in the future.

Finally, as with the review of other research management issues, we will initiate a further review of research training objectives and support for HDR students via a discussion paper that will be circulated to, and take input from all the key stakeholders including research students. The outcomes of this review will be described in the 2004 RRTMR.

5 Collaboration and Partnerships

UOW researchers collaborate with many regional, national and international companies and agencies. In 2002, partners included the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Asia-Pacific Economic Co-operation (APEC), Sydney Olympic Park Authority, Australian Federal Police, BHP Steel, Rio Tinto, Marks and Spencer UK, the Australian Wool Innovation Board and the Illawarra Division of General Practice.

As a means of enhancing its partnerships and promoting regional development, in 2002 UOW announced the launch of the Wollongong Innovation Campus. The campus will be developed over the next 10 years by UOW in partnership with the NSW State government, local councils and the private sector. The campus will offer opportunities and facilities for advancing programs ranging from telecommunications to film and digital media. The synergies it will create are expected to have a catalytic impact on the University’s renowned cross-disciplinary research profile.

5.1 Specific Examples

Further examples of research collaborations and partnerships in 2002:

- The Digital Media Centre has developed a series of collaborative projects with a variety of industry and educational partners, including DELTA Institute – University of Wolverhampton, Sun Microsystems, WIN Corporation, Panasonic Australia and SBS Television. Research interests include the design, development and delivery of technology-enabled learning environments; interactive TV technologies and infrastructure development.
• The Co-operative Research Centre for Railway Engineering plays a key role in upgrading railway tracks in Australia. Current collaborators include Rail Infrastructure Corporation, Queensland Rail, Cambridge University (UK), University of Brasilia, University of Calgary and University of Alberta (Canada).

• The Geotechnical Engineering research group undertook a major ARC project with the Queensland Department of Main Roads, James Cook University and Douglas Partners looking at the use of Geosynthetic Vertical Drains in the stabilisation of highways and road embankments on soft coastal clays in Northern Queensland.

• The BHP Institute for Steel Processing and Products continued a significant collaboration with BHP Steel, as well as with other institutions including UNSW, University of Cambridge and the Technical University. Key projects included development of virtual high-technology laboratory techniques to toughen ophthalmic lenses and understanding the mechanisms of dirt repulsion in treated paints.

• The Institute of Superconducting and Electronic Materials mounted five ARC International Exchange Programs with collaborating international institutions including: Max Planck Institute, Andong National University and Cheju National University.

• The Centre for Medical Radiation Physics built on partnerships with the Royal Prince Alfred Hospital and GE Medical Systems and entered into a special agreement with Thailand for the training of medical physicists.

• The ARC Smart Foods Centre continued to undertake a variety of collaborative research projects with various industry partners. The Centre joined with the Illawarra Division of General Practice to develop and evaluate computer-assisted survey technology as an adjunct to the professional consultant. The development of the Whole Room Calorimeter linked the Centre with the Human Nutrition Unit at Sydney University, Children’s Hospital Westmead, Albion Centre in Sydney, University of Adelaide and Deakin University.

• Scientists completed numerous collaborative research projects with a range of agencies and industry, including the Cambridge University, University of Durham, and NSW agencies (Fisheries, Department of Land and Water Conservation, Marine Parks Authority, Healthy Rivers Commission and National Parks and Wildlife Service). Collaborative research activities have been undertaken with both Indonesian and Philippine fisheries agencies, investigating a more sustainable basis for fisheries management within Australia and South East Asia.

• The Intelligent Polymer Research Institute maintained its effective and integrated national/international collaborative research network. Key strategic alliances include IRL in New Zealand, CSIRO (Molecular Science and Textiles divisions), Monash University, Royal North Shore Hospital and most recently, the Bionic Ear Institute

5.2 ARC Linkage Projects

ARC Linkage Projects form an important part of the foundation of our research partnerships and we take success in these grants as a good measure of
collaboration with business and industry. Our performance in this regard over the past five years is shown in table 4.

Table 4: Summary of Success in the ARC Linkage formerly SPIRT) scheme

<table>
<thead>
<tr>
<th>Year</th>
<th>Total ARC $’s</th>
<th>UoW $’s won</th>
<th>UOW %</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>$17 891 482</td>
<td>$992 291</td>
<td>6%</td>
<td>6th</td>
</tr>
<tr>
<td>1999</td>
<td>$17 490 832</td>
<td>$996 722</td>
<td>6%</td>
<td>5th</td>
</tr>
<tr>
<td>2000</td>
<td>$19 604 220</td>
<td>$921 108</td>
<td>5%</td>
<td>6th</td>
</tr>
<tr>
<td>2001</td>
<td>$22 131 862</td>
<td>$1 297 083</td>
<td>4%</td>
<td>4th</td>
</tr>
<tr>
<td>2002</td>
<td>$25 788 368</td>
<td>$1 043 303</td>
<td>4%</td>
<td>6th</td>
</tr>
</tbody>
</table>

For 2002 Linkage-Projects grants, a total of 60.6% of UoW’s applicants were successful compared with the national average of 50.8%. As a result from 2002-2004, UoW will receive $2.9M in ARC funds and industry partner contributions of $3.8M, totalling $6.7M over 3 years in this category.

6 National Research Priorities

Table 4 shows the areas of research strength and the national research priorities to which these contribute.

Table 5 Relationship of UoW Research Strengths to National Priorities

<table>
<thead>
<tr>
<th>An environmentally sustainable Australia</th>
<th>Promoting and maintaining good health</th>
<th>Frontier technologies for building and transforming Australian industries</th>
<th>Safeguarding Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institute for Conservation Biology and Law</td>
<td>ARC Key Centre for Smart Foods</td>
<td>BHP Institute for Steel Processing and Products</td>
<td>ARC Key Centre for Asia Pacific Social Transformation</td>
</tr>
<tr>
<td>GeoQuEST Research Centre</td>
<td>Centre for Health Services Development</td>
<td>Engineering Manufacturing</td>
<td>Centre for Maritime Policy</td>
</tr>
<tr>
<td>Centre for Maritime Policy</td>
<td>Institute for Biomolecular Science</td>
<td>Institute for Superconductivity and Electronic Materials</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Intelligent Polymer Research Institute</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Telecommunications and Information Technology Research Institute</td>
</tr>
</tbody>
</table>

All our areas of research strength contribute to one or more of the National Research Priorities. During 2003 we will further articulate the relationship between our areas of emerging research strength and strategic initiatives with these priorities.
7 Intellectual Property, Commercialisation and Contractual Arrangements

The University has for many years had a history of strong relationships with industry. In 2002 the University has continued this tradition with partnerships with both Government and non-Government agencies both within Australia and internationally. Partners include Commonwealth Scientific and Industrial Research Organisation (CSIRO), Asia-Pacific Economic Co-operation (APEC), Australian Centre for International Agricultural Research (ACIAR), Sydney Olympic Park Authority (SOPA), Department of Science, Education and Training (DEST), BHP Steel Pty Ltd, the NSW and Commonwealth Police Forces, Rio Tinto, Marks and Spencers UK, and the Australian Wool Innovation Board.

To enhance this excellent rapport with industry, the University of Wollongong, in partnership with the State Government, the private sector and local councils will develop the Wollongong Innovation Campus over the next 10 years. It is envisaged the site will become home to some of Australia’s most innovative information technology, multi media and other cutting edge research linked companies.

The University has also been successful in obtaining funding for joint projects with the Commonwealth Research Centres (CRC) such as the CRC for Smart Internet Technology and the CRC for Railway Engineering and Technologies. In particular, the exciting research partnerships with the CRC for Smart Internet Technology has resulted in a major step towards significant commercialisation with the University well down the path of examining the feasibility of setting up a spin-off company.

The technology to be associated with the proposed spin-off company relates to standardisation of ‘a Multimedia Framework’. It includes support for the delivery and peer-2-peer sharing of Digital Media, in all its forms between a wide variety of users on a wide selection of terminals. It provides a full adaptation framework for the scaling of content to network bandwidth, terminal characteristics and user environment. It is full supported by the content providers and as such incorporates a full Rights Expression Language and for enforcement purposes a set of Intellectual Property Management and Protection mechanisms. We are on track to incorporating adaptation descriptors and the Rights Expression Language components as soon as they are made International standards. A key area of this development will be the production of clients for a wide variety of mobile devices and we are currently investigating the porting of our Java software to Symbian and other mobile-supported Operating Systems.

The University's capacity to capitalise on the outcomes of its research is underpinned by its equitable and sound management of IP, consultancies and contracts.

An audit of the University’s Consultancy and Contract Research Policy was undertaken in 2002. As a result of the Audit Committee’s recommendations the policy has been revised and a more streamlined and comprehensive document developed. This revised document, renamed the Commercial Research Policy, and can be viewed at: http://www.uow.edu.au/research/contracts/policy.html

The University’s IP policy is transparent and addresses issues of ownership and rights, protection, identification and management of IP and is consistent with the National Principles of Intellectual Property Management for Publicly Funded Research. The University’s IP Policy is set for review in 2004 and can be viewed at: http://www.uow.edu.au/research/researchmanagement/1998IP.html
### Part B – Tables

#### (i) Higher degree research (HDR) students (EFTSU) in 2002

<table>
<thead>
<tr>
<th>Research Cluster</th>
<th>All HDR students (EFTSU)</th>
<th>HDR students commencing in 2002 (EFTSU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All research - by research cluster</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science &amp; technology</td>
<td>412</td>
<td>128</td>
</tr>
<tr>
<td>Health &amp; medical research</td>
<td>56</td>
<td>6</td>
</tr>
<tr>
<td>Arts, humanities &amp; social sciences</td>
<td>329</td>
<td>64</td>
</tr>
<tr>
<td><strong>Total - All research</strong></td>
<td><strong>797</strong></td>
<td><strong>198</strong></td>
</tr>
<tr>
<td>Areas of research strength</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC Key Centre for Asia Pacific Social Transformation Studies (CAPSTRANS)</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>ARC Key Centre for Smart Foods</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>BHP Institute for Steel Processing and Products</td>
<td>22</td>
<td>5</td>
</tr>
<tr>
<td>Centre for Health Services Development</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Centre for Maritime Policy</td>
<td>23</td>
<td>7</td>
</tr>
<tr>
<td>Engineering Manufacturing</td>
<td>64</td>
<td>15</td>
</tr>
<tr>
<td>GeoQuEST</td>
<td>43</td>
<td>11</td>
</tr>
<tr>
<td>Institute for Biomolecular Science</td>
<td>52</td>
<td>10</td>
</tr>
<tr>
<td>Institute for Conservation Biology and Law</td>
<td>40</td>
<td>8</td>
</tr>
<tr>
<td>Institute for Superconductivity and Electronic Materials</td>
<td>24</td>
<td>9</td>
</tr>
<tr>
<td>Intelligent Polymer Research Institute</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>Telecommunications and Information Technology Research Institute</td>
<td>62</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total - Areas of research strength</strong></td>
<td><strong>363</strong></td>
<td><strong>93</strong></td>
</tr>
</tbody>
</table>

**NOTES ON DATA PROVIDED IN TABLE (i)**

Areas of strength are as defined in Part A. UoW has in addition to the above nodes of research excellence and we recognise that no matter how prominent, do not constitute an area of existing strength – though internationally outstanding, although these nodes may form the basis of an emerging area of research strength in some circumstances at UoW.
## (ii) Research income in 2002

<table>
<thead>
<tr>
<th>Category 1 ($'000)</th>
<th>Category 2 ($'000)</th>
<th>Category 3 ($'000)</th>
<th>Category 4 2001-2002 ($'000)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All research – by research cluster</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science &amp; technology</td>
<td>$6,984</td>
<td>$952</td>
<td>$4,712</td>
</tr>
<tr>
<td>Health &amp; medical research</td>
<td>$928</td>
<td>$621</td>
<td>$480</td>
</tr>
<tr>
<td>Arts, humanities &amp; social sciences</td>
<td>$890</td>
<td>$897</td>
<td>$276</td>
</tr>
<tr>
<td><strong>Total - All research</strong></td>
<td>$8,802</td>
<td>$2,470</td>
<td>$5,468</td>
</tr>
<tr>
<td><strong>Areas of research strength</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC Key Centre for Asia Pacific Social Transformation Studies (CAPSTRANS)</td>
<td>$487</td>
<td>$31</td>
<td>$39</td>
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<tr>
<td>ARC Key Centre for Smart Foods</td>
<td>$928</td>
<td>$621</td>
<td>$480</td>
</tr>
<tr>
<td>BHP Institute for Steel Processing and Products</td>
<td>$381</td>
<td>$0</td>
<td>$815</td>
</tr>
<tr>
<td>Centre for Health Services Development</td>
<td>$258</td>
<td>$563</td>
<td>$115</td>
</tr>
<tr>
<td>Centre for Maritime Policy</td>
<td>$58</td>
<td>$158</td>
<td>$59</td>
</tr>
<tr>
<td>Engineering Manufacturing</td>
<td>$1,200</td>
<td>$212</td>
<td>$340</td>
</tr>
<tr>
<td>GeoQuEST</td>
<td>$736</td>
<td>$48</td>
<td>$26</td>
</tr>
<tr>
<td>Institute for Biomolecular Science</td>
<td>$1,204</td>
<td>$151</td>
<td>$641</td>
</tr>
<tr>
<td>Institute for Conservation Biology and Law</td>
<td>$314</td>
<td>$122</td>
<td>$72</td>
</tr>
<tr>
<td>Institute for Superconductivity and Electronic Materials</td>
<td>$1,141</td>
<td>$12</td>
<td>$113</td>
</tr>
<tr>
<td>Intelligent Polymer Research Institute</td>
<td>$335</td>
<td>$77</td>
<td>$550</td>
</tr>
<tr>
<td>Telecommunications and Information Technology Research Institute</td>
<td>$1,285</td>
<td>$133</td>
<td>$277</td>
</tr>
<tr>
<td><strong>Total - Areas of research strength</strong></td>
<td>$8,327</td>
<td>$2,128</td>
<td>$3,527</td>
</tr>
</tbody>
</table>

### NOTES ON DATA PROVIDED IN TABLE (ii)

Areas of strength are as defined in Part A. UoW has in addition to the above nodes of research excellence and we recognise that no matter how prominent, do not constitute an area of existing strength – though internationally outstanding, although these nodes may form the basis of an emerging area of research strength in some circumstances at UoW.
### (iii) Research active staff in 2002

<table>
<thead>
<tr>
<th>All research – by research cluster</th>
<th>Number of staff</th>
<th>Number of staff who generated research income</th>
<th>Number of staff who generated publications</th>
<th>Number of staff eligible to supervise HDR students</th>
<th>Number of staff who supervised HDR students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science and technology</td>
<td>263</td>
<td>124</td>
<td>244</td>
<td>250</td>
<td>132</td>
</tr>
<tr>
<td>Health &amp; medical research</td>
<td>73</td>
<td>32</td>
<td>71</td>
<td>68</td>
<td>47</td>
</tr>
<tr>
<td>Arts, humanities &amp; social sciences</td>
<td>282</td>
<td>38</td>
<td>150</td>
<td>272</td>
<td>122</td>
</tr>
<tr>
<td><strong>Total - All research</strong></td>
<td><strong>618</strong></td>
<td><strong>194</strong></td>
<td><strong>465</strong></td>
<td><strong>590</strong></td>
<td><strong>301</strong></td>
</tr>
</tbody>
</table>

### Areas of research strength

<table>
<thead>
<tr>
<th>Area of research strength</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC Key Centre for Asia Pacific Social Transformation Studies (CAPTRANS)</td>
<td>12</td>
</tr>
<tr>
<td>ARC Key Centre for Smart Foods</td>
<td>14</td>
</tr>
<tr>
<td>BHP Institute for Steel Processing and Products</td>
<td>10</td>
</tr>
<tr>
<td>Centre for Health Services Development</td>
<td>16</td>
</tr>
<tr>
<td>Centre for Maritime Policy</td>
<td>7</td>
</tr>
<tr>
<td>Engineering Manufacturing</td>
<td>41</td>
</tr>
<tr>
<td>GeoQuEST</td>
<td>11</td>
</tr>
<tr>
<td>Institute for Biomolecular Science</td>
<td>23</td>
</tr>
<tr>
<td>Institute for Conservation Biology and Law</td>
<td>11</td>
</tr>
<tr>
<td>Institute for Superconductivity and Electronic Materials</td>
<td>23</td>
</tr>
<tr>
<td>Intelligent Polymer Research Institute</td>
<td>14</td>
</tr>
<tr>
<td>Telecommunications and Information Technology Research Institute</td>
<td>38</td>
</tr>
<tr>
<td><strong>Total - Areas of research strength</strong></td>
<td><strong>220</strong></td>
</tr>
</tbody>
</table>

### NOTES ON DATA PROVIDED IN TABLE (iii)

Areas of strength are as defined in Part A. UoW has in addition to the above nodes of research excellence and we recognise that no matter how prominent, do not constitute an area of existing strength – though internationally outstanding, although these nodes may form the basis of an emerging area of research strength in some circumstances at UoW.
(iv) Characteristics of staff who supervised HDR students in 2002

<table>
<thead>
<tr>
<th></th>
<th>Share of supervising staff (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The share of supervisors who hold a higher degree qualification</td>
<td>92</td>
</tr>
<tr>
<td>The share of supervisors who undertook formal supervisor training in the year</td>
<td>27</td>
</tr>
<tr>
<td>The share of supervisors who have had at least one HDR student complete in the year</td>
<td>35</td>
</tr>
</tbody>
</table>
Defining Research Strengths at UoW

The following are proposed as *guiding principles* for determination of research strengths.

1. Research strength must be underpinned by a sustained and excellent performance. Consideration should be given to discipline-specific measures of research excellence in addition to the more global ones of research income, publications and student completions.

2. It is clear that a research strength cannot be based on the efforts of single researcher and his/her immediate research group. Without being too prescriptive about the size of a research strength, a guide would be that a minimum of 4-5 academic staff in continuing positions or funded via senior external fellowships (ARC or NHMRC) would be necessary to underpin a research strength and generate a competitive level of performance. Similarly it would be expected that research strengths incorporate HDR students and a number of research fellows.

3. It must be evident that we would be able to retain the claim to have research strength in the area even if one or more of these key researchers were to leave the University for whatever reason.

4. Areas of research strength must involve collaborations between the researchers that have been demonstrated over an extended period (again a minimum of 3 years). Aggregations of researchers simply to achieve a competitive level of performance where there is no real opportunity for collaboration and thus is not a “good fit” will be actively discouraged. In general, this will preclude new groupings from being considered as areas of current research strength, however, we must retain the flexibility to consider situations where clusters of existing groupings might be aligned under a common thread to yield an area of recognised strength where there is a particularly compelling case to do this.

5. A research strength must provide evidence of external recognition. Further, external clarity and “brand names” should take precedence over internal considerations such as structural issues, and individuals seeking internal recognition. It follows that external endorsement of research excellence (ARC Centres, CRCs and other Centres of Excellence) will have a high priority when defining research strengths.

6. Research strengths should have been demonstrated over an extended period (minimum period 3 years) and performance clearly be on an upward trajectory and support on-going research initiatives.

7. There must be evidence of sustained research planning by the Director/Coordinator and other senior staff involved in the research strength.

8. A research strength must have a sizeable (again as a guide a minimum of 10) full-time equivalent HDR students associated with it. The activities of the research strength must include explicit plans for the provision and/or maintenance of a quality environment for higher degree research students. There must be demonstrated outcomes in terms of completions and other measures of research student success (awards, positions upon graduation etc.).

9. An area of research strength must define rigorous, performance-based criteria for membership that simultaneously take into account the potential of early career researchers.
**UNIVERSITY RESEARCH COMMITTEE**  
**IGS - 2002 Expenditure**

### INCOME

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002 Institutional Grants Scheme (IGS)</td>
<td>$5,348,225</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td><strong>$5,348,225</strong></td>
</tr>
</tbody>
</table>

### EXPENDITURE

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Units:</td>
<td>$1,720,000</td>
</tr>
<tr>
<td>Students:</td>
<td>$1,859,977</td>
</tr>
<tr>
<td>Services:</td>
<td>$206,334</td>
</tr>
<tr>
<td>Research Grants:</td>
<td>$625,585</td>
</tr>
<tr>
<td>Research Development Fund:</td>
<td>$200,254</td>
</tr>
<tr>
<td>Equipment &amp; Infrastructure:</td>
<td>$712,096</td>
</tr>
<tr>
<td>University Research Committee Housekeeping:</td>
<td>$7,112</td>
</tr>
<tr>
<td>PVC (R) Discretionary Funds:</td>
<td>$16,868</td>
</tr>
<tr>
<td><strong>TOTAL EXPENDITURE</strong></td>
<td><strong>$5,348,225</strong></td>
</tr>
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</table>
### Research Infrastructure Block Grant POOL 1

## Pool 1 - Expenditure/Allocations

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002 Research Student Maintenance Funding</td>
<td>$648,735</td>
</tr>
<tr>
<td>2002 Statistical Research Consulting Service</td>
<td>$53,000</td>
</tr>
<tr>
<td>Kiet Tieu RIEF (2001) High Speed Digital Video</td>
<td>$2,500</td>
</tr>
<tr>
<td>Andrew Wells LIEF - Electronic Archive Network</td>
<td>$20,000</td>
</tr>
<tr>
<td>Chee On Too LIEF - Active Polymer Research Facility</td>
<td>$30,000</td>
</tr>
<tr>
<td>Druce Dunne LIEF - 200KEV Analytical Trans Electron</td>
<td>$280,000</td>
</tr>
<tr>
<td>Gordon Wallace LIEF - Raman Spectroscopy Mapping</td>
<td>$80,000</td>
</tr>
<tr>
<td>Julie Steele LIEF - Integrated Biomechanics Res Lab</td>
<td>$65,000</td>
</tr>
<tr>
<td>Kiet Tieu LIEF - Particle Image Thermometry</td>
<td>$5,000</td>
</tr>
<tr>
<td>Leon Kane-Maguire LIEF - Chemical Engineering &amp; High Temp</td>
<td>$30,000</td>
</tr>
<tr>
<td>Mark Wilson LIEF - Fluorescence-Based Cellular Analysis</td>
<td>$100,000</td>
</tr>
<tr>
<td>Roger Lewis LIEF - Organic &amp; Optoelectronic Device</td>
<td>$6,000</td>
</tr>
<tr>
<td>Allan Chivas Systemic Infrastructure Initiative</td>
<td>$6,000</td>
</tr>
<tr>
<td>SX Dou Systemic Infrastructure Initiative</td>
<td>$100,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,426,235</strong></td>
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</table>
### Research Infrastructure Block Grant POOL 2

#### Pool 2 - Expenditure/Allocations

<table>
<thead>
<tr>
<th>CI</th>
<th>Description</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carver</td>
<td>High level technical support for NMR spectroscopy</td>
<td>49,000</td>
</tr>
<tr>
<td>Steele</td>
<td>The sonosite portable ultrasound system</td>
<td>20,000</td>
</tr>
<tr>
<td>Steele</td>
<td>2002 Pool 2 allocation</td>
<td>10,000</td>
</tr>
<tr>
<td>Brown</td>
<td>Gel permeation chromatograph</td>
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<tr>
<td>Wallace</td>
<td>Fibre Spinning and Characterisation</td>
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<tr>
<td>Chivas</td>
<td>Laser diffraction particle size analyser</td>
<td>60,000</td>
</tr>
<tr>
<td>Nanson</td>
<td>Auger drilling rig</td>
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</tr>
<tr>
<td>Beck</td>
<td>Ultra-low temperature freezer</td>
<td>15,000</td>
</tr>
<tr>
<td>Meyer</td>
<td>Thermostatically controlled UV/Vis Spectrophotometer</td>
<td>20,247</td>
</tr>
<tr>
<td>Dippenaar</td>
<td>Rapid Cooling furnace for laser scanning confocal microscopy</td>
<td>21,000</td>
</tr>
<tr>
<td>Clarke</td>
<td>A portable electroencephalograph for off-campus research on clir</td>
<td>25,000</td>
</tr>
<tr>
<td>Bremner</td>
<td>New generation computer molecular design</td>
<td>55,000</td>
</tr>
<tr>
<td>Burnett</td>
<td>Future multimedia network delivery for the home</td>
<td>36,653</td>
</tr>
<tr>
<td>Davis</td>
<td>Light weight inflatable research vessels</td>
<td>25,000</td>
</tr>
<tr>
<td>French</td>
<td>Mobile laboratory for remote location support</td>
<td>17,000</td>
</tr>
<tr>
<td>Gower</td>
<td>20 Kelvin Cryocooler</td>
<td>33,500</td>
</tr>
<tr>
<td>Walker</td>
<td>Animal house/research management professional officer</td>
<td>56,000</td>
</tr>
<tr>
<td>Naghdy</td>
<td>Upgrade of CIAR haptic device to 6 degrees of freedom</td>
<td>30,000</td>
</tr>
</tbody>
</table>

**Total** $597,070
The RIBG allocation from the Department of Education, Science and Tourism (DEST formerly DETYA) to institutions is formula-driven with allocations reflecting the relative success of each institution in attracting competitive research funds, as calculated from schemes in the Australian Competitive Grants Register (ACGR). RIBG allocations are derived from funding data collected for the two most recent calendar years.

While institutions are able to establish their own procedures and mechanisms for the allocation of funds internally, funds must be distributed in accordance, and be consistent with:

- The objectives of the RIBG Scheme, as described below
- Commonwealth Government policy on selectivity and concentration whereby funds should be directed towards areas of research strength or areas identified for development of future research strength; and
- The project eligibility for research infrastructure, as described in the DEST RIBG Guidelines (http://www.dest.gov.au/highered/research/ribgs.htm)

### 7.1 Definition

“Infrastructure” is used below to encompass both equipment and Research Support positions.

### 7.2 1. Objectives

The objectives of the RIBG Scheme are to:

- meet project-related infrastructure costs associated with Australian Competitive Grants;
- remedy deficiencies in current research infrastructure;
- enhance support for areas of research strength; and
- ensure that areas of recognised research potential, in which institutions have taken steps to initiate high quality research activity, have access to the support necessary for development.
2. Project Eligibility

7.2.1 The following, to the extent that they support research projects, may be regarded as elements of research infrastructure and funded under the RIBG Scheme:

- non-capital aspects of facilities such as libraries, laboratories, computing centres, animal houses, herbaria, experimental farms;
- equipment purchase and installation, maintenance, hire and lease; and
- salaries of research support staff (including research assistants, accounting and administrative staff and technicians) employed to provide general support for activity in a given area, e.g., a research assistant providing assistance for a number of research projects but not a research assistant dedicated to a particular project.

At the University of Wollongong the following are excluded:

- Capital works (ie. Construction of buildings);
- Rental of accommodation;
- Salaries of teaching and research and research-only academic staff (including the cost of “buying time” to free such staff to do more research);
- Stipends of postgraduate students;
- General-use, routine computing facilities (NB: applications for specialist, high performance computing or computers required to operate an associated piece of equipment are eligible for support provided multi-user access can be demonstrated);
- Service and maintenance contracts.

3. Applicant Information

Researchers may participate on a maximum of 2 applications as either Primary Users or Co-ordinators.

Applicants will need to define the percentage of use by each Primary User (and associated research team i.e. postgraduate students, research-only staff).

Primary Users and Co-ordinators must hold at least a 0.5 time paid academic appointment at UoW.
4. **Selection Criteria**

Applications will be assessed using the following criteria:

1. Meeting the objectives of the Scheme as outlined in Section 1 above;
2. The demonstrated need for the research infrastructure and, for Research Support positions, the specialist nature of the expertise;
3. The extent to which the infrastructure will support areas of research strength or research development identified as priorities by Research Units and Faculties;
4. The extent to which the proposed infrastructure will enhance the prospects of future successful ACGR funding;
5. Evidence of a coherent management plan for the proposed infrastructure, including how it will be made available to, and used by, a wide range of primary users. For Research Support positions, please provide evidence of plans for financial sustainability.
6. The number, type and spread of Australian Competitive Grants held by the research team during the last 3 years;
7. The quality and quantity of publications of the Co-ordinators and proposed Primary Users over the triennium (2000-2002) and the spread of these publications across the membership of the application team;
8. The number of postgraduate students and post-doctoral staff associated with the application team;
9. The level of the financial contribution from Research Units, Faculties or other funds.

5. **Additional Information for Research Support Positions**

Funding will be available for a small number of limited-term Research Support Positions (Research Fellows, Research Assistants or Technicians) where it is clearly demonstrated that such support will enhance research activities in areas with substantial projects funded from Australian Competitive Grant Schemes. Support for these positions will be available for up to three years.

Note that applications for Research Support positions will be highly competitive. To this end, applicants should liaise with the Head of their Research Unit/Department and Dean and provide information on the support to be contributed by the Research Unit/Faculty for the position.

NB: The Dean or Faculty Research Chair must provide a separate one page statement, which includes the level of ongoing financial contributions.
Initial selection will be based on the application followed by interviews/site visits and verification of the data before final approval.

NOTE: The University Research Committee reserves the right not to make an award under this category.

6. Funding

Total funds available for distribution under the RIBG Scheme are approximately $500,000. Normally, requests for equipment/infrastructure should be between $20,000 and $65,000. Funds for the limited number of support staff will be negotiable depending on the level of the staff person concerned and the contribution from the Faculty and Research Unit.

7. Application Process

Applicants should use the application and certification forms available at: http://www.uow.edu.au/research/funding/internal/internal.html

8. Assessment Procedure

Applications will be received and collated by the Office of Research and then forwarded to Faculty Research Chairs for their assessment and rating by the FRC. Recommendations and rankings from the FRCs will be considered by the University Research Standing Committee (URSC) who in turn will make their final recommendations to the University Research Committee.

Applicants (both Primary Users and Co-ordinators) must not participate in the consideration or ranking of their own proposals by Faculty Research and/or University Research Committees.
9. Reporting Requirements

A final report is required within 6 months of the completion of the grant on the outcome(s) of the research proposal. Reports should be a maximum of 2 pages in length and include:

- a description of the manner in which the objectives of the research have been addressed and the outcomes of the research;
- an account of expenditure of funds;
- the number of postgraduate students and postdoctoral staff who have benefited from the infrastructure.

Any Co-ordinators/Primary Users who have received an RIBG grant within the past three years must attach their report to any current application or the application will not be considered.

10. Appeals

Funding allocations determined by the URSC within the guidelines approved by the University Research Committee (URC) are binding. Appeals against URSC funding decisions shall be referred to the URC for resolution. Appeals against application outcomes may be made by lodging a written appeal with the Chair of the University Research Committee within 14 days from the date of notification of the outcome. Appeals can only examine claims of procedural deficiencies in the assessment process. The University is not required to examine appeals which challenge the professional judgements made by assessors or grant allocation committees as to the worthiness (or otherwise) of the research proposed or of the quantum of funding allocated.

PLEASE FORWARD ONE ORIGINAL PLUS 13 PHOTOCOPIES OF THE COMPLETED APPLICATION TO THE OFFICE OF RESEARCH