



UNIVERSITY
OF TASMANIA



Research and
Research
Training
Management
Report

2003

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PART A

1. INTRODUCTION AND OVERVIEW

The University of Tasmania is an established, research-led university located in Australia's smallest state with some well-defined areas of research strength, especially in its four theme areas of Antarctic and Southern Ocean Studies, National and State Development, Natural Environment and Wilderness, and Population and Community Studies. Recognising that it cannot excel in every endeavour of research, the University seeks to build on its established research strengths, its areas of natural advantage, and to expand into strategically important new areas so that it makes a significant contribution to Australia's research effort.

Traditionally, the economy of Tasmania has been heavily dependent on primary production with some 40% of the State's overseas exports derived from agriculture, forestry, and aquaculture/fisheries. The mineral industry (iron ore, coal, zinc, tin, copper, silver and gold) contributes about \$275M of overseas exports annually; processed metals, particularly aluminium and zinc, contribute another \$650M. In manufacturing, food and beverages, wood products (including paper and furniture), processed metals, and catamarans are the major exports. The State Business Plan for tourism envisages the industry being worth over \$1 billion to the State by 2007, with a minimum of 23,000 jobs for Tasmanians provided by tourism and related employment. Success should lift tourism's contribution to GSP to more than 10% and make interstate and overseas tourism the largest export-earning generator of both direct and indirect jobs in the Tasmanian economy.

Although Tasmania had the worst performing economy in the nation in the 1990's, there has been evidence of improved performance in recent times with an improved State credit rating, significant growth in exports, and renewed business confidence. Nevertheless, the State lags behind most other parts of the Commonwealth in some key economic indicators, especially unemployment.

The University currently has a significant alignment of its research capabilities to the major activities contributing to wealth generation in the State, for example, agriculture, aquaculture and fisheries, forestry, minerals, and tourism. However, the industry base in the State is small and many companies have their headquarters elsewhere.

These factors pose significant challenges for research that links to State-based industry. To continue our ongoing commitment to areas of significant current economic importance we will look to enhancing links with national and international partners. A priority will be to participate in increasing the State's capacity to engage productively in the new global information economy.

Research depends on high quality staff and research students having access to appropriate infrastructure and project funding. In 2002 the university had 645 FTE academic staff, 586 EFTSU in domestic RHD load and 73.5 EFTSU in international RHD students (total 659.5 EFTSU). Its external research income (categories 1-4) for 2002 was \$32M. Using a definition of research activity (McKinnon-Walker benchmarking manual) as gaining external funding, or a DEST publication or supervising a RHD student, in 2002 approximately 76% of staff were research active.

Major equipment support for science research is provided through the Central Science Laboratory, radio telescopes, major aquaculture and fisheries facilities including eight research vessels, an animal house and glasshouse facilities, and an SGI 3400 supercomputer. The Central Science Laboratory has an annual budget of approximately \$1.45M, 14 full-time staff, and equipment with a replacement value of \$8M. The Social Science Research Laboratory, with a budget of \$60K and facilities worth approximately \$150K provides support for the social sciences.

2. RESEARCH AND RESEARCH TRAINING OBJECTIVES

2.1 THE UNIVERSITY PLAN

The [University of Tasmania's Strategic Plan](#) includes the following Mission Statement:

“The University of Tasmania is committed to continuing its long tradition of excellence in the creation, preservation, communication and application of knowledge and to scholarship that is global in scope but that also reflects the distinctiveness of Tasmania.”

The following points demonstrate the University’s commitment to such a mission. It has:

- a long history of scholarship;
- identifiable areas of internationally recognised research excellence;
- identified areas of distinctiveness in its Theme Areas, and
- established a number of significant research partnerships.

2.2 RESEARCH AND RESEARCH TRAINING MANAGEMENT PLAN

The current [Research, Research Training Management Plan 2003-2005](#) approved by University Council in late 2002, contains the following goals:

- To be one of the ‘top ten’ research University’s in Australia, producing scholarship of national and international standard;
- To develop research of national and international significance in areas of strength, with a critical mass of researchers and significant international standing, particularly in University Theme Areas;
- To review the specialised Theme Areas regularly and maintain and support a robust research profile in areas of research strength that enable the University to contribute to national development and social and environmental well-being; and
- To enhance further the University’s reputation as a significant research training provider for Australian and international students.

Key initiatives in the Plan include the:

- Maintenance of research-performance based funding to faculties;
- Establishment of systematic benchmarking of research performance;
- Expansion of the number of significant large-scale national research partnerships;
- Maintenance of current partnerships with state government and explore new initiatives;
- Alignment of a proportion of research with National Researchers Priorities;
- Support of major research infrastructure;
- Commercialisation of innovation, either through ‘spin-off’ companies or license arrangements;
- Integration of research planning with University Research, Research Training Management Plan and Faculty Plans with the University Strategic Plan;
- An increase in the demand for Research Higher Degrees training from quality students from Tasmania, interstate and overseas;
- Increased quality of supervision through registration of supervisors;
- Generic skills workshops for RHD candidates and supervisors to be expanded further;

- Increase in the RHD load;
- Allocation of RHD scholarships, Research Training Scheme places on the basis of academic merit, institutional supervisory and infrastructure capacity, strategic priority and return on investment;
- Introduction of the approved policy on minimum standards of research infrastructure for RHD students; and
- Identification of the strategic priorities to be developed and resourced.

2.3 CURRENT AND EMERGING AREAS OF RESEARCH STRENGTH

The University has increased its external funding significantly over the past five years from \$18.4M in 1998 to \$31.9M in 2002. Most of this increase has been in identified areas of particular strategic importance, especially in the Theme Areas.

The Four Theme Areas

In 1996 the University adopted its four Theme Areas that build on areas of comparative advantage and strength. These are:

Antarctic and Southern Ocean Studies



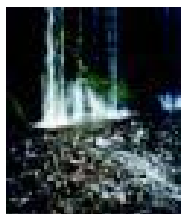
With the southerly geographical position of Tasmania, and the location of the Australian Antarctic Division and CSIRO Marine Research in Hobart, research in Antarctica was a logical development for the University. Antarctic research focuses on both the physical and biological sciences and on law and policy issues. There has been a particular focus on climate change as a result of the development of the Antarctic CRC in Hobart: the new Antarctic Climate and Ecosystems CRC will focus on biological, physical and policy issues.

National and State Development



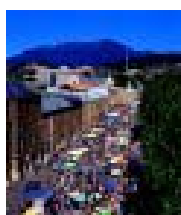
The University has aligned some of its major research capabilities with major industries in the state. Thus, there are large concentrations of researchers in Agriculture (and Forestry), Aquaculture and Fisheries and exploration geosciences as well as in some of the enabling technologies like Chemistry. In addition the University is committed to enhancing research in Information Technology and Tourism.

Natural Environment and Wilderness



With its large areas of national and world heritage listed environments, Tasmania is an obvious site for research into conservation biology and environmental measurement. In addition, research in this Theme Area also focuses on social issues in relation to the environment, its representation, and how we think about environment and place.

Population and Community Studies



The nature and history of the Tasmanian population make it a valuable subject for research. It has been a rich subject for research into population health and the causes of disease in humans. In addition the rural and regional nature of the state make it a useful test site to explore a range of social, legal and educational issues.

Some 79% of total research income, 79.8% of DEST category publications and 62% of RHD load relates to Theme Area research.

The University has five University Research Institutes/Centres viz the Centre for Ore Deposit Research (CODES), Institute of Antarctic and Southern Ocean Studies (IASOS), Menzies Centre for Population Health Research, Tasmanian Aquaculture and Fisheries Institute (TAFI) and Tasmanian Institute of Agricultural Research (TIAR). Research statistics for these five Institutes/Centres are outlined in Table 1.

Table 1: Research Statistics for the University Research Institutes

2002	Research Income 2002	Actual Researchers 2003	Current RHD Load (EFTSU) 2003
 <u>CODES</u>	\$2.4M	8	29.5
IASOS <u>IASOS*</u>	\$0.5M	9	34.5
 <u>Menzies Centre</u>	\$3.7M	11	8.6
 <u>TAFI</u>	\$6.4M	43	38
 <u>TIAR</u>	\$5.7M	45	63.9

* IASOS also benefits directly and indirectly from the category 4 income received from the Antarctic CRC (2000 totalled \$1.7M). Honorary staff are not included. RHD load refers to 2002 figure.

These are significant areas of research strength with links to both State needs and National Research Priorities. Analysis of income, RHD load and publication output indicates that the University of Tasmania has significant research strength in:

- Marine sciences (aquaculture, fisheries, oceanography and ecology);
- Agriculture (including forestry);

- Earth sciences;
- Public health (epidemiology); and
- Antarctic studies.

This analysis was undertaken for the period 2000-2002 and captures research output according to codes for Research Field, Courses and Disciplines, and Socio-economic Objective.

Given the importance of the University to the state, there are conscious efforts to strengthen or better coordinate research in:

- Tourism;
- Information Technology: particularly in informatics;
- Cultural heritage;
- Environmental research; and
- Law reform and enforcement.

2.4 GRADUATE ATTRIBUTES OF RESEARCH GRADUATES

The University expects RHD students to develop:

- relevant knowledge and research skills;
- written and oral skills, including presentation skills;
- understanding of appropriate ethical guidelines and codes of research conduct;
- appropriate skills in workplace issues such as safety and equity issues;
- awareness of intellectual property, confidentiality, contractual arrangements;
- industry interaction and experience where relevant; and
- employment potential.

More detail about these expectations can be found in the [RHD Resource Book 2003](#), and the [Six Stages to the Completion of a Research Higher Degree Booklet](#).

Such attributes will be developed through:

- Regular meetings with supervisor(s), training courses and, potentially, time spent in other institutions to learn new skills;
- Preparation of papers, presentations at institutional seminars, delivery of oral papers at national and international conferences as well as the completion of the final thesis;
- Induction and training programs in appropriate safety and equity issues;
- Generic skills workshops on various subjects;
- Provision of workshops on intellectual property through the Commercialisation Unit and advice via the Research and Development Office in relation to contractual agreements;
- Links with industry research sponsors and potential for further collaboration via ARC Linkage or other grants; and
- Advice and assistance provided by University Careers and Employment Service.

3. FUTURE DIRECTIONS FOR RESEARCH AND RESEARCH TRAINING

3.1 STRENGTHENING EXISTING AREAS

To strengthen its research in areas in which it currently performs well, the University will:

- Ensure that its recruitment of academic staff is highly strategic and enhances research strength;
- Maintain its system for allocation of research funding on the basis of research performance;
- Allocate University funded RHD scholarships, worth approximately \$2.6M annually, strategically to areas of strength, especially in the Theme Areas
- Create enhanced research infrastructure, especially through the Central Science Laboratory, Animal House, and the Australian Partnership in Advanced Computing (APAC);
- Develop new national and international research alliances to enhance research strengths e.g. in marine sciences, food safety, forestry, agriculture, and exploration geoscience. Following a three-year strategic investment of \$600K by the University and State Government (2000-2002), and the development of a strategic alliance with Food Science Australia (FSA) in the area of food safety, the University of Tasmania, in partnership with FSA, will host the National Centre of Excellence in Food Safety funded by the National Food Industry Strategy. The University and CSIRO have established a partnership, worth \$5.7M in cash and in kind over five years, to develop joint research and research training in the area of marine science, especially in quantitative aspects of marine science;
- Increase international research activity and funding; and
- Continue its commitment to the CRC program, maintain its current membership of CRCs and seek new partnerships that yield significant benefits.

3.2 NEW DEVELOPMENTS

To strengthen other areas of research, the University will have a special focus on health-related research, and areas that have special importance to Tasmania, e.g. environmental research, tourism and cultural heritage/island studies.

- In health related research, strategies have been developed for increasing research capability in particular areas; recent funding of \$2.5M to the Menzies Centre will enhance capability in the area of population health;
- Research in Information Technology will be enhanced by new senior appointments and by the creation of a Centre of Excellence in Health Informatics and Bio-Informatics, with \$20M from the Intelligent Island Board. This will also involve significant research on legal/ethics issues with the Faculty of Law;
- Plans are developing for a more cohesive program of research in Environmental research;
- The Tasmanian Law Reform Institute and the Tasmanian Institute of Law Enforcement Studies, established in 2001 and 2002 respectively, will act as foci for law reform and enforcement research;
- With a substantial interest in cultural heritage through an interdisciplinary consortium of researchers we propose the development of a cultural heritage research unit linked to the CRC for Sustainable Tourism;
- The Faculty of Commerce is developing plans for a Centre for Corporate Governance in the Information Economy that will be led by two new chair appointments; and
- The Faculty of Education is planning for a Centre for Learning Communities, expanding and building on the strengths of the Centre for Research and Learning in Regional Australia.

3.3 DISTRIBUTION OF RHD PLACES

The University has maintained a balance of RHD places that aligns with its strategic priorities and allows for the growth of emerging areas such as Information Technology. The University maintains a Research Higher Degree load of around 658 EFTSU in line with its Research Plan. The growing number of RHD (Research Higher Degree) candidates who are undertaking part-time study has led to a revision of 'The Six Stages to the Completion of a Research Higher Degree' booklet to include a special section addressing the needs of this important group of candidates. The implementation of registration for all RHD supervisors, the adoption of a set of minimum standards of infrastructure support and the significant expansion of generic skills workshops have been highlights this year. The generic skills workshops covered a wide range of subjects, and were attended by about 800 people overall in 2002. A total of 260 people attended the workshops for supervisors. In 2002, 136 students completed research higher degrees up from 120 in 2001 and 109 in 2000.

The University, both through its own and external sources of funds, offered a significant number of research scholarships to candidates in 2002 – a total of 429 compared to 411 in 2001 and 300 in 2000. Scholarships were awarded across two rounds, one at the beginning of the year and the other mid-year. The continued demand for postgraduate research training augurs well for the future of research at the University. The average completion time for a Masters degree in 2002 was 2.5 years, and that of a PhD was 3.96 years.

The number of RHD completions continued to rise with 131 in 2002 compared to 122 in 2001. The completion rate has risen every year from 1997 when the number was 95. The number of withdrawals was 70 in 2002, a slight increase from 65 in 2001, but down from the peak of 100 in 1999.

In 2002 the policy of registration of RHD candidate supervisors was fully implemented. The University currently has 423 registered supervisors and in 2002 some 238 of those supervisors attended one or more of the 25 professional development seminars in research candidate supervision offered during the year. The program of generic skills workshops for RHD candidates was enhanced and there were 74 workshops offered with over 800 candidates attending.

Another major initiative in 2002 in relation to RHD candidates was the development of a set of minimum standards for infrastructure provision.

4. MANAGING RESEARCH PERFORMANCE

4.1 PLANNING PROCESSES

The University Strategic Plan is developed via a process involving Faculties/Schools/Institutes/Divisions and University Council. Council approves the University Plan. The operational Plans, such as the [Research, Research Training Management Plan 2003-2005](#) are developed to provide strategies, targets and timelines for the achievement of the goals identified in the University Plan. All Faculty Plans are developed to address the University Plan and indicate how specific Faculties will advance particular aspects of the plan.

The research planning process is coordinated through the Research College Board. The Board has three members nominated by the Vice-Chancellor, three nominated by Academic Senate, two *ex officio* members (the Chair of Academic Senate and the Dean of Graduate Studies by Research), plus a postgraduate member. In addition to the internal membership, there are three external members, currently Dr Graham Harris from CSIRO and former head of the CSIRO Flagship Program, Dr Michelle Allan from AMCOR Research and Technology, and the International Visitor, Professor James Adelstein, from Harvard University in the US.

The Board is chaired by the Pro Vice-Chancellor (Research). The composition of the Board is skills-based rather than representational. The Board provides advice to the Pro Vice-Chancellor (Research) and reports to Academic Senate, and then to University Council.

4.2 PERFORMANCE MONITORING ARRANGEMENTS

The University has invested heavily in the development of software systems to enable it to monitor performance. Its Research Management Data Base software has been licensed to Callista and has been marketed as Callista Research.

The Research College Board has an annual retreat at which it considers research performance statistics. These include:

- (1) Trend data on research income (by category), publications, RHD enrolments and completions for each School/Centre/Institute over a 4-5 year period;
- (2) Benchmarking of overall University performance by comparison to all other Australian Institutions using a raft of standard research KPIs;
- (3) Annual report to the University Council on research performance; and
- (4) Web-based feedback to Schools/Centres /Institutes and Faculties on research performance.

In addition, the Dean of Graduate Studies by Research provides a comprehensive report to each Head of School on trend data on RHD enrolments, completions, withdrawals and suspensions for the School as a whole and each supervisor plus the registration status of staff. The Dean visits Schools annually to discuss these issues with staff and students. A comprehensive report on Research Higher Degree student matters, including load, completions, withdrawals and suspensions, is presented to Academic Senate annually.

The University has also developed a Web-based portal that contains the research performance of all research-active staff. This system – the [Web Access Research Portal](#) (WARP) – provides public access that reveals:

- (i) research grants secured;
- (ii) successful RHD completions; and
- (iii) research publications, while staff have been at the University of Tasmania. Their outputs prior to employment at the University of Tasmania can be inserted via the [GENIUS website](#).

In addition to the information that is publicly available, there is additional information available to researchers, e.g. in relation to reporting requirements of grants, commercial/IP matters and ethics requirements.

The outcomes of the Research, Research Training Management Plan 2000-2002 have been evaluated and a Performance Against Plan document presented to Research College Board, Academic Senate and distributed to all Faculties and Schools. A short summary of key outcomes is shown in Table 2.

Table 2: Performance Against Plan for 2000-2002 Research Plan

	2002 Target	Outcome in 2002
Research Performance-based Funding	\$16M	\$20.3M
Total Income	\$25M	\$32M
Total Share of National Research Funds	2.5%	2.7%
Heath Research Income	\$6M	\$5.8M
RHD Scholarship Fund	\$1.8M	\$2.35M
RHD Total Load	600	658

The Research and Development Office (RDO) [web site](#) provides links to all relevant policies and procedures in relation to research including a [Researcher's Guide](#) that provides information on grants, intellectual property, contracts, consultancies, ethics, RHD supervision, Theme Areas, data collections, formula funding, reports and statistics.

The RDO provides services in terms of grants, tenders and consultancies, reminders in relation to final reports, and liaises with the Division of Finance and Administration in relation to research grant accounts. Ethics issues are handled through the Animal and Human Research Ethics Committees. The Tasmanian Department of Health and Human Services and the University have established a unified State-wide Human Research Ethics Committee.

The RDO has a [Notice Board](#) that provides regular updates on research matters and has a [Service Charter](#). The RDO will be reviewed in 2003 as part of a cycle of reviews of administrative units. As part of the commitment to enhanced industry links, a survey of industry clients will again be carried out in 2003 with a view to establishing the degree of satisfaction with the University's R&D services. A similar survey, undertaken in 2001 showed that 92% of those surveyed would recommend the University to other industry groups and 100% indicated they were dealt with in a professional manner, whilst 93% of respondents ranked the quality of researchers' work and reporting as good, very good or excellent.

4.3 NATIONAL BENCHMARKING

At the institutional level the University has demonstrated that it performs at a high level on most of the standard research performance indicators on a per capita basis (see Table 3). Using the allocation of total Commonwealth research performance funding (IGS, RTS, RIBG) as one measure, the University of Tasmania ranked 9th in 2003. On all other measures, apart from Industry and Other Funding, the University ranked from 3rd to 10th on a per capita basis.

Table 3: National Benchmarking: University of Tasmania

Performance Indicator	1998	1999	2000	2001
Total Research Income	8 th	8 th	8 th	9 th
Australian Competitive Grants	10 th	7 th	11 th	8 th
Other Public Sector Funding	3 rd	1 st	4 th	3 rd
Industry & Other Funding	14 th	16 th	18 th	18 th
DEST Publications	6 th	13 th	N/A	9 th
RHD load (percentage of RHD to total EFTSU)	10 th	11 th	9 th	9 th
ARC Discovery Grants	7 th	7 th	11 th	7 th
Linkage Grants (1997 refers to Collaborative Grants)	4 th	4 th	7 th	3 rd
NHMRC Funding	12 th	11 th	10 th	10 th

International benchmarking data has been collected at an institutional level with the University of Liverpool, one of the so-called “Russell Group” of research-led universities in the United Kingdom (see Table 4). Approximately 60% of its departments were 4 or 5 rated in the last Research Assessment Exercise (RAE), including Biological Sciences, Chemistry, Earth Sciences, Geography and the Environment. The RAE forms the primary measurement of academic research in the UK.

Table 4: International Benchmarking

Key Comparative Data	2000/2001 UniLiv	2001 UTas	2001/2002 UniLiv	2002 UTas
RHD Load	1268	999	1425	1075
New Research Grants	£61 million	\$8,883,263	£63 million	\$9,121,578
Cat 1 Funding	£74,612 (36.3% of total income)	\$13,100,502 (41.2% of total income)	£69,852 (36.3% of total income)	\$14,400,791 (45% of total income)
Cat 2, 3, & 4 Funding	£53,271 (25.9% of total income)	\$18,726,984 (58.8% of total income)	£46,336 (24.1% of total income)	\$17,605,537 (55% of total income)

The University has carried out benchmarking of its University Institutes/Centres. TAFI, TIAR, IASOS, Menzies Centre and CODES have collected benchmarking data from a number of interstate and international research organisations. Two examples of this Institute benchmarking are included below as Tables 5 and 6.

Table 5: CODES: 2000 Benchmarking

	FTE (research only)	EFTSU RHD	Total funding for all purposes	Refereed Journal Articles	Book Chapters
CODES, UTas	6.3	42	3,771,000	28	1
Centre for Global Metallogeny, University of Western Australia	7	39.5	2,540,000	54	3
Economic Geology Research Centre, Colorado School of Mines, USA	7	22	2,804,100	24	0.0
Mineral Deposit Research Unit, University of British Columbia, Canada	3	10	765,563	17	0.0
Tectonics Research Centre, University of Western Australia	6.45	17	1,662,500	42	0.0

Table 6: TAFI: 2000 Benchmarking

	FTE (research only)	EFTSU RHD	Total funding for all purposes	Refereed Journal Articles
TAFI, UTas	46	37	7,304,430	49
Marine & Freshwater Resources Institute (MAFRI), Victoria	52	13	9,460,000	16
South Australian Research & Development Corporation (SARDI)	31	9	7,495,000	78
Fisheries Research Services, Aberdeen	212	4	50,700,000	193

Benchmarking is now an essential part of School reviews and Schools are asked to identify appropriate comparators. An external panel reviews each School within the University every five years. Using the 1-5 scale rating in the McKinnon Walker benchmarking manual (1 being low and 5 being high), we have made the following self-assessments (SA) of the University of Tasmania (Table 7):

Table 7: Self-Assessment Benchmarking 2002

Benchmark		SA
8.1	Research Planning level	5
8.2	Staff participating in research (funding) level	5
8.3	Staff participation in research (publication/supervision) level	5
8.4	Research students experience (learning) level	4-5
8.5	Completion rates and times level	4-5
8.6	Research income trends level	4-5
8.8	Weighted Publications/FTE	5
8.9	Research Impact level	5

4.4 INCENTIVES FOR RESEARCH

The University aims to provide incentives for research in a number of ways. Centrally, it provides:

- Performance-based funding to sustain high performing areas;
- Seed funding for new initiatives; and
- Early Career Researcher funding and funds for quality researchers who lack substantial funding.

In addition Faculties and Schools/Institutes have their own schemes to stimulate research.

The adoption of a research performance-based funding model for the University budget in 2001 has provided substantial incentives for areas of high performance. Of the \$13.8M allocated in 2002 in the RTS, some \$8.5M was allocated directly to Schools/Institutes via Faculties using the University RTS index (50% completions, 35% load, 10% income and 5% publications). Of the \$6.53M allocated via the IGS some \$6M was allocated to Schools using the University IGS Index (85% income, 15% publications). In 2002 and 2003 the performance of the University in the combined

RTS, IGS and RIB schemes was 9th highest in Australia. In addition, the allocation of strategic funding seeds the development of new initiatives such as:

- the Centre for Food Safety and Quality;
- the Australian Centre for Separation Science;
- the Tasmanian Institute for Law Enforcement Studies;
- the Centre for Clinical Research;
- enhanced facilities in super-computing and molecular biology; and
- increased postgraduate research scholarships.

The University runs an internal research grants scheme worth up to \$0.7M annually to support researchers in all disciplines. It has a special focus on Early Career Researchers, and those more experienced quality researchers who have limited, or no, external funding. Internal discipline-group panels make recommendations on funding to the Pro Vice-Chancellor (Research) and the Research College Board. Some \$200K is reserved for Early Career Researchers.

4.5 CONFLICT OF INTEREST POLICIES

The University is currently reviewing its [Conflict of Interest policy](#). Advice has been received from the International Visitor to the Research College Board, and a proposal regarding the management of potential conflicts has been circulated to stakeholders for comment.

4.6 ACHIEVEMENTS IN RESEARCH

In 2003 Professor James Kirkpatrick, a former Eureka Prize winner, was made a Member in the General Division of the Order of Australia (AM) for his contribution to research on the environment. Professor Terry Dwyer, Director of the Menzies Centre was awarded the 2003 Medal of the Australian Society of Medical Research. Professor Paul Haddad was awarded the A.J.P Martin Gold Medal, by the Chromatographic Society in April 2002 – the first Australian to be honoured in this way. The Antarctic related research activity at the University, especially through its involvement in the Antarctic CRC, has gained international prominence. Its capability in the development of coupled models, especially climate, oceans and biological models, was recognised by the Australian Partnership in Advanced Computing (APAC).

In a recent review of the Centre for Ore Deposit Research (CODES) international industry participants rated it the leading exploration geoscience centre in a University worldwide. Substantial work done by the Centre contributes to the business activities of major resource companies.

The Menzies Centre is perhaps best known for its work on Sudden Infant Death Syndrome (SIDS). As a result of its work, the rate of SIDS deaths has decreased to about 10-15% of its previous level. Its work on long-term studies on health contributes valuable information to help prevent the onset of various lifestyle diseases.

The Tasmanian Aquaculture and Fisheries Institute underpins Atlantic salmon production in Australia. Its contribution to understanding and production of fish and crustaceans (like rock lobster) is of major benefit to industry. Similarly the Tasmanian Institute of Agricultural Research has pioneered the development of new crops like pyrethrum, essential oils, poppies as well as new varieties of legumes, fruits and vegetables.

The Tasmanian Law Reform Institute is providing legal scholarship to assist in the process of law reform in Tasmania. Its recent work includes research into issues including: adoption by same sex couples, sentencing, physical punishment of children, custody, arrest and police bail.

In collaboration with the Police Department, the Tasmanian Institute of Law Enforcement Studies is carrying out research on effective mechanisms for law enforcement. Its early work on drug addiction provides immediate feedback into police practice. Work by heritage researchers exploring the history of the Female Factory in Hobart has provided not only a valuable insight into early colonial history, but also material valuable to tourists visiting Tasmania.

There are extremely strong links between much of the University research and the broader communities within Tasmania, interstate and overseas. Much of the research has direct utility and contributes to the well-being of Tasmanian and Australian groups. There is also a strong ‘blue-sky’ element to research at the University. In its contribution to knowledge, to commercial, social or health activities and to employment generation the State, the University is a major institution within the State.

4.7 EXPENDITURE OF IGS AND RIBG

The University has looked at the combination of RTS and IGS block funding. In order to provide suitable incentives on completions and load it has moved the RHD student load component entirely to its University RTS index. The University RTS index is based on 50% completions, 35% load, 10% income and 5% publications. In order to provide incentives for external income generation, the University IGS index is driven largely by external income (85%) and publications (15%).

Of the \$6.54M in the 2002 IGS scheme some \$6M was allocated directly to Schools/Institutes/Centres through the Faculties. Major beneficiaries of this funding were the five University research Institutes/Centres: CODES, IASOS, Menzies, TIAR; and TAFI.

Table 8: Distribution of Research Funds 2002

	IGS		RTS		RIB	
	\$	% of total	\$	% of total	\$	% of total
CODES	434,815	7.18	509,943	6.09	230,500	12.81
IASOS	105,144	1.74	560,458	6.69	73,250	4.07
Menzies	515,432	8.51	143,978	1.72	67,705	3.76
TIAR	1,001,861	16.55	984,370	11.75	390,424	21.69
TAFI	986,182	16.29	719,570	8.59	240,620	13.37

This mechanism rewards high levels of research performance and provides a means for sustainable funding of research areas of strength. In particular it enables areas that have received seed funding to receive ongoing funding.

The Research Infrastructure Block Grant has been used to fund the Central Science Laboratory (\$1.09M), the Animal House (\$0.3M), and the Social Science Research Laboratory, as major University infrastructure. The remainder is allocated to Schools and Institutes/Centres through Faculties on the basis of relative performance in Australian Competitive Grants.

4.8 STRUCTURES AND RESOURCES

The total resource to support research is approximately \$60M made up of approximately \$32M external income, \$25M research performance block funding and \$2.5M in external scholarship funding.

The University budget model identifies separate funding streams for teaching and learning and research. Funds are identified for:

- Performance based funding to Schools and Centres/Institutes through the Faculties;
- Strategic research initiatives; and
- Support for infrastructure, internal research grants and scholarships.

The remainder of the funding is used to support a postgraduate research scholarship program (\$2.6M), an internal research grants scheme (\$0.7M), plus research infrastructure and support funding (approximately \$1M).

The internal research grants scheme provides some experience in grant proposal writing. In addition, the University engages the services of experienced external experts to provide commentary on draft research proposals for the major funding schemes like the ARC and the NH&MRC.

5. ENSURING A QUALITY RESEARCH TRAINING EXPERIENCE

The University maintains a central fund of approximately \$2.6M for postgraduate scholarships, equivalent in value to Commonwealth funded Australian Postgraduate Awards. Some of this is used to leverage additional scholarships from external sources. In addition, the University will fund a number of fee-paying places and increase the number of international RHD students. This investment will enable us to capitalise on the consistent high demand for postgraduate research education at this University. We have set a target of 6.5-7% of load as research higher degree students by end 2003. Scholarships and RHD places will continue to be allocated on the basis of the quality of the applicants, the availability of appropriate supervision, project support and infrastructure, and the strategic priority of particular research areas, especially the University Theme Areas. A sub-committee of the Board of Graduate Studies by Research allocates scholarships.

Funding for RHD students is part of the budget of the Research College and is allocated to Centres, Institutes and Schools on the basis of the University RTS Index.

In 2001 a process of registration was instituted for all supervisors, with maintenance of registration dependent on continuing a high standard of supervision and ongoing supervision training. The supervisor-training program has been expanded since 2001. To improve completion rates to 75% by end 2003, we plan to establish better systems for monitoring the progress of candidates. Part of this involved the development in 2001 of profiles of students “at risk” and a “case management” approach to RHD students. To assist in this we will continue to refine our systems for the review of RHD student research plans and annual reports. To ensure that RHD students have the skills that will equip them for the workplace, we introduced three generic skill modules in 2001 and a further fifteen in 2002. The program will be reviewed in 2003. Modules include time and project management, career development, the supervisory relationship, a number of units in web-based search strategies, ethics, oral presentations and thesis writing.

The [Research Higher Degree Resource Book 2003](#) contains a University-School Postgraduate candidate agreement, outlining what the University will provide and what it expects from candidates. Under this agreement candidates have:

- Access to quality information on which to base decisions for RHD training;
- Induction processes that enable them to understand the University and RHD candidature issues;
- High-quality supervision that will provide them with appropriate advice, counsel and training in key skills;
- Access to appropriate research support and infrastructure to enable them to complete their projects in reasonable time;

- Opportunities to satisfy a requirement to present their research findings within the institution and opportunities for presenting at national and/or international conferences;
- Direction and encouragement in publication and thesis preparation;
- A quality examination process in good time; and
- Access to Graduate Careers advice when they seek employment.

We provide the following services that enable the University to fulfil its service obligations:

- We publish a [Research Higher Degree Resource Book](#) and a specialised text, “[Six Stages to the Completion of a Research Higher Degree](#);
- An interactive web site ([WARP](#)) that provides information on research grants, publications and supervision records for all staff. This is accessible via staff name or key word(s). This service gives potential students the opportunity to identify suitable supervisors. Included is the provision to directly email that staff member and also any currently supervised students;
- Annual induction seminars are conducted for all [new staff](#) and RHD students;
- Annual supervision training seminars are conducted on a range of issues relating to supervision. Topics for 2001 included ‘Expectations candidates have of their supervisors’, ‘Orientation and discussion for new RHD supervisors’ and ‘Intellectual Property and issues of authorship’. Participation in seminars is a requirement for continued registration as a supervisor. It is anticipated that the supervision status for individual staff will be included in the WARP reports by the end of 2003;
- The examination process involves two external examiners, one of whom is international wherever possible. Schools nominate examiners; the Board of Graduate Studies by Research ratifies the nominees; and
- The annual RHD survey and the visits by the Dean of Graduate Studies by Research provide an ongoing quality assurance mechanism.

Induction for RHD students is the specific responsibility of Schools and they provide an induction booklet.

The provision of resources for RHD students is the responsibility of the School, Institute, or Centre; such matters are the topic of the regular visits that the Dean of Graduate Studies by Research makes to Schools, Institutes and Centres. There is significant co-supervision in the agricultural, aquacultural, life sciences, and biomedical sciences, involving State Government, CSIRO and Antarctic Division researchers. The University’s capacity to supervise RHD students is enhanced by Honorary Research Associates who are normally very experienced researchers.

The relationship between a RHD student and supervisor is an important one. At its best it can be stimulating and of a very high quality. To minimise the potential for harm if the supervisor-student relationship breaks down, the University now requires co-supervision and/or joint supervision, i.e., students must have more than one supervisor.

There is significant responsibility on supervisors and Schools for providing facilities and supervision. The quality assurance measures involve both the Annual Review of Progress that is signed by students, supervisors and Heads of School, and examined by the Board of Graduate Studies by Research, as well as the annual survey of graduate research students. The Dean of Graduate Studies by Research deals with problems with supervision and infrastructure identified through such surveys. The immediate solution to problems with facilities or supervision may involve the development of clear plans to indicate facilities can be provided or changes in the supervision team. In the longer-term, supervisors or Schools that fail to deliver the appropriate supervision or facilities will have significant restrictions placed on them, limiting postgraduate student numbers.

6. COLLABORATION AND PARTNERSHIPS

6.1 CRCS AND SRCS

The University is involved in five current CRCs – Antarctic and Southern Ocean Environment, Sustainable Production Forestry, Smart Internet Technology, Aquafin, and Sustainable Tourism. A new Antarctic CRC will commence in mid 2003. Collaborations with the CRC for Smart Internet Technology and the CRC for Sustainable Aquaculture of Finfish began in 2001.

The University is also home to an ARC Special Research Centre – [Centre for Ore Deposit Research](#) (CODES). It collaborates with six Australian universities, seven other Australian research institutions, sixty-two Australian and international mining companies, twenty-seven international universities and nine international research organisations.

6.2 PARTNERSHIPS WITH STATE GOVERNMENT

The University and the State Government have formed major research partnerships in agriculture, and aquaculture and fisheries; namely, the Tasmanian Institute of Agricultural Research (TIAR) established in 1997, and the Tasmanian Aquaculture and Fisheries Institute (TAFI) established in 1998.

In 2000 the University and the State Government signed a very extensive partnership agreement with sixteen specific schedules and the capacity for new ones to be added. In research the schedules relate to:

- the enhancement of the Menzies Institute, especially its incorporation as a controlled business entity of the University and the provision of State Government icon funding of \$500K annually;
- the establishment of the Tasmanian Law Reform Institute within the University of Tasmania (established in 2001); and
- the development of incubator activities and enhancement of commercialisation opportunities (In-tellinc Pty Ltd established 2001)
- Environmental Research discussions are continuing;

Subsequently the University and the State Government agreed to the enhancement of research in Housing and Urban issues and the University joined the Australian Housing and Urban Research Institute (AHURI) with universities from South Australia and the Northern Territory. The Tasmanian Institute of Law Enforcement Studies commenced in 2002, with joint funding from the Police Department and the University.

The Partnership Agreement has specific targets and milestones and is managed by a Working Party consisting of the senior executive of the University and the Heads of the major government agencies.

Other collaborations with State Government include:

- in Health Research there is a Partners in Health Agreement between the Faculty of Health Science and the State Department of Health and Human Services;
- the Centre for Clinical Research was established in 2002 with joint funding from the University and the State Department of Health and Human Services;
- there is co-location of the Environment and Land Management unit in the Faculty of Science, Engineering and Technology; and
- links with Tourism Tasmania in relation to a cultural heritage initiative, through the CRC for Sustainable Tourism.

The continuation of these partnerships and the delivery of quality outcomes to the University and State Government will be part of an annual review process.

6.3 OTHER PARTNERSHIPS

In addition to its funding from the State Government the Menzies Centre is currently supported by funding from the Menzies Foundation, medical research funds including NHMRC, and other industry funds. Industry funding of approx \$3.25M over five years has been committed to the Genetic Epidemiology Unit.

The University has Memoranda of Understanding with the Australian Antarctic Division, Inland Fisheries and CSIRO Marine Research, in relation to Southern Ocean and fisheries research.

RMIT and Monash University have joined with the University of Tasmania in the establishment of the Australian Centre for Research on Separation Science (ACROSS) with headquarters at the University of Tasmania.

6.4 PARTNERSHIPS WITH INDUSTRY

The University received funding in 2002 from 215 non-government entities, including 21 that are based overseas. A summary of funding sources is outlined below in Table 9.

Table 9: Summary of Funding Sources 2002

Type of Funding Body	1997	1998	1999	2000	2001	2002
Commonwealth Government	23	23	23	36	32	29
Tasmanian Government	8	7	8	9	10	8
Local Government - Tasmanian	2	2	4	10	7	7
Other Government	3	2	8	9	11	13
CRCs	2	3	5	5	4	3
Other Australian Universities	1	2	6	6	9	12
R&D Corporations/Council/Board	12	13	13	10	10	10
Industry - Tasmanian	16	19	35	59	41	43
Industry- Other Australian	20	33	52	54	37	44
Australian Foundations/Charities/Non-Profit	13	14	24	27	22	25
Overseas	5	11	18	20	19	21
Total External Funding Bodies	105	129	196	245	202	215

In the ARC Linkage Grants Scheme (and its predecessors Collaborative and SPIRT schemes), the University has consistently performed well, with a 26% increase in successes from 1998-2003.

The University has identified growth in partnerships with industry as a major priority. To stimulate productive partnerships, it established an Industry-University Collaborative Grant scheme in 1998. This scheme provides small amounts of seed funding along the lines of the Linkage scheme so that partnerships can be fostered. To date the University has committed over \$64K to this scheme, with industry partners contributing nearly \$70K.

The University is a member of the Tasmanian Chamber of Commerce and Industry (TCCI), and has linkages to the Australian Institute of Company Directors. On the basis of these strategies, the University aims to increase industry funding to 2.0% of the national total by 2004.

6.5 NATIONAL RESEARCH PRIORITIES

Although the national research priorities were only announced in 2002, the University of Tasmania has a significant activity in most of the priority areas. We have analysed all of the externally funded projects for last year in order to determine the alignment with these priorities. Since this was inevitably a post-facto determination there is undoubtedly some degree of flexibility in interpretation. Nevertheless, the University clearly undertakes a significant amount of research that falls into the national research priority areas, especially ‘An Environmentally Sustainable Australia’ and ‘Promoting and Maintaining Good Health’. The University has smaller involvement in the ‘Safeguarding Australia’ priority area. An analysis of the funded projects in 2002 demonstrates the following:

Table 10: National Priority Areas and UTas Funded Research 2002

1. AN ENVIRONMENTALLY SUSTAINABLE AUSTRALIA						
1. Water – a critical resource	2. Trans-forming existing industries	3. Overcoming soil loss, salinity & acidity	4. Reducing & capturing emissions in transport & energy generation	5. Sustainable use of Australia’s biodiversity	6. Developing deep earth resources	TOTAL
\$207,047	\$458,188	\$492,863	\$257,948	\$5746,616	\$1,941,600	\$9,104,262
2. PROMOTING & MAINTAINING GOOD HEALTH						
1. A healthy start to life	2. Ageing well, ageing productively	3. Preventative healthcare	TOTAL			
\$1,043,019	\$4,568,055	\$572,615	\$6,183,689			
3. FRONTIER TECHNOLOGIES FOR BUILDING & TRANSFORMING AUSTRALIAN INDUSTRIES						
1. Break-through science	2. Frontier technologies	3. Advanced materials	4. Smart information use	TOTAL		
\$2,894,239	\$1,733,624		\$243,678	\$4,871,541		
4. SAFEGUARDING AUSTRALIA						
1. Critical infrastructure	2. Protecting Australia from invasive diseases & pests	3. Protecting Australia from terrorism & crime	4. Transformational defence technologies	TOTAL		
\$30,815	\$402,521	\$141,567		\$574,903		
GRAND TOTAL – \$ 20,734,395						

In addition the University is contributing to the rural research priorities announced by the Federal Government. Particularly in:

- Sustainable natural resource management;
- Food safety and integrity;
- Protecting Australia from invasive diseases and pests; and
- Developing human capability.

7. INTELLECTUAL PROPERTY, COMMERCIALISATION AND CONTRACTUAL ARRANGEMENTS

The Research and Development Office (RDO), reports to the Pro-Vice-Chancellor (Research) and is responsible for the administration of grants and consultancy operations within the University. To foster commercial linkages and to expedite contract research, templates have been developed through negotiation with industry and business for standard arrangements.

The University's [Consultancy Policy](#) governs internal and external consulting. This provides appropriate commercial costings and ensures that liability; intellectual property and insurance provisions are addressed. The Legal Office works closely with the RDO in contract negotiation and development, to provide advice to the Pro Vice-Chancellor (Research) on contract risk and assessment. University Council, through the Finance Committee has approved a set of costing and pricing schedules to ensure compliance in relation to issues of competitive neutrality.

The University's [Intellectual Property Policy](#) seeks to manage the nexus between protecting the University's investment in research and facilitating industry involvement in the commercial application of University intellectual property. It also seeks to encourage innovation by granting employees a right to share in the returns derived from commercialisation of University intellectual property (IP). Currently income derived from commercialisation of IP is split as follows: staff (50%), their schools (20%) and the University (30%). Equity in spin off companies set up to commercialise University IP will need to be negotiated on a case by case basis.

Like most employers, the University makes a claim on IP generated by its employees in the course of their employment. Whilst the University generally makes no claim over IP developed by students, students associated with projects with commercial potential may be asked to assign their intellectual property to the University in exchange for being treated as staff for the purposes of the distribution of any returns from commercialisation. The Commercialisation Unit is available to provide advice to staff and students in relation to specifics of the policy's implementation.

In September 2002, the University established the [Commercialisation Unit](#) as a University Business Enterprise (UBE) reporting to the Pro-Vice-Chancellor (Research). The Commercialisation Unit is responsible for managing and commercialising the University's IP. The Unit is also responsible for the development and management of the policies and procedures that support its activity, and in particular the administration of the University's IP Policy.

Commercialisation of IP is essentially an investment activity. Financial projections are long term, rather than short term. The activity also provides professional development for staff, funding for research and development and employment opportunities for graduates. The commercialisation process include all the activities associated with identifying, developing and managing University IP from idea or concept through to proof of concept, ongoing development and eventually to market. The Unit trawls Schools, Centres and Institutes for technology that might have market application. Also members of staff are encouraged to contact the Unit if they are aware of technology that might have commercial application. Information is then stored on the University's IP Register so that it can be evaluated. After initial internal evaluation, external consultants are engaged who follow up with researchers in order to provide a detailed technical evaluation. If it is determined that the technology does have market potential the Commercialisation Unit, will, in conjunction with external consultants, work out a plan to develop the technology to an investor ready stage. When the technology has been developed to an investor ready stage, potential investors and or industry partners will be sought.

Since the inception of the Commercialisation Unit, the University has taken a number of steps to further its commercialisation activity, including:

Policies and procedures have been established to facilitate the management and commercialisation of University IP. A revised IP policy factoring in the role of the Unit will be released in early 2004.

The Unit has commenced implementing its education program aimed at educating staff and students about IP, its management and its commercialisation.

An Internal Pre-Seed Fund has been established to take promising technology to 'proof of concept' stage and invest in the commercialisation of University IP.

The Unit has developed working relationship with other commercial offices such as: UniQuest, the Business Liaison office of the University of Sydney, Tunra Pty Ltd and there have been discussions on further collaboration.

Ongoing discussions have been held with the State Government about potential collaboration.

Discussions have been held with the Australian Institute of Commercialisation about using this University and the State Government as a pilot to develop some of our technology to an investor ready stage.

The University is a trust member of the SciVentures™ Pre-Seed Fund with an investment of \$500K. Investment proposals have been submitted to SciVentures™.

The University is an equity partner in In-tellinc Pty Ltd, a company running the IT Incubator in Tasmania. This company, funded through the Intelligent Island program, will take promising IT technology emerging from many sources including the University that requires incubation into the IT Incubator.

The University is investigating the possibilities of spin-off companies to develop University technologies. License agreements for the commercial exploitation of several software packages and products are also under negotiation.

The University established one 'spin-off' company in 2001, Southern Ice Porcelain Pty Ltd that released its first product in mid 2002. In 2001 the University formed a partnership with Callista to market a software product 'Callista Research' developed at the University.

PART B

TABLE (I): HIGHER DEGREE RESEARCH (HDR) STUDENTS (BY EFTSU) IN 2002

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

	All HDR students (EFTSU)	HDR students commencing in 2002 (EFTSU)
All research - by research cluster		
Science & technology	395.6	75.1
Health & medical research	46.3	12.2
Arts, humanities & social sciences	216.9	68.1
Total - All research	658.8	155.4
Areas of research strength		
Antarctic and Southern Ocean Studies	53.5	11.8
Natural Environment and Wilderness	82.5	16.1
National and State Development	189.1	46.4
Population and Community Studies	111.1	25.4
Total - Areas of research strength	436.2	99.7

TABLE (II): RESEARCH INCOME IN 2002**(ii) Research income in 2002**

	Category 1 (\$'000)	Category 2 (\$'000)	Category 3 (\$'000)	Category 4 2001-2002 (\$'000)
All research – by research cluster				
Science & technology	11,101,624	6,278,181	3,031,580	4,813,043
Health & medical research	1,900,116	1,774,074	948,787	0
Arts, humanities & social sciences	1,399,051	430,472	103,135	226,263
Total - All research	14,400,791	8,482,727	4,083,503	5,039,306
Areas of research strength				
Antarctic and Southern Ocean Studies	795,233	468,429	225,497	1,975,000
Natural Environment and Wilderness	515,460	303,630	146,164	2,809,957
National and State Development	7,105,162	4,185,267	2,014,747	254,349
Population and Community Studies	2,413,264	1,421,523	684,308	0
Total - Areas of research strength	10,829,119	6,378,848	3,070,716	5,039,306

TABLE (III): RESEARCH ACTIVE STAFF IN 2002**(iii) Research active staff in 2002**

	Number of staff	Number of staff who generated research income	Number of staff who generated publications	Number of staff eligible to supervise HDR students	Number of staff who supervised HDR students
All research – by research cluster					
Science and technology	365	193.9	281.0	211	161
Health & medical research	103	51.5	84.8	66	40
Arts, humanities & social sciences	149	62.6	142.2	169	142
Total - All research	617	308	508	446	344
Areas of research strength					
Antarctic and Southern Ocean Studies	45	21	39.1	12	16
Natural Environment and Wilderness	68	29	63.9	34	38
National and State Development	213	117.5	156.2	67	84
Population and Community Studies	160	73.5	142.8	38	68
Total - Areas of research strength	486	241	402	151	206

NOTES ON DATA PROVIDED IN TABLE (iii)

Number of staff eligible to supervise HDR students – University employees only

Number of staff who supervised HDR students – University employees only

TABLE (IV): CHARACTERISTICS OF STAFF WHO SUPERVISED HDR STUDENTS IN 2002

(iv) Characteristics of staff who supervised HDR students in 2002

	Share of supervising staff (%)
The share of supervisors who hold a higher degree qualification	92%
The share of supervisors who undertook formal supervisor training in the year	37%
The share of supervisors who have had at least one HDR student complete in the year	28%

VICE-CHANCELLOR'S CERTIFICATION STATEMENT

I, Professor Daryl Le Grew
being the Vice-Chancellor/President (or delegated officer) of
the University of Tasmania

hereby certify that the information in these documents has been compiled in accordance with the guidelines for the 2003 Research and Research Training Management Reports issued by the Department of Education, Science and Training, and that the information contained therein is correct.

Signed:

Title:

Date: