

Summary of Successful Linkage Projects Round 2 Applications for Funding to Commence in July 2006 by State / Institution

Contents

STATE	INSTITUTION	NUMBER OF PROJECTS FUNDED
New South Wales		
	Macquarie University	2
	Southern Cross University	1
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	The University of Sydney	22
	University of Technology, Sydney	3
	University of Western Sydney	4
	University of Wollongong	7
	TOTAL NUMBER	62
Victoria		
	Deakin University	2
	La Trobe University	1
	Monash University	20
	RMIT University	2
	Swinburne University of Technology	1
	The University of Melbourne	20
	University of Ballarat	1
	Victoria University of Technology	1
	TOTAL NUMBER	48
Queensland		
	Griffith University	4
	James Cook University	2
	Queensland University of Technology	16
	The University of Queensland	13
	TOTAL NUMBER	35
South Australia		
	The Flinders University of South Australia	5
	The University of Adelaide	9
	University of South Australia	10
	TOTAL NUMBER	24
Western Australia		
	Curtin University of Technology	4
	Edith Cowan University	1
	Murdoch University	4
	The University of Western Australia	10

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	TOTAL NUMBER	19
Tasmania		
	University of Tasmania	6
	TOTAL NUMBER	6
Northern Territory		
	Charles Darwin University	3
	TOTAL NUMBER	3
Australian Capital Territory		
	The Australian National University	9
	TOTAL NUMBER	9
<hr/> Grand Total of Projects Funded		206

**Summary of Successful Linkage Projects Applications for Funding to commence in July 2006
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New South Wales

Macquarie University

LP0669471 Prof S Crain; Dr R Thornton; Prof H Kado; Prof M Coltheart

Approved Project Title **An MEG (brain imaging) system to study cognitive processing in children**

2006 : \$80,000

2007 : \$95,000

2008 : \$30,000

2009 : \$15,000

Primary RFCD 3803 COGNITIVE SCIENCE

Partner Organisation(s)

Yokowaga Electric Corporation

Administering Institution Macquarie University

Project Summary

This project introduces the world's first brain imaging system to study cognitive processing in children, using magnetoencephalography (MEG). MEG offers precise measurement of brain activities using a non-invasive, non-contact method. MEG is an ideal brain imaging device for use with children and with special clinical populations. It promises to be valuable (a) for the identification of cortical functions of the human brain prior to surgery, (b) for the diagnosis of loci for developmental and acquired brain disorders, (c) in determining pharmaceutical effects on children, and (d) in the assessment of recovery of sensory and cognitive functions following brain injury.

LP0669725 Dr V Strezov; Prof PF Nelson; Dr TJ Evans

Approved Project Title **Mercury emissions from direct iron smelting technology**

2006 : \$50,000

2007 : \$95,000

2008 : \$85,000

2009 : \$40,000

Primary RFCD 2911 ENVIRONMENTAL ENGINEERING

Partner Organisation(s)

Hismelt Corporation

Administering Institution Macquarie University

Project Summary

The proposed research will enhance the environmental performance of the first Australian direct ironmaking industry. This industry will maintain the commitment to environmental responsibility offering cleaner technologies and production. The project will enhance the social acceptability of this metallurgical operation within the regional and global communities. Optimisation of emission reduction technologies will ensure improved environmental standards and awareness of the industry's commitment to improved environmental performance among the local communities. The proposed work will also ensure Australia remains at the forefront of energy and ore utilisation technology, ensuring sustainable resource and environmental management control.

Southern Cross University

LP0669369 Prof RJ Henry; Dr R Reinke; Dr AP Aryan

Approved Project Title **Mining the rice genome for alleles of value in rice improvement**

2006 : \$50,000

2007 : \$100,000

2008 : \$105,000

2009 : \$55,000

Primary RFCD 3002 CROP AND PASTURE PRODUCTION

APA(I) Award(s): 1

Partner Organisation(s)

NSW Department of Primary Industries

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Administering Institution Southern Cross University

Project Summary

Food production and quality are determined by the varieties of food plants that are used in agriculture. A high quality rice genome sequence became available in 2005. This project will mine the data in the sequence to identify genes associated with key production and quality traits. New technologies and strategies will be developed and applied. The discoveries will be of value for the model crop, rice and for other cereal and food crops. Human health benefits from the availability of technologies to combine desirable nutritional traits and attractiveness to humans. This ensures healthy foods will be produced and consumed.

The University of New South Wales

LP0669246 Dr E Baldry; Prof IW Webster; Dr T Butler; Mr SJ Eyland; Mr J Simpson

Approved Project Title **People with Mental Health Disorders and Cognitive Disabilities in the Criminal Justice System**

2006 : \$29,000

2007 : \$67,000

2008 : \$64,000

2009 : \$26,000

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Justice Health
Department of Corrective Services New South Wales
New South Wales Council for Intellectual Disability
NSW Police
NSW Department of Housing
Department of Juvenile Justice

Administering Institution The University of New South Wales

Project Summary

Over 40 000 people are imprisoned in Australia each year, almost half of them in NSW. 40% males and 60% females involved in the NSW CJS have a MHD or CD with many having a dual diagnosis. The appropriateness of the arrest and imprisonment of many people with MHDCD is currently of serious public, social and professional concern. Interventions are hampered by lack of an overall and longitudinal appreciation of the CJS's impact upon and interaction with such people. This study will provide integrated information for the first time in Australia and give CJS and human service agencies a coherent picture of the involvement of people with MHDCD in the CJS, which will assist development of new interventions to address duty of care and human rights.

LP0669837 Dr S Bandyopadhyay; Prof AB Yu; Dr Q Zeng

Approved Project Title **Utilization of fly ash in manufacturing polypropylene composites: a fundamental study**

2006 : \$12,325

2007 : \$24,650

2008 : \$24,650

2009 : \$12,325

Primary RFCD 2914 MATERIALS ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Cement Australia - Pozzalonc Enterprises

Administering Institution The University of New South Wales

Project Summary

A large amount of coal fly ash is generated from thermal power stations and only a small amount has found applications, causing a significant economic and environmental problem in Australia and worldwide. This project aims to develop techniques to use fly ash in the manufacture of polymer composite and, in particular, explore the underlying fundamentals by means of various advanced characterization and simulation techniques. The expected outcomes may lead to an environmentally sustainable and large quantity use of fly ash and bring about new business opportunities. This, together with the proposed research training, represents a useful contribution to the development of a more competitive Australia.

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LP0668907 Dr JB Barnes; Prof C Rizos; A/Prof AG Dempster; Dr J LaMance

Approved Project Title **Structural Deformation Monitoring Integrating a New Wireless Positioning Technology with GPS**

2006 : \$55,000
2007 : \$110,000
2008 : \$110,000
2009 : \$55,000

Primary RFCD 2910 GEOMATIC ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Locata Corporation
 Leica Geosystems

Administering Institution The University of New South Wales

Project Summary

In today's society, current positioning technologies are unable to provide location information with the necessary accuracy, reliability, and low cost, for an expanding number of location aware applications. Locata's positioning technology has the potential to meet these requirements through a network of terrestrial based signal transmitters and GPS integration. The proposed research will provide advanced training to graduate students and enable this technology to be realised. The application of the technology is almost limitless, from surveying and civil engineering projects, manufacturing industries and consumer Location Based Services (LBS), where the benefits would be enormous.

LP0669299 A/Prof S Cohen

Approved Project Title **Ethical Excellence in the Public Sector in New South Wales**

2006 : \$56,056
2007 : \$125,563
2008 : \$69,507

Primary RFCD 4401 PHILOSOPHY

APA(I) Award(s): 1

Partner Organisation(s)

Roads and Traffic Authority, NSW
 NSW Department of Commerce

Administering Institution The University of New South Wales

Project Summary

The benefits are to the public sector, and to the public at large in dealing with public sector organisations. Ethical performance is commonly identified as a deliverable from the public service; and the public trust in this aspect of public service performance is critical. The project will help to establish and identify ethical best practice, allowing those organisations and the public to be aware of and to refer to indicators and transparent performance. It will produce rigorous analysis, and offer recommendations which will have practical implementations.

LP0669402 Prof MR Dadds; Dr DJ Hawes

Approved Project Title **Emotion processing deficits in childhood: Risk for psychopathology and indications for clinical intervention**

2006 : \$50,000
2007 : \$100,000
2008 : \$100,000
2009 : \$50,000

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisation(s)

Royal Far West Children's Health Scheme

Administering Institution The University of New South Wales

Project Summary

Mental health problems and antisocial behaviour cost Australia millions of dollars every year through the mental health and criminal justice systems. Families in rural regions of Australia are particularly disadvantaged in terms of access to clinical services. This research will examine and train emotion recognition skills and other developmental characteristics in children

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referred for treatment for a range of behavioural and psychological disorders. Findings will lead to improvements in methods for early detection of child psychopathology with the potential for broad community implementation, and will contribute to the development of clinical protocols and treatment guidelines for early intervention and prevention.

LP0669543 Dr NJ Kessissoglou; Mr BJ Kenyon

Approved Project Title **Prediction and optimisation of the acoustic performance of mufflers for sleep apnea devices**

2006 : \$12,325

2007 : \$24,650

2008 : \$24,650

2009 : \$12,325

Primary RFCD 2905 MECHANICAL AND INDUSTRIAL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

ResMed Ltd

Administering Institution The University of New South Wales

Project Summary

ResMed is a world leader in the technology of developing products for treating obstructive sleep apnea (OSA). ResMed provided the first successful non-invasive treatment of OSA with their sleep apnea device. Noise reduction is an important issue in the development of this product, since these devices operate on a bedside table. This project will enable the acoustic performance of these small irregularly shaped mufflers to be reliably predicted and optimised. The successful outcomes will improve the quality of the well-being of the user. This research also has relevance to the design of mufflers for use in broader applications such as locomotives and ferries.

LP0669638 Prof Dr JC Lai; Dr AZ Tirkel; Dr TA Evans; A/Prof D Fraser

Approved Project Title **Listen and see: Remote sensing and imaging of insect pests**

2006 : \$24,325

2007 : \$54,325

2008 : \$57,500

2009 : \$27,500

Primary RFCD 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

Scientific Technology

Jl Peston

Administering Institution The University of New South Wales

Project Summary

Australia is the third largest market for termite control, after the USA and Japan. It has been estimated by CSIRO that about one in three Australian houses will be attacked by termites at some stage. Currently, an Australian designed, patented and manufactured product is the only reliable termite detector. This research, developing a novel sensor array and imaging technology, will further consolidate Australia's world leading position in termite detection technology, revolutionise how termite behavioural research will be conducted and significantly increase the world-wide capability in termite control and hence reduce the costs of termite damage. It will deliver significant economic and environmental benefits to Australia.

LP0669493 A/Prof GL Leslie; Dr DE Richardson; Prof AG Fane; Dr HJ Muller

Approved Project Title **Innovative strategy for salt management and water recovery from newsprint mill effluent using membrane processes**

2006 : \$30,000

2007 : \$60,000

2008 : \$55,000

2009 : \$25,000

Primary RFCD 2906 CHEMICAL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

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Norske Skog Paper Mills (Australia) Limited
Memcor

Administering Institution The University of New South Wales

Project Summary

Newsprint mills are a major employer in regional Australia. The mills are located in environmentally sensitive areas, consume large quantities of water and return high levels of salt to the environment. To remain competitive the newsprint industry, like all industries in regional Australia must develop new strategies for water recycling and salt management. Successful execution of this project will minimize water consumption in newsprint production, mitigate the effects of increased sodicity in soils irrigated with mill effluent and accelerate the commercial development a hydrophobic microporous membrane for water recycling and salt removal in environmentally sensitive areas of inland Australia.

LP0669090 Dr P Maheshwari

Approved Project Title **Efficient Web Services Discovery in Peer-to-Peer Networks**

2006 : \$12,325

2007 : \$24,650

2008 : \$24,650

2009 : \$12,325

Primary RFCD 2803 COMPUTER SOFTWARE

APA(I) Award(s): 1

Partner Organisation(s)

Beacon Software Innovations Pty Ltd.

Administering Institution The University of New South Wales

Project Summary

The most direct application of this research will be in the area of applying Web services technologies and discovery techniques for building enterprise-strength, B2B and B2G solutions for the Australian SMEs. Economic benefits are applicable to the Australian SMEs, major government organizations, large cooperations and universities who are considering Web services-based dynamic integration of their IT systems in the near future. The outcomes of this project have potential commercial value for Beacon Software Innovations Pty Ltd, which will put the company in competitive advantage in the budget management software industry.

LP0669801 Dr M Manefield; Prof SL Kjelleberg; A/Prof M Guilhaus; Dr DF Schleheck

Approved Project Title **Microbial community characterisation for bioprocessing of chlorinated hydrocarbon contaminated groundwater**

2006 : \$60,000

2007 : \$108,500

2008 : \$103,500

2009 : \$55,000

Primary RFCD 2703 MICROBIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Orica Australia Pty Ltd

Administering Institution The University of New South Wales

Project Summary

Due to irresponsible industrial practices, Australia has hundreds of polluted soil and water environments. This includes the notorious groundwater contamination underlying Botany in Sydney, an area of rich industrial, residential and cultural significance. The use of microbes to clean up polluted environments, such as the Botany groundwater, is known as bioremediation - a process exploiting the natural metabolic versatility of microbes. To clean up the polluted groundwater in Botany, mixed species communities of pollutant degrading microbes are being produced. Novel tools to reveal the inner workings of these microscopic communities are also being developed, giving Australia an unprecedented advantage in the global bioremediation market.

LP0669480 Dr AS McIntosh; Prof CF Finch; Dr P McCrory; Dr G Rechnitzer

Approved Project Title **Pedal and motor cycle helmet performance study**

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Project Title

2006 : \$45,000
2007 : \$90,000
2008 : \$79,000
2009 : \$34,000

Primary RFCD 2915 BIOMEDICAL ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Australian Transport Safety Bureau
 NRMA Motoring & Services
 Roads and Traffic Authority of NSW
 Transport Accident Commission Victoria
 DVExperts International

Administering Institution The University of New South Wales

Project Summary

Cycling is a form of recreation and transport. Both pedal and motor cyclists are exposed to risks of head and neck injury. These injuries occur in young people and can have substantial health and economic impacts on the individuals and society. It is believed that injury rates can be reduced and an active lifestyle encouraged by improving helmet performance and understanding factors that lead to non-use. As helmet use is mandatory it is important that Australians are provided with optimal helmets. The specification of product standards is also relevant for international trade agreements.

LP0669179 Dr X Shang; Prof IB Katz; Dr AC West

Approved Project Title **Developing An Effective System Of Child Protection In China**

2006 : \$28,188
2007 : \$61,688
2008 : \$64,850
2009 : \$31,350

Primary RFCD 3702 SOCIAL WORK

Partner Organisation(s)

Save the Children UK

Administering Institution The University of New South Wales

Project Summary

This project will be of benefit to Australia in the following aspects: (1) It will provide Australia greater knowledge of child protection practices in a major East Asian society, where kinship and family networks play an active role in protecting children within their own communities. (2) It offers a unique opportunity for Australia to demonstrate its commitment to utilising its own research to the benefit of a major developing country with which it is establishing strong linkages across many activities. (3) It will strengthen the existing connections among Australia higher educational institutions, Chinese government and non-government organizations, and international NGO.

LP0669163 Prof J Shaw; Dr D Del Favero; Prof NC Brown; Prof PJ Compton; Dr M Pagnucco; Dr FA van Schaik; Dr CT Jin; A/Prof H Seah; Prof P Weibel; Ms SI Kenderdine; Mr T Hart; Dr JM Fritz

Approved Project Title **Reformulating narrative in virtual heritage using a co-evolutionary model of immersive interactivity**

2006 : \$72,495
2007 : \$171,764
2008 : \$187,137
2009 : \$87,868

Primary RFCD 4103 CINEMA, ELECTRONIC ARTS AND MULTIMEDIA

APA(I) Award(s): 1

Partner Organisation(s)

Australian Centre for the Moving Image
 EPIDEMIC
 Gollings Photography Pty. Ltd
 Museum Victoria
 ZKM

Administering Institution The University of New South Wales

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Project Summary

The application of machine intelligence research within virtual heritage, interactive cinema and the entertainment industries, with its application across a range of new media art forms, home theatre, location based entertainment, and on-line education, captures pioneering cultural and economic benefits for Australia. This study integrates autonomous machine agent and interface technology with the artistic potential of digital cinema. It provides innovative ways of satisfying the voracious demand for sophisticated content and narrative enrichment in new media and of exploiting the intense global interest in digital forms of entertainment.

LP0669252 A/Prof BK Sidhu; Prof T Smith; Prof JH Roberts; Dr DP Simmonds; Dr EL Welch; Mr GJ Warren

Approved Project Title **The Determinants and Impacts of Analyst Activity in Australian Equity Markets**

2006 : \$47,500

2007 : \$95,000

2008 : \$80,000

2009 : \$32,500

Primary RFCD 3402 APPLIED ECONOMICS

Partner Organisation(s)

Australian Stock Exchange Limited

Administering Institution The University of New South Wales

Project Summary

Deep and liquid markets are essential ingredients to a well functioning capital market, and can assist in capital formation and the growth of firms. A rich information environment is in turn necessary to ensure liquidity and the minimisation of cost of capital. A greater understanding of what promotes a rich information environment, specifically through the activity of financial analysts, will assist in formulation of policies at both the Australian Stock Exchange and individual company level, and indeed at the government level given Federal and State Government initiatives to encourage the growth of corporate Australia.

LP0669678 Prof IH Sloan; Dr AJ Green

Approved Project Title **Novel Mathematical Technologies for Financial Valuation and Risk**

2006 : \$37,500

2007 : \$75,000

2008 : \$73,500

2009 : \$36,000

Primary RFCD 2301 MATHEMATICS

Partner Organisation(s)

Macquarie Bank Ltd

Administering Institution The University of New South Wales

Project Summary

The finance industry is a key industry sector in Australia, with a highly qualified and well-paid work force. The profitability and stability of financial institutions rests in part on their ability to accurately and rapidly value innovative financial products and to quantify risk, yet many contemporary financial products are difficult to value quickly and accurately. This project will bring innovative mathematical technologies to bear on complex financial problems. It has the potential to improve both the profitability and stability of Australian financial institutions, and to enhance their role regionally and internationally.

LP0669462 Dr J Suchard

Approved Project Title **The contribution of the private equity and venture capital industry to the Australian economy and society**

2006 : \$25,500

2007 : \$45,500

2008 : \$37,500

2009 : \$17,500

Primary RFCD 3503 BANKING, FINANCE AND INVESTMENT

Partner Organisation(s)

AVCAL

Summary of Successful Linkage Projects Applications for Funding to commence in July 2006 by State / Institution

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Project Summary

This study enables the priority goal of promoting an innovation culture and economy through research, by assessing the contribution of private equity investment in dynamic firms and evaluating industry practices. It guides the industry body (AVCAL) and the Government in formulating private equity and venture capital policy and initiatives to stimulate innovation and success in the Australian economy. The results allow the assessment of the success of the government programs and assists the private equity industry in quantifying its effectiveness in stimulating economic growth. Further, the study assists entrepreneurial firms developing innovative concepts, in understanding the benefits of seeking venture capital support in Australia.

LP0669264 A/Prof GJ Twite; Prof T Smith; Dr J Kim

Approved Project Title **Valuation, Investment Timing and Equity Financing of Commercial Real Estate in the Australian Market**

2006 : \$17,000

2007 : \$67,000

2008 : \$50,000

Primary RFCD 3503 BANKING, FINANCE AND INVESTMENT

Partner Organisation(s)

AMP Capital Investors
General Property Trust
Jones Lang Lasalle
Macquarie Bank
Westfield Group
Stockland
Australian Stock Exchange
Colliers International

Administering Institution The University of New South Wales

Project Summary

Commercial real estate represents a significant component of the investment opportunities available in Australia. This sector is currently valued at approximately \$1,500 billion with in excess of 85% of development financed via property trusts. The effective management of these assets requires an understanding of the tools available and their impact on risk and return. Despite its importance there is limited empirical evidence on the factors that influence land pricing, the development process and the provision of equity financing to this sector. Here we propose to undertake two interrelated studies designed to address this gap, providing management with a benchmark for assessing investment alternatives within the real estate sector.

LP0669178 Prof MD Willcox; Mr DC Pye; A/Prof C Morris; Dr BJ Walsh; Dr Z Zhao

Approved Project Title **Identification of novel biomarkers for diabetic retinopathy in tears**

2006 : \$25,000

2007 : \$50,000

2008 : \$55,000

2009 : \$30,000

Primary RFCD 2701 BIOCHEMISTRY AND CELL BIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Minomic Pty Ltd
Optometrists Association Australia (NSW Division)
Diabetes Australia-NSW
Institute for Eye Research

Administering Institution The University of New South Wales

Project Summary

There are around 134,000 people with diabetic retinopathy in Australia. The disease affects patients' physical and mental state and economical and social cost is enormous. This research aims to find new biomarkers for the disease which may lead to better treatment and management. Patient's quality of life may be significantly improved by early diagnosis and treatment and the burden to the community reduced. This project also gives industrial partners the opportunity to develop

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new products to diagnose and monitor the disease.

LP0669846 Prof AB Zwi

Approved Project Title **After the questions: outcomes of routine screening for domestic violence in NSW Health services**

2006 : \$14,825
2007 : \$29,650
2008 : \$30,070
2009 : \$15,245

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

NSW Dept Health

Administering Institution The University of New South Wales

Project Summary

Recent research indicates that domestic violence is the leading contributor to death, disability and illness in women aged 15-44 in Australia and leads to health costs of \$314 m annually (VicHealth 2004, Access Economics 2004). Routine screening is a low cost measure aimed at prevention and early intervention for domestic violence, which has been successfully introduced for women entering antenatal, early childhood, mental health and drug and alcohol services operated by NSW Health. The research will be the first study of its size to consider the outcomes of routine screening for domestic violence in public health settings in the Australian context.

The University of Newcastle

LP0669645 Prof JS Jin; Prof JE Aisbett; Mr D Burton; Dr R Hofstetter; Dr M Park

Approved Project Title **Intelligent archiving and retrieving of clinic laboratory records in pathology/radiology informatics study**

2006 : \$46,500
2007 : \$86,500
2008 : \$80,000
2009 : \$40,000

Primary RFCD 2801 INFORMATION SYSTEMS

APA(I) Award(s): 2

Partner Organisation(s)

IntelliRAD Solutions Pty Ltd

Administering Institution The University of Newcastle

Project Summary

Pathology/radiology Informatics has emerged as an arm for developing next-generation pathology/radiology reporting methods, databases, imagery, and diagnostics. Current report archiving systems are very primitive, restricting any sophisticated use of the reports. This proposal aims to develop an innovative pathology/radiology report archiving system capable of automatically extracting useful information from reports. This system will make a smart use of pathology/radiology data and open a new way to extend current tests and examinations from being disease-focussed to being wellness focussed. It will also significantly reduce the number of tests, i.e., associated cost for healthcare.

LP0669646 Prof JS Jin; Dr RD Herbert; Dr S Luo

Approved Project Title **Variation and Perceptual Ecologies in Computer Games and Simulations: Towards a Generic Model of Variable 3D Environments**

2006 : \$12,325
2007 : \$24,650
2008 : \$24,650
2009 : \$12,325

Primary RFCD 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

Fireplay Pty Ltd

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Administering Institution The University of Newcastle

Project Summary

The non repeatability is a key element in providing a challenging and interesting experience in computer games and simulations. However, too much variation could lead to a rejection of the environment and reluctance to accept the premise as a base for game play or training. Examples of applications that could utilise this research include; (a) Computer Games - always playing in an unknown environment, (b) Vocational Training - a Forest Fire Fighting simulation that allows for different terrain configurations, undergrowth volatility, fire source, etc., and (c) Military Simulations - Anti-terrorist simulations where the level of variability will manifest itself both in the physical environment and in the nature of the combatants.

LP0669290 Dr V Lauck; Dr M Lenzen; Dr M Wackernagel; Dr GA Albrecht

Approved Project Title **Advancing the Ecological Footprint for Application to Policy Development**

2006 : \$37,170

2007 : \$74,340

2008 : \$74,340

2009 : \$37,170

Primary RFCD 3602 POLICY AND ADMINISTRATION
APDI Dr V Lauck

Partner Organisation(s)

Forests NSW

Global Footprint Network

EPHC State of Environment Task Force

Administering Institution The University of Newcastle

Project Summary

To be effective, policies that promote Ecologically Sustainable Development (ESD) must operate at many levels. For example, it is of little consequence if individual consumers are empowered to achieve greater sustainability but the capability of corporations and governments to do so remains limited. Our carefully chosen industry collaborations will ensure that effective environmental policy development can be implemented at the global, national, state and corporate level. This will allow us, as a nation, to better protect the resources upon which the environment and the economy rely. This research will also allow Australia to be a world leader in the implementation of sustainable development.

LP0669538 Prof MG Stewart; Dr MJ Masia; Prof AW Page; Dr SJ Lawrence

Approved Project Title **Stochastic Modelling of Strength and Reliability of Masonry Walls Loaded in Flexure and Compression**

2006 : \$14,320

2007 : \$26,645

2008 : \$24,650

2009 : \$12,325

Primary RFCD 2908 CIVIL ENGINEERING
APA(I) Award(s): 1

Partner Organisation(s)

Clay Brick and Paver Institute

Administering Institution The University of Newcastle

Project Summary

For new construction, a more efficient use of structural masonry will mean that less material will be used when compared to masonry structures designed to existing design specifications. This will result in lower construction costs, reduced energy costs and could help contribute to an increase in building approvals. The ability to more accurately assess the safety of existing masonry structures may allow authorities to avoid unnecessary demolition or rehabilitation of such structures. Such infrastructure includes much of Australia's domestic housing, light commercial structures, numerous heritage buildings, and many structures required to serve a post disaster function.

The University of Sydney

LP0669619 Ms KM Albury; Mr CW Evers; A/Prof CA Lumby

Approved Project Title **Safer Sex Beliefs and Practices in Multi-Partner Heterosexuals**

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2006 : \$11,119
2007 : \$20,971
2008 : \$9,852
Primary RFCD 4203 CULTURAL STUDIES

Partner Organisation(s)

FPA Health NSW

Administering Institution The University of Sydney

Project Summary

Recent Australian research has indicated that heterosexuals with multiple or concurrent partners require targeted safer sex messages, and sexual health promotion resources. This is the first Australian study to address these groups, gaining community input into resource development. It is also the first local qualitative study to examine the attitudes, beliefs and safer sex practices of non-lesbian women seeking same-sex partners. The information gathered will assist researchers and educators nationally. Identification of media networks will also aid service provision in rural or regional areas.

LP0669572 Dr J Atai

Approved Project Title **A Novel Optical Network Security and Encryption Device**

Project Title

2006 : \$18,000
2007 : \$33,000
2008 : \$31,500
2009 : \$16,500
Primary RFCD 2805 DATA FORMAT
 APA(I) Award(s): 1

Partner Organisation(s)

Soliton Network Consulting

Administering Institution The University of Sydney

Project Summary

The project falls within two of the designated National Research Priorities, namely Frontier Technologies for Building and Transforming Australian Industries and Safeguarding Australia. The project will generate high quality graduates and will result in a novel photonic device. The outcome of this project would be an optical encryption device that will safeguard Australia through superior secure data communications. It will also create lucrative opportunity for expanding the export capabilities of Australian ICT industry.

LP0669210 Dr SA Balandin; Prof GM Llewellyn

Approved Project Title **The transition of care from ageing parents: achieving flexible relationships between adults with cerebral palsy, their siblings and service providers**

2006 : \$12,604
2007 : \$25,243
2008 : \$25,458
2009 : \$12,819
Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES
 APA(I) Award(s): 1

Partner Organisation(s)

Spastic Centre

Administering Institution The University of Sydney

Project Summary

The Australian community faces a significant challenge in providing life-long care for people with severe disability. We will develop a model that will assist families and service providers to make a smooth, effective transition of care and/or responsibility of adults with cerebral palsy from parents to siblings. Achieving this will increase the quality of life for disabled and nondisabled family members, and ensure a more efficient use of public funding. Our findings will serve as a model for managing the life-long care of people with cerebral palsy and other severe, chronic disabilities, throughout Australia and overseas.

LP0669783 A/Prof GW Barton; Dr DR Ryan; Mr G Black

**Summary of Successful Linkage Projects Applications for Funding to commence in July 2006
by State / Institution**

Approved Project Title **Electrocoagulation as a low-cost option for the continuous treatment of highly polluted wastewater**

2006 : \$21,371
2007 : \$41,009
2008 : \$37,213
2009 : \$17,575

Primary RFCD 2906 CHEMICAL ENGINEERING
APA(I) Award(s): 1

Partner Organisation(s)

AB Mauri Ltd

Administering Institution The University of Sydney

Project Summary

Water is a critically important 'raw material' with less than 0.01% of Earth's total supply being readily available. 'Once through' utilisation of this resource is no longer an acceptable industrial practise. Recycling/reuse of industrial wastewater must become the norm with economic pollutant recovery being seen as integral to the solution. The food/beverage industries are major water users. Detailed scoping work in 2005 has identified electrocoagulation as a technically simple and economically viable option for this industry sector. Our industry partner is part of a global multi-national corporation within which successful wastewater treatment technology will be rapidly exploited and exported.

LP0669137 Dr AF Clarke; Dr JP Philp; Dr R- Torrence

Approved Project Title **Producers and Collectors: Uncovering the Role of Indigenous Agency in the Formation of Museum Collections**

2006 : \$17,325
2007 : \$34,650
2008 : \$34,650
2009 : \$17,325

Primary RFCD 4003 CURATORIAL STUDIES
APA(I) Award(s): 1

Partner Organisation(s)

Australian Museum

Administering Institution The University of Sydney

Project Summary

The research will make a significant contribution to Australian and world scholarship, show the innovation and leadership of Australian scholars in the study of museum collections, and promote goodwill and better diplomacy with Australia's nearest neighbours in PNG. Through examining the history of social relations between Papua New Guineans and 'outsiders' in a region that has long been the focus of Australian interests, the project will contribute to the National Priority' Understanding our region and the world'. By unlocking information about the origin and history of ethnographic collections from Australia's oldest museum, their cultural significance will be shared more widely.

LP0669394 Prof D Feng; Dr Z Wang; Dr M Takatsuka; Dr S Li

Approved Project Title **Semantic Image Access with Intelligent User Interaction**

2006 : \$70,000
2007 : \$135,000
2008 : \$125,000
2009 : \$60,000

Primary RFCD 2801 INFORMATION SYSTEMS

Partner Organisation(s)

Microsoft Australia Pty Ltd

Administering Institution The University of Sydney

Project Summary

Collaborating with the world class Microsoft Research lab on this project will put Australia in the leading position in the field of visual information access, foster new applications to enhance and accelerate visually enabled e-Research, and strengthen Australian ICT. This project will achieve significant advances in image access ranging from the personal level to the professional level, which will power Microsoft search technologies and bring enormous economic benefits to Australia. The

Summary of Successful Linkage Projects Applications for Funding to commence in July 2006 by State / Institution

advances will encourage Australians to widely use visual information. The benefits of this project can also reach the area of Safeguarding Australia by intelligently and automatically collecting and analyzing massive images.

LP0669785 Prof J Götz

Approved Project Title **Pathogenesis of Alzheimer's disease: Dissecting synaptosomal dysfunction in transgenic animal models**

2006 : \$40,000

2007 : \$80,000

2008 : \$40,000

Primary RFCD 2701 BIOCHEMISTRY AND CELL BIOLOGY

Partner Organisation(s)

Hoffmann-LaRoche

Administering Institution The University of Sydney

Project Summary

There is no cure for Alzheimer's disease (AD). This project will dissect pathogenic mechanisms, identify new drug targets, and develop treatment strategies, all of which will be patented and eventually lead to a decrease in health costs in Australia. This research clearly falls under the national research priority of promoting and maintaining good health. Our findings are expected to benefit patients in addition to those suffering from AD, as pathocascades and pathogenic mechanisms are shared between a range of neurodegenerative disorders.

LP0669658 Dr JM Guss; Dr CA Collyer; Dr IA McDonald

Approved Project Title **Structure-based inhibitor design of VAP-1/SSAO for the treatment of respiratory disorders and other major inflammatory diseases**

2006 : \$45,000

2007 : \$90,000

2008 : \$100,000

2009 : \$55,000

Primary RFCD 3203 MEDICAL BIOCHEMISTRY AND CLINICAL CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

Pharmaxis Ltd

Administering Institution The University of Sydney

Project Summary

Inflammatory diseases, such as asthma, rheumatoid arthritis and multiple sclerosis, are widespread and often poorly treated in Australia and elsewhere. Inhibitors of the recently studied VAP-1/SSAO protein are predicted to effectively treat the inflammation symptoms of one or more of these diseases. A structure-based approach to discover these new medicines should provide a means to identify patentable compounds, with high potency, efficacy and safety. If this approach is successful, an Australian pharmaceutical company will be one of the first to the market with this new medicine to treat these chronic diseases.

LP0669261 Dr DS Jarvis; Dr T O'Callaghan

Approved Project Title **Assessing the Role of Political and Regulatory Risks for Foreign Investors: A Multi-Country Study of Four Industry Sectors**

2006 : \$60,000

2007 : \$122,500

2008 : \$102,500

2009 : \$50,000

2010 : \$10,000

Primary RFCD 3601 POLITICAL SCIENCE

Partner Organisation(s)

Nomura Australia Limited

Gold Fields Australasia

South Australian Chamber of Mines and Energy

Administering Institution The University of Sydney

Summary of Successful Linkage Projects Applications for Funding to commence in July 2006 by State / Institution

Project Summary

This project will benefit Australian enterprise engaged in investment activities in Asia by providing them with the necessary methodological and analytical systems to identify, measure and assess political and regulatory risks to their investment interests. By doing so, the project will increase the investment transparency of Asia's emerging economies and thus the ability of Australian enterprise to operate efficiently in institutionally complex and competitive offshore environments. This will benefit Australia's economy by strengthening Australia's national economic security and the safety of Australia's national savings invested in the region.

LP0668979 Dr DS Jeng; Dr A Vila Concejo; Prof AD Short; Dr MG Hughes; Dr RJ Ranasinghe

Approved Project Title **Port Stephens Flood Tide Delta: Shoreline Management Issues**

2006 : \$61,820

2007 : \$123,640

2008 : \$123,640

2009 : \$61,820

Primary RFCD 2912 MARITIME ENGINEERING

APA(I) Award(s): 2

APDI Dr A Vila Concejo

Partner Organisation(s)

NSW Department of Natural Resources

Great Lake Council

Port Stephens Council

DHI Water & Environment Pty Ltd

Jimmys Beach Association

Administering Institution The University of Sydney

Project Summary

The results of this project will contribute substantially to the knowledge of flood tide delta morphodynamics and specifically to those deltas exposed to ocean waves which are most typical throughout eastern and southern Australia. The model generated by the project will be used to test solutions to the problems in Port Stephens and more generally to similar systems elsewhere in Australia. The model will permit the assessment of the responses of the deltas and shoreline to climate change, changing wave climate and reinvigorated sediment budgets, thereby addressing National Research priority-Responding to climate change and variability. The project will provide training for one APDI and two APAs in a range of skills.

LP0669336 Prof Dr T Maschmeyer; Prof BS Haynes

Approved Project Title **Supercritical Highly-Integrated and Modular, Continuous Solid-Catalysed Biodiesel Production from Plant and Animal Feedstocks**

2006 : \$77,500

2007 : \$190,000

2008 : \$225,000

2009 : \$112,500

Primary RFCD 2906 CHEMICAL ENGINEERING

Partner Organisation(s)

Australian Biodiesel Group

Administering Institution The University of Sydney

Project Summary

We propose to revolutionise biodiesel production by creating a new reactor type and associated process that allows the production of 160,000 tonnes of biodiesel a year in a supercritical reactor volume of one cubic metre after scale-up. In this project, we propose to design the appropriate catalysts and pilot plant to study our ideas which should lead to a highly efficient and sustainable system that offers a real alternative to current mineral oil-based technologies.

LP0669908 Dr PD McGreevy; Dr AN Wilton

Approved Project Title **The Functional Significance of Motor Laterality in Dogs**

2006 : \$12,325

**Summary of Successful Linkage Projects Applications for Funding to commence in July 2006
by State / Institution**

2007 : \$24,650
2008 : \$24,650
2009 : \$12,325
Primary RFCD 3004 ANIMAL PRODUCTION
 APA(I) Award(s): 1

Partner Organisation(s)

Guide Dogs NSW/ACT
 NSW Police Service - State Protection Group - DOG UNIT

Administering Institution The University of Sydney

Project Summary

Just as humans are left- or right-handed, dogs are left-and right-pawed and, most importantly, left-pawed individuals tend towards innate fearfulness. Using dogs as a model, this project will explore lateralisation in general.

Guide dogs and police dogs are required to work only on one side of their handlers. This convention is likely to affect the work of individual dogs. This project will examine the extent to which pawedness predicts success in working dog training. It has the potential to reduce wastage that comes from recruitment of unsuitable dogs and will also improve our understanding of family pets.

LP0668879 Dr AJ Munn; Prof CR Dickman; A/Prof MB Thompson

Approved Project Title **Avoiding Environmental Bankruptcy: the grazing impacts of red kangaroos and sheep**

2006 : \$50,000
2007 : \$92,500
2008 : \$79,670
2009 : \$37,170
Primary RFCD 2707 ECOLOGY AND EVOLUTION
 APDI Dr AJ Munn

Partner Organisation(s)

Department of Environment and Conservation NSW
 Department of Environment and Heritage SA
 Department of Conservation and Land Management WA
 Department of Primary Industries NSW

Administering Institution The University of Sydney

Project Summary

Overgrazing is one of the most serious environmental and economic problems in Australia. By mitigating overgrazing, our project has three major benefits. Firstly, quantification of the foraging requirements for free-ranging sheep and kangaroos will, for the first time, allow us to identify sustainable practices that prevent overgrazing and contribute to significant land recovery. Secondly, a new mechanistic model for predicting herbivore dynamics will allow us to evaluate potential impacts of climate change on future grazing pressures. Thirdly, our results will inform management plans to sustain Australia's arid rangelands as productive, bio-diverse environments, which currently provide economic returns in excess of \$20 billion p.a.

LP0669286 A/Prof BP Oldroyd

Approved Project Title **Marker assisted selection of honey bees**

2006 : \$17,500
2007 : \$32,500
2008 : \$35,000
2009 : \$20,000
Primary RFCD 3004 ANIMAL PRODUCTION
 APA(I) Award(s): 1

Partner Organisation(s)

Australian Queen Bee Breeding Group

Administering Institution The University of Sydney

Project Summary

The project will develop new molecular markers for commercially relevant trait of honey bees and ways of using these to implement marker-assisted selection for honey bee genetic improvement. Beekeepers need to use genetically improved

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stock to remain competitive. Honey production needs to be improved, and new ways of identifying disease resistant bees are needed. Unfortunately, breeding bees is very difficult. This project will use modern molecular genetic techniques to help find new efficient ways to breed better bees. The benefits will be a more viable beekeeping sector, a keystone industry that provides pollination services essential to many horticultural industries

LP0669685 Dr U Roehm

Approved Project Title **Implementing Bioinformatics Algorithms using .NET-based Stored Procedures in a Database Cluster**

2006 : \$13,325

2007 : \$25,650

2008 : \$24,650

2009 : \$12,325

Primary RFCD 2801 INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

Microsoft Research

Administering Institution The University of Sydney

Project Summary

We will create the technology for significantly improving the management, processing and sharing of biological data. Areas in which Australia has a large stake, including the development of new drugs, disease research, and agricultural genetic engineering, stand to benefit considerably from these advances. This contribution by Australian researchers to a global problem will have a positive impact on our own health industry, and will provide the foundation for improvements in agriculture and financial services.

LP0669653 Prof PN Sambrook

Approved Project Title **Genetics of Postmenopausal Bone Loss**

2006 : \$20,921

2007 : \$45,112

2008 : \$24,191

Primary RFCD 2702 GENETICS

Partner Organisation(s)

Lincoln Centre

Roche Pharmaceuticals

Administering Institution The University of Sydney

Project Summary

The major consequence of bone loss in our ageing society is fracture. At 50 years for women, the lifetime risk of sustaining an osteoporotic fracture is 50%. The consequences of these fractures, which can include reduced life expectancy, prolonged medical care, and loss of independence, have a profound socioeconomic impact in an ageing population. The proposed study offers a unique opportunity to examine the contribution of genetic factors to postmenopausal osteoporosis.

LP0669266 Dr E Schonstein; A/Prof ID Cameron; Dr U Bultmann

Approved Project Title **Collaborative approaches to the prevention of work related injuries in railway workers**

2006 : \$60,000

2007 : \$110,000

2008 : \$100,000

2009 : \$50,000

Primary RFCD 3210 CLINICAL SCIENCES

APDI Dr E Schonstein

Partner Organisation(s)

RailCorp

Administering Institution The University of Sydney

Project Summary

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by State / Institution**

RailCorp NSW is a large employer within the NSW transport industry sector and as such has a high potential exposure to occupational injury. RailCorp has committed to the safety of its employees through its efforts towards a systematic identification of injury risk factors to create a safer workplace as well as creating a 'risk aware safety culture'. Interventions which are effective in reducing the incidence and severity of work related injuries have not only immediate benefits both in terms of human (workforce retention, job satisfaction, job performance, etc) and financial factors for RailCorp management and its employees but has wider applications to other comparable complex high risk industries.

LP0669080 Prof SJ Simpson; Dr GA Sword; Mr L McCulloch; Ms M Chapuis; Dr MJ Steinbauer

Approved Project Title **Australian plague locust population genetics and migratory behaviour**

2006 : \$80,000

2007 : \$137,000

2008 : \$119,500

2009 : \$62,500

Primary RFCD 2702 GENETICS

APA(I) Award(s): 1

APDI Ms M Chapuis

Partner Organisation(s)

Department of Agriculture, Fisheries & Forestry

Administering Institution The University of Sydney

Project Summary

The project will allow improved monitoring and forecasting of locusts in Australia and thereby help prevent locust outbreaks. Benefits will arise directly through greater effectiveness in reducing locust damage to crops, and indirectly to Australian rural industry generally through the economic benefits of reduced losses and locust control costs. Environmental and social benefits will also arise from reduced, better targeted use of chemical insecticides. This in turn can produce secondary economic benefits, e.g. through enhanced growth and profitability of the organic beef industry within the main locust-outbreak area.

LP0669329 Prof GG Warr; Dr BS Hawkett; Prof RI Tanner; Dr J Gore

Approved Project Title **Bubble Stabilization and Density Control in Self-Supporting Explosive Emulsions**

2006 : \$82,500

2007 : \$165,000

2008 : \$187,500

2009 : \$105,000

Primary RFCD 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

Partner Organisation(s)

Dyno Nobel (Asia Pacific) Ltd

Administering Institution The University of Sydney

Project Summary

The mining industry in Australia employs about 70,000 people and has a total sales and service income of about \$55B. Most mining outputs are commodities and a reduction in cost is the primary method of increasing market share. DNAP is a major supplier of explosive services to mines that produce coal, iron ore and gold for export. The work in this project will lead to more efficient explosives emulsions and allow mining to lower total cost per unit sold. Such improvements in mining efficiencies will have a direct impact of the selling price of the product. Increased export earnings and a greater number of people employed in the industry would be direct results of the successful completion of the work proposed.

LP0668895 Prof EA Webby; Dr CM Cole

Approved Project Title **Australian Poetry: Production, Distribution and Reception**

2006 : \$114,600

2007 : \$195,720

2008 : \$176,610

2009 : \$95,489

Primary RFCD 4202 LITERATURE STUDIES

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APA(I) Award(s): 1

Partner Organisation(s)

Copyright Agency Limited

Administering Institution The University of Sydney

Project Summary

This project will promote a greater appreciation and understanding of Australian poetry by providing electronic access to a wide and reliable range of poetic texts as well as to extensive critical and other material relating to them. It will encourage teachers to use more Australian material in their English classes as well as making Australian poetry much more available to readers in remote and regional areas and overseas. It will also help Australian poets by increasing awareness of their work; involvement of the collaborating organisation CAL will ensure that writers receive payment for use of copyright material.

LP0669552 Prof RE Wood; Dr JF Beckmann; Dr DP Birney; Dr S Gary; Dr N Beckmann; Mr DB Bowman

Approved Flexible Expertise in Senior Executives

Project Title

2006 : \$325,000

2007 : \$467,164

2008 : \$452,283

2009 : \$475,635

2010 : \$265,517

2011: \$100,000

Primary RFCD 3801 PSYCHOLOGY

APA(I) Award(s): 3

APDI Dr N Beckmann

APDI Mr DB Bowman

Partner Organisation(s)

Macquarie Bank

Brambles

Booz Allen Hamilton

Qantas

IAG Insurance Australia Group

Egon Zehnder International

ANZ Australia and New Zealand Banking Group

Administering Institution The University of Sydney

Project Summary

The prosperity of Australian society requires effective management in the face of accelerating economic, technological, social, and environmental changes. Leaders of Australian organizations must display flexibility in responding to the increasingly fluid and complex problems that confront them if they are to succeed in the global economy. An innovative model of flexible expertise that links synergisms of knowledge, self-regulatory processes, transfer and learning will be developed in studies of managers from leading Australian organizations. The results will be used to inform programs to accelerate the development of flexible expertise and leadership skills and address the current lack of human capital to fill executive leadership roles.

LP0669848 Prof L Zhang

Approved Novel Cutting Picks for Mining Industry and an Australian Standard

Project Title

2006 : \$45,000

2007 : \$95,000

2008 : \$105,000

2009 : \$55,000

Primary RFCD 2907 RESOURCES ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Age Mining Services Pty Ltd

Administering Institution The University of Sydney

Project Summary

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This research will enable the development of highly efficient and robust mining picks and establish the methodology and techniques for setting up an Australian standard for mining picks which does not exist at present but is imperatively needed by the mining industry. The novel technology will provide effective solutions to improving mine environment and safety, and reducing nation's power consumption, green house gas emission, and environmental pollution. These will in turn reduce the probability of black lung which has been the biggest killer of underground workers in mines.

University of Technology, Sydney

LP0669111 Prof MB Cortie; A/Prof PC Mulvaney

Approved Project Title **Development of new methods for the synthesis of plasmonically-active precious metal rods and shells**

2006 : \$20,000

2007 : \$40,000

2008 : \$40,000

2009 : \$20,000

Primary RFCD 2918 INTERDISCIPLINARY ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

AGR Matthey

Administering Institution University of Technology, Sydney

Project Summary

This project directly addresses the National Research Priority on building and transforming Australian industries. It will position an Australian manufacturer as the world-leading supplier of speciality precious metal nanoparticles. The project is designed to add significant value to the precious metals products emanating from Australia. In addition to benefiting an existing manufacturing operation, it is also expected to assist Australian researchers to capture a leadership role in commercialising new applications for these materials.

LP0669475 Prof SJ Donald; Prof JG Gammack; Dr TD Anderson; Dr M Sankey; Ms VR Winter

Approved Project Title **Mobile Me: Young People, Sociality and the Mobile Phone**

2006 : \$20,500

2007 : \$40,500

2008 : \$41,500

2009 : \$21,500

Primary RFCD 3701 SOCIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

New South Wales Commission for Children and Young People

Administering Institution University of Technology, Sydney

Project Summary

The project tests and reinforces child-centred, participatory research practices and outcomes. It underlines the NSW Commission for Children and Young People's commitment to investigating contemporary problems and opportunities for young people, and to formulating appropriate policy responses. The project is designed to elicit and interpret young people's and pre-teen's views on their communicative environment, and to understand the mechanisms through which social relationships, information conduits, and knowledge networks are built and sustained. The dissemination of the findings will bring young people, educationalists and industry players into a productive dialogue on the benefits and dangers of this pervasive technology.

LP0669063 Prof D Eamus; Dr I Yunusa; Dr NP Merrick

Approved Project Title **Stabilization of hydrology at waste disposal sites through revegetation**

2006 : \$35,272

2007 : \$66,511

2008 : \$61,581

2009 : \$41,343

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2010 : \$11,000
Primary RFCD 3006 FORESTRY SCIENCES
APA(I) Award(s): 2

Partner Organisation(s)

WSN Environmental Solutions

Administering Institution University of Technology, Sydney

Project Summary

Persistent drought in the past 20 years has increased the extraction of groundwater reserves by more than 2-fold to meet domestic water requirements throughout Australia. This water resource could be threatened from poorly managed waste disposal sites, where removal of pre-existing vegetation often exacerbates adverse hydrological processes of deep drainage. This study will provide information for the waste management industry that has achieved an annual turnover of more than \$200 million in recent years. It will present recommendations on how vegetation can be employed to meet regulatory requirements by the industry.

University of Western Sydney

LP0669256 Prof RG Craven; Dr AJ Martin; Em/Prof T Vinson; Mr WJ Johnson; Mr P Slator; Dr DK Tracey

Approved Project Title **Positive Pathways to Reading for Disadvantaged Children: Identifying Psychosocial Antecedents and Implementing Effective Intervention to Enhance Literacy, Self-concept, and Motivation**

2006 : \$40,000
2007 : \$90,000
2008 : \$100,000
2009 : \$50,000

Primary RFCD 3301 EDUCATION STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Learning Links

Unilever Australasia

Administering Institution University of Western Sydney

Project Summary

Early intervention to combat reading difficulties in primary schools is vital given the pervasive long-term academic and mental health consequences. Consistent with National Research Priorities (Promoting/maintaining good health/well-being), our research offers important educational/socio-economic benefits by: enriching disadvantaged children's reading achievement, promoting psychosocial adjustment and life potential, and elucidating multiplier effects of the intervention on volunteers administering the intervention, home life, and school engagement. Synergies between substantive research, methodological rigour, and practice will ensure real solutions and a research framework that will make a substantial contribution to Australia's future.

LP0669546 A/Prof SB Dockett; A/Prof RW Perry; Prof J Mason; Ms AC Hampshire; Adj/Prof VA Schmied

Approved Project Title **Facilitating children's transition to school within families with complex support needs**

2006 : \$31,500
2007 : \$53,000
2008 : \$21,500

Primary RFCD 3301 EDUCATION STUDIES

Partner Organisation(s)

Mission Australia

NSW Department of Community Services

Administering Institution University of Western Sydney

Project Summary

This project aligns with National Research Priority 2: Promoting and Maintaining Good Health. Specifically, it links with the Priority Goals of promoting A healthy start to life and Strengthening Australia's social and economic fabric. A positive start to school promotes future academic and social success, as well as promoting general health and well-being. School failure and lack of engagement with school is related to poor long term outcomes and increased social and economic dependency. The project also relates to the key action areas identified in the National Agenda for Early Childhood and the Stronger Families and Communities Strategy.

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by State / Institution**

LP0668875 Prof DE Jackson; A/Prof MH Vickers; Prof LM Wilkes; Mrs M Clarke; Mrs M Drum

Approved Project Title **Surviving and thriving in the face of workplace adversity: An intervention to develop personal resilience in nurses and midwives**

2006 : \$12,325
2007 : \$24,650
2008 : \$24,650
2009 : \$12,325

Primary RFCD 3211 NURSING
 APA(I) Award(s): 1

Partner Organisation(s)

Sydney West Area Health Service

Administering Institution University of Western Sydney

Project Summary

This project will provide evidence about resilience as a strategy to enhance the ability of nurses and midwives to thrive in climates of rapid organisational change. Findings of this study will provide information about the value of initiating sustainable strategies that can support nurses and midwives to develop their personal resilience. Australia is currently experiencing an acute and chronic shortage of nurses and midwives, and findings of this study will assist organisations by providing a validated and sensitive model to develop resilience in staff. This may reduce staff turnover and contribute to the retention of nurses and midwives.

LP0668926 Dr C Reid; Prof JH Collins; Prof M Singh

Approved Project Title **Goodbye Mr Chips, Hello Ms Bannerjee: Globalisation and Teacher Movements into and out of multicultural Australia**

2006 : \$23,000
2007 : \$53,500
2008 : \$30,500

Primary RFCD 3301 EDUCATION STUDIES

Partner Organisation(s)

New South Wales Teachers Federation

Overseas Qualifications Unit, Western Australian Department of Education and Training

South Australian Government, Department of Education and Children's Services

Australian Education Union, South Australian Branch

Department of Education and Training

New South Wales Department of Education and Training

Administering Institution University of Western Sydney

Project Summary

Education underpins a cohesive and successful society, but today education is increasingly globalised. This project explores the 'brain circulation' of Australian teaching professionals. It will produce a comprehensive national picture of the dynamics (personal and institutional) underlying the movement of teachers into and out of Australia, with a focus on regional and rural areas as well as the cities. It will result in a refining of Australia's policies and procedures in order to better attract and retain immigrant teachers and to regain emigrant teachers.

University of Wollongong

LP0669368 Dr SJ Bennett; Dr L Lockyer; Dr SF Agostinho; Prof BM Harper; Prof Dr EJ Koper

Approved Project Title **Improving university teaching: Creating strategies and tools to support the design process**

2006 : \$25,000
2007 : \$45,000
2008 : \$45,000
2009 : \$25,000

Primary RFCD 3301 EDUCATION STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Janison Solutions Pty Ltd

Summary of Successful Linkage Projects Applications for Funding to commence in July 2006 by State / Institution

Administering Institution University of Wollongong

Project Summary

This project will create strategies and tools to help university teachers design effective online learning experiences. Excellence in online education is important to Australia, socially and economically. Social benefits come from greater participation and graduates better equipped to contribute to their communities. Economic benefits come from graduates with skills and knowledge to be flexible, adaptable and productive in a dynamic workplace. As high quality online education providers, Australian universities will be more competitive in the international education market. This project will raise the profile of Australian research and lead to new commercial ventures through the development of innovative technologies for online learning.

LP0669458 Dr P Caputi; A/Prof R Jayasuriya

Approved Project Title **Post adoptive behavior in IT enabled work systems: Using multi-method research to study implementation of enterprise systems in a large organization.**

2006 : \$12,325

2007 : \$24,650

2008 : \$24,650

2009 : \$12,325

Primary RFCD 3502 BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

Bluescope Steel Ltd

Administering Institution University of Wollongong

Project Summary

Massive investments are made by organizations to implement enterprise wide information systems (enterprise systems) but many have failed or lack expected benefits. Current research on user acceptance is limited as they do not consider post adoptive behaviour, when the main gains are to be made. Using mixed methods, a series of studies in four settings of a multi national organization will be conducted. A new integrated model for post adoptive behaviour will be developed and tested to inform industry and the research community. The findings will provide guidance to effective training and change management in enterprise systems implementation.

LP0669613 Dr TR Coltman; Prof TA Spedding; Dr JL Gattorna; Prof TM Devinney

Approved Project Title **A Simulation-Based Approach to Understanding Alternative Supply Chain Configurations**

2006 : \$28,000

2007 : \$53,000

2008 : \$50,000

2009 : \$25,000

Primary RFCD 3502 BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

BlueScope Steel

Administering Institution University of Wollongong

Project Summary

The research developed in this project has value to the broader Australian community because it will lead to the development of a decision support system for configuring more strategic, cost effective and efficient supply chains. The modelling techniques developed in the project together with the crucial training and experience in large scale experimental and survey techniques will help to establish a high quality centre for supply chain research. The decision support system and other techniques utilised in the project have potential for commercialisation for the benefit of Australian commerce.

LP0669602 Prof RJ Dippenaar; Dr Z Chen; Dr DJ Nolan; Mr JG Williams; Dr FJ Barbaro; Mr CR Killmore

Approved Project Title **New Generation Pipeline and Q&T Plate Steels**

2006 : \$94,412

2007 : \$200,611

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by State / Institution**

2008 : \$148,529
2009 : \$147,681
2010 : \$205,351
2011: \$100,000

Primary RFCD 2913 METALLURGY
 APA(I) Award(s): 2

Partner Organisation(s)

BlueScope Steel

Administering Institution University of Wollongong

Project Summary

If successful, the progressive reformulation of the alloy design of a new family of steels would enhance their properties, greatly reduce the complexity of manufacture, ensure more efficient steelmaking production practices and enable the full capacity of the domestic pipe mills and plate manufacturing facilities to be realised. This innovative and new approach opens up opportunities for market growth and export potential in areas of fundamental importance to Australia's infrastructure and mining industries and defence capability. Implementation of this newly developed technology would, for the first time, create export market opportunities for Australian pipe manufacturers.

LP0669456 Prof SX Dou; Dr D Shi; Dr MJ Qin; Dr T Beales; Mr CJ Hawley

Approved Project Title **Development of high performance second generation superconductors**

2006 : \$115,000
2007 : \$217,500
2008 : \$192,936
2009 : \$90,436

Primary RFCD 2914 MATERIALS ENGINEERING
 APA(I) Award(s): 1
 APDI Dr D Shi

Partner Organisation(s)

AUSTRALIAN SUPERCONDUCTORS

Administering Institution University of Wollongong

Project Summary

Robust, high performance high temperature superconductor (HTS) wire underpins a worldwide opportunity to revolutionize the electric power grid, transportation, electronics and many other industries with a new generation of high efficiency, compact, and environmentally friendly electrical equipment. This program combines our expertise in superconductor thin-film fabrication and characterization and expertise of a local industrial partner in the development of superconducting wires. The success of the proposed project will bring benefit to local industry and employment, and significantly enhance the international competitiveness in HTS of Australian industry.

LP0668835 Prof BN Indraratna; Dr MA Ismail; Mr R Armstrong; Mr VC Wijeyakulasuriya

Approved Project Title **Stabilisation of erodible and dispersive soils with natural wood processing by-products**

2006 : \$34,472
2007 : \$70,209
2008 : \$72,741
2009 : \$37,003

Primary RFCD 2908 CIVIL ENGINEERING

Partner Organisation(s)

CHEMSTAB Consulting Pty Ltd

Queensland Department of Main Roads

Administering Institution University of Wollongong

Project Summary

Lignosulfonate is a by-product of paper and wood processing industry, which is an environmentally friendly organic compound with an immense potential for stabilising erodible and dispersive soils when mixed in small quantities. This project will deliver practical design guidelines and specifications for sustainable performance of road and rail embankments that are treated with lignosulfonates. Utilisation of lignosulfonates in soil stabilisation is not only cost-effective, but also has the benefit of

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eliminating a waste disposal problem. The proposed project will improve industrial competitiveness and Australia's export earnings through increased commercialisation and technology transfer in the region.

LP0668876 Prof GG Wallace; Dr PC Innis; Prof HJ Griesser; Dr PJ Murphy; Dr SA Edwards

Approved Project Title **Development of Novel Nanostructured Electro-optical Systems**

2006 : \$140,000

2007 : \$282,500

2008 : \$297,500

2009 : \$155,000

Primary RFCD 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

APA(I) Award(s): 2

Partner Organisation(s)

Schefenacker Vision Systems

Administering Institution University of Wollongong

Project Summary

The development of flexible and conformal electro-optical systems will strengthen Australia's position in the automotive industry establishing a value adding technology. The auto-dimming mirror industry is worth in excess of US\$500 million per annum, with predictions of industry sales of US\$2 billion. This project will tap existing Australian manufacturing capabilities and utilise the intellectual capacity of internationally recognised scientists from UoW and UniSA. The science behind this proposed development will have significance well beyond its initial scope with applications in areas such as ophthalmic lenses, architectural glazing and electronic textiles providing further Australian opportunities in these rapidly developing areas.

Victoria

Deakin University

LP0669808 Prof S Nahavandi; Dr HM Trinh

Approved Project Title **A hybrid multi-agent technique for shop floor control**

2006 : \$43,500

2007 : \$90,000

2008 : \$94,000

2009 : \$47,500

Primary RFCD 2903 MANUFACTURING ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Glenvern Technologies Pty Ltd

Administering Institution Deakin University

Project Summary

The new knowledge and techniques, as a result of this research project, will have direct relevance to many Australian industries. In particular, they provide opportunities to improve Australia's competitiveness through innovations for the manufacturing sector. The project will enable the development of the state-of-the-art simulation software readily accessible to a larger section of industry, including small to medium sized manufacturers. The use of meta-modelling will improve control of processes on the shop floor. Combining process meta-models with hybrid discrete event-based agent optimisation will result in increased shop floor efficiency, assisting Australian industry to be competitive in the world market.

LP0669591 Prof X Wang; Dr L Wang

Approved Project Title **Understanding the Drafting-against-Untwisting Process for Engineering Fine and Soft Yarns of Low Hairiness**

2006 : \$36,011

2007 : \$70,791

2008 : \$68,329

2009 : \$33,549

Primary RFCD 2903 MANUFACTURING ENGINEERING

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Partner Organisation(s)

Merinomark P/L
Graham Walters & Associates P/L

Administering Institution Deakin University

Project Summary

This research will lead to much improved understanding of a very novel yarn engineering process to achieve fine, soft and low-hairiness yarns from natural fibres. It will demonstrate that Australia not only provides quality wool and cotton fibres, but also leads the world in innovative textile engineering technologies that can enhance the competitive positions of its natural fibres in the global fibre market. This research promotes value adding in Australian fibre products by developing advanced yarn engineering technology, which will be of significant national benefit to the multi-billion natural fibre industries in Australia.

La Trobe University

LP0668937 Prof PA Sullivan; A/Prof VR Prain; Ms C Campbell; Dr CG Deed; Dr AM McDonough; Dr CJ Smith; Dr B Tadich; Dr S Tobias

Approved Project Title **Influences on students' learning goals and their capacity for self-regulation**

2006 : \$40,000
2007 : \$80,000
2008 : \$80,000
2009 : \$40,000

Primary RFCD 3301 EDUCATION STUDIES

APA(I) Award(s): 2

Partner Organisation(s)

Catholic College Bendigo
Weeroona College Bendigo
Sandhurst Catholic Education Office

Administering Institution La Trobe University

Project Summary

There is an obvious connection between maximizing learning of young people and the nation's future. Currently many young people are missing opportunities for learning at school, and this not only reduces their own opportunities, thereby increasing their risk of long term dependence on government services, but also reduces overall social capital. The project will evaluate teaching strategies that have potential to enhance the participation of students in learning in the middle years.

The project will be of direct benefit to regional and rural communities since it is conducted in regional and rural schools with their particular challenges, including community pessimism, reduced vocational aspirations, and limited role models.

Monash University

LP0669755 Dr J Beardall; Dr L Gunthorpe

Approved Project Title **Effects of environmental factors on ecophysiological performance in the toxic cyanobacterium Nodularia.**

2006 : \$12,325
2007 : \$24,650
2008 : \$12,325

Primary RFCD 2704 BOTANY

APA(I) Award(s): 1

Partner Organisation(s)

Primary Industries Research Victoria

Administering Institution Monash University

Project Summary

Nodularia is a toxic cyanobacterium that causes problem blooms in Australian waters and worldwide. The effects of environmental conditions on physiological processes in Nodularia are poorly understood and information on the effects on macromolecular synthesis and photosynthesis in Nodularia is limited. This project is of fundamental biological importance, making a major contribution to understanding the impacts of environmental conditions on the physiological performance and ecology of Nodularia. The research has significance, both nationally and internationally, for the prediction of algal blooms in coastal and estuarine ecosystems, and will increase our knowledge of the factors controlling growth and toxicity of Nodularia worldwide.

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LP0669532 Dr LN Binh; Mr SL Mutabazi

Approved Project Title **Development of a novel photonic reticulation system for cost efficient delivery of high bandwidth communication services to regional communities.**

2006 : \$34,783

2007 : \$34,783

Primary RFCD 2801 INFORMATION SYSTEMS

Partner Organisation(s)

Ausanda Communications Pty. Ltd.

Administering Institution Monash University

Project Summary

The R&D and commercialisation of the DWDM-lite will have a significant impact on the efficiency of Australia's telecommunications industry with consequent flow-on effects to the productivity and competitiveness of Australian telecommunications industry. The availability of broadband telecommunications services to regional communities at service and services levels to those of metropolitan customers is a recognised national priority. It lies at the core of the Australian Government's recently announced Connect Australia plan directing at regional community benefits in improved availability and affordability of broadband telecommunications services. The product will enhance Australian participation in the global equipment supply industry

LP0669145 Dr RR Brown; Prof CR Cocklin

Approved Project Title **Sustainable Urban Water Governance: Institutional Development and Organisational Change**

2006 : \$35,000

2007 : \$70,000

2008 : \$35,000

Primary RFCD 3602 POLICY AND ADMINISTRATION

Partner Organisation(s)

Water Corporation

Brisbane City Council

Administering Institution Monash University

Project Summary

The research will provide governance and policy advice for advancing integrated urban water management across multiple organisations and sectors in Australian cities. The benefits of the proposed research include: a) prioritisation of current institutional impediments; b) scoping of key institutional reform initiatives; c) improved institutional capacity to lead and innovate; and d) advancement of the national priority goal of facilitating sustainable water management practices. This will also address the House of Representatives Standing Committee on Environment and Heritage inquiry report Sustainable Cities (2005) advocating the need for research programs directed towards facilitating major institutional and policy changes.

LP0669046 Prof GV Currie; Prof T Richardson; Prof PG Smyth; Dr D Vella-Brodrick; Prof J Hine; Dr K Lucas; Mr J Stanley; A/Prof JM Morris; Mr R Kinnear; Dr JR Stanley

Approved Project Title **Investigating Transport Disadvantage, Social Exclusion and Well Being in Metropolitan, Regional and Rural Victoria**

2006 : \$50,000

2007 : \$100,000

2008 : \$100,000

2009 : \$50,000

Primary RFCD 3702 SOCIAL WORK

Partner Organisation(s)

Bus Association Victoria

Department of Infrastructure

Brotherhood of St Lawrence

Administering Institution Monash University

Project Summary

This project strengthens national approaches to a pervasive Australian problem; fringe urban and rural communities who are excluded from life opportunities due to lack of transport. Evidence suggests this problem is growing as fuel costs rise, the

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population ages and rural/fringe urban migration continues. Australia spends Billions annually to address these issues but Australian research exploring the nature of behaviours and links between transport problems and life opportunities is limited. This project fills this important knowledge gap in an Australian project that will advance world knowledge in this growing international research field. Findings will better focus Australia's approach to increasingly challenging transport futures.

LP0669574 Dr A Deletic; Dr TD Fletcher

Approved Project Title **Could porous pavements be a part of the urban water solution?**

2006 : \$15,246

2007 : \$30,246

2008 : \$30,000

2009 : \$15,000

Primary RFCD 2908 CIVIL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

DYMON INDUSTRIES PTY LTD

CERES INCORPORATED

Administering Institution Monash University

Project Summary

With water demand in Australia approaching, and sometimes exceeding, limits of sustainability, there is a pressing need to find alternative water sources. At the same time, urban stormwater pollution remains a major environmental threat. These problems are particularly difficult in urban areas, due to space constraints. This project will test and refine porous pavement technology, which could help solve the 'urban water problem'. Replacing impervious areas with porous pavements will allow urban stormwater to be treated and harvested for re-use. Waterways will be protected from pollution, and the vast quantity of urban stormwater generated (similar to the total reticulated water supplied in Australia) can be harvested to sustain cities.

LP0669392 Prof JM Godfrey; A/Prof KG Chalmers; Prof G Clinch

Approved Project Title **Impacts of International Financial Reporting Standards adoption on cost of equity capital, financial statement value-relevance, and firms' financing and investment strategies.**

2006 : \$22,694

2007 : \$45,389

2008 : \$46,639

2009 : \$23,944

Primary RFCD 3501 ACCOUNTING, AUDITING AND ACCOUNTABILITY

Partner Organisation(s)

CPA Australia

Administering Institution Monash University

Project Summary

The project's insights will assist policy makers to assess, progress and promote approaches to global economic and governance policy reforms. AIFRS adoption disturbs the financial markets equilibria previously struck under Australian accounting standards. Understanding this impact helps underpin micro- and macro- economic strategies and policy developments relying upon the role of financial reporting. It also assists capital markets to adapt to the new reporting environment, thus increasing capital allocation effectiveness and efficiency.

Australia's position as an early IFRS adopting nation enables the project to facilitate Australia's international leadership in global economic policy development.

LP0669812 Dr NC Karmakar

Approved Project Title **Investigation into improved wireless communication for rural and regional Australia**

2006 : \$12,325

2007 : \$24,650

2008 : \$24,650

2009 : \$12,325

Primary RFCD 2917 COMMUNICATIONS TECHNOLOGIES

APA(I) Award(s): 1

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Partner Organisation(s)

Pacific Satellite Pty Ltd

Administering Institution Monash University

Project Summary

The project will improve the performance of wireless communications allowing better and more accessible communication throughout rural and regional Australia. This will enable a more efficient communications as it will reduce the requirements of cables.

LP0669819 Dr M Leblanc; A/Prof I Cartwright; Prof F Stagnitti; Ms R Sheldon; Dr SO Tweed

Approved Project Title **Satellite based monitoring system of lakes and wetlands water quality**

2006 : \$37,170

2007 : \$74,340

2008 : \$74,340

2009 : \$37,170

Primary RFCD 2910 GEOMATIC ENGINEERING
APDI Dr SO Tweed

Partner Organisation(s)

Corangamite Catchment Management Authority

Administering Institution Monash University

Project Summary

Effectively managing water resources within Australia is critical for social and economic growth. The large-scale of Australian catchments means that many lakes are unmonitored due to time and costs required for on-ground programs. This research project directly addresses the lack of observations. Information on water quality from satellite, on-ground, and modeling investigations are integrated to develop an operational monitoring system for surface water quality. Results are used to model the sensitivity of the water quality to changes in climate and land use. The monitoring system can be used to protect catchment assets by risk assessment and provide insights into management scenarios.

LP0669420 Mr BJ Lithgow; Prof J Kulkarni; Dr AL Senyard; Dr RO Edwards

Approved Project Title **Quantitative measurement of Schizophrenia using Electrovestibulography.**

2006 : \$24,650

2007 : \$49,300

2008 : \$49,300

2009 : \$24,650

Primary RFCD 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING
APA(I) Award(s): 2

Partner Organisation(s)

Neural Diagnostics Pty Ltd

Administering Institution Monash University

Project Summary

Schizophrenia was estimated to cost approximately \$1.85billion in 2001 (0.3% of GDP and nearly \$50k for each of the 37,000 Australians with the illness). Over one third of the cost is borne by sufferers and their carers. Misdiagnosis and incorrect therapy are common. To date quantitative assessment of Schizophrenics has been impossible making this tool potentially invaluable. An accurate diagnostic test could facilitate earlier diagnosis, more accurate treatment plans, and prevention of debilitating psychotic episodes for the sufferer. By being able to monitor drug efficacy the community can benefit by reduced drug costs, confinement times and hastened new drug development.

LP0669359 Dr ID McKelvie

Approved Project Title **An autonomous microfluidic analyser for the determination of total phosphorus and nitrogen in aquatic systems**

2006 : \$42,500

2007 : \$85,000

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2008 : \$85,000
2009 : \$42,500
Primary RFCD 2504 ANALYTICAL CHEMISTRY

Partner Organisation(s)

Environment Protection Authority
 Ecotech Pty Ltd

Administering Institution Monash University

Project Summary

Development of automated monitoring systems capable of extended and remote operation will enable assessment of the effectiveness of water treatment and the impact of nutrient releases on the aquatic environment. Both are important in preserving the quality of existing water resources, and assessing the quality of recycled water, in line with the National Research Priority Environmentally sustainable Australia, and the Priority Goal, Water - a critical resource. Commercialization of the microfluidic flow analysis system for total N and P will enhance the international competitiveness of Ecotech Pty Ltd and Australia as an exporter of scientific instruments.

LP0669390 A/Prof AJ McMurray; Prof JC Sarros; Dr AJ Pirola-Merlo; Mr TJ Froggatt

Approved Project Title Proximal and organizational leadership and climate as predictors of key performance in non-profit organizations

2006 : \$15,000
2007 : \$30,000
2008 : \$30,000
2009 : \$15,000
Primary RFCD 3502 BUSINESS AND MANAGEMENT

Partner Organisation(s)

Wesley Mission

Administering Institution Monash University

Project Summary

This project will provide a transferable model of the leadership and organisational characteristics required for success among nonprofit church organisations. The model will provide opportunities for strengthening the support structures of nonprofits who play a critical role in helping needy families and individuals live healthy, productive, and fulfilling lives. The study addresses the National Research Priority of Promoting and Maintaining Good Health and Priority Goal 'Strengthening Australia's social and economic fabric.' In addition, the model will provide benchmarking opportunities with other nonprofits both in Australia and internationally and will contribute to the Government's welfare reform and participation agendas.

LP0668945 Dr EN Meeusen

Approved Project Title Development of a proto-type vaccine against gastrointestinal nematode larvae

2006 : \$100,000
2007 : \$200,000
2008 : \$210,000
2009 : \$225,000
2010 : \$230,000
2011: \$115,000
Primary RFCD 3004 ANIMAL PRODUCTION

Partner Organisation(s)

Pfizer Australia

Administering Institution Monash University

Project Summary

Gastrointestinal parasites are the major cause of production losses in the Australian sheep and wool industries. Drug treatment is predominantly used to control infections but drug resistance has reached critical levels and is threatening the viability of sheep production in many rural areas. In collaboration with an international Animal Health company, we aim to develop vaccines against these parasites and provide a clean, non-toxic alternative to drug treatment. The groundbreaking research involved in this project will also keep Australian animal scientists at the forefront of vaccine research and increase their capacity to attract further support from Industry.

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LP0669856 A/Prof P Perlmutter; Dr AW Purcell; A/Prof M Aguilar

Approved Project Title **New stable and specific mimics of T cell epitopes for tumor immunotherapy**

2006 : \$168,000

2007 : \$335,500

2008 : \$167,500

Primary RFCD 3202 IMMUNOLOGY

Partner Organisation(s)

Cancer Therapeutics Limited

Administering Institution Monash University

Project Summary

This project is dedicated to finding simple methods for vaccinating humans and animals against a wide variety of cancers. Should this be achieved millions of Australians will be protected from the devastating consequences of cancer. Consequently there will be great benefits socially, medically and economically.

LP0669043 A/Prof S Petrovic-Lazarevic; A/Prof C Yeh; Dr KA Coghill; Mrs SE Bedingfield; Dr R Borland

Approved Project Title **Maximising the Effectiveness of Public Health Policies: The Case of Smoke-Free Policies**

2006 : \$29,194

2007 : \$58,388

2008 : \$58,388

2009 : \$29,194

Primary RFCD 3602 POLICY AND ADMINISTRATION

Partner Organisation(s)

The Cancer Council of Victoria

Administering Institution Monash University

Project Summary

Promoting good health and well being for all Australians is a key National Research Priority. Tobacco smoking is the largest single preventable cause of death in Australia, and while much has been achieved in tobacco control in Australia, there has been little systematic effort to understand or improve the relationship between research and policy implementation. This project will provide a deeper and more sophisticated understanding of both how to maximise the effectiveness of smoke-free policies, and, through that increased understanding, how to best manage the implementation of public policies that seek to facilitate changes in the behaviour of individual citizens.

LP0669864 Dr NS Rickard; Mr FP Murphy; Prof DW Moore

Approved Project Title **Implementation and Evaluation of an Intensive Music Education Program for Schoolchildren**

2006 : \$50,000

2007 : \$90,000

2008 : \$94,000

2009 : \$54,000

Primary RFCD 3301 EDUCATION STUDIES

Partner Organisation(s)

Castlemaine Secondary College

Administering Institution Monash University

Project Summary

Music training is vital for schoolchildren. Children achieve goal-satisfaction and enhanced coordination from sport, focus and independence from schoolwork, and the opportunity to express emotions productively via dance/drama. Music training is unique in that it combines these benefits, and can lead to improvement in non-musical outcomes (e.g., maths, self-esteem), while potentially reaching otherwise disenfranchised adolescent groups. Music training programs in Australia vary in quality and effectiveness, and unfortunately, under-resourced communities offer little. The proposed music program will be offered to all students within selected schools, and will provide information on the value of music in the Australian school curriculum.

LP0669135 Dr AJ Robinson; Prof WR Jackson; Mr CH Such

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Approved New Surface Coatings Derived from Renewable Resources

Project Title

2006 : \$37,500
2007 : \$75,000
2008 : \$75,000
2009 : \$37,500

Primary RFCD 2599 OTHER CHEMICAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Dulux/Orica Pty Ltd

Administering Institution Monash University

Project Summary

In this project we will develop a novel, efficient cross-linking methodology to generate surface coating and adhesive products from inexpensive, renewable, local, natural feedstocks. Potential economic benefits to Australia include the replacement of imported petrochemical feedstocks with Australian agricultural products, the development of high performance products with the potential for export, and the establishment of an intellectual property portfolio that will lead to opportunities for licensing internationally.

LP0669709 Dr JM Ryan; Prof J Ozanne-Smith

Approved Learning to be safe: Developing children's perceptions of safety and risk

Project Title

2006 : \$12,325
2007 : \$24,650
2008 : \$24,650
2009 : \$12,325

Primary RFCD 3301 EDUCATION STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

K.I.D.S. Education Pty. Ltd.

Administering Institution Monash University

Project Summary

Injury is the leading cause of morbidity and mortality in Australia in the 0 to 29 age group. Child-centred safety education programs have the potential to establish lifelong changes in behaviour and attitudes towards safety and risk management. The study will develop a model for best practice for school safety education programs that can be transferred and adopted nationally and internationally, with the anticipated long-term outcome of a decrease in injury rates in young people. Child-centred safety education programs will have benefits for individuals not only during childhood but also throughout their working lives and across their life span.

LP0669622 Dr R Singh; A/Prof R Ibrahim; A/Prof P Singh

Approved Characterisation and Mitigation of Caustic Cracking: A Safety and Maintenance Concern in Alumina and Pulp-and-Paper Processing

2006 : \$47,758
2007 : \$91,813
2008 : \$86,590
2009 : \$42,535

Primary RFCD 2905 MECHANICAL AND INDUSTRIAL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Alcoa World Alumina

Worsley Alumina Pty Ltd

Administering Institution Monash University

Project Summary

Extraction of alumina from mineral bauxite (Bayer process) and pulp-and-paper processing (Kraft process) are major industries in Australia. Cracking of reaction vessels, digesters, cleaning tanks and pipework are major concern for plant integrity, occupational health, safety and environment. Caustic cracking is often the first suspect when a failure occurs. The

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proposed program will investigate the role of critical impurities and additives, temperature and stress fluctuations in caustic cracking of mild steel and their weldments (known to be most susceptible). This project will also develop an intellectual and infrastructural base that will also be a vital resource for several Australian industries where such cracking is a major concern.

LP0669824 Prof MG Wallace; A/Prof NL Boland

Approved Project Title **From Tactical Planning to Operational Control - Bridging the Chasm**

2006 : \$80,000
2007 : \$155,000
2008 : \$125,000
2009 : \$50,000

Primary RFCD 2301 MATHEMATICS
APA(I) Award(s): 2

Partner Organisation(s)

Constraint Technologies International

Administering Institution Monash University

Project Summary

All organisations plan, and all organisations suffer from the disruptions that occur when plans are put into practice. Few organisations manage to balance operational control with planning to as to maintain both efficiency and flexibility to deal with the unexpected. This project addresses this requirement for the transportation and logistics industries.

The results discovered within the project will enable the industrial partner, CTI, to develop solutions for major companies worldwide. The technology will be used to build further optimisation products.

Moreover the project will extend Australia's lead in constraint programming and expertise in optimisation. This creates a major opportunity for Australia's software industry.

LP0669648 Dr AG Wood; Prof VA Anderson; Prof DC Reutens; Prof FJ Vajda

Approved Project Title **Cognitive, behavioural and educational outcomes of fetal antiepileptic drug exposure**

2006 : \$67,500
2007 : \$112,500
2008 : \$90,000
2009 : \$45,000

Primary RFCD 3801 PSYCHOLOGY
APA(I) Award(s): 1

Partner Organisation(s)

The Australian Pregnancy Register for Women With Epilepsy and Allied Conditions Inc

Administering Institution Monash University

Project Summary

The study falls within the National Research Priority of Promoting and Maintaining Good Health, in particular the Priority Goal - A Healthy Start to Life. The research will yield information crucial to our understanding of the effects of fetal AED exposure on cognitive and behavioural development in the significant number of affected Australian children born each year. It will enhance the nation's ability to develop strategies for prevention, surveillance and remediation of adverse outcomes in early childhood, thus supporting the Government's National Agenda for Early Childhood initiative. As a consequence educational assistance can be targeted for those children likely to experience difficulties.

RMIT University

LP0669113 Dr D Nugegoda; Dr BJ Kefford; Dr SC Choy

Approved Project Title **Preserving freshwater biodiversity: predictions to manage the effects of suspended sediment and salinity.**

2006 : \$37,170
2007 : \$74,340
2008 : \$74,340
2009 : \$37,170

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Primary RFCD 3008 ENVIRONMENTAL SCIENCES
APDI Dr BJ Kefford

Partner Organisation(s)

Queensland Department of Natural Resources and Mines (QNR&M)
Department of Primary Industries, Victoria
EPA Victoria
Corangamite Catchment Management Authority (CCMA)

Administering Institution RMIT University

Project Summary

Natural resource managers wish to minimise deleterious effects of suspended sediment and salinity on biodiversity but do not have adequate knowledge to do so. Increases in salinity and sediment are recognised as the major threats to freshwater biodiversity in Australian rivers. This research will lead to greatly enhanced information on the relative impacts of rising salinity and sediment on freshwater biodiversity and aid predictive modelling and scenario testing; enabling managers to make informed choices between various management actions. The project addresses several national research priority goals and it will result in significant national and community benefits by protecting freshwater biodiversity from salinity and sediment.

LP0669259 A/Prof K Zhang; Dr F Wu; A/Prof P Zeephongsekul; Dr J Sang; Dr CH Smith

Approved Project Title **Precise Atmospheric Density Correction Model Using Space Tracking Data for Accurate Debris Surveillance and Collision Warning**

2006 : \$12,325

2007 : \$24,650

2008 : \$24,650

2009 : \$12,325

Primary RFCD 2606 ATMOSPHERIC SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

EOS Space Systems Pty Ltd

Administering Institution RMIT University

Project Summary

Our project will build new atmospheric density correction models (ADCMs) for accurate prediction of debris object and satellite orbits. This research will have tremendous impacts on realizing unaided debris laser ranging. An order of magnitude accuracy improvement to the ADCMs will lead to a significant breakthrough in space object tracking. The benefits of this research are: it will put Australia in a leading position in the world on ADCM study; to maintain Australia's leading role in space surveillance and greatly enhanced operational capability & efficiency of Australian space tracking systems; and to contribute significantly to the space environment info management, e.g. accurate collision warning and space junk tracking.

Swinburne University of Technology

LP0669660 A/Prof C Liu; Prof Y Yang; Dr W Sadiq

Approved Project Title **An Organisation Oriented Framework for Collaborative Business Processes**

2006 : \$40,000

2007 : \$80,000

2008 : \$77,500

2009 : \$37,500

Primary RFCD 2801 INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

SAP Australia Pty. Ltd.

Administering Institution Swinburne University of Technology

Project Summary

Business integration and enterprise computing is at the heart of ICT objectives and initiatives global wide. The project aims to be of unique value to Australian industry and provide a means to achieve excellence in the field of research that promises to shape the future of e-business technology. The research conducted within this project will position Australia as one of the leaders in the collaborative business process management area. The project outcomes will provide generic solutions that are

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applicable to many Australian and international companies involved in B2B collaboration and e-business technologies.

The University of Melbourne

LP0669455 Prof AJ Baker; Prof RJ Gilkes; Dr N Perrier; Dr S Sarramegna; Dr JC Rose; Prof H Amir; Dr P Jourand

Approved Project Title **The biogeochemical cycles of Ni and Co, a functional approach to ecological restoration of lateritic soils**

2006 : \$47,500

2007 : \$95,000

2008 : \$92,500

2009 : \$45,000

Primary RFCD 3001 SOIL AND WATER SCIENCES
APDI Dr N Perrier

Partner Organisation(s)

Falconbridge LTD

Administering Institution The University of Melbourne

Project Summary

Nickel is an essential metal for many technologies, and a key component of Australia's resource industry. Nickel exports contribute in excess of Aus\$2 billion per annum to the economy. To date, most of Australia's Ni production has come from sulphide ores but the current development of large lateritic Ni operations in Western Australia will result in most production coming from lateritic Ni ore. Hence increasing the research effort on ecological restoration of these large opencast mines is essential to ensure an environmentally sustainable Australia. This project will set up strategies to maintain biodiversity using geochemical and biological technologies to minimise environmental risk.

LP0668942 Dr G Bossinger; Dr PK Ades

Approved Project Title **Genetic association studies of fundamental wood fibre components in Pinus radiata resource populations**

2006 : \$20,000

2007 : \$40,000

2008 : \$45,000

2009 : \$25,000

Primary RFCD 2702 GENETICS
APA(I) Award(s): 1

Partner Organisation(s)

Forests New South Wales

Administering Institution The University of Melbourne

Project Summary

Radiata pine is Australia's premiere softwood plantation species occupying in excess of one million hectares, contributing over \$18 billion to Australia's GNP and providing employment to 130,000 Australians. With a trade deficit in forest and forest products of \$1.85 billion, current massive plantation establishment efforts are in train to reverse this trend. These have to be backed by research into the factors that determine the base resource's quality, growth and sustainability. Results will lead to improved resource quality, increased productivity and new industrial opportunities, directly improving our trade position and releasing pressure on our native forest resources.

LP0669625 Dr GK Brown; Prof PY Ladiges; Dr DJ Murphy; Mr BR Maslin

Approved Project Title **A predictive phylogenetic classification for Australian acacias and their tropical legume relatives worldwide**

2006 : \$37,170

2007 : \$74,340

2008 : \$79,670

2009 : \$42,500

Primary RFCD 2704 BOTANY
APDI Dr GK Brown

Partner Organisation(s)

Royal Botanic Gardens, Melbourne

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Department of Conservation and Land Management

Administering Institution The University of Melbourne

Project Summary

The results of this project will provide the foundation for a new predictive classification of Australian acacias and their relatives, among tropical legumes. Improved phylogenetic classification will underpin the delivery of biodiversity research, goods and services in Australia and neighbouring tropical countries. Outcomes of improved taxonomy include species identification and species selection in various industries and environmental programs. Acacias and legumes are used in agro-forestry, as shade trees for crops, fuel wood, stock feed, nitrogen fixation, planting for land reclamation in arid and salinity-affected areas, and as new plantation timber products.

LP0669282 Prof K Darian-Smith; Prof WS Logan; Prof GP Seal

Approved Project Title **Childhood, Tradition and Change: a national study of the historical and contemporary practices and significance of Australian children's playlore**

2006 : \$39,248

2007 : \$73,033

2008 : \$67,395

2009 : \$45,798

2010 : \$12,188

Primary RFCD 4301 HISTORICAL STUDIES

Partner Organisation(s)

National Library of Australia
Museum Victoria

Administering Institution The University of Melbourne

Project Summary

Through extending knowledge of children's playlore in the daily lives and social frameworks of Australians from the 1950s to the present, this project will contribute to broader public and policy discussions concerning educational, recreational and public health outcomes for children. It will enhance understanding of past and contemporary children's play practices and the external influences shaping these, and assist UNESCO and the Australian government in defining intangible cultural heritage. Through partnerships with the National Library of Australia and Museum Victoria, the project will disseminate its findings to the community through publications, conferences and public exhibitions.

LP0669614 Prof KT Davis; A/Prof CA Brown; Dr L Coleman

Approved Project Title **Risk management policies and practices of major Australian firms**

2006 : \$15,417

2007 : \$38,602

2008 : \$23,185

Primary RFCD 3503 BANKING, FINANCE AND INVESTMENT

Partner Organisation(s)

Ernst & Young
The Finance and Treasury Association

Administering Institution The University of Melbourne

Project Summary

High profile corporate failures attributable to incorrect hedging strategies have recently drawn attention to corporate financial risk management, although its important role in financial management is far more ubiquitous and pervasive. The project will shed light on the internal processes of corporate risk management which previous studies have not addressed. It will produce a 'stock-take' of current practices enabling assessment against theoretical models and identification of current 'best practice'. Against this backdrop, Australian firms will be able to assess the merits of their current policies and practices, and assist corporate outsiders (regulators, analysts, researchers) in better understanding corporate risk management.

LP0669652 Prof KG Dovey

Approved Project Title **The character of urban intensification: Protecting and Creating Place Identity in Activity Centres**

2006 : \$58,527

2007 : \$120,325

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2008 : \$125,873
2009 : \$64,075
Primary RFCD 3101 ARCHITECTURE AND URBAN ENVIRONMENT
 APA(I) Award(s): 1

Partner Organisation(s)

Dept. of Sust. & Env., VIC.
 CITY OF YARRA
 CITY OF MORELAND
 CITY OF MELBOURNE

Administering Institution The University of Melbourne

Project Summary

This project will contribute to the improved environmental and social sustainability of Australian cities and to an enhanced sense of place and community. It will raise awareness and understanding of social factors associated with urban change and provide theoretical and practical tools to facilitate more effective policy development, urban regulation and urban design. Although based in Melbourne, the methodology and findings can be applied to other Australian cities and internationally.

LP0669753 Prof R Dowell; Ms G Cook; A/Prof JF Patrick

Approved Project Title **Vocal empowerment: Researching the effect of actor voice training on young adults with cochlear implants and hearing aids**

2006 : \$30,000
2007 : \$57,500
2008 : \$27,500

Primary RFCD 3210 CLINICAL SCIENCES

Partner Organisation(s)

Cochlear Ltd

Administering Institution The University of Melbourne

Project Summary

The research offers significant public health outcomes for Australians, in the areas of preventative healthcare, through improving the social integration and quality of life of young adults with a hearing impairment and through improvements in habilitation.

LP0669235 Prof CB Ferguson; Prof BJ Cooper; A/Prof GL Wines; A/Prof BF Jackling

Approved Project Title **Modelling factors affecting the long-term demand for and supply of professional accounting and allied services in rural and regional Australia.**

2006 : \$33,319
2007 : \$77,216
2008 : \$80,693
2009 : \$36,797

Primary RFCD 3506 SERVICES

Partner Organisation(s)

CPA Australia

Administering Institution The University of Melbourne

Project Summary

Rural and regional areas accommodate more than a third of Australia's population and generate two-thirds of its net export income. This project will enable the accounting profession to establish effective strategies and policies for the education, training, and recruitment of professional staff in regional communities. Maintaining the quality and viability of professional services is critical to the economic development of these communities and crucial to maintaining equity between city and country. This project will ensure that professional accounting and allied services can meet future regional demands with the potential for this modelling to be applied to other regional services.

LP0669334 Dr HM Goldsworthy; A/Prof EF Gad; Prof B Uy; Dr S Fernando

Approved Project Title **Development of economical beam-column connections for robust composite steel-concrete structural frames**

2006 : \$75,000

**Summary of Successful Linkage Projects Applications for Funding to commence in July 2006
by State / Institution**

2007 : \$150,000
2008 : \$150,000
2009 : \$75,000
Primary RFCD 2908 CIVIL ENGINEERING
 APA(I) Award(s): 2

Partner Organisation(s)

OneSteel Market Mills
 Ajax Engineered Fasteners
 Smorgon Steel Tube Mills

Administering Institution The University of Melbourne

Project Summary

The proposed construction systems will offer a competitive and more robust alternative for developers, building owners and occupants. The successful development of the proposed construction systems will lead to an increased market for blind bolts, steel circular hollow sections, steel Universal Beams and metal decking. An added benefit of the proposed systems is an anticipated improvement in performance, relative to existing systems, under low probability, high consequence events such as 2500-year return period level earthquakes (in the relevant region) or blast loading. These unique and innovative structural solutions should drive the competitive advantage of Australian engineers in international markets.

LP0669397 Prof AF Jorm; Ms B Kitchener; Dr RA Parslow; Prof MG Sawyer; Ms DM Kay

Approved Project Title **Mental Health First Aid Training for Teachers: Development, Evaluation and Dissemination**

2006 : \$21,599
2007 : \$39,453
2008 : \$17,854

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisation(s)

Department of Education and Children's Services

Administering Institution The University of Melbourne

Project Summary

The project aims to provide teachers with training that will assist them to recognize mental health problems which are developing in students and to take appropriate action so that the student gets professional help.

LP0669566 A/Prof AT Kenyon; Prof AF Christie

Approved Project Title **Cultural Collections, Creators and Copyright: Museums, Galleries, Libraries and Archives and Australia's Digital Heritage**

2006 : \$48,719
2007 : \$99,369
2008 : \$96,594
2009 : \$45,944

Primary RFCD 3901 LAW
 APA(I) Award(s): 1

Partner Organisation(s)

Arts Law Centre of Australia
 Australian Centre for the Moving Image
 Australian Film Commission
 Museum Victoria
 Museums Australia
 National Gallery of Victoria
 National Library of Australia
 National Museum of Australia
 Powerhouse Museum
 State Library of Victoria

Administering Institution The University of Melbourne

Project Summary

This project investigates current and emerging ways of using digital collections in museums, galleries, libraries and archives, in light of copyright law and the interests of creators. It serves the strong public interest in facilitating digital access to

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collections while efficiently managing copyright. Exploiting the potential of digital media and maximising Australia's creative capability both depend on providing adequate incentives for content production while granting access to creative material as a resource for new production. The project will assist Australia better manage its digital cultural collections and balance the interests of creators, institutions and public accessibility.

LP0669580 Prof JS McCalman; Dr J Waller; Prof N Crofts; Prof RG Room

Approved Project Title **Turning Points: Redemption, Women and Alcohol in Melbourne, 1870-1945**

2006 : \$12,325

2007 : \$12,325

Primary RFCD 3706 HISTORY AND PHILOSOPHY OF SCIENCE AND MEDICINE

APA(I) Award(s): 1

Partner Organisation(s)

Turning Point Drug & Alcohol Centre

Administering Institution The University of Melbourne

Project Summary

History is one of the most effective forms of public communication, currently thriving in the public sphere in books, film, television, and in the passion for genealogy. It can be uniquely effective as a means of public health education, enabling individuals and communities to comprehend the causes and significance of public health problems and their solutions. Alcohol abuse remains a searing issue in Australian public health and private life. This history would be the first to explore the language, practice and experience of both addiction and treatment of alcoholic women, and would contribute to debate over current practice and policy.

LP0669071 A/Prof JF Murphy; Dr GJ Marston; Dr SM Murray; Dr JJ Chalmers; A/Prof M Peel; Prof BM Probert

Approved Project Title **150 low income Australians: a group biography over time**

2006 : \$50,000

2007 : \$110,000

2008 : \$115,000

2009 : \$55,000

Primary RFCD 3701 SOCIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Jobs Australia

Administering Institution The University of Melbourne

Project Summary

This project has significant potential to contribute social and economic benefits. In 2004-5, the Commonwealth is to spend some \$20 billion on these income support programs, which are received by over 2 million citizens. There is significant national and international policy focus on welfare-to-work measures. Major changes in Australia for PPS and DSP recipients are to be implemented from mid-2006, and the project will enable us to better understand how these changes are experienced. This most recent package of measures is also linked to policy concerns about expanding the workforce as the population ages. The project findings will contribute substantially to the priority goal of strengthening Australia's social and economic fabric.

LP0669186 A/Prof JF Murphy

Approved Project Title **The face of the poor: a history of poverty through the eyes of the St Vincent de Paul Society**

2006 : \$12,325

2007 : \$24,650

2008 : \$24,650

2009 : \$12,325

Primary RFCD 4301 HISTORICAL STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

St Vincent de Paul Society Victoria Inc.

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Administering Institution The University of Melbourne

Project Summary

This project will develop a detailed understanding of the changing role of the church sector in the provision of 'front-line' social welfare. It will train a postgraduate student in the skills of archival and policy analysis, at a time when many welfare agencies are employing staff in research and policy functions. By focusing on a voluntary organisation, it will provide insight into the historical role of volunteers in Australian welfare. By illuminating how the roles of the church agencies in the mixed economy of welfare have changed over time, the project will contribute to the goal of strengthening Australia's social and economic fabric.

LP0669281 Dr CS Ross; Dr CD McLachlan; Dr B Mante

Approved Project Title **Characteristics and causes of indigenous over-representation in the criminal justice system: A Victorian case-study**

2006 : \$28,106

2007 : \$57,469

2008 : \$29,363

Primary RFCD 3903 JUSTICE AND LEGAL STUDIES

Partner Organisation(s)

Indigenous Issues Unit, Department of Justice

Administering Institution The University of Melbourne

Project Summary

Addressing Indigenous disadvantage was identified as a national priority by the Council of Australian Governments in 2002. Our research builds on this initiative by examining important policy questions that are central to Indigenous disadvantage within the justice system. This research adds substantial value to the existing national investment in the collection of data on Indigenous involvement in justice processes, and will assist in the development and implementation of programs to address what has previously been an intractable problem. A key element in the project is establishing strong links with Indigenous community representatives so that the results of the research are made available to those most directly concerned with them.

LP0669209 Prof A Scott; A/Prof M Shields; Prof J Creedy; A/Prof GR Kalb; Prof CM Duffield; Ms MV McCarty

Approved Project Title **Economic Modelling of the Nurses' Labour Market in Australia**

2006 : \$62,106

2007 : \$129,651

2008 : \$143,013

2009 : \$75,469

Primary RFCD 3402 APPLIED ECONOMICS

Partner Organisation(s)

Department of Human Services

Administering Institution The University of Melbourne

Project Summary

Nurses play an important role in the health system and help to ensure individuals lead healthier, happier and more productive lives. Devising cost-effective policies to ensure an adequate supply of motivated and productive nurses is crucial in achieving efficiency and equity in the health care system. The results will be used by government to help set optimal pay and conditions for nurses, and to ensure that these are competitive with other nurse employers. This will provide a firm evidence-base to reduce nurse shortages and therefore increase the quality of patient care in Australia.

LP0669452 Prof GW Stevens; Miss MP Choong

Approved Project Title **Next Generation of Separation Equipment for Natural Product Extraction**

2006 : \$35,500

2007 : \$71,000

2008 : \$71,000

2009 : \$35,500

Primary RFCD 2906 CHEMICAL ENGINEERING

Partner Organisation(s)

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GlaxoSmithKline

Administering Institution The University of Melbourne

Project Summary

The benefit to GlaxoSmithKline will be the potential to upgrade to a more efficient plant which is important for maintaining their competitive position in this global business. The benefit to other Australian processing industries will be an improved understanding of the performance of membrane contactors when used for natural product separation and more specifically a reliable method for controlling fouling in this type of equipment which is a currently a significant industry problem.

LP0668997 Dr SE Swearer; Dr JS Hindell; A/Prof GP Jenkins; Dr AW Western

Approved Project Title **Linking freshwater flows, salt wedge dynamics and fisheries productivity in estuaries**

2006 : \$75,000

2007 : \$120,000

2008 : \$100,000

2009 : \$82,500

2010 : \$27,500

Primary RFCD 2707 ECOLOGY AND EVOLUTION

APA(I) Award(s): 2

Partner Organisation(s)

Environmental Water Reserve and River Health Division, Department of Sustainability and Environment
Fisheries Victoria, Department of Primary Industries
Gippsland Coastal Board
Nicholson Angling Club

Administering Institution The University of Melbourne

Project Summary

Freshwater is a critical resource in Australia, but there is a perception that freshwater running to the sea is wasted. Australia's estuaries are of great importance - economically, socially and environmentally. Estuaries provide habitat for unique and endangered animals and plants, support valuable fisheries, and have enormous recreational value, particularly in regional communities. Our lack of understanding about the effects of freshwater flows on estuarine productivity impedes decision making on the allocation of water to sustain healthy estuaries. The health of Australia's estuaries and sustainability of their resources, particularly fisheries, depend on understanding their freshwater requirements and securing environmental flows.

LP0669435 Dr DN Veitch; Dr J Bolot; Prof R Kotagiri

Approved Project Title **Robust next-generation detection techniques to defend operational networks against attacks.**

2006 : \$47,500

2007 : \$97,500

2008 : \$100,000

2009 : \$50,000

Primary RFCD 2917 COMMUNICATIONS TECHNOLOGIES

APA(I) Award(s): 1

Partner Organisation(s)

Sprint Advanced Technology Labs

Administering Institution The University of Melbourne

Project Summary

As networks are fast becoming one of the pillars of our society, network security is essential. Without good security, networks will be unreliable, more costly, and restricted in the capabilities they can offer. The project will allow advanced anomaly and intrusion detection techniques to be used in the ultra-high speeds of the Internet core. It will provide the groundwork for the attack detection and prevention infrastructure of the future.

LP0669735 Prof LS Yates; Dr J Moss; Dr J White; Dr TT Hay; Dr P Ferguson; Dr M Dixon; Dr L Bond; Dr SE Drew; Dr P St Leger

Approved Project Title **A Multi-disciplinary Investigation of how Trauma and Chronic Illness impact on Schooling, Identity and Social Connectivity**

2006 : \$50,000

2007 : \$95,000

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2008 : \$100,000
2009 : \$55,000
Primary RFCD 3399 OTHER EDUCATION

Partner Organisation(s)

Royal Childrens' Hospital Education Institute

Administering Institution The University of Melbourne

Project Summary

School connectedness and retention is an established key to both immediate and long-term health, academic and life outcomes. Young people with chronic illness or accident trauma often miss schooling and get caught in a spiral of catching up and disconnection from important peer relationships and from school. This study investigates the experiences and perspectives of young people whose schooling is disrupted by illness and trauma. It will produce guidelines for better practice by health and schooling professionals and parents of such children, and provide better knowledge about the processes by which disconnection occurs.

University of Ballarat

LP0669752 Prof AM Rubinov; Dr M Mammadov; Mr PC Bondin; Dr TL Montague

Approved Project Title Using global optimization technique to determine the most efficient use of building/floor space to accommodate a given office design

2006 : \$27,000

2007 : \$53,000

2008 : \$51,000

2009 : \$25,000

Primary RFCD 2301 MATHEMATICS

Partner Organisation(s)

Kann Finch Group

Australian Mathematical Science Institute

Administering Institution University of Ballarat

Project Summary

The commercial property market is one of the largest business markets, both in Australia and globally. Businesses of all kinds use commercial office space, which represents many billions of investment dollars. A better understanding of what constitutes efficient and effective office space would produce enormous commercial benefits for this country. Historically, very little (if any) consideration has been given to the efficiency of office space design. The measurement of efficiency has now become an essential component of 'site selection'. To date, the application of optimization methodologies have not been applied to the architectural industry, making the development of tools to address this problem a significant and innovative move.

Victoria University of Technology

LP0669332 A/Prof RK Stewart; A/Prof AC Smith

Approved Project Title The Influence of Context on Player Attitudes to Drugs: Implications for Sport Policy in Australia.

2006 : \$20,168

2007 : \$31,445

2008 : \$24,761

2009 : \$13,484

Primary RFCD 3704 HUMAN GEOGRAPHY

Partner Organisation(s)

Turning Point

Australian Drug Foundation

Administering Institution Victoria University of Technology

Project Summary

This research project will generate evidence about drug use in sport that can be used to both evaluate current policy and better inform the drugs-in-sport debate. In addition it will provide significant benefits to both the collaborating partners and the sport industry in general. Collaborating partners will benefit by being able to contribute to the research project, and having full access to the results of the research. It is anticipated that the results will directly assist their strategic goals of education, advocacy and harm minimisation. The sport industry will benefit by obtaining a more detailed understanding of how players

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view drugs-in-sport and in particular how they discriminate between various drug types.

Queensland

Griffith University

LP0669411 Prof CJ Auld; A/Prof G Cuskelly; Dr SL Hooper

Approved Project Title **An investigation into factors influencing coach retention and coaching career pathways**

2006 : \$12,000

2007 : \$22,000

2008 : \$20,000

2009 : \$10,000

Primary RFCD 3704 HUMAN GEOGRAPHY

Partner Organisation(s)

Queensland Academy of Sport

Administering Institution Griffith University

Project Summary

Organised sport is central to the social fabric and health of Australian communities and enhances national pride. The project will provide significant social and economic benefits for sport organisations which depend on coaches to build and sustain capacity. More coaches will enable more Australians to participate in sport which contributes to personal well being, social cohesion and success of Australian athletes. The project will enhance the international reputation of Australian sport research sport and also has implications for volunteer retention in the nonprofit sector. This is critical given the policy emphasis on building social capital, making communities more resilient, and the social coalition approach to meeting community needs.

LP0669093 Prof BA Sparks; Dr GL Bradley; Dr GW Pan

Approved Project Title **Conceptualisation and Measurement of Customer Value: An Application to the Timeshare Industry**

2006 : \$21,500

2007 : \$51,500

2008 : \$50,000

2009 : \$20,000

Primary RFCD 3505 TOURISM

Partner Organisation(s)

ATHOC Ltd

Administering Institution Griffith University

Project Summary

Timeshare or resort ownership is a growing industry worldwide. There are more than 110 timeshare properties in Australia, most of which are located in regional communities. This research will benefit these communities through the provision of information to enhance and sustain the development of this expanding industry. The information obtained will assist the collaborating organisation in the transformation of the industry, while addressing some of the concerns raised in a 2005 Parliamentary Inquiry. The project examines how consumers obtain value from the timeshare product. The project has the potential to be applied internationally thus providing export opportunities for Australia.

LP0669166 Dr AL Stewart; Dr SM Dennison; Dr S Occhipinti; Prof CA Smith

Approved Project Title **Understanding and Costing Offending Trajectories: Creating an Evidence-Base for Targeting Crime Prevention**

2006 : \$34,851

2007 : \$72,176

2008 : \$74,650

2009 : \$37,325

Primary RFCD 3903 JUSTICE AND LEGAL STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Legal Aid Queensland

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Department of Communities
Office of Economic and Statistical Research, Queensland Treasury

Administering Institution Griffith University

Project Summary

The research will provide an evidence-base for targeting diversionary and crime prevention programs and for assessing their cost-effectiveness. Many of these programs have resulted in a range of beneficial outcomes and they are receiving increased government funding. By providing a better understanding of offending pathways, the research will enable programs to be targeted towards particular at-risk groups at crucial developmental phases. The innovative longitudinal costing method that will be developed and applied in the Queensland context will enable an assessment of the cost-effectiveness of diversionary and crime prevention programs. This will provide a sound empirical basis for directing scarce government resources.

LP0668910 A/Prof CM Wyatt-Smith; Prof V Klenowski; Prof J Elwood; Dr A Looney

Approved Project Title Investigating standards-driven reform in assessment in the middle years of schooling

2006 : \$35,000
2007 : \$90,000
2008 : \$105,000
2009 : \$50,000

Primary RFCD 3301 EDUCATION STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Queensland Studies Authority
National Council for Curriculum and Assessment

Administering Institution Griffith University

Project Summary

This project addresses the Australian Government's call for standards-referenced reporting of student achievement. Its focus on standards, teacher judgement, and inclusion ensures that the project is responsive to the diversity of student cohorts, including those in rural and remote areas. Reliable teacher judgement and clear reporting are vital in ensuring timely interventions for students at educational risk and for accelerated provision for high performing students. This project is significant as it will provide a large-scale evidential base of how teachers judge and moderate quality. Australia's social well being and economic international competitiveness hinge on maximising outcomes for all students.

James Cook University

LP0669656 Dr DC Lake; A/Prof SC McGinty; A/Prof NR Anderson; A/Prof GD Dawes; Prof NM Alloway; Dr PD Ainsworth; Mr DB Murray

Approved Project Title Re-engaging Disadvantaged Youth Through Science

2006 : \$13,500
2007 : \$32,500
2008 : \$32,500
2009 : \$13,500

Primary RFCD 3301 EDUCATION STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Edmund Rice Flexible Learning Centres

Administering Institution James Cook University

Project Summary

17000 youth have become disconnected from the education system across Australia. The project will provide a model to reengage these youth by providing relevant scientific content where students actively interact with peers in widely dispersed locations. The groups of students will engage in investigative projects where their performances are able to extend beyond traditional literacy-based assessment techniques. Investigations of body image will be used as a vehicle to integrate academic teaching, promoting good health and well-being within a social values framework to develop citizenship and social awareness with scientific skills. The research will help us understand the factors required to reengage at-risk youth with their community.

LP0669439 Dr PN Nelson; Dr W Qu; Dr NC Munksgaard; Dr V Rasiah; Dr JD Armour

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Approved Project Title **Tracing nitrogen through wet tropical aquifers using stable isotopic signatures, molecular markers and gas emissions**
2006 : \$35,000
2007 : \$67,500
2008 : \$62,500
2009 : \$30,000
Primary RFCD 3001 SOIL AND WATER SCIENCES
APA(I) Award(s): 1

Partner Organisation(s)

Natural Resources and Mines

Administering Institution James Cook University

Project Summary

The project aims at enabling land managers to reduce the loss of nitrogen into creeks, rivers and estuaries of the Great Barrier Reef catchments. This will improve the economic and environmental viability of primary production while restoring the quality of aquatic and marine ecosystems. The results will identify parts of the landscape where land management needs to change and over what time scale improvements would be apparent. These outputs address the water quality priorities and targets of the 'Reef Water Quality Protection Plan' of the State and National governments and the 'Far North Queensland Natural Resource Management Plan'.

Queensland University of Technology

LP0668911 A/Prof LR Buys; Prof PR Grace; Dr CI Wilson; Ms RJ Kennedy; Dr AM Godber; Ms J Ryan

Approved Project Title **Managing the social, environmental & economic impacts of high density-living within inner-urban sub-tropical environments**
2006 : \$75,000
2007 : \$120,000
2008 : \$100,000
2009 : \$55,000
Primary RFCD 3701 SOCIOLOGY

Partner Organisation(s)

Northshore Development Group (Port of Brisbane)

Administering Institution Queensland University of Technology

Project Summary

Higher-density (HD) living is a popular strategy for managing urban growth (i.e., reducing greenhouse gas emissions). In sub-tropical environments, it represents a significant change from the traditional suburb, but provides a potential solution to the impacts of population growth on resources/infrastructure. By identifying the impacts associated with HD living & developing strategies (including design solutions & impact management strategies) to enhance the sustainability of HD, this research will have immediate and long-term triple bottom line benefits for Australia - encouraging the uptake of HD living achieving an environmentally sustainable Australia (Research Priority 1).

LP0669786 Dr ME Cox; Prof PR Grace; Dr AP Hammond; Dr JJ Smith; Dr KA Bubb

Approved Project Title **Environmental controls over Fe availability and transport in a forested coastal catchment**
2006 : \$49,000
2007 : \$86,500
2008 : \$77,500
2009 : \$40,000
Primary RFCD 2603 GEOCHEMISTRY
APA(I) Award(s): 2

Partner Organisation(s)

DPI Forestry

Administering Institution Queensland University of Technology

Project Summary

Iron is one of a number of elements that are mobilised in catchments, have recognised detrimental impacts to marine settings and are known to be nutrients for toxic cyanobacteria blooms. Knowledge of controls over distribution of Fe is important in catchment management and for sustainable forestry. The total catchment approach will result in an

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understanding of release and transport of Fe, and other heavy metals. The outcomes of the study will enable useful comparison to coastal plantations elsewhere in Australia, and overseas. Determination of the relationship to rainfall and hydrological processes will enhance these comparisons plus consideration of climatic change.

LP0669549 Prof RW Crawford; Prof M Schuetz; Prof Dr AW Stemberger; Dr B Goss

Approved Project Title **Development of a Prothrombogenic Bone Graft Substitute**

2006 : \$23,500

2007 : \$47,000

2008 : \$23,500

Primary RFCD 3210 CLINICAL SCIENCES

Partner Organisation(s)

Stryker South Pacific

Administering Institution Queensland University of Technology

Project Summary

The clinical demand for bone is massive and to counter this bone can be either harvested from the patient or bone substitutes are used. The success or failure of a bone substitute is determined the instant it come into contact with blood. The surfaces of traditional biomaterials induce a foreign body reaction. The aim of this project is to test the bone forming capacity of a biomaterial that is optimised to produce a natural response from the blood. This response will lead to the formation new viable tissue and eventually bone. Such a material will cause faster bone healing, less pain from graft sites, shorter hospital stays and shorter waiting lists.

LP0669617 Prof SD Cunningham; Prof GN Hearn; A/Prof HK Pillay

Approved Project Title **Developing a creative ecology as a community of practice: The pathway from training to profession in the digital content industries**

2006 : \$77,505

2007 : \$137,595

2008 : \$120,372

2009 : \$60,282

Primary RFCD 4001 JOURNALISM, COMMUNICATION AND MEDIA

Partner Organisation(s)

Arts Queensland & Dept of Premier and Cabinet

Department of Further Education, Employment, Science and Training

Australian Interactive Media Industry Association

AEShareNet Limited

Lab.3000

Digital Trends WA

Billy Blue School of Graphic Arts Pty Ltd

Southbank Institute of TAFE

Administering Institution Queensland University of Technology

Project Summary

The findings of this study, will provide valuable insight and an anticipatory framework to help sustain the Australian government's declaration that Australia is strongly committed to knowledge creation, innovation and economic growth and that we need to build a culture within Australia that applauds innovation and ensure that research, education, business and government work together to harness the potential innovation offers. The project will also assist both industry and community to better understand the social and cultural implications of media and digital technologies and lead to an awareness of socially responsible and innovative applications within education and training contexts.

LP0669434 A/Prof T Flew; Prof SD Cunningham; Dr A Bruns; Prof P Spearritt; Mr GE Young; Mr PA Vincent

Approved Project Title **Investigating Innovative Applications of Digital Media for Participatory Journalism and Citizen Engagement in Australian Public Communication**

2006 : \$71,094

2007 : \$133,418

2008 : \$120,310

2009 : \$57,986

Primary RFCD 4001 JOURNALISM, COMMUNICATION AND MEDIA

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APA(I) Award(s): 1

Partner Organisation(s)

The Brisbane Institute
The National Forum
Cisco Systems Australia
Special Broadcasting Service

Administering Institution Queensland University of Technology

Project Summary

This project benefits the Australian community by undertaking the first comprehensive audit of collaborative online news production, and linking this to prototypes developed with leading industry partners such as SBS and Cisco Systems, to promote greater citizen participation in news production and public communication. It marks the first sustained application of an open source framework to understanding the future of journalism and news media, and public communication in a democratic society, through the development of user-generated content derived from online user communities and peer-to-peer interaction. It promotes smart innovation use through collaboration and user-led innovation in digitally networked online environments.

LP0669365 Prof Dr GG Gable; Mr D Sedera; Dr T Chan; Dr PB Seddon

Approved Project Title **Benchmarking Information Technology Impact in Organisations**

2006 : \$37,170
2007 : \$74,340
2008 : \$74,340
2009 : \$37,170

Primary RFCD 3502 BUSINESS AND MANAGEMENT
APDI Mr D Sedera

Partner Organisation(s)

Accenture Australia

Administering Institution Queensland University of Technology

Project Summary

Anecdotal evidence reveals dissatisfaction with the operational performance of large application software systems. Yet, Australian IT investments are seldom systematically evaluated post-implementation. Where post-implementation evaluation does occur, the process and measures are typically idiosyncratic and lacking credibility. The study will: yield a convenient, extensively-validated method for evaluating the impact of IT investments; establish comparable IT-Impact benchmarks across different sectors of interest to organisations and Government; and facilitate the education and research training of graduate research students well grounded in IT Evaluation methods, and well placed to advance industry expertise in this area.

LP0668886 Prof GE Gardner; Dr A Gardner; Prof S Middleton; Adj/Prof PR Della

Approved Project Title **Reforming healthcare: Nurse Practitioners and workforce redesign**

2006 : \$37,500
2007 : \$225,000
2008 : \$250,000
2009 : \$62,500

Primary RFCD 3211 NURSING

Partner Organisation(s)

National Nursing and Nurse Education Taskforce
Department of Health Western Australia
Department of Human Services
Queensland Health
ACT Health

Nursing and Midwifery Office
Australian Nursing and Midwifery Council

Administering Institution Queensland University of Technology

Project Summary

This unique national study investigates the progress, process and outcomes of nurse practitioner service. It brings together

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peak national nursing organisations and state Chief Nursing Officers and researchers who are known both nationally and internationally for innovative research into nurse practitioner service. It has widespread significance for health service providing an operational platform to implement and evaluate new roles in health service delivery. It will inform health service modelling, theory building and national strategies to achieve promotion and maintenance of good health. For the first time in the history of Australian health service a new level of provider will be examined close to the point of its inception.

LP0669156 A/Prof E Kozan; Dr J Collier; Dr M Sinnott

Approved Project Title **Designing Robust Reactive Scheduling System for Emergency Medical Services**

2006 : \$50,000
2007 : \$100,000
2008 : \$95,000
2009 : \$45,000

Primary RFCD 2301 MATHEMATICS

APA(I) Award(s): 1

Partner Organisation(s)

Princess Alexandra Hospital

Administering Institution Queensland University of Technology

Project Summary

The job shop approach to reactive scheduling system for Emergency Departments promises considerable benefits over existing approaches, and allows problems of large size and complexity to be solved with great accuracy. The application of research results in Australia has the potential to:

- provide benchmarks in ED scheduling;
- reduce patients waiting times and rejections by better planning of patient schedules of emergency departments;
- leads to less costs for staff and resources;
- enhance the ability of managers to control operations in an efficient manner and minimise conflicts; and
- to increase efficiency of emergency departments, leading to lower operating and capital cost.

LP0669280 Prof AP Layton; Em/Prof C Granger; Prof AR Pagan

Approved Project Title **Investigating the Concordance and Transmission of International Business Cycles**

2006 : \$23,500
2007 : \$47,500
2008 : \$49,000
2009 : \$25,000

Primary RFCD 3402 APPLIED ECONOMICS

Partner Organisation(s)

Economic Cycle Research Institute

Administering Institution Queensland University of Technology

Project Summary

Business cycle recessions are costly. Apart from the economic cost, there is the devastating social and psychological impact of unemployment on individuals and families. The 1990/91 recession cost Australia somewhere between \$25 and \$30 billion in lost output and resulted in a half a million additional unemployed. Australia will certainly experience another recession and, given its openness to international influences, it is likely that it will originate elsewhere in the world. In delivering a greater understanding of the interdependencies in international business cycles, the project will assist economic policymakers in their efforts to ameliorate Australia's next recession.

LP0669668 Prof M Mahendran

Approved Project Title **Structural Behaviour of Innovative LiteSteel Beams, their Design Improvements and Applications**

2006 : \$40,000
2007 : \$77,500
2008 : \$65,000
2009 : \$27,500

Primary RFCD 2908 CIVIL ENGINEERING

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APA(I) Award(s): 1

Partner Organisation(s)

Smorgon Steel Tube Mills

Administering Institution Queensland University of Technology

Project Summary

This project will develop a significant knowledge base, accurate design models and innovative application methods for the new LSB, which will be fully used by the collaborating partner in marketing them in Australia and overseas. Both construction and manufacturing industry sectors will benefit through the increased use of the innovative and lightweight hollow flange sections. Using the new sections and the wealth of design information from this research, Australian engineers can develop cost-effective and safer building systems. Community at large, in particular rural and regional communities will gain through cheaper building systems, additional employment in LSB manufacturing and design, and opportunities locally and overseas.

LP0669670 Prof KL Mengersen; Dr HL Johnson; Dr GF Beadle; A/Prof P Yates

Approved Project Title Bayesian statistical methods for enhancing evidence-based practice in Australia's hospitals

2006 : \$57,000
2007 : \$102,000
2008 : \$80,000
2009 : \$35,000

Primary RFCD 2302 STATISTICS

APA(I) Award(s): 1

Partner Organisation(s)

Wesley Research Institute

Administering Institution Queensland University of Technology

Project Summary

This project addresses Australia's national research priority of Promoting and Maintaining Good Health with the goal of Preventative Healthcare. Through enhanced capability in combining information from diverse sources for improved evidence-based decisions and true sharing of university and medical expertise, the project will enhance Australia's medical research and practice, align professional and community expectations, utilise local medical information, and address national demands for quality science underpinning health decisions.

LP0669644 Adj/Prof GM Mohay; Dr PJ Best; Dr AJ Clark; Dr JJ Vayssière

Approved Project Title Integrated Financial Fraud Detection in Enterprise Applications

2006 : \$42,500
2007 : \$85,000
2008 : \$85,000
2009 : \$42,500

Primary RFCD 3501 ACCOUNTING, AUDITING AND ACCOUNTABILITY

APA(I) Award(s): 2

Partner Organisation(s)

SAP Australia Pty Ltd

Administering Institution Queensland University of Technology

Project Summary

Fraud costs the Australian economy at least \$3 billion per year. The incidence of fraud within the Australian economy is increasing. Australian entities are ill-prepared to detect and prevent fraud against their businesses with very few developing or implementing any form of fraud control strategy (AS 8001-2003). The growing use of the Internet by organisations for electronic commerce increases their exposure to fraudulent activities. Inevitably much of the cost of fraud is passed on to the customers and the community at large. By providing large organisations with an approach to assist in detecting fraudulent behaviour in accounting systems, it is envisaged that this research will assist in reducing the impact of fraud on society.

LP0669500 Prof AN Pettitt; Dr RW Reeves

Approved Project Title Novel statistical analysis for traffic modelling

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2006 : \$36,000
2007 : \$75,000
2008 : \$76,500
2009 : \$37,500
Primary RFCD 2302 STATISTICS

Partner Organisation(s)

Department Main Roads, PD&E Division

Administering Institution Queensland University of Technology

Project Summary

This collaborative research with Queensland Main Roads aims to develop and apply novel statistical modelling techniques which improve on the current statistical methods used for transport modelling. The research outcomes will provide a high level of accuracy in terms of predictions for trips leading to better use of expensive survey data. Predictions will be incorporated into transport models. Such model will be used for improving decisions involving multi billion dollar transport infrastructure investment and applied to South East Queensland. The methods can be extended to transport models for other large conurbations in Australia. Outcomes include improved transport systems with economic benefits for business and the community.

LP0669606 Dr A Rakotonirainy; Dr F Maire; Mr D Wishart

Approved Project Title **A unique driver assessment tool to improve four wheel drive and sedan driving competencies**

2006 : \$28,346
2007 : \$56,692
2008 : \$58,192
2009 : \$29,846
Primary RFCD 3504 TRANSPORTATION
 APA(I) Award(s): 1

Partner Organisation(s)

MURCOTTS driving excellence

Vigil Systems

QFleet

Administering Institution Queensland University of Technology

Project Summary

Four wheel drive (4WD) sales are booming in Australia. 4WD occupant fatalities occurring in rollovers are over represented in Australian's road crashes. This is a unique project using advanced technology to assess behavioural risks associated with the use of 4WDs and inexperienced drivers. It builds a novel, integrated computer-based screening tool to provide objective and reliable driver training assessments with the aim of (i) reducing crashes relating to inexperience and specific 4WD crashes and (ii) recommending public policy with regard to 4WD behavioural risks and driver training.

LP0669244 Prof Dr M Rosemann; Dr M Dumas-Menjivar; Dr AP Barros; Prof AH Spink; Prof PD Bruza; Dr PF York

Approved Project Title **Service Ecosystems Management for Collaborative Process Improvement**

2006 : \$35,960
2007 : \$86,960
2008 : \$93,500
2009 : \$42,500
Primary RFCD 2801 INFORMATION SYSTEMS
 APA(I) Award(s): 2

Partner Organisation(s)

SAP Australia Pty Ltd

Department of Public Works, Queensland Government

Administering Institution Queensland University of Technology

Project Summary

Australian government agencies currently explore opportunities for streamlining their business processes. A promising approach relates to the improvement of cross-agency processes based on service-enabled technologies. This project will use requirements within Queensland Government for the design of a service ecosystem and methodological and management

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concepts to derive a general framework for intra-organisational ecosystems. Though the focus will be on government processes, the project will generalise beyond this scope for a wider uptake of service ecosystems in Australian organisations. This will lead to reduced process costs and risks and will leverage the exploration of new revenue streams, e.g. shared services and reward schemes.

LP0669582 Dr B Senadji; A/Prof V Chandran; Dr MW Mason

Approved Project Title **Progressive Transmission of Street Directory Assistance and Business Pages over 3G and 4G mobile networks**

2006 : \$12,325

2007 : \$24,650

2008 : \$24,650

2009 : \$12,325

Primary RFCD 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

Telstra

Administering Institution Queensland University of Technology

Project Summary

Multimedia on-demand and live services over 3G and 4G mobiles will be enhanced. New methods for low volume, high information transfer multimedia transactions will be developed. This will create new jobs in the Information and Communication Technologies (ICT) sector. Progressive transmission of street directory assistance and business pages information to mobile handsets will enable citizens to make efficient use of their time and improve productivity. The 3G and 4G cellular telephone network, extended with 'mobile' base stations and satellite links, are especially attractive to a large country like Australia. Interactive information retrieval will become more universal and not limited through wired Internet connections.

The University of Queensland

LP0669527 Dr DJ Batstone; Prof J Keller

Approved Project Title **Advanced Stability Sensor for Anaerobic Digestion Processes**

2006 : \$41,000

2007 : \$82,000

2008 : \$41,000

Primary RFCD 2504 ANALYTICAL CHEMISTRY

Partner Organisation(s)

Gelita Australia Pty Ltd

Gold Coast City Council

Administering Institution The University of Queensland

Project Summary

Australia is firmly committed to energy reduction and production, where possible, renewable energy production. Anaerobic digestion is the only in-use wastewater treatment option that not only can have net zero energy consumption, but that actually produces energy. This energy is from renewable carbon sources is therefore a zero contributor to greenhouse gases. Australia has some of the strongest environmental limit laws in the world. While this is reasonable - given our sensitive environment - assisting industry in meeting those limits in a cost effective manner is a priority. Given sufficient process stability and transparency, anaerobic digestion is a low capital and operating cost option.

LP0669191 A/Prof BR Bhandari; Prof MJ Gidley; Prof AK Whittaker; Dr HC Deeth

Approved Project Title **The Molecular Mechanism of Protein Instability in Dairy Powder Systems**

2006 : \$60,000

2007 : \$114,500

2008 : \$119,500

2009 : \$65,000

Primary RFCD 2901 INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

APA(I) Award(s): 2

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Partner Organisation(s)

Dairy Ingredients Group Of Australia Ltd.

Administering Institution The University of Queensland

Project Summary

Dairy is the fourth largest rural industry sectors in Australia, directly involving more than 13,000 farms and a large number of dairy factories. Most of Australia's 10 billion litre milk flow is converted to powder form for exports, with an annual value exceeding \$1billion. The anticipated improvements in the performance and shelf-life of the dried dairy powder systems to be investigated in this project have the potential to generate significant economic impacts in both the dairy production and processing sectors. This work will also benefit the wider scientific community in dairy- and food-related areas, particularly in relation to the novel multidisciplinary approach involving a combination of material science and protein chemistry.

LP0669647 Dr MJ Dieters; Dr GT Dale; Prof KE Basford

Approved Project Title **Site factors and genotype-site interaction affecting growth of eucalypt hybrids bred for commercial agro-forestry as a salinity management tool.**

2006 : \$35,000

2007 : \$67,500

2008 : \$65,000

2009 : \$32,500

Primary RFCD 3006 FORESTRY SCIENCES

Partner Organisation(s)

Saltgrow Pty Ltd

Administering Institution The University of Queensland

Project Summary

Preliminary results indicate that with appropriate site-genotype matching, commercial plantation forestry can be pushed well below the current limit (650-700mm/yr). Outcomes from this project will potentially facilitate doubling of Australia's forest plantations, eliminate the annual trade deficit of \$2 billion in forest products; ensure the long term environmental and productive sustainability of our agricultural production systems; diversify and drought proof farm income through the introduction of perennial tree crops whose yield and harvest is independent of short term seasonal fluctuations; and re-invigorate the economy of rural Australia brought about by investment in new, inland forest and wood processing industries.

LP0669328 Dr SL Dole; Prof DM Clarke; Dr AH Wright

Approved Project Title **Learning essential knowledge by design: Promoting and connecting mathematics and science in the middle years of schooling.**

2006 : \$20,000

2007 : \$42,500

2008 : \$45,000

2009 : \$22,500

Primary RFCD 3302 CURRICULUM STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Redeemer Lutheran College

Bundamba State Secondary College

Bremer State High School

All Hallows School

Faith Lutheran College Redlands

St. Peter's Catholic Primary School

Kenmore State High School

Administering Institution The University of Queensland

Project Summary

In the international setting, Australia's scientific and technical competitiveness is under threat. In the US this similar threat has elicited responses that focus on new mathematics and science teachers and teacher professional learning. This project aligns with major national and state initiatives to develop curricula that promote essential learnings and standards without losing sight of current educational approaches such as middle years of schooling. The project will explore research-based, integrated pedagogies, content and assessment to provide Australian teachers with new ways of engaging students with the mathematics and science curricula.

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LP0669628 A/Prof RA Hyde; Dr KK Yeang; Dr N Groenhout; Mr F Barram

Approved Project Title **Exploring synergies with innovative Green Technologies for Advanced Renovation: Redefining a Bioclimatic approach for multi residential and office buildings in warmer climates**

2006 : \$35,517

2007 : \$72,455

2008 : \$74,984

2009 : \$38,046

Primary RFCD 3101 ARCHITECTURE AND URBAN ENVIRONMENT

Partner Organisation(s)

T.R Hamzath Yeang Sdn.Bhd
Bassetts Consulting Engineers
Integrated Energy Services

Administering Institution The University of Queensland

Project Summary

Building energy consumption accounts for nearly 27% of all energy related greenhouse gas emissions. By 2010, emissions' from buildings is estimated to increase by 48% above 1990 levels. This projected trend is alarming given that Australia's obligation under the Kyoto Protocol is only 8% above 1990 levels. Renovation of existing buildings is necessary to achieve this target. Research will address this problem by providing principles, strategies and solutions demonstrating improvement of environmental performance and cost benefits. The application of new principles will assist with transforming the building industry to meet Kyoto targets.

LP0669768 Dr GJ Marston; Dr J Moss

Approved Project Title **Disability, Welfare and Work**

2006 : \$23,000

2007 : \$45,500

2008 : \$44,000

2009 : \$21,500

Primary RFCD 3702 SOCIAL WORK

Partner Organisation(s)

ACE National

Administering Institution The University of Queensland

Project Summary

The proposed project will offer significant insights into the experiences of people with a disability in the context of welfare-to-work policies. The project will be able to gauge the extent to which the significant amount of public funds invested in the new welfare-to-work measures is effective. In 2002/03 the Australian Government invested over 300 million dollars in Open Employment assistance. The applied research into conceptual questions such as the correct model of disability, the relation of obligation to our understanding of citizenship and associated ethical issues will assist in maintaining Australia at the cutting edge of applied philosophical and sociological research.

LP0669104 Dr HA McGowan; Mr SK Marx; Dr BS Kamber

Approved Project Title **Water resource management of the Snowy Mountains Hydro-electric Scheme catchment and the Murray-Darling River system - a new perspective on system reliability from drought history reconstruction.**

2006 : \$49,500

2007 : \$94,500

2008 : \$82,170

2009 : \$37,170

Primary RFCD 2606 ATMOSPHERIC SCIENCES

APDI Mr SK Marx

Partner Organisation(s)

Snowy Hydro Limited

Administering Institution The University of Queensland

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Project Summary

The Snowy Mountains Hydro-electric Scheme assists in underwriting the production of \$3 billion of agricultural products in the Murray-Darling Basin each year by providing a reliable source of water west of the Great Dividing Range, while Hydro-electric generation from the Scheme is worth annually several hundred million dollars and provides 70% of the renewable energy supplied to the eastern mainland grid, thereby avoiding 5Mt of carbon dioxide emissions each year. This study will ensure the ongoing sustainable and efficient management of the Schemes water resources in response to predicted climate variability and most importantly, severe drought.

LP0669698 Prof LK Nielsen; Ms Y Fung; Dr RM Minchinton

Approved Project Title **Ex vivo production of neutrophils**

2006 : \$45,000

2007 : \$80,000

2008 : \$35,000

Primary RFCD 2901 INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

Partner Organisation(s)

Australian Red Cross Blood Service

Administering Institution The University of Queensland

Project Summary

Relentless infections frequently occur in patients receiving intensive chemotherapy treatment. Chemotherapy is toxic to the bone marrow where blood cells are produced. A low white blood cell count and in particular a low neutrophil count is linked with infection in these patients. Unlike red cells and platelets, neutrophils are difficult to collect from blood donors and hence are not routinely available. In this project, we will develop a practical, cost efficient process for the production of neutrophils from cord blood. Transfusion of these neutrophils should reduce the chance of patients suffering serious infection, allow them to recover faster from their chemotherapy, and reduce the need for admission to intensive care.

LP0669663 Prof MS Roberts; Dr AV Zvyagin; Dr YG Anissimov; Dr R Govindarajan; Dr CJ Loy

Approved Project Title **Relationship between melanosome distribution and skin colour**

2006 : \$30,000

2007 : \$60,000

2008 : \$70,000

2009 : \$40,000

Primary RFCD 2499 OTHER PHYSICAL SCIENCES

Partner Organisation(s)

Johnson & Johnson Asia Pacific

Administering Institution The University of Queensland

Project Summary

This work seeks to examine how the colour of our skin is related to the distribution of melanosomes. This work may allow us to better understand how to develop novel therapies that may alter skin colour and provide protection from the sun (frontier technologies) but may also, in the longer term, lead to healthier approaches to skin management - especially for ageing skin.

LP0669667 Prof MS Roberts; Dr YG Anissimov; Dr R Govindarajan; Dr CJ Loy

Approved Project Title **Topical peptide delivery for cosmetic and therapeutic benefits**

2006 : \$40,000

2007 : \$81,500

2008 : \$84,500

2009 : \$43,000

Primary RFCD 3205 PHARMACOLOGY AND PHARMACEUTICAL SCIENCES

Partner Organisation(s)

Johnson & Johnson Asia Pacific

Administering Institution The University of Queensland

Project Summary

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Milk is a major Australian agricultural commodity and is now used in a number of topical products for the management of various skin conditions including chafing in babies, eczema and ageing skin. Hence, this work hopes to contribute to promoting and maintaining good health of Australians.

In addition, there is considerable research being conducted on peptide development for a range of diseases and there may be a possibility of delivering these by the skin.

This work, in seeking to understand some of the fundamental determinants governing how exogenously applied peptides distribute in the skin, is also contributing to the development of Australian pharmaceutical and cosmetic industries.

LP0669641 Prof V Rudolph; Dr P Massarotto

Approved Project Title **The Effect of Fines Particles on Production and Permeability of cbm Reservoirs**

2006 : \$106,500

2007 : \$180,500

2008 : \$140,500

2009 : \$66,500

Primary RFCD 2906 CHEMICAL ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Santos Ltd

CH4 Gas Ltd

Administering Institution The University of Queensland

Project Summary

Coalbed methane (cbm) energy resources in Australia exceed \$20b in value. One of the production issues with recovering cbm is fines that are created or exist in the coal, which block gas flow to the recovery wells and damage downstream equipment. Understanding how fines are created and migrate within gas wells and then overcoming this problem, the purpose of this research, could deliver additional gas production worth over \$1.8billion and reduce maintenance costs related to cbm extraction by \$25m per year.

LP0669687 Dr RS Wilson

Approved Project Title **Conserving native wildlife during urbanisation: the effectiveness of biodiversity-friendly urban design and construction practices**

2006 : \$50,000

2007 : \$90,000

2008 : \$85,000

2009 : \$45,000

Primary RFCD 3008 ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Brisbane City Council

Gold Coast City Council

Redland Shire Council

Environmental Protection Agency

Urban Development Institute of Australia

Administering Institution The University of Queensland

Project Summary

Urbanisation has many negative effects upon native wildlife and their habitats, but biodiversity-friendly urban design and construction practices may greatly reduce these impacts. This study will examine the effectiveness of such measures at sustaining wildlife at sites of urban development, and will therefore produce significant benefits for local residents and the broader Australian community. Healthy natural ecosystems in urban areas provide many services to the public, reduce the need for costly management, and improve the livelihood of residents living in greener environments. This study will enhance all these community benefits through a detailed examination of the effectiveness of biodiversity-friendly urban development measures.

LP0669659 Mr N Woods; Dr A Hewitt; Dr C O'Donnell; Dr RF Sadler; Prof MP Zalucki; Dr BW Cribb; Prof MR Moore; A/Prof BN Noller

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Approved Project Title **Understanding the control of adult mosquitoes to reduce arbovirus transmission while minimising environmental and public health risk.**

2006 : \$17,500
2007 : \$32,500
2008 : \$30,000
2009 : \$15,000

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES
 APA(I) Award(s): 1

Partner Organisation(s)

Pacific Biologics
 Maroochy Shire Council
 Logan City Council
 Gold Coast City Council

Administering Institution The University of Queensland

Project Summary

Mosquitoes are capable of transmitting a wide range of debilitating diseases such as Ross River and Barmah Forest viruses, Murray Valley Encephalitis, Japanese Encephalitis, Dengue fever and Malaria. To prevent the transmission of these diseases local authorities expend considerable resources on the control of mosquitoes. This project will increase the understanding of chemical control measures on adult mosquitoes and this will lead to more effective mosquito control treatments and reduce the incidence of mosquito transmitted diseases. The project will also result in a reduction in the risk from the application of pesticide to public health and the environment.

South Australia

The Flinders University of South Australia

LP0669838 Dr JE Craig; Dr NH Voelcker; Mr MJ Plunkett

Approved Project Title **Bio-MEMS eye sensor for continuous monitoring of intraocular pressure**

2006 : \$20,000
2007 : \$40,000
2008 : \$40,000
2009 : \$20,000

Primary RFCD 3299 OTHER MEDICAL AND HEALTH SCIENCES
 APA(I) Award(s): 1

Partner Organisation(s)

Ellex Medical Pty Ltd

Administering Institution The Flinders University of South Australia

Project Summary

Glaucoma is a leading cause of preventable blindness, particularly prevalent in the 60+ population, caused by elevated intraocular pressure (IOP). Current treatment to monitor and prevent glaucoma-related blindness is by lowering IOP with eye-drops, laser therapy or surgery. This project directly benefits our aging population by ensuring independence and quality of life, whilst reducing long-term medical and social costs. By incorporating nanotechnology with ophthalmology we will provide an economic solution to long-term, reliable, home-monitoring of IOP. An implantable IOP sensor, will identify patients requiring more invasive treatment compared with those with less aggressive disease, leading to better health resource utilisation.

LP0668941 Dr S Kleindorfer

Approved Project Title **Avian Recruitment: The Key to Maintaining Biodiversity**

2006 : \$32,500
2007 : \$70,000
2008 : \$65,000
2009 : \$27,500

Primary RFCD 2707 ECOLOGY AND EVOLUTION
 APA(I) Award(s): 1

Partner Organisation(s)

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Department for Environment and Heritage
Nature Foundation SA Inc
South Australian Museum

Administering Institution The Flinders University of South Australia

Project Summary

With increased global trade, the threat to native species from the spread of disease and parasites requires exploration. This is particularly relevant as we link fragmented habitats through vegetation corridors at a national level, thereby creating potential pathways for disease transmission and predator access. This study will contribute to Research Priority 4: Safeguarding Australia from invasive diseases and pests. It will do this by generating a detailed understanding of the link between nesting success, parasite transmission, and immune response in endemic Australian birds in geographically separate populations. The results will be used to inform the establishment of vegetation corridors in the proposed study sites in the next decade.

LP0669272 Prof MA Luszcz; Dr RB Walker

Approved Project Title **The dynamics of spousal relationships in very late life: transitions, psychological health and longevity**

2006 : \$37,170

2007 : \$74,340

2008 : \$74,340

2009 : \$37,170

Primary RFCD 3801 PSYCHOLOGY
APDI Dr RB Walker

Partner Organisation(s)

Office for the Ageing
ECH Inc
Relationships Australia SA
Alzheimers Australia SA

Administering Institution The Flinders University of South Australia

Project Summary

This research will provide a rare insight into the dynamics of very-long term successful marriages. It will also provide an understanding of the dyad in ageing well. In a society where a large percentage of marriages end in divorce, this work has the potential to identify individual differences factors that are conducive to sustaining the marital relationship. In addition, an examination of how couples from different socio-economic backgrounds navigate later life in their own homes or during key late life transitions will also be beneficial for those individuals or policy makers planning for these transitions.

LP0669168 Prof K Mack; Prof SL Roach Anleu

Approved Project Title **Judicial Officers and Workload Allocation**

2006 : \$18,507

2007 : \$37,897

2008 : \$40,437

2009 : \$21,047

Primary RFCD 3903 JUSTICE AND LEGAL STUDIES

Partner Organisation(s)

Magistrates Court, South Australia
Magistrates Court
Magistrates Court, Northern Territory
Australian Institute of Judicial Administration

Administering Institution The Flinders University of South Australia

Project Summary

Courts and judges constitute a key social and legal institution with a distinctive obligation to maintain the rule of law. The knowledge produced by this research will benefit the judiciary, the courts, government and the public they serve. Research findings about the allocation of judicial work will be used by courts and government to shape policy in recruitment, selection and professional development. It will assist individual judicial officers to manage their workloads and provide valuable information for courts in managing independent professionals. This research will improve public and scholarly understanding of Australia's courts and will help sustain an institution essential for safeguarding Australia.

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LP0669119 Prof JG Matisons; Dr M Ginic-Markovic; Dr SR Clarke

Approved Project Title **The Nanotechnology Desalination Research Project - Low Energy Desalination Membranes**

2006 : \$77,500
2007 : \$127,500
2008 : \$90,000
2009 : \$140,000
2010 : \$200,000
2011: \$100,000

Primary RFCD 2505 MACROMOLECULAR CHEMISTRY
APA(I) Award(s): 1

Partner Organisation(s)

Wind Prospect Pty Ltd
 Ocean Power Delivery Ltd

Administering Institution The Flinders University of South Australia

Project Summary

Population growth and global warming is rapidly increasing the strain placed on fresh water supplies. Environmentally sustainable solutions to this water shortage need to be found urgently. This project will develop new, low energy desalination technologies which can be powered by renewable energy sources, to enable desalination to be widely applied with low environmental impacts. It addresses several national priorities: Water - a critical resource; Transforming existing industries; Overcoming soil loss, salinity and acidity; Responding to climate change and variability; Frontier technologies and Advanced materials.

The University of Adelaide

LP0669062 Prof AD Austin; Dr NP Murphy; Dr SJ Cooper; Mr MA Adams

Approved Project Title **Comparative phylogeography of mound springs-invertebrates: identifying genetically divergent populations for conservation and management**

2006 : \$37,170
2007 : \$74,340
2008 : \$74,340
2009 : \$37,170

Primary RFCD 2707 ECOLOGY AND EVOLUTION
APDI Dr NP Murphy

Partner Organisation(s)

Department of Environment and Heritage South Australia
 South Australian Museum
 Nature Foundation of South Australia Inc
 BHP Billiton

Administering Institution The University of Adelaide

Project Summary

The mound springs of the Great Artesian Basin represent one of Australia's most unique and significant environments and are of national biodiversity, cultural and economic significance. The conservation of these unique environments is a national issue following their listing as a threatened ecological community. As economic productivity in the GAB intensifies, the mound springs are under increasing threat from escalating groundwater use. The results of this study of genetic diversity in the spring communities will provide a means for the management groups to incorporate a significant biological information into their decision making and help facilitate the conservation of mound springs communities in the Lake Eyre region

LP0669007 Dr J Brugger; Mr F Reith; Mr J Kirby; Dr SA Wakelin; Prof A Pring; Mr SJ Ellis; Dr N Radford

Approved Project Title **Bacterial mechanisms of gold mobilisation and precipitation with applications to mineral processing and exploration**

2006 : \$72,500
2007 : \$138,000

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2008 : \$133,500
2009 : \$68,000
Primary RFCD 2703 MICROBIOLOGY
 APDI Mr F Reith

Partner Organisation(s)

Newmont Australia
 South Australian Museum
 Barrick Gold of Australia Limited (ACN 008 143 137)

Administering Institution The University of Adelaide

Project Summary

The development of a comprehensive model for the biogeochemical behaviour of gold in the environment will aid mineral explorers to interpret existing exploration data and to develop better exploration strategies. Moreover, this project aims to develop the basis for a new geomicrobiological gold exploration method by identifying organisms and microbial gene sequences that could be used as biomarkers for mineralisation. This research will also provide the fundamental information required to copy nature and engineer new cost-efficient and environmentally friendly technologies for gold processing using microorganisms that occur naturally in Australian soils.

LP0668987 Dr SM Carthew; Dr AC Taylor; Dr SJ Cooper

Approved Project Title **Conservation genetics and socio-ecology of marsupials in fragmented populations of south-eastern South Australia: towards a regional biodiversity management plan**

2006 : \$32,000
2007 : \$62,000
2008 : \$65,000
2009 : \$35,000

Primary RFCD 2707 ECOLOGY AND EVOLUTION

Partner Organisation(s)

Hancock Victorian Plantations Pty Ltd
 ForestrySA
 Department for Environment and Heritage (SA)
 Nature Foundation of Australia Inc.
 South Australian Museum

Administering Institution The University of Adelaide

Project Summary

Habitat destruction and fragmentation is causing the decline of many species in native forests of eastern and southern Australia. Our project will investigate the interplay between the human activities of agriculture and forestry and their effects on native forest ecosystems. It will provide new data on the consequences of fragmentation to native mammal species in the rural and regional communities of south-east South Australia and western Victoria. It will establish a strong collaborative partnership between two forestry companies, conservation agencies and university conservation biologists to develop strategies to sustainably manage biodiversity in native forests and conserve populations of rare and threatened native mammals species.

LP0669378 Dr BM Gillanders; A/Prof HR Maier; Dr TS Elsdon

Approved Project Title **Effects of urbanisation and introduced species on rivers and estuaries: a whole of catchment approach**

2006 : \$42,000
2007 : \$83,000
2008 : \$72,000
2009 : \$31,000

Primary RFCD 2707 ECOLOGY AND EVOLUTION

APA(I) Award(s): 2

Partner Organisation(s)

Department for Environment and Heritage
 PIRSA - Fisheries

Administering Institution The University of Adelaide

Project Summary

Humans have converted land into urban and agricultural areas, as well as intentionally or accidentally introduced species into

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aquatic systems. Estuaries and rivers are some of the most degraded systems on earth and fishes are among the most endangered vertebrates worldwide. We will utilise novel modelling techniques to provide predictive models that investigate fish-environment relationships. We will also investigate impacts of trout introductions on native fish including dietary, competitive and assemblage level changes to the system. Essential data for the sustainable management of freshwater and estuarine systems will be obtained, which will lead to an environmentally sustainable Australia.

LP0669816 Dr V Jiranek; Dr NA Yap; Dr PR Grbin

Approved Project Title **Evaluating the applicability of Directed Evolution to the optimisation of industrial yeast strains**

2006 : \$20,000

2007 : \$40,000

2008 : \$20,000

Primary RFCD 2901 INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

Partner Organisation(s)

Mauri Yeast Australia Pty Ltd

Administering Institution The University of Adelaide

Project Summary

The fermentation industries, particularly the wine industry, are of great economic importance to Australia. Wine exports exceed \$2 billion per year. Moreover, the industry and those supporting it are major employers in regional Australia. To maintain and grow our share of the international market, Australian wine must remain competitive by increasing production efficiency, maximizing quality and keeping up with changing consumer preferences, and with minimal environmental impact. As a cornerstone to the winemaking process, the yeast is a vehicle for achieving these needs. This project will develop and evaluate a method for generation of unique yeast which are non-recombinant and which yield superior wine under modern winemaking conditions.

LP0668808 A/Prof HR Maier; Prof GC Dandy; A/Prof GG Ganf; Dr MB Lane; Dr CT Simmons; Dr CT de Koning

Approved Project Title **Innovative Approach to the Optimal Management of Water Resources and Application to the Upper South East Region of South Australia**

2006 : \$62,500

2007 : \$115,000

2008 : \$102,500

2009 : \$100,000

2010 : \$50,000

Primary RFCD 3008 ENVIRONMENTAL SCIENCES

APA(I) Award(s): 2

Partner Organisation(s)

Department of Water, Land and Biodiversity Conservation

Administering Institution The University of Adelaide

Project Summary

This project will increase Australia's capacity to manage water resources in an integrated and sustainable manner. The outcomes of this project will also provide significant economic, social and environmental benefits to the Upper South East region of South Australia, as well as the broader Australian community. The project is expected to result in a significant reduction in the economic and social costs associated with dryland salinity and flooding whilst simultaneously increasing the environmental benefits associated with the maintenance and rehabilitation of the ecological value of the some of the region's approximately 200 wetlands.

LP0669248 Dr V Moore; Dr K Doherty; A/Prof P Ryan

Approved Project Title **The impact of haemoglobin deferral on blood donors: perceptions, health and non-return.**

2006 : \$14,878

2007 : \$29,907

2008 : \$15,029

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

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Australian Red Cross Blood Service

Administering Institution The University of Adelaide

Project Summary

Blood donors are an vital in ensuring the health of the Australian community. However, they are few in number and difficult to recruit. It is crucial to keep existing donors in the system so that Australia has an assured blood supply, not only for the traditional reasons (road trauma, replacement in surgery, treatment of diseases such as cancer), but also to cope with natural disasters, emergent diseases and the potential results of terrorist activities. Apart from providing new information on blood donor behaviour, the project will also contribute to more general knowledge about volunteers in the community and their role in the maintenance and development of health services.

LP0668939 Prof P Mühlhäusler; Ms ED Semple; Mrs JM Davidson; The Hon DE Buffett

Approved Project Title Preserving and reviving language and culture of Norfolk Island

2006 : \$22,500

2007 : \$46,000

2008 : \$47,000

2009 : \$23,500

Primary RFCD 3802 LINGUISTICS

Partner Organisation(s)

Norfolk Island Museum

Norfolk Island Central School

Norfolk Island Government

Administering Institution The University of Adelaide

Project Summary

The project will help revive the endangered Norfolk Island language, thereby strengthening the sense of identity of the Norfolk Islanders. It will help achieve greater visibility of the language through an exhibition, interpretive signage and production of educational resources. The training provided will open up employment opportunities in education and cultural tourism in a remote community.

LP0669161 Prof SE Smith; Dr KM Ophel-Keller; Dr RE Holloway; Prof FA Smith

Approved Project Title Novel technologies to resolve interactions between arbuscular mycorrhizal (AM) fungi, phosphate fertilisers and root disease in wheat production

2006 : \$35,000

2007 : \$67,500

2008 : \$65,000

2009 : \$32,500

Primary RFCD 3002 CROP AND PASTURE PRODUCTION

Partner Organisation(s)

South Australian Grain Industry Trust

Administering Institution The University of Adelaide

Project Summary

Soils in Australia are often phosphate (P) deficient. Fertiliser P costs ~\$1.5 billion pa, yet much is wasted because of fixation in soils. This waste must be stopped and soil reserves unlocked, because supplies of rock phosphate for fertiliser manufacture will run out in the next ~70 years. We will investigate the potential of combining two approaches to maximise P fertiliser use by wheat - application of new, fluid fertiliser formulations and soil management to increase populations of beneficial arbuscular mycorrhizal (AM) fungi that have large effects on the way plants absorb P from soil. A new DNA-based method to monitor AM fungal communities will be applicable both in agricultural management and studies of AM fungal biodiversity.

University of South Australia

LP0669479 Dr D Chung; Dr PJ O'Leary

Approved Project Title Stopping domestic violence in urban and rural areas: evaluating and improving the effectiveness of domestic violence perpetrator programs.

2006 : \$29,199

2007 : \$58,399

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2008 : \$58,399
2009 : \$29,199
Primary RFCD 3702 SOCIAL WORK
 APA(I) Award(s): 1

Partner Organisation(s)

CJS Training Unit

Administering Institution University of South Australia

Project Summary

Domestic violence affects up to 36% of women (Mouzos et.al 2004). Its annual economic cost is \$8.1b (Access Economics 2004). In 66% of cases children are present (Bagshaw et.al 1999). Effects on women and children are poor mental health, homelessness and impaired work/education performance (VicHealth 2004). As male perpetrators tend to be serial offenders (Hansen et al 2004), there are Australian programs to stop the violence. There are limited and contentious findings about their value and no published evaluation of programs in rural Australia. This research addresses these significant knowledge gaps and is nationally beneficial as the knowledge can ultimately reduce domestic violence prevalence.

LP0669326 A/Prof AR Gerson; Mr MA De Vos; Dr MC Barnes

Approved Project Title **Development of Dry Coated Pigment Particles: Durability and Dispersion**

2006 : \$40,000
2007 : \$85,000
2008 : \$75,000
2009 : \$30,000

Primary RFCD 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

Partner Organisation(s)

Tiwest Joint Venture

Administering Institution University of South Australia

Project Summary

Tiwest is the only business in the world that mines, separates, refines and manufactures titanium dioxide products in one region. Tiwest has a major impact on the Western Australian economy with more than 700 full time and contract jobs, export earnings of \$400M (in 2004) and regular incomes for an estimated 500 businesses. The current wet pigment particle coating process, to ensure ease of handling and longevity, is a major cost. An optimised pigment dry-coating process would ensure Tiwest's competitiveness through reduced processing costs and improved performance. This development has the potential to increase Tiwest's profitability by 10%.

LP0669600 A/Prof SR Grano; A/Prof D Fornasiero; Dr GE Morris

Approved Project Title **Optimising the Recovery of Fine and Coarse Particles in Mineral Flotation**

2006 : \$77,500
2007 : \$132,500
2008 : \$105,000
2009 : \$105,000
2010 : \$55,000

Primary RFCD 2907 RESOURCES ENGINEERING

APA(I) Award(s): 4

Partner Organisation(s)

AMIRA International

Administering Institution University of South Australia

Project Summary

The collection of fine (<10 microns) and coarse (>100 microns) mineral particles by gas bubbles is the very heart of the selective froth flotation process. In the flotation of minerals, losses of fine and coarse value minerals equate to approximately \$500M annually in Australia alone. The significance of flotation to the Australian economy may be judged from the fact that over \$39b in commodity exports was derived from the minerals and energy industries in 2001, rising to well over \$75b in 2005 (Australian Bureau of Statistics). These industries produce mineral concentrates of specific interest to our Industry Partner, such as copper, nickel, zinc and coal.

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LP0669085 Dr AJ Hariz; Dr H Hsu; Dr T Omari

Approved Project Title **Development of a novel flex sensor for use on catheters in medical pressure diagnostic tools**

2006 : \$12,325
2007 : \$24,650
2008 : \$24,650
2009 : \$12,325

Primary RFCD 2909 ELECTRICAL AND ELECTRONIC ENGINEERING
APA(I) Award(s): 1

Partner Organisation(s)

Centre for Paediatrics and Adolescent Gastroenterology, Women's and Children's Hospital

Administering Institution University of South Australia

Project Summary

This research project will lead to a significant improvement on the technologies currently available to diagnostic tests of swallowing dysfunctions in children. The proposed technology is much needed and will enable future development of more direct and targeted interventions to assist with feeding based on these measurement techniques. In addition, the knowledge and expertise learned from this project as applied to such a miniature medical device comprises sufficient generic know-how to be useful in developing other biomedical devices. These developments will have a tangible technological impact in a way that will help the Australian biomedical industry be more competitive in the global market.

LP0668944 A/Prof AJ Liddicoat; Ms A Scarino; Dr A Mercurio

Approved Project Title **Assessing the intercultural in language learning**

2006 : \$25,000
2007 : \$52,500
2008 : \$55,000
2009 : \$27,500

Primary RFCD 3802 LINGUISTICS

Partner Organisation(s)

School of Languages

Senior Secondary Assessment Board of South Australia

Department of Education and Children's Services

Administering Institution University of South Australia

Project Summary

The implementation of Intercultural Language Learning (ICLL) is a priority in policy for the Commonwealth and States and is important in developing better understanding of people from different cultures and countries. A key problem is the development of assessment models. This project is a first investigation of the process and theory of task-based assessment in ICLL and of the process of judgement in assessing languages and interculturality. The project will contribute to the quality of languages education nationally by enhancing languages teaching and learning and especially the contribution of languages learning to understanding, respecting and engaging with linguistic and cultural diversity, both in Australia and globally.

LP0669781 Prof IC McMillen; Dr VE Perry

Approved Project Title **Early Nutrition and the Programming of Body Composition in Cattle**

2006 : \$25,000
2007 : \$50,000
2008 : \$50,000
2009 : \$25,000

Primary RFCD 2706 PHYSIOLOGY

Partner Organisation(s)

Australian Agricultural Company

Administering Institution University of South Australia

Project Summary

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Australia is the worlds largest beef exporter with the net value of beef export valued at \$4.6 billion. The economy of rural and regional Australia relies upon cattle production with the industry bringing a total value to these communities of \$7.4 billion. Cattle production in remote Australia is becoming less viable as input costs of production increase relative to income earned and the beef industry is keen to transform production methods. Protein is the major limiting nutrient in the Australian rangelands and this proposal will provide new information on how providing protein to cattle during critical periods in their pregnancy can 'program' the body composition of the growing calf to be optimal for the market.

LP0669470 Dr GE Morris; Dr LG Britcher; A/Prof WM Skinner; Dr J Addai-Mensah; Mr MA De Vos

Approved Project Title **Optimisation of pigment coating surface treatments**

2006 : \$42,500

2007 : \$85,000

2008 : \$85,000

2009 : \$42,500

Primary RFCD 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

APA(I) Award(s): 1

Partner Organisation(s)

Tiwest Joint Venture

Administering Institution University of South Australia

Project Summary

Control and optimisation of surface coatings in pigment processing will lead to improved production efficiency and quality. In pigment processing, technology developed in this project may not only save millions of dollars in increased production efficiency but also lead to improved pigment optical performance in pigment applications such as paints, plastics and pharmaceuticals.

LP0669518 Prof WT Sarre; A/Prof TJ Prenzler; Mr TC Murphy

Approved Project Title **Private Security and Public Interest: Exploring Private Security Trends and Directions for Reform in the New Era of Plural Policing**

2006 : \$26,000

2007 : \$53,750

2008 : \$57,325

2009 : \$29,575

Primary RFCD 3903 JUSTICE AND LEGAL STUDIES

Partner Organisation(s)

Australian Security Industry Association Limited

Administering Institution University of South Australia

Project Summary

This study will provide the first ever comprehensive assessment of private security and what it can and cannot offer society in terms of fair and effective order maintenance, crime prevention and law enforcement in Australia. Stemming from problems incurred by the sector, the research will address how governments should regulate the growing range of policing functions undertaken by private providers. It will also address the issue of how private police can best satisfy legal and justice criteria, meet the demands of accountability and develop mutually beneficial models of cooperation with the public sector. The research will recommend to policy-makers preferred 'plural' policing models for the 21st century.

LP0669297 Prof DA Scott; Dr FM Arney; Ms CJ Gibson; Dr L Brown

Approved Project Title **Sowing the Seeds of Innovation in the Prevention of Child Abuse and Neglect**

2006 : \$26,500

2007 : \$53,000

2008 : \$26,500

Primary RFCD 3702 SOCIAL WORK

Partner Organisation(s)

UnitingCare Burnside

Administering Institution University of South Australia

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Project Summary

The approach developed in this project will have significant benefits for child and family service organisations. It will enhance the spread and sustainability of promising preventive programs within the child and family services sector. In this way, vulnerable children and families will benefit from the increased availability of such programs designed to enhance their life opportunities. The project will also have significant flow-on economic benefits for Local, State and Federal Governments by decreasing the social and economic costs associated with child abuse and neglect.

LP0669061 Prof RS Smart; Dr J Li; Dr SD Miller; Dr RC Schumann

Approved Project Title Evaluation of reaction mechanisms and products in acid rock drainage treatments

2006 : \$90,075

2007 : \$177,015

2008 : \$167,312

2009 : \$80,372

Primary RFCD 2599 OTHER CHEMICAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

AMIRA International Ltd

Administering Institution University of South Australia

Project Summary

There are more than 54 sites in Australia managing major ARD wastes (either >10% of the waste or >10M tonnes) with another 62 sites with less ARD. At operating sites, the annual costs are \$60M p.a.; over 15 years, a total cost of \$900M for the whole industry. The value of the project outcomes to industry (and government) in reduction of acid and toxic metal release and reduced cost of treatments is potentially in the tens of \$M p.a.. Improvements in environmental and social quality of life in mining areas and towns will also result from improved treatment.

Western Australia

Curtin University of Technology

LP0669242 Prof E Chang; Prof TS Dillon; Dr H Dreher; Mr RF Williams; Ms J Cook

Approved Project Title An Intelligent Automated Essay Marking Tool-MarkIT for Education Sector

2006 : \$95,000

2007 : \$180,000

2008 : \$170,000

2009 : \$85,000

Primary RFCD 3301 EDUCATION STUDIES

APA(I) Award(s): 3

Partner Organisation(s)

WA State Government - Department of Education and Training

Macquarie Library Pty Ltd

Administering Institution Curtin University of Technology

Project Summary

Making and grading essays is estimated to cost around AUD\$2 Billion in Australia each year. It takes up approximately a third of the teachers' time. An Automated Essay Grading System would mean significant financial savings in the education sector both public and private. It would also free up teachers to concentrate on higher level pedagogical tasks resulting in a better quality of education. The potential for sales overseas for such a system are also great.

LP0669283 Prof G Craven; Dr A Fenna; Prof AW Parkin

Approved Project Title Cooperation, competition or control? Public policy and the use of tied grants in Australian federalism

2006 : \$32,500

2007 : \$65,500

2008 : \$71,500

2009 : \$38,500

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Primary RFCD 3601 POLITICAL SCIENCE

APA(I) Award(s): 2

Partner Organisation(s)

Department of the Premier and Cabinet, Government of Western Australia
Department of Treasury and Finance, Government of Western Australia
Constitutional Centre of Western Australia

Administering Institution Curtin University of Technology

Project Summary

Tied grants account for \$26 billion worth of Commonwealth expenditure and cover everything from child care to aged care, environmental programs to road building. They crucially affect the capacity of Australian governments to make policy and deliver services. A better understanding of how they work in practice will be a great benefit in improving our capability to meet pressing social, economic, environmental and regional development challenges.

LP0668908 Dr WR Richmond; Prof JD Gale; Mr W Tichbon

Approved Project Title **Structural studies of titanyl and zirconyl sulfate hydrates**

2006 : \$12,325

2007 : \$24,650

2008 : \$24,650

2009 : \$12,325

Primary RFCD 2502 INORGANIC CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

BHP-Billiton Innovation Pty Ltd

Administering Institution Curtin University of Technology

Project Summary

This project aims to provide knowledge that will inform the development of new methods of extraction and refining of titanium from ilmenite ores. In addition the knowledge gained in this research will aid the design and synthesis advanced ceramics and nanocomposites, and will provide the fundamental understanding of material structures that are required to adequately control the formation of such materials.

LP0669575 Prof D Zhang

Approved Project Title **Improvements and Optimisation of Water Electrolysis for Hydroxy Gas Production for Metal Cutting Applications**

2006 : \$42,500

2007 : \$82,500

2008 : \$80,000

2009 : \$40,000

Primary RFCD 2906 CHEMICAL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Hydrogen Technology Limited

Administering Institution Curtin University of Technology

Project Summary

The current technique for metal cutting mainly uses oxygen-acetylene flames, which means for the large number of Australian remote communities oxygen and acetylene bottles have to be transported from major cities. This incurs significant transport costs and associated environmental emissions and presents major safety concerns. Hydroxy flames using electrolysis of water can alleviate these problems and, by utilising renewable electricity, the new technology to be developed in this research will transform tens of thousands of Australian metal workshops to be more environmentally friendly, safer and more cost-effective, thus contributing to the development of an environmentally sustainable Australia.

Edith Cowan University

LP0669240 Dr R Froend; Prof WD Stock; A/Prof KR Smettem; Mr M Martin; Dr C Xu; Prof D Eamus; Dr S McHugh

**Summary of Successful Linkage Projects Applications for Funding to commence in July 2006
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Approved Project Title **Mitigation of Impacts on Groundwater Dependent Vegetation Through Adaptive Abstraction Regimes.**

2006 : \$50,000
2007 : \$88,000
2008 : \$75,500
2009 : \$37,500

Primary RFCD 3008 ENVIRONMENTAL SCIENCES
APA(I) Award(s): 2

Partner Organisation(s)

Water Corporation
 Dept. of Environment

Administering Institution Edith Cowan University

Project Summary

Apart from loss of habitat, biodiversity, ecological function and aesthetics, tree decline and death is a financial burden to land managers. Lost groundwater production from existing borefield infrastructure due to environmental risk also represents a significant economic loss to industry. By adapting borefield operation strategies to be more sympathetic to environmental demands for groundwater, sustainable use of the resource can be maximized under otherwise 'high-risk' scenarios. This project will result in environmental benefits such as reduced impacts of borefields and economic benefits such as recovery of lost production from 'high-risk' borefields, increased viability of planned schemes and reduced customer cost of water services.

Murdoch University

LP0669207 Prof JS Bradley; Dr RD Wooller; A/Prof WB Sherwin

Approved Project Title **Population Viability Analysis of the Perth Metropolitan Population of the Little Penguin**

2006 : \$35,000
2007 : \$75,000
2008 : \$52,500
2009 : \$12,500

Primary RFCD 3008 ENVIRONMENTAL SCIENCES

Partner Organisation(s)

Fremantle Ports
 Department of Conservation and Land Management, Marine Conservation Branch
 Corporate Services Infrastructure-WA, Department of Defence

Administering Institution Murdoch University

Project Summary

The population of Little Penguins, breeding on Penguin and Garden Islands, in the Perth Metropolitan region, are an iconic species and a valuable ecotourism resource. They breed and feed in close proximity to high human activity and a rapidly growing urban population. The nearest other major populations are located 600km to the south. The key benefit of this project is that it will provide a basis for measuring the impacts of threats to this isolated population, and for testing management strategies. Thus it represents a key step in securing the long term future of the penguin population in Perth's waters.

LP0668931 Prof RJ Hobbs; Dr M Tibbett; Dr JM Koch

Approved Project Title **How does soil fertility affect jarrah forest rehabilitation after mining?**

2006 : \$33,422
2007 : \$99,240
2008 : \$135,225
2009 : \$69,407

Primary RFCD 3008 ENVIRONMENTAL SCIENCES

Partner Organisation(s)

Alcoa World Alumina Australia
 Worsley Alumina Pty Ltd

Administering Institution Murdoch University

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Project Summary

This project will examine the effect of fertiliser additions on the species composition and functional diversity of jarrah forest that develops after bauxite-mining. It is directly relevant to the achievement of the sustainable use of natural resources in Australia. Expected outcomes are best-practice management guidelines regarding the amount of fertiliser that results in the most effective achievement of completion criteria, and also an improved understanding of the consequences of fertiliser application on the biodiversity (plants and soil biota) and ecosystem function of rehabilitated forest ecosystems.

LP0669472 Dr E Koenigsberger; A/Prof PM May

Approved Project Title **Template-free Control of Titania Precipitation from Homogeneous Aqueous Solution**

2006 : \$40,000

2007 : \$77,500

2008 : \$75,000

2009 : \$37,500

Primary RFCD 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

Partner Organisation(s)

BHP Billiton Innovation Pty Ltd

Administering Institution Murdoch University

Project Summary

Used in the paint, plastic, ceramic, paper and synthetic fibre industries and having strategic nano-technological applications, titania is an important commodity for Australia, earning about \$1.3 billion p.a. in exports. Better production methods through improved understanding of titania precipitation chemistry will help to increase our industrial productivity and minimise energy consumption. It may also lead to useful new processes and/or materials with catalytic properties. In an increasingly competitive global market, this is most relevant to Australian titania exporters and to Australian renewable energy programs (particularly for generating photovoltaic power).

LP0669589 Dr KJ Steadman; Dr KW Dixon; Dr JM Koch

Approved Project Title **Enhancing native seed performance for minesite restoration and biodiversity conservation**

2006 : \$41,750

2007 : \$83,500

2008 : \$86,250

2009 : \$44,500

Primary RFCD 3008 ENVIRONMENTAL SCIENCES

Partner Organisation(s)

Alcoa World Alumina Australia

Worsley Alumina Pty Ltd

Botanic Gardens & Parks Authority

Administering Institution Murdoch University

Project Summary

The knowledge and practical outcomes generated from this project will facilitate more effective restoration of degraded native ecosystems through the return of a wider range of key understorey plant taxa and more efficient use of seed supplies. Availability of a broader suite of species will increase biodiversity, improve ecosystem resilience to change, and help in the conservation and recovery of nationally threatened taxa. By increasing the range of species with horticultural potential available for commercial propagation, it will also reduce the harvest of wild flowers. More efficient production and use of seed stocks will reduce the pressure on limited seed resources from seed harvesting.

The University of Western Australia

LP0669233 Dr JM Balme; Prof JR Dodson

Approved Project Title **Aboriginal landscape transformations in south-west Australia**

2006 : \$61,555

2007 : \$126,682

2008 : \$128,083

2009 : \$62,956

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Primary RFCD 4302 ARCHAEOLOGY AND PREHISTORY
APA(I) Award(s): 1

Partner Organisation(s)

Dept. Conservation and Land Management
 South Coast Regional Initiative Planning Team
 South West Catchments Council

Administering Institution The University of Western Australia

Project Summary

This project will inform present day land management strategies by assessing the extent to which the landscape at the time of European colonisation was an artefact of management practices of Indigenous people, . The strong Indigenous input, including the detailed recording and analysis of local knowledge together with evidence from archaeological, palaeoenvironmental and historical sources, will reinvigorate Aboriginal connections to land and provide appropriate training for young Indigenous people. The results will also assist in achieving sustainable use of Australia's biodiversity. The importance of human impacts relative to environmental change caused by other factors will improve our national capacity to respond to climate change.

LP0669047 A/Prof M Barbetti; Prof Dr K Sivasithamparam; Mr D Phillips

Approved Project Title **Role of soil factors and transmission on propagation material of fungal pathogens in the severity of strawberry crown and root disorders**

2006 : \$35,000
2007 : \$70,000
2008 : \$75,000
2009 : \$40,000

Primary RFCD 2704 BOTANY
APA(I) Award(s): 1

Partner Organisation(s)

DEPARTMENT OF AGRICULTURE WESTERN AUSTRALIA
 AGRICULTURAL PRODUCE COMMISSION

Administering Institution The University of Western Australia

Project Summary

Through identification of the pathogen complexes associated with root and crown disorders, their impacts, understanding the influences of environmental conditions and rotational species, knowing the sources of major pathogens, and identification of varietal resistances to the pathogens, this project will provide a unique opportunity for growers to better manage such disorders of strawberries occurring across southern Australia. Benefits include prevention of severe losses in strawberries, making strawberry production and exports more viable, sustainable and environmentally friendly, addressing the National Research Priority 'An Environmentally Sustainable Australia' and the Priority Goal of 'Transforming existing industries'.

LP0669595 Prof ME Barley; Dr M Fiorentini; Dr J Mavrogenes; Prof HS O'Neill; Dr SW Beresford; Dr BA Grguric

Approved Project Title **Experimental constraints on Platinum-Group Element geochemistry: developing lithochemical exploration tools for nickel-sulfides in mafic and ultramafic systems**

2006 : \$43,000
2007 : \$80,000
2008 : \$37,000

Primary RFCD 2601 GEOLOGY

Partner Organisation(s)

AMIRA International

Administering Institution The University of Western Australia

Project Summary

Nickel contributes approximately \$2 billion per year to Australia's export income. Currently 80% of that is coming from sulfide deposits, which are expected to be exhausted within thirty years barring significant new discoveries. Discovery rates have been declining for two decades, as the 'easy' targets have been found, despite a broad increase in nickel exploration expenditure to current levels of around \$50 million per year. There is a pressing need for new data sets and techniques to allow industry to target new discoveries based on limited drill sampling of potential host rocks. This project forms part of a broader program to harness the igneous geochemistry of the platinum group elements as a powerful pathfinder in nickel exploration.

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LP0669748 A/Prof HT Chua; Dr L Gao; Prof CL Raston

Approved Project Title **Near zero-emission hydrogen and carbon production from natural gas and bio-methane**

2006 : \$57,500
2007 : \$105,000
2008 : \$90,000
2009 : \$42,500

Primary RFCD 2906 CHEMICAL ENGINEERING

Partner Organisation(s)

Wesfarmers Energy Limited
 XLTech Group

Administering Institution The University of Western Australia

Project Summary

Hydrogen is envisaged as a clean fuel for power generation particularly for the transportation sector. In the short- and mid-term future, hydrogen will be derived from fossil fuels. Based on the conventional processes, the route from fossil fuels to hydrogen invariably produces greenhouse gases. Geosequestration is a viable technique of storing carbon dioxide but has an uncertain long-term environmental ramification. In contrast, our proposed technique avoids the production of greenhouse gases and, instead, engenders high value added graphitized carbon as a by-product. Given the relative stability and value of graphitized carbon, our catalytic cracking process provides another option to geosequestration.

LP0669757 Prof JT Lambers; Dr SL Krauss; Dr JM Koch; Dr EJ Veneklaas

Approved Project Title **A molecular ecophysiological assessment of the importance of using local provenance seed in plant biodiversity restoration.**

2006 : \$64,000
2007 : \$128,500
2008 : \$141,500
2009 : \$149,500
2010 : \$110,000
2011: \$37,500

Primary RFCD 3008 ENVIRONMENTAL SCIENCES

Partner Organisation(s)

Botanic Gardens and Parks Authority
 Alcoa World Alumina Australia
 Worsley Alumina Pty Ltd
 Greening Australia Ltd

Administering Institution The University of Western Australia

Project Summary

The rehabilitation of Australia's unique plant diversity, following disturbance, is an increasingly important activity nationally, involving industry, government and community. The use of local seeds is recognised as best practise, but how local is local? We will use molecular tools to identify the extent of local seed transfer zones, conduct trials to assess the relative performance of local and non-local seeds (is there a home-site advantage?), and assess the consequences of mixing provenances for future generations. We will work closely with industry and community restoration practitioners to improve the effectiveness of restoration, with benefits flowing nationally through general provenance guidelines.

LP0669035 Prof SB Powles; Prof JW Forster; Prof GC Spangenberg

Approved Project Title **Gene identification and genetic marker analysis of herbicide resistance in Lolium rigidum**

2006 : \$71,500
2007 : \$142,000
2008 : \$150,500
2009 : \$80,000

Primary RFCD 3002 CROP AND PASTURE PRODUCTION

Partner Organisation(s)

Agriculture Victoria Services Pty Ltd

Administering Institution The University of Western Australia

Summary of Successful Linkage Projects Applications for Funding to commence in July 2006 by State / Institution

Project Summary

Herbicide resistance threatens the vibrant, export-focused Australian cropping industry and environmental sustainability. The Australian herbicide resistance problem is far greater than elsewhere in the world. Herbicide resistance must be avoided, managed and reversed to ensure profitable agriculture and an environmentally sustainable landscape. This research will contribute to the national wealth through helping ensure the profitability of vital Australian export agricultural industries and the sustainability of the soil/land resource. This proposal will ensure that Australia leads international herbicide resistance research and will enable the capture of intellectual property and commercial opportunities.

LP0669873 Prof Z Rengel; Mr RE Wilson; Dr TL Setter

Approved Project Title **Physiological and genetic mechanisms underlying tolerance of bread wheat to ion toxicities**

2006 : \$40,000

2007 : \$80,000

2008 : \$89,500

2009 : \$49,500

Primary RFCD 3002 CROP AND PASTURE PRODUCTION

Partner Organisation(s)

Department of Agriculture WA

Administering Institution The University of Western Australia

Project Summary

Ion toxicities associated with acidic or alkaline soils and waterlogging cost about \$190 million per year in lost yield in Western Australia alone. Soil ameliorants and agricultural measures to deal with these constraints are non-existent (B toxicity in alkaline sodic subsoils), non-effective (liming of acidic subsoils), expensive (drainage for waterlogged soils) or a combination of the above. This project will characterise wheat genotypes for tolerance to ion toxicities and will lay the groundwork for deliberate breeding effort toward pyramiding tolerance to ion toxicities in elite germplasm.

LP0669878 Prof Z Rengel

Approved Project Title **Role of organic matter and soil biota in optimising crop nutrition in sustainable farming systems**

2006 : \$70,000

2007 : \$140,000

2008 : \$140,000

2009 : \$135,000

2010 : \$140,000

2011: \$75,000

Primary RFCD 3002 CROP AND PASTURE PRODUCTION

APA(I) Award(s): 2

Partner Organisation(s)

Era Sustainable

Department of Agriculture WA

Administering Institution The University of Western Australia

Project Summary

Australian grain producers face increasing competition on the world market from countries with cheap production costs (China, Argentina, Brazil). This project will develop biological farming systems based on improving soil health and enhancing soil microflora and nutrient cycling. Western Australia and other states are currently defining certification guidelines for sustainable farming systems (including biological ones). Selling grain produced in certified biological farming system will attract market premium, therefore enhancing the position of Australian farmers. This project will produce fertiliser recommendation systems incorporating organic fertilisers, thus decreasing costs of production and maintaining clean and healthy environment.

LP0669766 Dr M Ryan; Prof R Appels; Dr P Nichols; Mr R Snowball

Approved Project Title **Molecular approaches for the exploitation of genetic diversity in subterranean clover (*Trifolium subterraneum* L.) for profitable Australian farming systems**

2006 : \$45,000

2007 : \$99,500

Summary of Successful Linkage Projects Applications for Funding to commence in July 2006 by State / Institution

2008 : \$118,500
2009 : \$64,000
Primary RFCD 3002 CROP AND PASTURE PRODUCTION

Partner Organisation(s)

Department of Agriculture Western Australia

Administering Institution The University of Western Australia

Project Summary

Subterranean clover is the most widely sown annual pasture legume species in southern Australia. It is native to the Mediterranean basin and has been sown over an estimated area of 22 million ha. This project will provide breeders with a focused core germplasm collection representing the range of genetic diversity of the around 8000 accessions in the original collection. The focused core collection will lead to more efficient and effective breeding of elite cultivars for sustainable and profitable farming systems to benefit wool, meat and grains industries.

LP0669515 Prof K Siddique; Dr M Tibbett; Dr C Revell; Dr MD Bolland

Approved Project Title **Phosphorus - A Key Factor in the Development of Novel Perennial Herbaceous Deep-rooted Pasture Legumes**

2006 : \$36,500
2007 : \$73,000
2008 : \$83,000
2009 : \$46,500

Primary RFCD 3002 CROP AND PASTURE PRODUCTION

Partner Organisation(s)

Department of Agriculture, Western Australia

Department of Agriculture, Western Australia

Chemistry Centre of Western Australia

Heritage Seeds

Facey Group

Mingenew-Irwin Group

Administering Institution The University of Western Australia

Project Summary

This research aims at the development of urgently needed perennial pasture legumes, to expand perennial pasture options for southern Australia beyond lucerne. The development of new deep-rooted perennial pasture legumes has enormous potential to improve nutrient and water use over large areas of agricultural land. Benefits in terms of reducing soil erosion and acidification are also likely. An understanding of the responses of new perennial legumes to soil phosphorus is a prerequisite for the development of new perennial farming systems. Overall, both environmental and financial benefits will accrue at scales ranging from individual farmers and rural industries through to the general community.

Tasmania

University of Tasmania

LP0668904 Dr DE Evans; Dr JK Eglinton; Dr LH Robinson; Dr D Stewart

Approved Project Title **Investigation of the impact of malt haze active proteins to improve brewing efficiency and beer quality**

2006 : \$12,325
2007 : \$24,650
2008 : \$27,325
2009 : \$15,000

Primary RFCD 3002 CROP AND PASTURE PRODUCTION

APA(I) Award(s): 1

Partner Organisation(s)

Lion Nathan Ltd.

Joe White Maltings Pty. Ltd.

Administering Institution University of Tasmania

Project Summary

Summary of Successful Linkage Projects Applications for Funding to commence in July 2006 by State / Institution

Australia is a major world exporter of malting barley (~2 million t/pa) and malt (600,000 t/pa), primarily to the rapidly expanding Asian economic development region. An additional 200,000 t/pa of malt is provided to the Australian domestic brewing industry. By improving the quality of Australian malting barley and optimising the cost of brewery colloidal stabilisation measures, we expect higher demand and prices for Australian malting barley and malt. This will help support the viability of rural communities and the value adding involved in the malting and brewing of their produce in Australia.

LP0669302 Prof PR Haddad; Dr GW Dicoski; Dr EF Hilder; Dr MC Breadmore; Dr RA Shellie; Dr PE Jackson; Dr CJ Lennard

Approved Project Title **Pre-blast screening of improvised explosive devices - a National counter-terrorism initiative**

2006 : \$125,000

2007 : \$195,000

2008 : \$140,000

2009 : \$70,000

Primary RFCD 2504 ANALYTICAL CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

Dionex Pty Ltd
 Australian Federal Police
 National Institute for Forensic Science
 Australian Customs Service
 Forensic Science South Australia
 Victoria Police
 Department of Transport and Regional Services (DOTARS)
 Tasmania Police
 Qantas

Administering Institution University of Tasmania

Project Summary

The proposed research is focused on the specific needs of Australian counter-terrorism interests, including those of border protection, the customs service, transport authorities, forensic laboratories, etc. The support of this proposal will ensure that Australia, and its States and Territories are protected against terrorist threats. The support provided by the collaborating organisations from the various Federal and State police and forensic agencies, and the customs service, etc, highlights the importance of this project to the nation. Finally, a PhD student and a research assistant will be involved with the project and will gain specialised skills positioning them to make strong contributions to Australia's counter-terrorism measures.

LP0669245 Dr MA Kashem; Dr V Karri; A/Prof M Negnevitsky

Approved Project Title **Hybrid Remote Area Power Systems with Hydrogen Energy Storage for Isolated and Regional Communities**

2006 : \$56,000

2007 : \$106,000

2008 : \$100,000

2009 : \$50,000

Primary RFCD 2909 ELECTRICAL AND ELECTRONIC ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Hydro Tasmania

Administering Institution University of Tasmania

Project Summary

The distances and difficulties of transporting diesel to remote areas substantially add to the cost of electricity - making it many times the cost of supplies available from the grid. Consistency of electricity supply is dependent on reliable transport access and substantial storage for fuel on site. This project will reduce emissions in energy generation and provide the opportunity for mainly renewable, high-quality electricity supplies at reduced cost for remote and isolated communities. This will make communities more self-sufficient, enhance the quality of life and provide opportunities for initiatives, including economic and employment generating activities, to benefit the communities.

LP0669742 Dr CL Mohammed; Miss A Smith; Dr CL Beadle; Dr JM O'Reilly-Wapstra; Dr NW Davies; Dr TJ Wardlaw; Dr AJ Carnegie; Prof P Bonello; Dr S Woodward

**Summary of Successful Linkage Projects Applications for Funding to commence in July 2006
by State / Institution**

Approved Project Title **Linking environmental stress in pine plantations to bark stripping by browsers and fungal attack: developing novel options for management**

2006 : \$38,120
2007 : \$76,240
2008 : \$75,790
2009 : \$37,670

Primary RFCD 3006 FORESTRY SCIENCES
 APDI Miss A Smith

Partner Organisation(s)

Forestry Tasmania
 NSW DPI
 Hosking Forestry Ltd.
 Rayonier Tasmania
 Softwood Tasmania Operator Ltd (trading as Taswood Growers)
 Norske-Skog

Administering Institution University of Tasmania

Project Summary

The Australian forest industry, under the pressure of certification requirements, is moving towards a more integrated, reduced chemical, environmentally sustainable approach to protecting forest. Novel insights into the stress biology of pine will provide valuable information that will underpin efforts to reduce risk e.g. the matching of specific genotypes to site so that pest resistance can be maintained even under environmental stress conditions. By understanding the 'attraction' factor of stressed pine to wallabies we will develop and test an urgently and nationally required diversionary feed for this browser. Lethal control involving poison is becoming increasingly restricted.

LP0669503 Dr CJ Spurr; Dr JL Weller; Dr PH Brown; Dr AJ Gracie; Mr RG Driessen; Mr A Baelde

Approved Project Title **Molecular tools for understanding, predicting and managing flowering and reproductive development in Brassica oleracea**

2006 : \$22,500
2007 : \$45,000
2008 : \$50,000
2009 : \$27,500

Primary RFCD 3003 HORTICULTURE
 APA(I) Award(s): 1

Partner Organisation(s)

Rijk Zwaan Australia Pty Ltd
 University of Tasmania

Project Summary

This project integrates basic research with application to a significant horticultural industry, building on Australia's position as a leader in world research on molecular and genetic regulation of flowering. The project will strengthen Australia's research reputation in this field, provide new tools for cultivar screening in and management of B. oleracea seed crops. The project will deliver training for 3 PhD students at the interface between basic and applied research. A shortage of skilled scientists with ability to link understanding of plant development at the molecular/genetic level with improved crop management practices has been identified by the horticultural sector as a major challenge.

LP0669106 Dr JM Watson; Dr RA Callingham; Mrs SP Kong; Mr W Finzer; Mr AP Harradine

Approved Project Title **Longitudinal change for teachers and students in relation to professional learning in statistics education**

2006 : \$50,000
2007 : \$100,000
2008 : \$100,000
2009 : \$50,000

Primary RFCD 3302 CURRICULUM STUDIES
 APA(I) Award(s): 2

Partner Organisation(s)

Australian Bureau of Statistics
 Key Curriculum Press

Summary of Successful Linkage Projects Applications for Funding to commence in July 2006 by State / Institution

Noel Baker Centre for School Mathematics, Prince Alfred College

Administering Institution University of Tasmania

Project Summary

There is a growing need in Australia's information society for statistically literate citizens, and for more young people to choose to continue their study of statistics past school. The evidence-based research outcomes for both teachers and students in this study, based on an innovative professional learning program catering for individual requirements of teachers, will provide a model for industries and education systems to follow in reaching these goals. Further, each of the three collaborating industries will participate in research-based investigations into the benefits of its contributions to enhancing teacher and student outcomes in relation to statistics at the school level.

Northern Territory

Charles Darwin University

LP0669519 Prof LM Barclay

Approved Project Title **Indigenous birth and family: Pathways, places and professionals**

2006 : \$71,500

2007 : \$136,500

2008 : \$115,000

2009 : \$50,000

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisation(s)

Northern Territory Department of Health and Community Services

Danila Dilba Health Service

Administering Institution Charles Darwin University

Project Summary

The research complements the National Research Priority Goal A Healthy Start to Life and the National Agenda for Early Childhood. These emphasise pregnancy through to five years as critical for later social competence and physical wellbeing. Maternal and infant mortality and morbidity are significantly worse for Indigenous Australians, predisposing them to poorer health and social wellbeing as children and adults, reducing life potential and adding costs. This solution-focused research conducted with Aboriginal and health service partners, is theoretically innovative while pragmatic, as we seek to inform reform of services in urban and remote NT communities and learn lessons applicable nationally.

LP0669303 Dr CJ Bradshaw; Dr CR McMahon; Prof DM Bowman; Dr BW Brook

Approved Project Title **Ecological-epidemiological models of feral swamp buffalo control in northern Australia**

2006 : \$45,000

2007 : \$90,000

2008 : \$87,500

2009 : \$42,500

Primary RFCD 2707 ECOLOGY AND EVOLUTION

APDI Dr CR McMahon

Partner Organisation(s)

Bawinanga Aboriginal Corporation

NT Research and Innovation Board-Department of Business, Economic and Regional Development

Northern Territory Department of Primary Industry, Fisheries and Mines

Northern Australia Quarantine Strategy-Australian Quarantine & Inspection Service

Parks Australia North (Kakadu National Park)

Administering Institution Charles Darwin University

Project Summary

This research is locally, nationally and internationally significant because it 1) improves the capacity of the Northern Territory and its traditional aboriginal owners to manage together this prevalent species in an effort to minimise disturbance to native flora and fauna and to understand the long-term implications of continued proliferation, 2) provides a nationally relevant system to monitor and project the spread of disease through feral animal populations in Australia, and 3) combines quantitative data and robust analytical tools that can be used as a template for solving many broad-scale feral animal problems around the world.

**Summary of Successful Linkage Projects Applications for Funding to commence in July 2006
by State / Institution**

LP0669497 Prof B Campbell; Prof ST Garnett; Prof D Craig; Dr PJ Whitehead

Approved Project Title **Analysis of legislation and policies affecting the development of Indigenous wildlife-based enterprises**

2006 : \$12,325

2007 : \$24,650

2008 : \$24,650

2009 : \$12,325

Primary RFCD 3901 LAW

APA(I) Award(s): 1

Partner Organisation(s)

Northern Territory Research & Innovation Board
Department of Business, Economic and Regional Development
Northern Land Council
NT Department of Natural Resources, Environment and the Arts

Administering Institution Charles Darwin University

Project Summary

Entrepreneurial enterprise development by Indigenous people in remote regions is being encouraged as part of government policy to move people off welfare and into work. Indigenous knowledge of wildlife makes it a logical source of wealth generation but a range of legal and policy constraints add to substantial existing social and logistical problems. An understanding of the legal processes involved in establishing and maintaining sustainable and ongoing wildlife-based enterprises will improve their chances of success, and will also offer the opportunity to change regulatory frameworks to ensure consistency, remove contradictions and encourage workforce participation. The research will have national and international implications.

Australian Capital Territory

The Australian National University

LP0669751 Prof AW Blakers; Dr KJ Weber; Dr DR Mills

Approved Project Title **Efficient photovoltaic concentrator receivers utilising commercial non-concentrator solar cells**

2006 : \$28,500

2007 : \$63,950

2008 : \$35,450

Primary RFCD 2911 ENVIRONMENTAL ENGINEERING

Partner Organisation(s)

Solar Heat and Power Pty Ltd

Administering Institution The Australian National University

Project Summary

The development of low-cost photovoltaic concentrator systems will allow the large scale deployment of these systems, both in Australia and overseas. The current size of this market is several hundred MW of electricity per year, and growing rapidly. This will have both environmental benefits (though reduced greenhouse gas emissions) as well as economic and social benefits - through the creation of employment opportunities in PV manufacturing and the generation of export earnings. It could be of particular benefit to remote communities requiring reliable, low cost off-grid power generation.

LP0669230 Dr VA Braithwaite; Prof DA Scott; Dr M McArthur

Approved Project Title **Community Capacity Building in Child Protection Through Responsive Regulation**

2006 : \$78,462

2007 : \$133,070

2008 : \$113,862

2009 : \$117,843

2010 : \$58,589

Primary RFCD 3903 JUSTICE AND LEGAL STUDIES

**Summary of Successful Linkage Projects Applications for Funding to commence in July 2006
by State / Institution**

Partner Organisation(s)

Department of Disability, Housing and Community Services

Administering Institution The Australian National University

Project Summary

Neglect and abuse of children is a critical issue in this country. The number of cases reported to state authorities is increasing. Recent estimates show that a child is abused every 2 minutes in Australia. This research develops an innovative approach that protects children while promoting greater support for families. By harnessing and building community capacity this approach has the potential to make more efficient use of existing resources through earlier intervention and improved cooperation with families. This project aims to reduce the incidents and harm caused by child abuse and neglect in ways that strengthen communities, while enhancing the integrity of child protection agencies.

LP0668998 Prof TD Gedeon; Dr RL Jones

Approved Project Title **Handling unreliable, uncertain and inadequate data for Intelligence led Investigation**

2006 : \$28,500

2007 : \$57,000

2008 : \$57,000

2009 : \$28,500

Primary RFCD 2801 INFORMATION SYSTEMS

Partner Organisation(s)

The Distillery Pty Limited

Administering Institution The Australian National University

Project Summary

Intelligence led investigation has been successful recently in drug and people smuggling, preparation or instigation of acts of terrorism, and can benefit profoundly from the techniques we will develop, in the timely management and inference from many sources and kinds of uncertain information. This work will assist in making Australia a safer and more secure country.

E.g., Australian Bureau of Statistics figures show that for 2004, investigations of some 35% of murders, 63% of kidnappings, and 80% of robberies are incomplete at 30 days. Terrorism investigations are harder in that usually there is no initial crime trigger for an investigation. Any assistance our tools can provide in will be of significant benefit to Australia.

LP0669754 Dr RA Letcher; Mr D Graham; Prof DA Hensher

Approved Project Title **Assessing willingness to pay for urban water, wastewater, gas and electricity delivery service standards**

2006 : \$33,500

2007 : \$68,500

2008 : \$62,000

2009 : \$27,000

Primary RFCD 3402 APPLIED ECONOMICS

APA(I) Award(s): 1

Partner Organisation(s)

ActewAGL

Administering Institution The Australian National University

Project Summary

The utility industry is a substantial component of the Australian economy (2.2 % of GDP), underpinning national production. Recent infrastructure failures, costing up to \$200 million per week, have been blamed largely on regulatory approaches that emphasise minimum price and cost solutions to utility service provision without any assessment or consideration of the willingness to pay for service quality and the value people place on surety of supply. Research on the role of WTP for service standards in regulating price and service quality is required to prevent future infrastructure failures. This research will provide substantial economic benefits to Australia through improved regulation and better targeting of infrastructure investment.

LP0669728 Dr X Meng; Dr P Frijters; Dr X Gong; Dr C Manning; Dr BP Resosudarmo; Dr S Howes

Approved Project Title **Rural-Urban Migration in China and Indonesia: Patterns, Consequences and Policy Intervention**

Summary of Successful Linkage Projects Applications for Funding to commence in July 2006 by State / Institution

2006 : \$225,000
2007 : \$412,500
2008 : \$375,000
2009 : \$425,000
2010 : \$475,000
2011: \$237,500

Primary RFCD 3402 APPLIED ECONOMICS
 APA(I) Award(s): 2

Partner Organisation(s)

AusAID
 Division of Rural Training and Employment, Department of Training and Employment, MOLSS

Administering Institution The Australian National University

Project Summary

China and Indonesia are two of Australia's most important neighbours. Their process of economic development and the social and political stability have tremendous impact on Australia's economic performance and prosperity. Assisting China and Indonesia to effectively manage the unprecedented large scale rural-urban migration is consistent with Australia's own interest. This project will lead to important policy analyses that help the effective and efficient allocation of Australia's development aid budget. It will also build research and policy collaborations and cross-fertilisation amongst Australian government agencies, the Chinese government agencies in Indonesia as well as domestic and international research institutes.

LP0669726 Dr AP Rendell; Dr PE Strazdins

Approved Project Title **Next Generation Grid Enabled Cluster Computers: Performance Optimisation for e-Science**

2006 : \$47,500
2007 : \$95,000
2008 : \$77,500
2009 : \$30,000

Primary RFCD 2916 COMPUTER HARDWARE
 APA(I) Award(s): 1

Partner Organisation(s)

Alexander Technology Research and Development Pty Ltd

Administering Institution The Australian National University

Project Summary

In partnership with a local computer company this project will develop cost effective cluster computing solutions assembled from off-the-shelf parts for \$50,000-\$200,000. This price range is currently relatively poorly serviced by the multinational computer vendors, who tend to focus on the high density compute systems necessary for very large cluster systems. As a consequence the development of high performance computing in Australia has been somewhat stifled compared to the US or UK, where there exist small niche companies servicing this market sector. This project aims to change this, developing affordable high performance cluster computing systems for the Australian market place and beyond.

LP0669762 Dr PE Strazdins; Dr PD Coddington

Approved Project Title **Accurate Performance Modelling and Prediction of Cluster Computers**

2006 : \$24,650
2007 : \$49,300
2008 : \$49,300
2009 : \$24,650

Primary RFCD 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING
 APA(I) Award(s): 2

Partner Organisation(s)

Alexander Technology Research and Development Pty Ltd (Alexander Technology)

Administering Institution The Australian National University

Project Summary

The tools, methodologies and data produced by this project will assist

Summary of Successful Linkage Projects Applications for Funding to commence in July 2006 by State / Institution

Australian academic and industrial organisations in choosing the most cost-effective cluster configurations for their specific high performance computing requirements. It will also help an Australian company to compete with increasing strength against the major multinationals. The project will also draw together and promote future research links between two major academic institutions in this field. Finally, the project will provide high-level training in research, with industrial grounding, in the high performance computing industry.

LP0669276 Prof RE Williamson; Dr CH Hocart

Approved Project Title **Tailoring cellulose properties by manipulating cellulose synthase**

2006 : \$46,500

2007 : \$93,000

2008 : \$98,000

2009 : \$51,500

Primary RFCD 2701 BIOCHEMISTRY AND CELL BIOLOGY

Partner Organisation(s)

Bayer CropScience GmbH

Administering Institution The Australian National University

Project Summary

Cellulose, a highly abundant polymer produced by plants, has many existing uses in Australian fibre and polymer industries and potential uses as, for example, an abundant feedstuff for biomass conversion into ethanol and other high value products. The optimal properties for different applications vary so that, for example, high crystallinity cellulose gives strong fibres whereas low crystallinity cellulose dissolves in gentler solvents on the way to producing cellulose-based polymers. By exploring ways to adjust the properties of celluloses for use in different applications, we can deliver potential benefits to primary producers, industries and the environment.

LP0668981 Dr GM Yaxley; Prof HS O'Neill; Dr AJ Berry

Approved Project Title **Advancing diamond exploration - novel techniques for the interpretation of indicator minerals**

2006 : \$29,891

2007 : \$60,622

2008 : \$30,731

Primary RFCD 2601 GEOLOGY

Partner Organisation(s)

AMIRA International

Administering Institution The Australian National University

Project Summary

Diamond production is an important industry in Australia, with a total export value in 2004-05 of \$650 million. Most of this production comes from the Argyle Mine in Western Australia, which may be nearing the end of its productivity. Therefore, there is a need to reinvigorate exploration for diamond in Australia, in order for new and significant deposits to be discovered. The outcomes of this proposal will provide diamond exploration companies with improved mineralogical tools to assess the likely diamond grade of parts of the lithosphere sampled by kimberlite or lamproite magmas, thus better directing exploration strategies.