

Summary of Linkage Projects Applications for Funding to Commence in 2006

Victoria

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.

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

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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 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.

Summary of Linkage Projects Applications for Funding to Commence in 2006

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

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.

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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.

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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

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.

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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.

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.

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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

Approved Project Title **New Surface Coatings Derived from Renewable Resources**

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 Project Title **Learning to be safe: Developing children's perceptions of safety and risk**

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.

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

Approved Project Title **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 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.

Summary of Linkage Projects Applications for Funding to Commence in 2006

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.