New South Wales

The University of New South Wales

LP0776639 Prof AC Byrnes; A/Prof A Durbach

Approved Project Title **Building Human Rights in the Region through Horizontal Transnational Networks: the Role of the Asia Pacific Forum of National Human Rights Institutions**

2007 : $ 27,500
2008 : $ 52,500
2009 : $ 55,000
2010 : $ 30,000
Primary RFCD 3903 JUSTICE AND LEGAL STUDIES

Collaborating/Partner Organisation(s)

Asia Pacific Forum of National Human Rights Institutions
Administering Organisation The University of New South Wales

Project Summary

The observance of human rights is an important element of social cohesion and stability in the countries of the region. This project undertakes an evaluation of a regional public network of national human rights institutions, the Asia Pacific Forum of National Human Rights Institutions, and assesses the extent to which a cooperative horizontal endeavour like the Forum can effectively promote and facilitate the implementation of shared international goals in the field of human rights. The research findings will contribute to improved policymaking for the promotion of the implementation of human rights and other international good governance goals in the region.

LP0776662 Prof B Cass; Dr DJ Brennan; Ms S Green; Ms AC Hampshire

Approved Project Title **Grandparents as primary carers of their grandchildren: A national, State,Territory analysis of grandparent-headed families - policy and practice implications**

2007 : $ 78,307
2008 : $ 133,581
2009 : $ 100,274
2010 : $ 45,000
Primary RFCD 3702 SOCIAL WORK
APA(I) Award(s): 2

Collaborating/Partner Organisation(s)

NSW Department of Community Services
SA Department of Families and Communities
Mission Australia
Department of Families Community Services and Indigenous Affairs
NT Department of Health and Community Services
Administering Organisation The University of New South Wales

Project Summary

This unique collaboration between researchers, four government Departments in the Commonwealth, NSW, South Australia and the Northern Territory concerned with child and family welfare, and Mission Australia, uses innovative methods to analyse non-Indigenous and Indigenous grandparents as primary carers of their grandchildren. The project will analyse the circumstances and needs of grandparents and grandchildren in different formal and informal arrangements. It will provide a comprehensive audit of national, state and territory policies and identify gaps for the development of policies and services to promote the health and wellbeing of grandparents and children.

LP0776387 A/Prof R Cavicchioli; Dr T Thomas; A/Prof M Guilhaus; Dr MJ Raftery; Prof MS Baker; Dr PM Richardson; Dr N Kyrpides; Dr A Sava

Approved Project Title **Environmental metagenomics, metaproteomics and novel bioactives from microbial communities in Antarctic lakes**

2007 : $ 85,500
2008 : $ 172,500
2009 : $ 177,000
2010 : $ 90,000

Primary RFCD 2702 GENETICS

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

DOE Joint Genome Institute
Novapharm Research (Australia) Pty Ltd

Administering Organisation The University of New South Wales

Project Summary

This program will derive an integrated understanding of microbial ecology which is essential for determining ways of preserving the health of the World's ecosystems. Through this, Australia will remain a world leader in Antarctic biology, strengthening Australia's reputation in technologically innovative scientific programs of global significance, training local scientists in cutting edge genomic biology and fostering the interests of the international community in sciences ranging from microbial ecology to bioprospecting. Novel biodegradable enzymes will be developed to replace harsh chemicals providing environmentally friendly, cheaper and more effective agents for use in medical, biotechnological, industrial and biodefense applications.

LP0776600 Mrs SK Dean; Prof BE Tuch; A/Prof R Lindeman

Approved Project Title **Pancreatic Differentiation of Cord Blood Stem Cells using Smart Surfaces**

2007 : $ 53,145
2008 : $ 105,141
2009 : $ 103,495
2010 : $ 51,500

Primary RFCD 2701 BIOCHEMISTRY AND CELL BIOLOGY

Collaborating/Partner Organisation(s)

BioE Inc

Administering Organisation The University of New South Wales

Project Summary

Cord blood cells obtained at the time of delivery of a baby are a valuable resource that have the potential to develop into many cell types. This Project entails attaching stem cells derived from cord blood to appropriate 3 dimensional smart surfaces, and examining the ability of such cells to develop into insulin-producing cells. An understanding of how to coax stem cells, seeded on to smart surfaces, to develop into mature cells with different functions will enhance our ability to understand how cells develop. As well, it enhance the potential usefulness of cord blood for research purposes.

LP0776483 A/Prof AG Dempster; Dr RC Bryant; Mr EP Glennon

Approved Project Title **Assisted GPS and Advanced Positioning For Emergency Services**

2007 : $ 25,627
2008 : $ 51,254
2009 : $ 51,254
2010 : $ 25,627

Primary RFCD 2910 GEOMATIC ENGINEERING

APA(I) Award(s): 2

Collaborating/Partner Organisation(s)

Signav Pty Ltd

Administering Organisation The University of New South Wales

Project Summary

Many volunteers have lost their lives fighting bushfires in Australia. Fires are becoming more numerous and more fierce. Some of those firemen could have been saved if better information was available: where they were, where the firefront was and how it was progressing. This project aims to save lives by solving part of this problem: locating and reporting the position of the remote firefighter by making GPS work reliably under trees. This will also make search and rescue operations safer and more efficient. The technology can transfer readily into the location-based services market which is set to boom in the next decade. This project helps maintain momentum in Australia's world-class but small positioning industry.

LP0776781 Prof SJ Frenkel; Dr M Groth

Approved Project Title **Managing Call Centres: A Study of Management Practices, Work and Outcomes**

2007 : $ 31,439
2008 : $ 67,725
2009 : $ 36,286

Primary RFCD 3502 BUSINESS AND MANAGEMENT

Collaborating/Partner Organisation(s)

AMP Customer Service
National Australia Bank

Administering Organisation The University of New South Wales

Project Summary

The study offers three types of benefits. First, improvements in management practice. By highlighting variations in management practice and its effects, training materials will be developed to improve call centre management capability. Second, we aim to fill a gap that currently exists in developing employee skills in managing emotions at work. This will reduce job burnout and labour turnover and help to maintain the industry's international competitiveness which is threatened by offshore competition. Third, government policy making will be better informed by highlighting the impact of current institutional arrangements on employment relations and performance.

LP0776767 Dr M Groth; Prof SK Parker; Dr S McCarthy; Ms A Thornton

Approved Project Title **Delivering Better Patient Care: Promoting Well-Being and Performance of Health Care Professionals**

2007 : $ 31,695
2008 : $ 66,169
2009 : $ 74,474
2010 : $ 40,000

Primary RFCD 3801 PSYCHOLOGY

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Prince of Wales Hospital

Administering Organisation The University of New South Wales

Project Summary

The research offers three broad benefits. First, given the serious challenges currently facing the Australian health care system, the research addresses a national research priority and will have significant policy implications. Second, it will improve our understanding of how to enhance health care professionals' performance and well-being, and thereby increasing staff retention, organisational effectiveness, and improving the quality and efficiency of health care delivery. Third, the knowledge generated will be a valuable input into development programs aimed at improving managerial practices within Australian health care organisations.

LP0776347 Dr SJ Khan; A/Prof RM Stuetz; Dr A Baker; Dr MV Storey

Approved Project Title **Fluorescence as a tool for sensitive detection of failures in recycled water treatment and distribution systems**

2007 : $ 80,000
2008 : $ 135,000
2009 : $ 110,000
2010 : $ 55,000

Primary RFCD 2908 CIVIL ENGINEERING

APA(I) Award(s): 2

Collaborating/Partner Organisation(s)

Sydney Olympic Park Authority
Sydney Water Corporation
Gold Coast City Council (Gold Coast Water)
Melbourne Water
South East Water Limited
City West Water Limited
Yarra Valley Water Limited
Water Corporation

Administering Organisation The University of New South Wales

Project Summary

Water reuse is emerging as a key strategy for the conservation of drinking water supplies around Australia. Accordingly, there is a need for fast, reliable, affordable and highly sensitive means of ensuring the reliability of treatment processes and final water quality. This research aims to meet such needs by providing new tools based on fluorescence analysis. These tools are to be implemented for online monitoring of treatment performance and for the identification of accidental contamination of drinking waters by recycled water. The enhanced ability to ensure both recycled water quality and drinking water quality will have public health and environmental benefits as well as protecting public confidence in water recycling systems.

LP0776421 Prof M Loosemore; A/Prof KM Dunn; Dr FT Phua

Approved Project Title **Managing cultural diversity on Australian construction sites**

2007 : $ 35,000
2008 : $ 65,000
2009 : $ 65,000
2010 : $ 35,000
Primary RFCD 3102 BUILDING

Collaborating/Partner Organisation(s)

Multiplex Construction
Mirvac Group
Baulderstone Hornibrook
DeMartin & Gasparini / Boral
Baseline Constructions
Master Builders Association
Construction, Forestry, Mining, and Energy Union

Administering Organisation The University of New South Wales

Project Summary

This research will help to improve the dismal occupational health and safety record of the Australian construction industry (240% more injuries than all-industry average). It will also help to reduce the relatively high levels of workplace compensation due to occupational injuries and diseases (70% higher than all-industry average). Since construction employs 8% of the working population and generates 6% of GDP, significant economic and social benefits will arise for wider society from a more culturally harmonious, efficient and productive construction industry. Finally, by making construction safer for NESB migrants who are a significant source of labour, this research will help to reduce severe skill shortages.

LP0776243 Dr FP Lucien; Ms KJ Mate; Prof RP Burford

Approved Project Title **Carbonate binding: an ecologically sustainable alternative to cement**

2007 : $ 36,625
2008 : $ 70,625
2009 : $ 68,000
2010 : $ 34,000
Primary RFCD 2906 CHEMICAL ENGINEERING

Collaborating/Partner Organisation(s)

Ove Arup Pty Ltd
BOC Limited

Administering Organisation The University of New South Wales

Project Summary

Carbonate binding is a frontier technology that promises a new generation of advanced materials for applications in construction. Precast concrete accounts for a large and increasing portion of total concrete usage. Precast materials made by carbonate binding would offer several advantages over conventional precast concrete. The energy savings of a low temperature process with negligible greenhouse gas emissions would contribute immensely to the goal of an environmentally sustainable Australia. The reduced hardening period would offer substantial increases in productivity to manufacturers.

LP0776759 Prof BA Neilan; Dr SA Murray; Prof GM Hallegraeff

Approved Project Title **Uncovering the genetic basis for saxitoxin production in Australian marine and freshwater systems: novel molecular tools for management.**

2007 : $ 41,465
2008 : $ 83,780
2009 : $ 80,839
2010 : $ 38,524

Primary RFCD 2708 BIOTECHNOLOGY

APDI Dr SA Murray

Collaborating/Partner Organisation(s)

Diagnostic Technology
NSW Department of Primary Industries
NSW Food Authority
Department of Health and Human Services, Tasmania
Primary Industries and Resources SA

Administering Organisation The University of New South Wales

Project Summary

In Australia, toxic algal blooms have had a devastating impact on marine and freshwater resources. In collaboration with a biotechnology company, this project will use an innovative method to design a molecular genetic tool to monitor, research and potentially mitigate the effects of saxitoxin production on water supplies and aquaculture industries. In working with monitoring authorities throughout Australia, we will produce a specific, sensitive and cost-effective technology that will ultimately be applicable worldwide.

LP0776591 Dr E Pittaway; Prof RP Hugman

Approved Project Title **Refugee Women at Risk: protection and integration in Australia**

2007 : $ 20,243
2008 : $ 43,003
2009 : $ 46,524
2010 : $ 23,763

Primary RFCD 3702 SOCIAL WORK

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

ANCORW

Administering Organisation The University of New South Wales

Project Summary

The potential for long-term settlement problems for vulnerable refugee groups has serious implications for the wider Australian community in terms of social cohesion and the weakening of the social fabric. Concern has been expressed by service providers and refugee and migrant communities, about the social and economic consequences of the failure to adequately respond to the needs of these refugees, most of who come from traumatic backgrounds. The research will identify models of best practice service provision and will analyse the role these play in supporting and accelerating successful integration and in promoting social harmony in our diverse cultural society.

LP0776642 Prof WG Randolph; Mr JD Plume; Dr BP Parolin; A/Prof BH Judd

Approved Project Title **An Integrated Information Model to Support Metropolitan Planning, Management and Analysis**

2007 : $ 107,500
2008 : $ 206,500
2009 : $ 125,000
2010 : $ 26,000

Primary RFCD 3101 ARCHITECTURE AND URBAN ENVIRONMENT

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Department of Planning
City of Sydney
Landcom
EPM Technology
Simmersion

Administering Organisation The University of New South Wales

Project Summary

This project will be the first in Australia to integrate diverse types of urban data using an open-standard geospatial information model to research the outcomes of major urban renewal proposals in collaboration with both a state and local government planning instrumentalities.
Since the issues being addressed are common to every planning body in Australia, the flow-on benefits will be of national significance for future urban planning and management.
The research will place Australia at the forefront of international research to improve spatial information management that will inform planning decisions at the local and state level.

LP0776503 Dr X Shang; Ms KR Fisher; Mr W Wei

Approved Project Title **Experiences of Families with Children with Disabilities in China**

2007 : $ 27,849
2008 : $ 50,370
2009 : $ 50,221
2010 : $ 27,700

Primary RFCD 3702 SOCIAL WORK

Collaborating/Partner Organisation(s)

Plan International-China

Administering Organisation The University of New South Wales

Project Summary

The project contributes to safeguarding Australia by understanding our region through the opportunity to demonstrate Australia's engagement in research to benefit China, with which it is establishing strong links in social, economic and cultural interests. Research expertise about Australia's child disability policies is relevant to China's social policy development. It contributes to national understanding of East Asian child disability policies, including partnership approaches to social support between government, nongovernment and communities, also developing in Australia. The project strengthens connections between Australian researchers and policy-makers, Plan International (China and Australia) and China Disabled Persons Federation.

LP0776902 Dr V Sivaraman; Dr A Burdett

Approved Project Title **Energy-Efficient Communication Protocols for Wearable Wireless Biomedical Sensor Devices**

2007 : $ 30,000
2008 : $ 60,000
2009 : $ 57,500
2010 : $ 27,500

Primary RFCD 2917 COMMUNICATIONS TECHNOLOGIES

Collaborating/Partner Organisation(s)

Toumaz Technology Ltd

Administering Organisation The University of New South Wales

Project Summary

The communication protocols developed in this project will directly contribute to the realisation of wearable, mobile, and robust devices for continuous medical monitoring. Several Australian industries can benefit economically by using the technology to improve the performance, efficiency, and longevity of their existing systems for chronic disease management, aged care, personal wellness, occupational health, and in hospitals/GPs. Non-intrusive monitoring offers quality-of-life to the millions of aged and chronically ill Australians, while low-cost allows it to be widely used in regional and rural communities. Partaking in the innovation of the technology will also give Australia a strong position in the ICT space.

LP0776273 A/Prof IM Suthers; Dr MD Taylor; Dr LJ Baumgartner

Approved Project Title **Establishing an ecological basis for stocking density of Australian bass in freshwaters: Experimental field tests of a general numerical model**

2007 : $ 12,559
2008 : $ 25,118
2009 : $ 25,118
2010 : $ 12,559

Primary RFCD 2707 ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

NSW Department of Primary Industries

Administering Organisation The University of New South Wales

Project Summary

Large numbers of the Australian public go fishing, particularly in rivers and impoundments. Angling in these waterways provides a strong source of income for rural and regional communities. The stocking of native fish to support inland angling also sustains much of the aquaculture industry in western NSW and Queensland. This study will develop an optimal approach to stocking Australian bass which is relevant for other stocked freshwater species, and will allow stocking to be undertaken in an environmentally responsible manner. This will both enhance the outcome of investment of public funds in stocking, and enhance the recreational fishing experience that is so important to rural regional communities.

LP0776318 A/Prof CK Thomson; Ms C Jonak

Approved Project Title **Tackling the issues of low numbers of Australia's advanced users of Japanese: Reasons and strategies.**

2007 : $ 23,101
2008 : $ 40,537
2009 : $ 35,319
2010 : $ 17,883

Primary RFCD 4201 LANGUAGE STUDIES

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

The Japan Foundation, Sydney

Administering Organisation The University of New South Wales

Project Summary

A sound relationship between Australia and Japan is critical to Australia. Their key relations in trade, foreign policy and cultural exchange require an advanced understanding of Japanese. However, Australia is not producing sufficient numbers of advanced users of Japanese. This project creates and implements strategies to develop more Australian learners into advanced users of Japanese, thus contributing to Australia's knowledge base in language education and applied linguistics. The PhD project will train a well-rounded Australian applied/educational linguist, equipping them with in-depth knowledge of current learners as well as fundamental research tools in both quantitative and qualitative analysis.

LP0776293 A/Prof JM Whitelock; Dr MS Lord; Dr SJ McCarthy

Approved Project Title **Blood component interactions with polysaccharide biomaterials for vascular applications.**

2007 : $ 20,000
2008 : $ 47,842
2009 : $ 54,112
2010 : $ 26,270

Primary RFCD 2701 BIOCHEMISTRY AND CELL BIOLOGY

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

HemCon Inc

Administering Organisation The University of New South Wales

Project Summary

Heart disease is the major killer of people in Australia and the Western world. It is due mainly to the blockage of vessels supplying the muscle of the heart with blood and nutrients, which can be replaced or by-passed but the supply of native vessels in the body is limited. Tissue engineering laboratories have been trying to develop blood vessels for this use for many years without significant success. This application plans to understand the molecular signals contained within the sugar sequences used in a commonly used biomaterial chitosan that may be used in the construction of synthetic vascular grafts. If we can understand how blood cells interact with this biomaterial, we may be able to develop a blood vessel in the laboratory.

LP0776712	Dr RP Zou; Mr ZY Zhou; Dr DJ Pinson; Dr P Zulli
Approved Project Title	**Model studies of the flow and thermal behaviour of non-spherical particles in fluid bed reactors**
2007 :	$ 44,500
2008 :	$ 83,024
2009 :	$ 77,049
2010 :	$ 38,524
Primary RFCD	2913 METALLURGY
APDI	Mr ZY Zhou

Collaborating/Partner Organisation(s)

BlueScope Steel

Administering Organisation The University of New South Wales

Project Summary

The Australian steel industry has a turnover of around $11 billion (5% of total manufacturing), being a largest manufacturing sector in Australia. Iron ore sintering and blast furnace ironmaking are two important processes in an integrated steel works. This project aims to understand and model the particle-fluid flow and thermal behaviour of non-spherical particles in the two processes, formulating strategies for improving the process control and productivity and energy saving. The research outcomes (theory/model/understanding) are useful to fluid bed reactors which are widely used in mineral/metallurgical/chemical industries. Their application can improve the competitiveness of the steel and other industries in Australia.