

Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

New South Wales

The University of New South Wales

LP100100481 Prof Rose Amal, Dr Christopher W Chow, Dr May T Lim, Dr John A van Leeuwen, Prof Dr Dongsheng Wang, Prof Dr Gregory V Korshin, Ms Mary Drikas

Approved Project Title **Development and Modelling of Advanced Coagulation and Oxidation Processes**

2010 \$189,000.00

2011 \$182,000.00

2012 \$186,000.00

Primary FoR 0904 CHEMICAL ENGINEERING

APAI_IT 1

Partner Organisations

Australian Water Quality Centre, Coliban Water, DCM Process Control, Hunter Water Australia, South Australian Water Corporation, Water Corporation of WA

Administering Organisation The University of New South Wales

Project Summary

The success of this program will help place Australia at the forefront of water quality control and management research. It will address concerns with managing and treating waters of changing characteristics due to climate change. In addition to the socio benefits, project success will also impart economic benefits to the nation through (i) fabricating new hybrid coagulants, that are versatile with enhanced performance for removing NOM, and possess antimicrobial properties (ii) developing a new energy efficient photocatalysis technology. The proposed research will expand the knowledge base in this area and increase Australia's international profile as a global leader in developing cutting-edge cost effective water resource technologies.

LP100100600 Dr Peter Banks, Prof Chris R Dickman, Dr Matthew W Hayward, Dr Roger P Pech, Dr Daniel H Lunney, Dr Andrea E Byrom

Approved Project Title **The return of the native: reintroductions, reinvasions, and a new paradigm in restoration ecology**

2010 \$140,000.00

2011 \$125,000.00

2012 \$100,000.00

Primary FoR 0501 ECOLOGICAL APPLICATIONS

Partner Organisations

Australian Wildlife Conservancy, Landcare Research, Mosman Municipal Council, NSW Department of Environment and Climate Change (DECC), NSW National Parks and Wildlife Service, Rentokil Initial Pty Ltd, Taronga Conservation Society Australia

Administering Organisation The University of New South Wales

Project Summary

We develop a new solution to improve pest control used to protect rare and endangered wildlife by using reintroductions of common native species as a block to reinvasion following pest control. Our approach will significantly reduce the ongoing costs of pest control in Australia and our solution can be used by both large conservation organisations as well as small community groups aiming to control pests and protect key wildlife. Our technique can also be exported to solve alien species problems elsewhere in the world. This work strengthens Australia's world renowned expertise for research into alien species and ability to develop novel solutions to alien impacts.

Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

LP100100702 Prof Richard A Bryant, Dr Zachary Steel, Prof Derrick Silove

Approved Project Title **Building resilience in Aceh**

2010 \$192,000.00

2011 \$140,000.00

2012 \$300,000.00

Primary FoR 1117 PUBLIC HEALTH AND HEALTH SERVICES

APAI 2

Partner Organisations

Yayasan Mulia Haiti / Centre Mulia Haiti

Administering Organisation The University of New South Wales

Project Summary

The poor health, academic, and mental health functioning of Acehnese people is one of the major public health problems in the Asian Pacific region. This project will identify the specific factors that lead to these problems and provide an evidence base to shape future empirically-informed interventions to reduce mental health problems in Acehnese communities. This project directly addresses the priority of safeguarding Australia by establishing an empirical platform to shape future policies for enhancing the social and emotional well-being of one of Australia's important northern neighbours.

LP100100382 Prof Janet B Chan, Dr Jane J Bolitho

Approved Project Title **Restorative Justice for Victims and Serious Offenders**

2010 \$61,033.00

2011 \$76,009.00

2012 \$78,386.00

Primary FoR 1602 CRIMINOLOGY

Partner Organisations

NSW Department of Corrective Services

Administering Organisation The University of New South Wales

Project Summary

This project investigates how to reduce the human costs of serious crime through Restorative Justice (RJ) processes that can help victims recover from the trauma of serious crimes and hold offenders accountable for their actions. The project will (1) provide an independent and rigorous assessment of the RJ program for the industry partner, (2) contribute to an evidence-based national debate on policy responses to serious crimes through identifying the strengths and limitations of RJ and showing how RJ can be optimally practised to maximise benefits for all participants and the wider community, and (3) contribute significantly to the theory and practice of RJ, enhancing Australia's international reputation as a leader in this research area.

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LP100100424 Dr Anton C Clifford, A/Prof Anthony Shakeshaft, Dr Julaine M Allan, A/Prof Christopher M Doran, A/Prof Komla Tsey, Dr Andrew R MacQueen
Approved Project Title **Assessing the effectiveness of a Community Reinforcement and Family Training intervention for alcohol misuse with Indigenous Australians**

2010 \$40,000.00

2011 \$40,000.00

Primary FoR 1117 PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisations

Lyndon Community, Yoorana Gunya Family Violence Healing Centre Aboriginal Corporation

Administering Organisation The University of New South Wales

Project Summary

A national benefit will be the contribution of evidence about the feasibility, utility and potential effectiveness of individual and family-based interventions for reducing alcohol-related harms and improving family functioning among Indigenous Australians. Community level benefits will include, firstly, the strengthened role and capability of participating health services and staff to utilise evidence based approaches to support Indigenous individuals and families dealing with alcohol problems. Secondly, Indigenous individuals and families participating in the Community Reinforcement and Family-based Training intervention will acquire the requisite skills and knowledge to manage the alcohol problems affecting them.

LP100100466 A/Prof Dennis Del Favero, Em/Prof Neil C Brown, Prof Paul J Compton, Prof Jeffrey Shaw, Prof Horace Ip, Ms Sarah I Kenderdine, Mr Tim Hart, Prof Lev Manovich, Prof Peter Weibel
Approved Project Title **Narrative reformulation of museological data: the coherent representation of information by users in interactive systems**

2010 \$224,560.00

2011 \$208,806.00

2012 \$195,000.00

Primary FoR 1902 FILM, TELEVISION AND DIGITAL MEDIA

Partner Organisations

Australia Council for the Arts, City University of Hong Kong, Museum Victoria, University of California, San Diego - Visual Arts, ZKM Center for Art and Media

Administering Organisation The University of New South Wales

Project Summary

The proposed research seeks to provide Australia with a long-term opportunity to enhance its involvement in the billion-dollar creative economy by building the world's first immersive 360-degree interactive data browser. Research into such systems benefits society by providing a cutting-edge development in digital technology and information access that enables a creative innovation culture. Through applied research into the narrative forms that underpin museological archives, this study will ensure that Australia remains at the forefront of the growing world-wide research into interactive technology thereby assisting the global digital media industry to tackle emergent challenges.

Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

LP100100598 Prof Stephen J Foster, Dr Vute Sirivivatnanon, Prof Mark G Stewart
Approved Project Title **A Re-evaluation of the Safety and Reliability Indices for Reinforced Concrete Structures**

2010 \$77,000.00
 2011 \$73,000.00
 Primary FoR 0905 CIVIL ENGINEERING

Partner Organisations

Cement Concrete and Aggregates Australia

Administering Organisation The University of New South Wales

Project Summary

The use of concrete in Australian building structures exceeds 13 million tonnes per year and its impact on the environment is considerable. With 5% of total CO2 emissions coming from cement production, one of the main components of concrete, it is imperative that Australian standards produce efficient design solutions. Preliminary modelling shows that a minimum 5% efficiency gain is possible through a re-evaluation of reliability indices with contemporary construction practices and materials, giving an immediate 180,000 tonne per annum reduction in carbon emissions. Added to this are savings through reduced transport and reduced water, sand and aggregate consumption, the potential saving on the environment, and economy, are considerable.

LP100100283 Prof Raphael H Grzebieta, Prof Ann M Williamson, Dr Jake Olivier, Dr Raymond F Job, Dr Charles A Karl

Approved Project Title **Safety management system for heavy vehicle transport**

2010 \$100,000.00
 2011 \$89,000.00
 2012 \$150,000.00
 2013 \$161,000.00
 2014 \$110,000.00
 Primary FoR 1117 PUBLIC HEALTH AND HEALTH SERVICES

APAI 1

Partner Organisations

Motor Accidents Authority Of NSW, NSW Centre for Road Safety, Transport Certification Australia Ltd, Zurich Financial Services Australia

Administering Organisation The University of New South Wales

Project Summary

Crashes involving heavy vehicles result in around 330 deaths, over 3000 serious injuries annually, and cost over \$6 billion per year. Trucks deliver 72% of Australia's total freight. The quantity delivered by trucks has increased by 40% over a decade and will double over the next 20 years. Conservatively the transport industry contributes about 5.6% to GDP and employs nearly 5% of the workforce. Safe transport is crucial for Australia's health and economic recovery. If a 10% reduction in casualty truck crashes were to result from this study, the cost benefit ratio would be around 200 to 1.

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LP100100437 Prof Mark F Harris, Prof Christopher B Del Mar, Prof Mieke L van Driel, A/Prof Danielle Mazza, Dr John C Litt, Prof Nicholas A Zwar, Ms Therese Snowdon, Ms Justine Waters, Dr Nancy Huang, Prof Richard Taylor, Dr Grant M Russell

Approved Project Title **Implementing guidelines to prevent chronic disease in the community**

2010	\$95,000.00
2011	\$120,000.00
2012	\$180,000.00
2013	\$50,000.00
Primary FoR	1117 PUBLIC HEALTH AND HEALTH SERVICES
APAI	1

Partner Organisations

MBF Health Insurance, National Heart Foundation of Australia, Royal Australian College of General Practitioners, University of Ottawa

Administering Organisation The University of New South Wales

Project Summary

The burden of chronic disease in Australia has resulted in prevention of chronic disease being an important priority for the Australian health system. High quality evidence for preventing chronic disease exists; however the practice falls short of the evidence. Finding ways to implement the evidence for preventing chronic disease is an urgent national need. This study aims to apply the evidence for preventing chronic disease in practice. It will generate data and validate a model on how to effectively improve the uptake of guidelines by both practitioners and consumers. This project is of national and community benefit because it will enable the potential of preventing chronic disease to be realised.

LP100100732 Prof Ilan B Katz, A/Prof Sarah Maddison, Prof Patrick Dodson

Approved Project Title **Where's the evidence? Understanding the use of evidence in Indigenous policy**

2010	\$74,000.00
2011	\$86,000.00
2012	\$100,000.00
Primary FoR	1605 POLICY AND ADMINISTRATION
APAI	2

Partner Organisations

Australian Human Rights Commission, Lingiari Foundation

Administering Organisation The University of New South Wales

Project Summary

The project will strengthen the social and economic fabric of Indigenous communities and Australia as a whole by helping to improve the production and use of robust evidence and the engagement of Indigenous people themselves in Indigenous policy development. The dialogue approach has been used in many conflict situations. Here it will help the development of innovative approaches to resolving tensions between policymakers, researchers and Indigenous people, and also Indigenous and non-Indigenous Australians. The project will significantly build the capacity of Indigenous researchers in this area. It will help Australian and international policymakers make more effective use of research in other areas of social policy.

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LP100100712 Dr Alison Lennon, Prof Stuart R Wenham
Approved Project Title **Industrial High Efficiency Solar Cells**

2010	\$160,000.00
2011	\$170,994.00
2012	\$190,000.00
2013	\$180,000.00

Primary FoR 0906 ELECTRICAL AND ELECTRONIC ENGINEERING
 APAI 1

Partner Organisations

Suntech Power Holdings Co Ltd

Administering Organisation The University of New South Wales

Project Summary

Photovoltaics is a promising candidate for sustainable energy generation, with Australia well-placed to capture the economic and environmental benefits from maintaining its strong position with this technology. Suntech, a world-leader in silicon solar cell production with US\$2 billion annual revenue, will provide a “high profile” showplace for the developed patterning technology. This will enhance commercial opportunities arising from the project and confirm Australia’s reputation as a world leader in innovative photovoltaic research. This reputation attracts high-calibre professionals to Australia, stimulates local research and will provide opportunities for local manufacturing to exploit the technology developed as part of this project.

LP100100847 Dr Samsung Lim, Prof John C Trinder, Dr Russell Turner
Approved Project Title **Full-Waveform Lidar Remote Sensing for Forest Inventory**

2010	\$83,021.00
2011	\$84,758.00

Primary FoR 0909 GEOMATIC ENGINEERING
 APAI_IT 1

Partner Organisations

Forests NSW

Administering Organisation The University of New South Wales

Project Summary

Australia has the sixth largest forest area in the world, consisting of 164 million hectares covering 21% of the continent. The Australian government has invested in research for management of forests by construction of forest database and detection of forest change. The successful application of full-waveform lidar data for the extraction of plot statistics such as percentile tree counts, stem measurement, canopy cover and leaf area index, will contribute to forest resource management and analysis. Significantly, this research will be of benefit to Forests New South Wales as well as the many industries that require reliable forest resource data, such as land care, national defence, emergency services, and fire fighting authorities.

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LP100100128 Dr Michael J Manefield, Dr Torsten Thomas, Prof Staffan L Kjelleberg, Prof Peter D Steinberg
Approved Project Title **In situ microbial conversion of coal to methane: Biotechnology development for clean use of Australian coal.**

2010	\$311,000.00
2011	\$275,000.00
2012	\$350,000.00
2013	\$301,600.00

Primary FoR 1003 INDUSTRIAL BIOTECHNOLOGY

Partner Organisations

Biogas Energy

Administering Organisation The University of New South Wales

Project Summary

We will develop a biotechnology that uses native microorganisms to accelerate the underground conversion of coal to methane. Approximately 90% of Australia's coal resources cannot be accessed economically using traditional mining technologies. A technology that converts coal to methane could generate an energy supply worth an estimated \$60 billion, foster the development of an energy industry now in its infancy, and generate numerous new employment opportunities. Environmentally, methane is a cleaner burning fuel than coal, uses much less water for processing and generates the same quantity of electricity with lower CO2 emissions. This project highlights the fact that Australia's microbial diversity is a resource we cannot afford to ignore.

LP100100242 A/Prof John M Murray, Dr Geoff P Symonds
Approved Project Title **Can an anti-HIV gene in blood stem cells protect from immune depletion by HIV?**

2010	\$120,000.00
2011	\$119,000.00
2012	\$121,000.00

Primary FoR 0102 APPLIED MATHEMATICS

Partner Organisations

CALIMMUNE Australia Pty Ltd

Administering Organisation The University of New South Wales

Project Summary

Approximately 15,000 individuals in Australia are currently HIV infected. Gene therapy has the capacity to remove antiretroviral treatment related issues, dramatically decrease treatment costs and simplify treatment of HIV.

In this study we will model a new approach to treat HIV in which the patient's own cells are used as the therapy by incorporating an anti-HIV gene. These cells are then re-introduced into the patient.

The strong mathematical focus of this project, and its application to a promising approach against HIV, will place Australia at the forefront of the mathematics of gene research and contribute to the National Priority Area of Promoting and Maintaining Good Health and the Priority Goal of Preventative Healthcare.

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LP100100806 Dr Markus Oeser, Mr Alan Pearson, Prof Nasser Khalili, Prof Dr Brian Shackel
Approved Project Title **Permeable Pavements with Concrete Surface Layers- Experimental and Theoretical Basis for Analysis and Design**

2010	\$53,338.00
2011	\$53,338.00
2012	\$53,338.00
Primary FoR	0905 CIVIL ENGINEERING
APAI	2

Partner Organisations

Concrete Masonry Association of Australia

Administering Organisation The University of New South Wales

Project Summary

Permeable pavements constitute unique and effective means to address important environmental issues and support green, sustainable growth. By capturing stormwater and allowing it to seep into the ground, porous pavements are instrumental in recharging groundwater, reducing stormwater runoff and preventing pollutants from entering the Australian river systems and sea-shores. Other advantages for Australian communities that are associated with the construction of permeable pavement arise from their properties such as acoustic and thermal insulation due to the high void content of the material. Thus, permeable pavements improve on the living conditions in urban areas by reducing noise levels and preventing urban heat island effects.

LP100100597 Dr Roslyn G Poulos, Dr Julie Hatfield, Prof Raphael H Grzebieta, A/Prof Andrew S McIntosh, A/Prof Chris Rissel

Approved Project Title **Safer cycling: A partnership project to better understand cycling patterns, hazards and incidents**

2010	\$77,000.00
2011	\$67,000.00
2012	\$64,000.00
Primary FoR	1117 PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisations

Bicycle New South Wales Incorporated, Roads and Traffic Authority of New South Wales, Sydney South West Area Health Promotion Service, Willoughby City Council

Administering Organisation The University of New South Wales

Project Summary

Cycling is the ultimate 'clean fuel' energy source, is renewable, and is sustainable. It can also positively impact on national health concerns such as cardiovascular health, obesity, and diabetes. If cycling is to be encouraged as a health-promoting practice, or as a sustainable form of transport, then it is incumbent on governments to address injury concerns to ensure that its benefits outweigh its risks and to provide an environment that minimises risk and optimises the transport advantages. This project will provide understanding of cycling patterns, hazards and incidents. It will provide vital knowledge to inform policy and planning with respect to transport and health and inform future health and safety promotional campaigns.

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LP100100596 Mr Gerard M Redmond, Mr Michael Mendelson, Mr Mark H Greenberg, Dr David H Rea, Prof Brian Nolan, Dr Matthew C Gray, Prof Peter Whiteford, Prof Holly E Sutherland

Approved Project Title **Supporting families: Horizontal and vertical equity in the Australian tax-benefit system in historical and comparative perspectives**

2010 \$90,000.00

2011 \$70,000.00

2012 \$120,000.00

Primary FoR 1605 POLICY AND ADMINISTRATION

APAI 1

Partner Organisations

Australian Council of Social Services, Caledon Institute of Social Policy, Department of Families, Housing, Community Services and Indigenous Affairs, Institute of Policy Studies, University of Essex

Administering Organisation The University of New South Wales

Project Summary

Tax benefit reform and equity between different groups are key policy concerns currently and for the foreseeable future. The tax-benefit system is under review, and the Global Financial Crisis has prompted debate on how tax-benefit policy can stimulate the economy while maintaining equity and promoting social inclusion. This project will put debate about tax-benefit reforms and deficit reduction strategies in historical and an international comparative context. Results generated will provide a rich and comprehensive framework for assessing current and future policy options in areas that are closely aligned with the designated national research priority goals of a healthy start to life and strengthening Australia's economic and social fabric.

LP100100562 Prof Peter G Saunders

Approved Project Title **Social disadvantage and economic recession: promoting inclusion and combating deprivation**

2010 \$130,000.00

2011 \$70,000.00

Primary FoR 1605 POLICY AND ADMINISTRATION

Partner Organisations

Anglicare Victoria, Australian Council of Social Services, Benevolent Society, Mission Australia, Social Inclusion Unit, Social Inclusion Unit - SA, Social Inclusion Unit - Tasmania, St Vincent de Paul Society National Council of Australia Inc

Administering Organisation The University of New South Wales

Project Summary

The onset of recession in the wake of the global financial crisis has reawakened concern over inequality and exclusion. This project will feed directly into the government's new social inclusion agenda by providing a better understanding of the nature of social exclusion, its relation to location-specific and other dimensions of disadvantage, and the processes that trigger and sustain exclusion. A specially designed survey will be coordinated with other data collection activity to provide timely new information that will assist government and non-government agencies to promote social inclusion and tackle the root causes of disadvantage.

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LP100100533 Dr Xiaoyuan Shang, Dr Karen R Fisher, Mrs Xiaoli Feng
Approved Project Title **Transition to adulthood of young people with disabilities from state care in China**

2010 \$80,000.00

2011 \$80,000.00

2012 \$75,000.00

Primary FoR 1605 POLICY AND ADMINISTRATION

Partner Organisations

Social Welfare Center

Administering Organisation The University of New South Wales

Project Summary

The project has implications for the national priority of safeguarding Australia through supporting the government strategy of engaging in our region. Disability is an AusAid priority in the Asia Pacific. The project demonstrates Australia's commitment to using our research and policy to improve social inclusion in China and to generalise to other developing countries. It contributes to developing Australian social policy, research and training in a way that is relevant to child and disability state care practices in Australia and China. The project facilitates future connections between researchers and policy officials in Australia and China, the Chinese Social Welfare Centre and the Chinese Ministry of Civil Affairs.

LP100100461 A/Prof Helen A Swarbrick
Approved Project Title **Harnessing contact lens design to optimise optics and vision through corneal refractive reshaping**

2010 \$193,000.00

2011 \$159,000.00

2012 \$180,000.00

Primary FoR 1113 OPTOMETRY AND OPHTHALMOLOGY

Partner Organisations

Bausch and Lomb Boston, BE Enterprises Pty Ltd, Capricornia Contact Lens Pty Ltd

Administering Organisation The University of New South Wales

Project Summary

Development of innovative OK lens designs to correct presbyopia and astigmatism, optimised for visual performance through manipulation of optical aberrations, will place Australian rigid contact lens manufacturing at the international forefront of OK lens production. Lens designs to control myopia progression will strategically position Australian lens manufacturing to capitalise on the potential market in Asia, where myopia is prevalent. Significant intellectual property will be generated for Australia through greater understanding of OK lens design manipulation to optimise visual outcomes. This project promises to enhance the international reputation of UNSW researchers, keeping Australian science at the forefront of this research area.

Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

LP100100367 Dr Matthew D Taylor, Prof Iain M Suthers, Prof David J Booth, Prof Charles A Gray
Approved Project Title **Feeding and breeding: Rainfall effects on connectivity and fidelity of iconic coastal fishes**

2010	\$160,000.00
2011	\$150,000.00
2012	\$140,000.00
Primary FoR	0501 ECOLOGICAL APPLICATIONS
APAI	1

Partner Organisations

NSW Department of Primary Industries (Fisheries)

Administering Organisation The University of New South Wales

Project Summary

Large predatory fish are of great significance to recreational anglers, not only for their trophy status but also for their disproportional fecundity and contribution to future fishing. Remarkably, the distribution and movements of large estuarine fish in estuaries and the coastal ocean are unknown, despite their importance to the national economy. We will determine the role of freshwater discharge and oceanography on the coastal and estuarine habitat requirements, movements and home ranges of mulloway, flathead and bream from the scale of hours to years, and extend these findings to evaluate population sub-structuring and connectivity in the context of a changing climate.

LP100100804 A/Prof Susan M Thompson, Prof Bill Randolph, A/Prof Bruce H Judd, Dr Bin Jalaludin
Approved Project Title **Planning and Building Healthy Communities: A multidisciplinary longitudinal study of the relationship between the built environment and human health**

2010	\$136,212.00
2011	\$100,632.00
2012	\$118,053.00
Primary FoR	1205 URBAN AND REGIONAL PLANNING

Partner Organisations

Landcom, National Heart Foundation of Australia, Sydney Southwest Health

Administering Organisation The University of New South Wales

Project Summary

This project examines how urban environments support health. Tracking residents' behaviours over a long time, the study fills a gap in current knowledge about how urban environments manage and promote good health (a national research priority area). It will identify the design features, social interventions and locational qualities in selected sites which positively benefit human health. The research will describe the likely health outcomes for future Australians living in areas with similar characteristics. It will also strengthen multidisciplinary approaches and policy development in this area by bringing together a team from urban planning, development and health.

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LP100100056	Prof Trevor D Waite, Dr Xiaomao Wang, A/Prof Gregory L Leslie, Dr Xia Huang, Dr Heriberto A Bustamante, Prof Xianghua Wen, Dr Jing Guan
Approved Project Title	Optimisation of nutrient removal, membrane fouling and sludge dewatering in hybrid coagulation/submerged membrane bioreactor treatment of wastewaters
2010	\$210,000.00
2011	\$168,000.00
2012	\$170,000.00
Primary FoR	0904 CHEMICAL ENGINEERING
APAI	2

Partner Organisations

Beijing OriginWater Technology Co Ltd, Sydney Water, Water Quality Research Australia Ltd

Administering Organisation The University of New South Wales

Project Summary

Submerged membrane bioreactor technology for the treatment of wastewaters is now a competitive technology with small footprint and generally high quality of treated effluent. Despite this, challenges remain in ensuring low effluent nutrient concentrations, minimal membrane fouling and acceptable excess sludge dewaterability. Addition of iron or aluminium-based coagulant chemicals can assist but many uncertainties with regard to choice of chemical, optimal dosing arrangements and membrane bioreactor operating conditions remain. Experimental and computational studies targeted at improving understanding and optimising performance will be undertaken through collaborative studies by the UNSW and Tsinghua University (Beijing) research team.

LP100100852	Prof Trevor D Waite, Prof Richard G Luthy, Dr Souhail Al-Abed, Dr Graeme E Batley
Approved Project Title	Synthesis of Activated Carbon Supported Zero Valent Iron Nanoparticles and Application to Contaminant Degradation in Benthic Sediments
2010	\$200,000.00
2011	\$195,000.00
2012	\$204,662.00
Primary FoR	0907 ENVIRONMENTAL ENGINEERING
APAI	2

Partner Organisations

NSW Department of Environment and Climate Change (DECC), NSW Maritime, Orica Australia Pty Ltd, Sydney Metropolitan Catchment Management Authority, Sydney Ports Corporation

Administering Organisation The University of New South Wales

Project Summary

Sediment contamination is a major problem in harbours and estuaries around Australia. For example, in Sydney Harbour, a total fishing ban has been implemented as a result of excessive levels of dioxins and benzofurans in fish tissues. There is also concern at the possibility of large scale contamination of Botany Bay as a result of historic industrial activity around the Bay. While dredging and on-land treatment of sediments is being adopted at the most severely contaminated sites, the cost of this approach is exorbitant. For sites where removal of contaminated sediments cannot be justified, the approach proposed in this study of a technology that entraps contaminants and enhances their in situ biodegradation is potentially a way forward.

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LP100100504 Prof John M Whitelock, Dr Megan S Lord, Dr Simon J McCarthy
Approved Project Title **Targeted growth factor delivery using natural polysaccharide materials for bone regeneration**

2010	\$80,182.00
2011	\$80,182.00
2012	\$80,182.00
Primary FoR	0903 BIOMEDICAL ENGINEERING
APDI	Dr Megan S Lord

Partner Organisations

HemCon Inc

Administering Organisation The University of New South Wales

Project Summary

This proposal addresses the core issue of nano-biomaterials capable of encouraging bone growth and providing better and more complete healing of bone fractures. Australia will benefit firstly through improved health outcomes by providing material-based solutions to address slow or non-healing fractures, which are increasingly prevalent in the aging population in Australia. This will have a further benefit to the Australian economy improving the quality of life enabling people to work longer and reducing the need for further surgical intervention. This proposal will also have benefits to Australia through training future researchers in this field which will in turn provide economic growth through the development of Australian industries.

LP100100299 Prof Aibing B Yu, Dr Andrew Vince
Approved Project Title **Particle scale modelling and analysis of the multiphase flows in coal preparation**

2010	\$240,000.00
2011	\$228,000.00
2012	\$250,000.00
Primary FoR	0914 RESOURCES ENGINEERING AND EXTRACTIVE METALLURGY
APAI	4

Partner Organisations

Australian Coal Research Ltd

Administering Organisation The University of New South Wales

Project Summary

Australia is the world's biggest coal exporter, and black coal is Australia's largest export, with an annual value >\$20 billion. Optimum design and control of the processes in coal preparation play a critical economic role in coal production. This project aims at providing substantial improvements through the application of a novel combined continuum and discrete modelling method. Specifically, the improvements targeted relate to better process and product control, a decrease in unit energy consumption and improvements in productivity, which, together with the research training offered, will further enhance Australia's leading position in global coal industry.

Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

LP100100814 Prof Aibing B Yu, Dr Haiping Zhu, Dr Renhu Pan
Approved Project Title **Granular dynamics: characterization, modelling and application**

2010 \$53,338.00
2011 \$53,338.00
2012 \$53,338.00
Primary FoR 0904 CHEMICAL ENGINEERING
APAI 2

Partner Organisations

Fujian longking Co.,Ltd

Administering Organisation The University of New South Wales

Project Summary

Storage and transport of bulk solids are widely encountered in mineral, metallurgical and chemical industrials which are important to Australia. The design and control of bulk solids handling equipment must be optimised for the efficiency of processing. This project provides a systematic investigation of the techniques used to characterize bulk solids, and applies the new findings to hopper flow and pneumatic conveying. This, together with the research training offered through the conduct of the work, is very helpful to maintaining Australia's leading position in bulk solids handling and application in resource, energy, process and allied industries.

LP100100868 Dr Guangqing Zhang, Prof Oleg Ostrovski
Approved Project Title **Fundamentals of an Innovative Technology for Solar Silicon Production**

2010 \$80,000.00
2011 \$78,000.00
2012 \$110,000.00
Primary FoR 0914 RESOURCES ENGINEERING AND EXTRACTIVE METALLURGY

Partner Organisations

Creswick Quartz Pty Ltd

Administering Organisation The University of New South Wales

Project Summary

Australia is a world leader in research in photovoltaic technology for solar energy. However, Australia does not produce solar grade silicon. The proposed project will develop a novel frontier technology which will cut the solar silicon production cost by 50%. This will enhance Australia's capacity to power a world-class photovoltaic industry of the future and build on Australia's strengths in research and innovation. Application of the technology will contribute to achieving national target of 6.74 GW photovoltaic solar power capacity by 2020; this will reduce 9.32 million tonnes/year of CO2 emission (the Australian photovoltaic industry roadmap) and contribute to an environmentally sustainable Australia.