Summary of Linkage Projects Applications for Funding to Commence in 2006

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 depoyment 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 empoyment 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

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**

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 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.

Summary of Linkage Projects Applications for Funding to Commence in 2006

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.