Summary of Linkage Infrastructure, Equipment and Facilities Proposals by State and Organisation

Western Australia

The University of Western Australia

LE100100134 Prof John M Dell, Prof Lorenzo Faraone, Prof Chennupati Jagadish, Prof Tanya M Monro

Approved Project Title **Integrated photodetector array fabrication facility**

2010 $500,000.00

Primary FoR 0906 ELECTRICAL AND ELECTRONIC ENGINEERING

Partner/Collaborating Organisation(s)

The Australian National University, The University of Adelaide

Administering Organisation The University of Western Australia

Project Summary

Sensing is becoming a ubiquitous requirement for nearly all physical, chemical and biological research fields, and is increasingly important for Australia's national security and industry competitiveness. This proposal is aimed at building Australia's strengths in optoelectronic sensing technologies, enhancing and enabling research and technologies for innovative environmental monitoring, medical diagnostics, new technologies for mineral exploration and improved evaluation of remediation of mine sites, through to the surveillance and sensing needs of customs, defence and national security. In doing so, it will enhance Australia's research profile as one of the world's leaders in the development and use of optoelectronic sensing.

LE100100041 Dr Pauline F Grierson, Prof Gary A Kendrick, Dr Grzegorz D Skrzypek, Dr Jason B Fellman, Prof David M Bowman, Prof Kliti Grice, Prof Anya M Waite, Prof William D Stock, A/Prof Ray H Froend, Prof Paul S Lavery

Approved Project Title **A high-resolution isotope facility for low cost analysis of water, plant, and soil/sediment samples to understand environmental change**

2010 $100,000.00

Primary FoR 0602 ECOLOGY

Partner/Collaborating Organisation(s)

John de Laeter Centre for Mass Spectrometry
Curtin University of Technology, Edith Cowan University, University of Tasmania

Administering Organisation The University of Western Australia

Project Summary

The most significant environmental challenges facing Australia include ensuring sustainable management of our water resources and conservation of both terrestrial and marine biodiversity, particularly in the face of our changing climate and land-use. The new instruments will accelerate progress across a number of projects aimed at understanding the development of groundwater resources, the relative dependency of ecosystems on groundwater versus soil and surface water, and an assessment of the likely impacts of altered hydrology, especially dewatering and salinisation, on ecosystems. In addition, they will also be used to extend our knowledge of climate variability in the recent past and increase understanding of critical marine resources.

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by State and Organisation

LE100100203 Prof Malcolm T McCulloch, Prof Peter A Cawood, Prof Mervyn J Lynch, Prof Robert J Wasson, Prof Paul S Lavery, Prof Anya M Waite, Asst Prof Ryan J Lowe, Dr Matthew R Kilburn, Dr Julie A Trotter, A/Prof Peta L Clode, Asst Prof James Falter, Prof Neal J McNaughton, Dr Karl-Heinz Wyrwoll, A/Prof Lindsay B Collins, Prof Neil R Loneragan

Approved Project Title **Advanced Geochemical Facility for Climate and Environmental Change Research: a Western Australian/Indian Ocean focus**

2010 $700,000.00

Primary FoR 0405 OCEANOGRAPHY

Partner/Collaborating Organisation(s)

John de Laeter Centre for Mass Spectrometry
Charles Darwin University, Curtin University of Technology, Edith Cowan University, Murdoch University

Administering Organisation The University of Western Australia

Project Summary

Research outcomes from this new facility will empower government bodies, resource industries, and indigenous stakeholders with key baseline information to ensure the sustainable and sensitive development of west Australia's unique coastal and offshore regions, across heavily populated and pristine environments. This includes projecting future impacts on local industries (eg. energy, fisheries, tourism), rising shorelines with critical implications for existing and developing communities, and enhancing the resilience of habitats at risk. These are crucial to mitigate the impacts from environmental change that could severely affect our regional and national economies, as well as the style and quality of life of current and future generations.

LE100100217 Prof David D Sampson, A/Prof Peta L Clode, Prof Shaun P Collin, Prof Ian Constable, Prof Mariapia Degli-Esposti, Prof Sarah A Dunlop, Prof Svend P Klinken, Prof Nigel G Laing, Prof Peter J Leedman, Prof Barry J Marshall, Prof Paul G McMenamin, A/Prof Daniel V Murphy, Prof Jacqueline K Phillips, A/Prof Paul J Rigby, Dr Matthew J Sharman, Dr Philip A Stumbles, Prof Timothy G St Pierre, Dr Katherine M Trinajstic, Dr David Wacey, Prof Paul M Waring, Prof Charles R Watson, Prof George C Yeoh, Prof Ming H Zheng, A/Prof Mel Ziman, Prof John C Mamo, Dr Roger I Price, Dr Nicholas Gottardo, Dr Ursula R Kees

Approved Project Title **In-Vivo Multispectral and X-ray Micro-CT Imaging: Founding a Western Australian small animal imaging core facility**

2010 $450,000.00

Primary FoR 1112 ONCOLOGY AND CARCINOGENESIS

Partner/Collaborating Organisation(s)

Sir Charles Gairdner Hospital Perth, Telethon Institute for Child Health Research
Curtin University of Technology, Edith Cowan University, Murdoch University

Administering Organisation The University of Western Australia

Project Summary

The Western Australian Small Animal Imaging facility will provide wide access for the West Australian research community to a multimodality functional and dynamic core bioimaging facility to characterise in-vivo animal models, including extensive postgraduate research training. Wide-ranging research outcomes of national and community benefit include imaging tumour development, bone metabolism (osteoporosis), neural function (Alzheimer's disease) and regeneration, and infection mechanisms in live animals, which will result in improvements in human health. Imaging and monitoring coral growth, fish age, and soil structure will improve the economics and sustainability of Australia's marine ecosystems and agricultural food production.

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by State and Organisation

LE100100001 Prof Dongke Zhang, Prof Yinong Liu, Prof Colin L Raston, Prof Victor Rudolph, Prof Mark J Biggs, Dr Peter J Ashman, A/Prof Sankar P Bhattacharya, Prof Wayne D Cook, Prof Maria Forsyth, Dr Shaobin Wang, Dr Eric F May, Prof Xiao-Zhi Hu, A/Prof Hong Yang, A/Prof George A Koutsantonis, A/Prof Murray V Baker, Prof Jinhu Wu, Dr Killugudi L Swaminatha-Iyer, A/Prof Joao C Diniz da Costa, Prof Behdad Moghtaderi, Prof Bogdan Z Dlugogorski, Prof Terry F Wall, Prof Eric M Kennedy, Prof Douglas R MacFarlane, Dr Timothy B Sercombe

Approved Project Title **An advanced thermogravimetric analysis system for world-leading research in clean energy, catalysis, material science and nanotechnology**

2010 $360,000.00

Primary FoR 0904 CHEMICAL ENGINEERING

Partner/Collaborating Organisation(s)

Qingdao Institute of Bioenergy and Bioprocessing Technology
Curtin University of Technology, Monash University, The University of Adelaide, The University of Newcastle, The University of Queensland

Administering Organisation The University of Western Australia

Project Summary

Many chemical reactions occurring in solid materials during heating significantly affect the materials' stability, and subsequently affects the processes of production of clean energy, material synthesis, catalyst preparation, and nanotechnology. No equipment currently exists in Australia that will mitigate the wide range of conditions in such reactions in materials processing. This situation impedes research progress in Australia, disadvantages Australian research students, and ultimately makes our research less competitive internationally. The establishment of the proposed apparatus will increase the competitiveness of Australian science and engineering, and contribute to the development of new Australian technologies that are important to the Australian economy and to environmental sustainability.