Queensland

Queensland University of Technology

LP0775225 Dr DC Baker; Prof NF Ryan; A/Prof R Freestone; Prof KA Brown; Prof L Ferreira; A/Prof ME Drew; A/Prof A Goonetilleke; Prof PM Charles; Dr P Barnes; Prof WE Walker; Prof JD Kasarda; Dr SJ Appold; Mr SM Goodwin; Mr AR Walker; Dr MB Charles; Prof M Weijnen

Approved Project Title **The Airport Metropolis: Managing the Interfaces**

2007 : $ 182,455
2008 : $ 286,457
2009 : $ 212,000
2010 : $ 203,000

Primary RFCD 3101 ARCHITECTURE AND URBAN ENVIRONMENT

APA(I) Award(s): 2

APDI Mr AR Walker

Collaborating/Partner Organisation(s)

Brisbane Airport Corporation
Adelaide Airport Limited
Capital Airport Group Pty Ltd
Airtrain City Link
Port of Brisbane Corporation
Brisbane City Council
Tourism and Transport Forum
PTV Asia-Pacific Pty Ltd
Commerce Queensland
Airbiz Aviation Strategies Pty Ltd
Queensland Transport

Administering Organisation Queensland University of Technology

Project Summary

The project aims to develop coordinated and equitable decision-making to ensure that airport-urban development balances economic, social and environmental issues and produces a sustainable regional (and national) competitive advantage that is both secure and resilient. The project will develop modelling technologies for the innovative management of data to ensure efficient and resilient infrastructure coordination. The outputs will enable an open planning process whereby all stakeholders are able to provide informed input into decision-making. Strategic decision-making, based on increased certainty about future airport and regional planning and development will improve conditions for growth in a range of industries.

LP0775178 Dr RJ Brown; Dr ZD Ristovski; Prof DJ Hargreaves; Mr U Kruger

Approved Project Title **Optimisation of Dual Fuel Compression Ignition (Diesel) Engines With Respect to Engine Performance and Pollutant Emissions.**

2007 : $ 120,000
2008 : $ 90,000
2009 : $ 90,000

Primary RFCD 2905 MECHANICAL AND INDUSTRIAL ENGINEERING

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Alternative Engine Technologies Pty Ltd

Administering Organisation Queensland University of Technology

Project Summary

A successful dual-fuel compression ignition (diesel) engine technology utilizing renewable alcohol fuels will provide a commercially attractive, immediate solution to the global fuel challenges of security and cost of oil supply, greenhouse gas emissions, and air quality . This project provides both the rigorous laboratory and field testing required to develop, test, optimize and validate both engine performance and pollution emissions. This ethanol dual fuel approach has the potential to reduce Australia's dependence on imported fuels, support the development of regional agriculture and employment through the expansion of the biofuels industry and enhance the environmental performance of transport and stationary engines.

LP0775269 Dr TW Farrell; Dr PA Hobson; Prof IW Turner; Dr GR Fulford; Dr BP Edwards

Approved Project Title **Multiscale Modelling and Thermal Design Optimisation of Large-Scale Biomass Stockpiles for Use in Renewable Energy Products**

2007 : $ 60,000
2008 : $ 60,000
2009 : $ 60,000

Primary RFCD 2399 OTHER MATHEMATICAL SCIENCES

Collaborating/Partner Organisation(s)

Sugar Research Institute
Administering Organisation Queensland University of Technology

Project Summary

By minimising the risk of spontaneous combustion this project will significantly contribute to the ability of the Australian sugar industry to store wet bagasse (sugar cane fibre residue) in large stockpiles. This will facilitate the year-round availability of biomass as a feedstock in renewable energy production. The mathematical models developed in this project deliver an enabling mechanism for facilitating the diversification of the sugar industry with the potential to produce significant financial returns for the industry. This research has the potential to initiate considerable and extremely positive, down-stream environmental impacts for Australia by enhancing feedstock production for ecologically sustainable power generation systems.

LP0774931 Dr PK McDonald; Dr JM Bailey; Dr B Pini; Dr R Price; Mr A Allegretto

Approved Project Title **Social citizenship and employment for secondary school students**

2007 : $ 77,082
2008 : $ 77,082
2009 : $ 77,082

Primary RFCD 3502 BUSINESS AND MANAGEMENT

APDI Dr R Price

Collaborating/Partner Organisation(s)

Brisbane Catholic Education Centre
Young Workers Advisory Service
Department of Education, Queensland
Queensland Council of Unions
Administering Organisation Queensland University of Technology

Project Summary

The study will guide communities, policy makers and social institutions about how best to encourage the development of social and workplace citizenship behaviour in young people at a time of multiple, intersecting and possibly contradictory social, policy and legislative changes. It will identify the structural mechanisms (via curriculum development, industry policies/practice and public policy development) through which young student-workers may become less vulnerable and more empowered in their labour market experiences. Ultimately, this will result in a stronger voice for young people and hence a strengthened social fabric in the domain of work

LP0775231 Prof KL Mengersen; Dr HL Johnson; Mr RD Brighouse

Approved Project Title **Making the Most of Database Information in Patient-Based Decision-Making - A Bayesian Approach**

2007 : $ 90,000
2008 : $ 60,000
2009 : $ 60,000

Primary RFCD 2302 STATISTICS

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

St. Andrews War Memorial Hospital

Administering Organisation Queensland University of Technology

Project Summary

This project addresses Australia's national research priority of Promoting and Maintaining Good Health and will lead to immediate improvement in health outcomes through optimising patient outcomes in Australian hospitals; cross-disciplinary and cross-hospital communication. Through enhanced capability in combining information from diverse sources the project will enhance Australia's medical research and practice, align professional and community expectations, utilise increased amounts of local medical information, and address national demands for quality science underpinning health decisions.

LP0775260 Prof L Morawska; Dr ZD Ristovski; Prof L Ferreira; Dr GR Johnson; Ms JA Rossner

Approved Project Title **Quantification of current and future traffic emissions of greenhouse gases and particulate matter for application in transport and urban planning**

2007 : $ 148,818
2008 : $ 34,207
2009 : $ 36,970

Primary RFCD 2499 OTHER PHYSICAL SCIENCES

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Queensland Transport

Administering Organisation Queensland University of Technology

Project Summary

The socio-economic benefits from the project include (i) novel transport emissions model, enabling assessment of the impact of transport proposals, applied in one of the most rapidly developing urban regions of Australia, SEQ; (ii) a matrix of particles, CO2, N2O and CH4 emission factors for vehicles operating in Australia, an essential input parameter in vehicle emission inventories. The ultimate economic benefit of this research will be a reduction in transport related air pollution and greenhouse emissions, thus increasing the health and well-being of Australians, reducing health care costs and placing Australia in the forefront of international progress in the race toward better methods for achieving environmental sustainability.

LP0775252 Dr JA Tacchi; Dr AJ Skuse

Approved Project Title **Assessing the impact of new communication technologies in developing countries and disadvantaged communities**

2007 : $ 99,903
2008 : $ 86,209
2009 : $ 113,015
2010 : $ 93,961

Primary RFCD 4001 JOURNALISM, COMMUNICATION AND MEDIA

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Equal Access

Administering Organisation Queensland University of Technology

Project Summary

This research will enhance understanding of the role of new technologies in communication with, and education of, disadvantaged groups as well as exploring the social changes they bring. Australia is committed to reducing poverty, to achieving the Millennium Development Goals and measuring the impact of development. Understanding how communication interventions may be better understood is important to revealing how they support the achievement of better health, wellbeing, education and conflict reduction. This research will strengthen Australia's potential to lead in this field, to develop more effective development assistance and to apply such methods to Australian community development initiatives.

LP0774899 Dr F Zare; Prof GF Ledwich; Prof A Ghosh; Mr BL Schaffler

Approved Project Title **High Efficient and Reliable Power Converters with Low Electromagnetic Interference Based on an Intelligent Distributed Control System in Train Systems**

2007 : $ 70,000
2008 : $ 65,000
2009 : $ 60,000

Primary RFCD 2909 ELECTRICAL AND ELECTRONIC ENGINEERING

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Schaffler & Associates Pty Ltd

Administering Organisation Queensland University of Technology

Project Summary

A large percentage of the old train systems in Australia have old equipment which decreases the efficiency and reliability of the system and they can be replaced by high power smart converters with minimum losses and electromagnetic interference. This project aims to improve the efficiency of train systems by intelligent distributed control systems which reduces fuel consumption and greenhouse gas emissions. The outcomes can be applied to other transport systems in Australia. Another benefit is the production of a PhD graduand with significant experience in the use of smart power converters to improve efficiency of all types of transport systems.