

Project 1.8 Sustainable Infrastructure Procurement

RESEARCH PROGRAM 1: GREENING THE BUILT ENVIRONMENT

The community's concern with environmental cost of the built environment is growing, so there is a pressing need for industry to identify and reduce the environmental cost of production. One significant contributor to greenhouse gases (GHGs) including CO₂ is the handling and haulage of mass materials such as earth and rock on road and rail projects.

Project partners Queensland Department of Transport and Main Roads, Main Roads Western Australia, New South Wales Roads and Maritime Services, Parsons Brinckerhoff, and John Holland are working with Swinburne University of Technology and Queensland University of Technology to find better ways to plan and manage infrastructure construction to reduce the environmental impact of mass material movements.

This project will add value for clients and producers (designers and contractors) of infrastructure by identifying methods for measuring, minimising and controlling mass haul.

The research design is in 5 phases:

- 1 A review of industry practices, existing research, best practice, software and technology for optimisation of mass haul operations. This will form the basis for theoretical models for Australian projects.
- 2 Evaluate green procurement processes in Australia against international benchmarks, with a focus on how GHG emissions from mass haul operations are calculated.
- 3 Develop methodologies for minimising (a) mass haul costs and (b) GHG emissions.
- 4 Develop non-financial assessment criteria for motivating reduction in GHG emissions associated with earthworks on infrastructure projects to fit in with current tender processes for participating state road authorities.
- 5 Develop a methodology for monitoring and controlling conformance with tender submissions. This will ensure accountability in the delivery of performance improvements and ensure that incentives for non-financial criteria are tied to real deliverables.

Project Outputs for 2011



Professor Russell Kenley
BBldg(QS)(Hons) PhD MAIB AAIQS
Swinburne University of Technology
P: +61 405 069 792
E: rkenley@swin.edu.au

ARC Linkage Projects Scheme

- The team has been successful in securing Commonwealth ARC Linkage funding of \$340,000 for a complementary module of industry-focused research to extend this Centre project.
- Research Report
Project 1.8 Research Report, November 2011 includes lists of publicly available spreadsheets and calculators of GHG emissions as part of the preliminary literature review.
- Industry Presentations
Over the course of the year the Project Leader, Russell Kenley has conferred with individual industry and university partners to progress the negotiations of merging the SBEnc Project 1.8 Sustainable Infrastructure Procurement with the ARC Linkage Project: Greening Procurement of Infrastructure construction: Optimising Mass-haul Operations to Reduce Greenhouse Gas Emissions.
- Refereed Conference Papers
Two refereed conference papers were published in 2011 - Greening Procurement: A Research Agenda for Optimising Mass-haul During Linear Infrastructure Construction (July) and Greening Procurement of Infrastructure Construction: Optimising Mass-haul Operations to Reduce Greenhouse Gas Emissions (October)

