

## ALCAS Corner (Australian Life Cycle Assessment Society)

### Karli James

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Welcome to the latest ALCAS column. In this edition you will find out about the latest ALCAS roundtable on greenhouse issues, the ALCAS committee for 2003–04 and dates for the next national conference in 2005.

**Greenhouse Roundtable.** The latest roundtable of the Australian Life Cycle Assessment Society (ALCAS) ([www.alcas.asn.au](http://www.alcas.asn.au)) was held on Thursday 11th December 2003 in Canberra – the National Capital of Australia. The roundtable was held at the Australian Greenhouse Office ([www.ago.gov.au](http://www.ago.gov.au)) who is the federal government body responsible for greenhouse related issues. Six presentations were made on greenhouse related issues of grains, maize, organic waste, degradable plastics, and timber.

VENKY NARAYANASWAMY from Curtin University in Perth, spoke about a three year project that has been undertaken by the Centre of Excellence in Cleaner Production in collaboration with the Muresk Institute of Agriculture who are undertaking a Life Cycle Assessment (LCA) into wheat production to bread-making, barley production to beer manufacture and canola to cooking oil production. The project aims to assess the environmental performance of the grains sector and to assist the sector in improving and communicating their environmental performance. The project will also assess the relative importance of farming in the life cycle environmental impacts of grains based products and identify and evaluate eco-efficiency opportunities in grain growing and processing. The project is funded by Grains Research and Development Corporation. Further details on the project can be found at <http://cleanerproduction.curtin.edu.au/industry/grains.html>.

The second presentation was by Dr. TOM BEER from Atmospheric Research and the Environmental Risk Network at the CSIRO. Tom introduced a new project that had its inception meeting the day prior to the Roundtable, which will involve the investigation of greenhouse gases from irrigated maize-growing through to the production of corn chips and corn flakes. The study is supported by the Grains Research and Development Corporation, the Australian Greenhouse Office, and the Co-Operative Research Centre for Greenhouse Accounting. Experimental data will be collected over the course of a year to cover growth and harvest. The variables to be measured will include N<sub>2</sub>O emissions, methane, carbon dioxide, temperature and humidity. Other parameters of the study will include investigating the effects of fertiliser application, no fertiliser application and ploughing stubble back into the soil. The measurement program will be supplemented by calculations on the upstream inputs of water and energy required for irrigation and by calculations on the downstream energy requirements involved in manufacture and packaging of the chips and flakes.

Dr. KARLI JAMES from the Centre for Design RMIT University talked about the modelling and results of two projects: (i) organic waste management treatment options and (ii) degradable plastics. The first project was completed in April 2003 titled "Life cycle assessment of waste and resource recovery options (including energy recovery)", the report can be found at [http://www.cfd.rmit.edu.au/life\\_cycle\\_assessment/waste\\_lca\\_main\\_report](http://www.cfd.rmit.edu.au/life_cycle_assessment/waste_lca_main_report). The study was undertaken for EcoRecycle Victoria, a state waste authority, and investigated 15 waste scenarios for post consumer waste including organic material. The waste management techniques were recycling, landfill, composting, anaerobic digestion, gasification and incineration. Assumptions on degradation rates of organic fractions and methane generation at landfills were presented along with the benefits that were modelled for compost application to soil.

The second project presented by Karli was from *the Impacts of Degradable Plastic Bags in Australia* study, completed in September 2003 and conducted for the Department of the Environment and Heritage – report can be found at <http://www.deh.gov.au/industry/waste/degradables/index.html>. The study investigated the full impacts of introducing degradable plastic bags into the Australian market and included the clarification of definitions related to the different types of degradation; impacts upon recycling and littering and included a streamlined LCA of degradable plastics compared with other types of single trip and reusable shopping bags. The presentation by Karli looked at the LCA component of the study with the presentation of the types of degradable plastics studied, assumptions on degradation and the greenhouse profile of the single use degradable plastics with single use high density polyethylene bags and Kraft paper; and reusable calico, woven polypropylene, and low density polyethylene bags.

DAVID GARDNER from New South Wales State Forests and the Co-Operative Research Centre (CRC) for Greenhouse Accounting spoke about the Development of LCI Data for Wood Products in Australia. This is CRC Project (A3) – Wood Life Cycle Analysis and includes research on harvesting of trees, conversion studies, development of production database, density and carbon studies, waste audits, service life survey, landfill research, total above ground biomass and coarse root decomposition <http://www.greenhouse.crc.org.au/crc/research/programs.htm>. David spoke about the methodology that has been developed to track carbon in timber from growing through to landfill. This involves field measurements, industry and public survey, laboratory studies and literature review. The wood species studied to date are Blackbutt, Messmate, Radiate pine and Cypress pine.

FABIANO XIEMES from New South Wales State Forests and the Co-Operative Research Centre (CRC) for Greenhouse Accounting spoke about TimberCam – A carbon accounting model for wood products in Australia, which also includes researchers from the Australian National University. Fabiano talked about the flow of carbon through the wood life cycle, the current International models for wood products, identified problems associated with using these models in Australia and highlighted the issues related to modelling carbon storage and emissions through the wood life cycle. He then spoke about the model-TimberCam, which is being developed to model carbon flows in the wood life cycle (from harvesting through to disposal). It uses the data that has been collected with the CRC Project A3 (as previously discussed by David Gardner) and allows the user to select different types of wood species and applications to enable the calculation of carbon storage and emissions.

CHRIS BAKER from the Australian Greenhouse Office (AGO) gave an overview of the AGO and outlined LCA studies that they have commissioned over recent years. Copies of the presentations made at the Roundtable on 11 December can be found at <http://www.alcas.asn.au>.

**ALCAS Committee for 2003-2004.** The Annual General Meeting for ALCAS was held on Thursday 27th November 2003 in Sydney. The new committee for 2003–2004 are: Office Bearers – Tim Grant, RMIT University (President), Dr Sven Lundie, University of New South Wales (Vice-President), Dr Karli James, RMIT University (Secretary), Jean Wiegard, JTP Australia (Treasurer), John Pullen, Bob Pagan (University of Queensland), Associate Professor Kees Sonneveld (Victoria University) and Ignatius Verbeek (Syneca Consulting).

**Next ALCAS National Conference 2005.** The next ALCAS National Conference will be held on 23–25 February 2005 in Sydney. The program and venue is currently being planned and a call for papers will be distributed in early 2004.