



UNSW
SYDNEY



Integrated Sustainability Assessments

Making integrated sustainability assessments in industrial ecology, circular economy, consumption and production, and using virtual laboratory technology to perform economy-wide analysis and simulation to develop systems and strategies that deliver optimised, sustainable outcomes for society, the environment and the economy.

Competitive advantage

- Economy-wide sustainability assessments based on cutting-edge methodology
- Hybrid life-cycle assessments enabled by virtual laboratory technology
- Comprehensive sustainability indicator frameworks for system-wide applications of industrial ecology and circular economy
- Key sustainability performance metrics for system optimisation and product development

Impact

- Developing Sustainability Assessment Frameworks for the water industry
- Creating a scope 3 greenhouse gas emissions calculator for carbon neutrality assessments under the national Climate Active Carbon Neutral Standard
- Developing specific Life Cycle Inventories (LCI) for the built environment, energy, water and food industries
- Creating sustainability decision-support frameworks and tools for applications in industry sectors and for policy-making, e.g., water, dairy and beef industry
- Development of strategies and indicators for the achievement of the Sustainable Development Goals
- Recommending CO₂-reduction strategies for food, mining, packaging, waste and water industries

Successful applications

- Integrated Carbon Metrics, CRC for Low Carbon Living
- Triple Bottom Line tool of alternative water supply projects for Water Reuse Research Foundation
- Environmental performance evaluation of Australian construction, Australian Research Council
- Assessing absolute sustainability of global cities, Australian Research Council
- Energy benchmarking and visualization tool for the Water Services Association of Australia
- LCI for different photovoltaic technologies, water and wastewater technologies and Australian food categories
- Developing science-based carbon reduction strategies for various industries, such as building and construction, renewable energy

More Information

Professor Tommy Wiedmann, Adjunct
Associate Professor Sven Lundie, Dr
Soo Huey Teh, Dr Man Yu

Sustainability Assessment Program,
Water Research Centre, School of Civil
and Environmental Engineering

T: +61 (0) 2 9385 0142

E: t.wiedmann@unsw.edu.au

UNSW Knowledge Exchange

knowledge.exchange@unsw.edu.au

www.capabilities.unsw.edu.au

+61 (2) 9385 5008

- Australian Dairy Carbon Calculator for the Australian Dairy industry
- Sustainable Development Goals program for UNSW Sydney

Capabilities and facilities

- Industrial Ecology Virtual Laboratory (IELab), a collaborative e-research platform for economy-wide, integrated sustainability assessment of industries, sectors, facilities, processes, technologies and products

Our partners

- Australian Research Council
- CSIRO Land and Water
- Environmental Resource Management (ERM)
- Life Cycle Strategies Pty Ltd
- Mitsubishi Heavy Industries
- NSW EPA
- Sydney Water Corporation