School of Civil and Environmental Engineering

SUSTAINABILITY ASSESSMENT PROGRAM

SPECIALISTS SUSTAINABILITY ASSESSMENT

All members of our Sustainability Assessment Program (SAP) team are experts in different aspects of quantitative environmental, economic and social impact assessment. We understand that decision making for sustainable development must be based on methodologically sound, life-cycle based evaluation of projects, policies, products and companies.

THE TOOLS OF OUR TRADE

We undertake innovative research of national and international significance and provide research services to industry and government. Our flexibility and versatility as a team relates is one of our strongest assets. We actively seek to develop methods and tools within our areas of expertise combining the following techniques and methodologies:

- Input-output analysis
- Life cycle assessment (LCA)
- Hybrid input-output LCA
- Streamlined LCA tools
- Environmental footprinting
- Triple bottom line assessment (TBL)
- Life cycle management
- Multi-criteria assessment (MCA)
- Life cycle costing (LCC)
- Materials flow analysis (MFA)
- Quantitative risk assessment

WHAT WE DO

Our ambition as a team is to employ our tools and expertise to provide insight to grand sustainability challenges such as water and wastewater management, rising anthropogenic greenhouse gas emissions, food security and dietary transitions, urbanization and infrastructure.

The team includes researchers with diverse backgrounds: environmental, chemical and materials engineering, environmental science, environmental management, and economics.

Through our research and quantitative tools in the water and wastewater domain we aim to support the water and wastewater industry in improving their services and decision making with an integrated framework and appropriate assessment tools that quantitatively assess the economic, environmental and social dimensions along the value chain (i.e. cradle-to-grave approach).

In the food domain, we develop methodologies to assess the environmental and health impacts of different food products and diets, including impacts on local water resources and their contribution to greenhouse gas emissions. These issues are at the heart of the water-energy-food nexus.

In the infrastructure and energy domain, our team is developing novel methodologies and tools facilitating comprehensive inventories and impact assessment of embedded carbon flows and emissions in trade, building materials and other goods.

Our research projects aspire to address industry and government policy dilemmas.

OUR PARTNERS

SAP academics collaborate extensively with university researchers, industry partners and government, both internationally and within Australia. Current partners include the University of Sydney, University of Melbourne, Sydney Water, SA Water, US WaterReuse Research Foundation, Cooperative Research Centre for Low Carbon Living, CSIRO.

More information contact: A/Prof. Tommy Wiedmann (t.wiedmann@unsw.edu.au)

ACADEMIC EXCELLENCE

Our key academic disciplines include: Industrial Ecology; Chemical Engineering; Environmental Engineering; Ecological Economics; Environmental management and risk assessment. Our group is located within the Water Research Centre (WRC) which provides us with access to state-of-the-art simulation facilities. We are also administrators of the Australian Industrial Ecology Lab (IElab), an e-platform with unique footprinting capabilities.

KEYSTONE PROJECTS

- Detailed carbon footprint inventories for cities
- Wastewater biosolids management
- Triple Bottom Line (TBL) tool development for water utilities in Australia and the US
- Carbon footprint tools for buildings and building materials
- Water demand forecasting and impact assessment
- Environmental footprint analysis of Australian diets

OUR EXPERTS

Associate Professor Tommy Wiedmann is the Leader of SAP. Tommy's main concern is on how to achieve human wellbeing while lowering environmental impacts. He has longstanding expertise in integrated sustainability assessment and environmental footprint analysis in both industry and academia.

Associate Professor Sven Lundie has a strong background in water management and water footprinting, environmental economics, climate change and institutional development. His working experience is highly differentiate including water and wastewater sector, food sector and renewable and non-renewable energy, waste sector, manufacturing, electronics industry and tourism industry.

Dr Hazel Rowley is a Senior Research Associate with expertise in life cycle assessment and multi-criteria assessment methodologies. She has worked for a range of industrial clients, including several in the water services and agricultural sectors, including government bodies.

Dr. Juan Pablo (J.P.) Alvarez Gaitan is a Research Associate with extensive experience in improving the environmental performance of companies, processes and products using chemical and environmental engineering techniques. His research is focused on resource recovery from municipal and industrial wastewater/waste streams within the broader knowledge domain of industrial ecology. He is passionate about collaborating with government and industry partners to make a positive impact on society, the environment and the bottom line.

Dr Michalis Hadjikakou is a Research Associate with expertise in diverse aspects of environmental modelling. He is particularly passionate about issues such as food security, sustainable diets and water scarcity. His research has both an academic and industry focus including sustainability assessment of global and Australian diet trajectories, triple bottom line analysis for water utilities, and scenario forecasting of future water demand in Australian cities.

Judith Schinabeck is a research associate and expert in the sustainable built environment. She has worked in projects on life cycle assessment, embodied energy of building materials as well as renewable energies on a precinct scale. She is experienced in Australian, German and Swiss green building labels.