Biotechnology and Biological Sciences Research Council

Engineering and Physical Sciences Research Council

EBNet Placement Support
Ipek Tezyapar,
Cranfield University
(PL202006)

EBNet Environmental Biotechnology

Life Cycle Assessment:

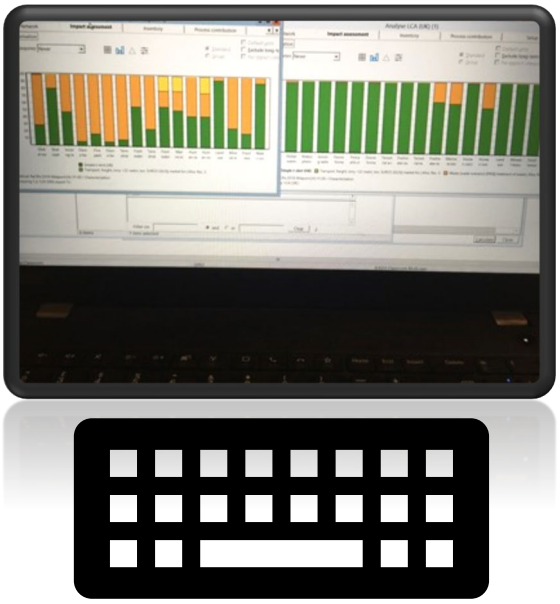
CPD training from the University of Surrey 2020

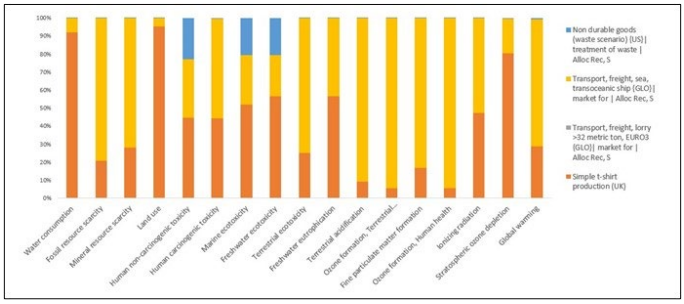
The EBNet Placement Award provided me a great opportunity to understand the life cycle (LCA) thinking, interact with new people and have experience of studying at a different university
– Ipek Tezyapar, Cranfield University

This placement award was given for five days online research training on Life Cycle Assessment (ENGM253) provided by Dr Jhuma Sadhukhan who is Associate Professor (Reader) in Sustainable Resources at the Centre for Environment & Sustainability in the University of Surrey.

On successful completion of this module the key outcomes are to demonstrate understanding of the life cycle assessment methodology and to be aware of the resources required to do a life cycle assessment study in practice. Participants are also be able to provide a critical perspective on life cycle assessment study done by others and to understand the key benefits and challenges of the application of life cycle assessment for a range of purposes.

This interactive module provides detailed explanation of the (environmental) life cycle assessment (LCA), life cycle costing (LCC), societal life cycle assessment (SLCA) and overall life cycle sustainability assessment (LCSA) methodology, includes real life practitioners as a speaker and gives step by step application of an LCA example on SimaPro software. The module helps participants to understand the key aspects of LCA and preliminary skills to perform it.





Example of results from LCA training

In terms of application for my PhD study, my experimental results can be used as primary data for LCA, LCC, SLCA) and overall life cycle sustainability assessment (LCSA). The LCSA is a holistic systematic methodology to analyse input-output material and energy flows considering all plausible interactions across spatial-temporal scale of a given system, model underlying life cycle environmental, social and economic impact characterisations and interpret evaluations by design changes for overall optimality, such as minimal resource depletion and maximum environmental-economic-social outcomes by best trade-offs between them.

For more details on the LCSA methodology see the acknowledged text - Biorefineries and Chemical Processes: Design, Integration and Sustainability Analysis - and benchmarked Software - TESARREC™ UK00003321198.