Workshop on Life Cycle Assessment

AMRS 2019 Preconference Workshops, Arusha, Tanzania

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Purpose of the Workshop

Globally, decisions being made by government leaders, business executives, and those in academia are becoming more data-driven. This includes pressing decisions regarding our ability to sustain, and hopefully thrive, as a society. One technique used broadly to inform these decisions is life cycle assessment (LCA). LCA is a tool that is used to quantify the environmental, economic, and social impacts of all life cycles (production, consumption, disposal) of a particular product or process. All inputs and outputs of the process are accounted for and an overall idea of the relative sustainability of the system is created. It can be applied broadly and has resulted in significant policy decisions worldwide.

This workshop aims to educate participants on the principles and application of LCA and teach the initial steps in in planning and executing their own impactful LCA. It is geared to be hands-on with participants actively taking part in the discussion of LCA case studies. A free online learning course on LCA provided by the University of Michigan Center for Socially Engaged Design (CSED) will be introduced for continuing education after the workshop. Furthermore, there will be an opportunity for participants in the workshop to apply for free access to state of the art LCA modelling software as well as support in ideating and executing their own LCAs.

Outline

- What is a life cycle assessment and how have they made an impact?
    - The Triple Bottom Line: Environment, Society, and Economy
    - Definition of an LCA and examples of how they have been used to facilitate change in government and industry
- The Four Criteria for a Sustainable System
    - Explanation of criteria used to determine, based on the results of the LCA, if the system is truly sustainable
- Case Study on Challenging Sustainability: How “green” are electric bicycles?
    - Evaluation of electric bicycles using the four criteria
- Components of an LCA
    - Setting the goal and scope of a study, creating a life cycle inventory of data for analysis, selecting an impact assessment methodology that is relevant to the study, and conducting a sensitivity analysis
- Case Study: Biologically-grown Cement for Sustainable Construction
    - Learning the components of the LCA in-depth through discussion of a sustainable building material alternative
- Interactive Activity on Setting a Goal and Scope
    - Several energy and material systems will be discussed by participants and the first step of setting up an LCA, figuring out the Goal and Scope, will be facilitated.
- Tips for conducting a complete LCA
    - Pointers will be provided on completing the next steps in the process, presenting your results in an impactful way, and providing recommendations
- Overview of LCA Resources Available and Closing Remarks
    - Online course on LCA through U. of Michigan, application for access to LCA software, support on ideating and executing an LCA

Agenda

Time	Activity
0800-0830	What is a life cycle assessment and how have they made an impact?
0830-0845	The Four Criteria for a Sustainable System
0845-1000	Case Study on Challenging Sustainability: How “green” are electric bicycles?
1000-1020	Break
1020-1050	Components of an LCA
1050-1120	Case Study: Biologically-grown Cement for Sustainable Construction
1120-1220	Interactive Activity on Setting a Goal and Scope
1220-1240	Tips for conducting a complete LCA
1240-1300	Overview of LCA Resources Available and Closing Remarks