A Journey Towards Sustainability: Seneca College's LCA Project with a Leading Furniture Company

Published 10/31/2023 by Anitta Toma

Om Sushrut Pathak graduated from the Project Management – Environmental program. In this blog entry, he discusses his experience partaking in an internship with an office furniture company where he assisted in conducting a Life Cycle Assessment (LCA).

Hello, everyone, I'm Om Sushrut Pathak. I landed in Canada in December to embark on my post-graduation studies at Seneca College. My journey at Seneca began with a course in Project Management – Environmental, which offered an exciting opportunity—an internship with a sponsor. I'm truly grateful to Seneca for providing me with the chance to put the knowledge I gained into practical use. Not only did we learn in the classroom, but we also had the opportunity to visit our sponsor's company and witness firsthand the role of a project manager in conducting a Life Cycle Assessment (LCA).

Our sponsor was a prominent name in the world of office furniture manufacturing, known for its commitment to sustainability. They had undertaken an ambitious journey to understand and minimize their environmental impact through an LCA study. This initiative aligned perfectly with their vision of setting industry standards for service, quality, and value while prioritizing sustainability.

The furniture manufacturing industry has long been associated with a significant environmental footprint. Issues such as excessive consumption, emissions, waste generation, and transportation challenges have plagued the sector. To address these concerns, our sponsor tasked us with conducting an LCA—a systematic approach to assessing environmental impacts throughout a product's entire life cycle.

Photo by Kam Idris on Unsplash

The LCA process involved four key phases:

Goal and Scope Definition: This phase involved setting the study's objectives and boundaries. The aim was to assess the environmental impacts of ten pre-identified materials used in furniture production, from raw material extraction to the factory gate. Various environmental impact categories, including global warming potential, ozone depletion, and acidification, were considered.

Life Cycle Inventory (LCI) Analysis: Detailed data on inputs, outputs, and emissions at each stage of the product's life cycle were collected. This encompassed material flows, energy consumption, and other relevant information.

Life Cycle Impact Assessment: Potential environmental impacts identified during the LCI were quantified and assessed. Numerical values were assigned to indicators representing specific impact categories like global warming potential and acidification.

Interpretation: The results of the impact assessment were analyzed to draw conclusions. This involved comparing impacts across life cycle stages, identifying areas with significant impacts, and exploring potential improvements.

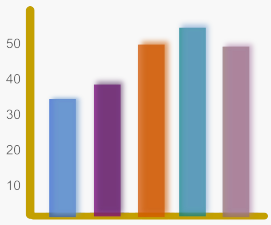

Image by OpenClipart-Vectors from Pixabay

To facilitate this study, our sponsor collaborated with two groups of students from Seneca College's Project Management – Environmental program. The ten materials chosen for assessment included plywood, steel (powder-coated and chrome), MDF, polypropylene, nylon, glass-filled nylon, foam (polyurethane), hardboard, and fabric (polyester). The study followed the ISO 14040:2006 guidelines, providing a standardized framework for LCA studies.

The success of the study hinged on the use of openLCA software, an open-source tool for

LCA and sustainability assessment. This choice was made for its cost-effectiveness and accessibility. Necessary data, including elementary flows and reference information, were obtained from the openLCA Nexus online repository.

The study aimed to identify which of the ten materials exhibited better environmental performance across various impact categories. However, due to a lack of detailed factory data, the study relied primarily on openLCA Nexus data and general information provided by the sponsor company. The transportation processes were noted to vary depending on the materials' source and destination.

One noteworthy aspect of the study was the use of a declared unit, as the end-use conditions of the product were unknown. The functional unit was set as one unit of each of the ten materials at the factory gate, allowing for a standardized comparison of environmental impacts.

The system boundaries considered for this study encompassed all phases of material processing, from raw material extraction (cradle) to production, assembly, and point of sale (gate). Impact assessment methods from the openLCA Nexus were employed to align with the sponsor's requirements.

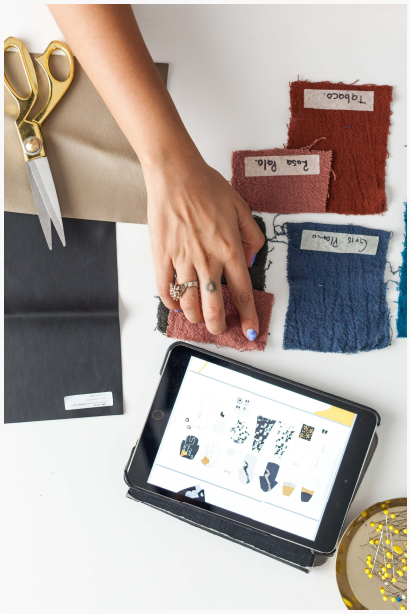

Photo by Los Muertos Crew at Pexels

In conclusion, I thoroughly enjoyed my internship journey with Seneca College, particularly this project. It has been an eye-opening experience that not only provided me with invaluable hands-on knowledge but also showcased the remarkable commitment of our sponsor to

sustainability. Working alongside my peers, we delved into the complex world of Life Cycle Assessment (LCA), aiming to understand and reduce the environmental footprint of the furniture manufacturing industry.

Our sponsor's dedication to sustainability was evident in their decision to undertake this ambitious LCA study. They are leading the way in setting industry standards for service, quality, and value, all while making sustainability a top priority. The project's focus on assessing the environmental impacts of ten key materials used in furniture production, following ISO guidelines and utilizing openLCA software, truly embodies the spirit of responsible and informed decision-making for a greener future.

This endeavor represents a big move towards a greener and more eco-friendly way of making furniture. It also shows how teamwork between educational institutions and industries can make a real difference in solving important global problems. I'm thankful for Seneca College for giving me this chance, and this experience has made me even more passionate about sustainability and taking care of our environment. I'm excited to take these important lessons with me on my academic and career path.

Sincerely,

Om Sushrut Pathak

Supply Chain Management - Global Logistics

tags : prme, prme-blog-new