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Contributions to contribution analysis: improving our understanding of contributions to impacts in Life Cycle Assessment

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Propositions

Accompanying the PhD thesis

Contributions to Contribution Analysis

Structuring and extension of approaches to understanding contributions to impacts in
Life Cycle Assessment

1. Making use of different Contribution Analysis approaches in Life Cycle Assessment contributes to a greater understanding of impacts (Chapter 2).
2. Correct reporting of the Contribution Analysis approach and results contributes to a more reproducible body of Life Cycle Assessment Literature (Chapter 2).
3. Understanding both the direct and indirect contributions of groups of processes can be beneficial to understanding the importance of those processes (Chapter 3 & 6).
4. Environmental impacts of cobalt production depend strongly on the electricity used during production and demand for copper, nickel and cobalt, through reducing ore grade (Chapter 4).
5. Improved methods for concrete recycling can contribute to reduced demand for conventional sand and gravel with similar climate change and water use impacts (Chapter 5).
6. Both direct and indirect contributions provide complementary perspectives through which contributions in Life Cycle Assessment should be assessed (Reinhard et al. 2016).
7. Life Cycle Assessment studies should report the methodological choices and results can lead to ill-informed decisions and reduces their scientific credibility (Kamali et al., 2026).
8. Interpreting Life Cycle Assessment results is complex, doing so for prospective studies is even harder due to additional complicated models, Contribution Analysis can help practitioners to better understand what contributes to impacts and impact changes (Paris et al. 2026).
9. Large scale changes to production of materials and energy are still needed to resolve sustainability problems, Prospective LCA is essential to provide direction to these changes (Harpprecht et al. 2024)

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