LIFE CYCLE ASSESSMENT - ENVIRONMENTAL ASSESSMENT OF PRODUCTS

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The lecture deals with the connection between human activities and the environment through the perspective of social-ecological systems. The context of the Anthropocene and anthropogenic environmental crisis is presented and the most prominent tools for environmental impact quantification and management are introduced, with particular focus on Life Cycle Assessment The lecture consists of following main points:

1. Introduction to systems theory and the social-ecological system framework
2. Anthropogenic impacts on the environment, Anthropocene, and the Planetary boundaries
3. Life cycle thinking. Problem of environmental impact assessment of processes and human activities.
4. Life Cycle Assessment concept.
    a. Goal and scope definition. Functional unit. Reference flow. System oundary.
    b. Inventory analysis. Process. Unit process. Reference flow. Elementary flow. Energy. Allocation. Data quality.
    c. Impact assessment. Classification. Characterization. Normalization. Calculation of impact potentials. Impact category indicator. Equivalency factors.
    d. LC Interpretation. Improvement assessment. Presentation. Critical review. Sensitivity analysis. PC software.
5. Other impact assessment methodologies and sustainability assessment