

Analysing the Applicability of a Participatory Approach to Life Cycle Sustainability Assessment: Case Study of a Housing Estate Regeneration in London

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Abstract : Decision-making on regeneration of housing estates, whether to refurbish or re-build, has been mostly triggered by economic factors. To enable sustainable growth, it is vital that environmental and social impacts of different scenarios are also taken into account. The methodology used to include all the three sustainable development pillars is called Life Cycle Sustainability Assessment (LCSA), which comprises of Life Cycle Assessment (LCA) for the assessment of environmental impacts of buildings. Current practice of LCA is regularly conducted post design stage and by sustainability experts. Not only is undertaking an LCA at this stage less effective, but issues such as the limited scope for the definition and assessment of environmental impacts, the implication of changes in the system boundary and the alteration of each of the variable metrics, employment of different Life Cycle Impact Assessment Methods and use of various inventory data for Life Cycle Inventory Analysis can result in considerably contrasting results. Given the niche nature and scarce specialist domain of LCA of buildings, the majority of the stakeholders do not contribute to the generation or interpretation of the impact assessment, and the results can be generated and interpreted subjectively due to the mentioned uncertainties. For an effective and democratic assessment of environmental impacts, different stakeholders, and in particular the community and design team should collaborate in the process of data collection, assessment and analysis. This paper examines and evaluates a participatory approach to LCSA through the analysis of a case study of a housing estate in South West London. The study has been conducted throughout tier-based collaborative methods to collect and share data through surveys and co-design workshops with the community members and the design team as the main stakeholders. The assessment of lifecycle impacts is conducted throughout the process and has influenced the decision-making on the design of the Community Plan. The evaluation concludes better assessment transparency and outcome, alongside other socio-economic benefits of identifying and engaging the most contributive stakeholders in the process of conducting LCSA.

Keywords : life cycle assessment, participatory LCA, life cycle sustainability assessment, participatory processes, decision-making, housing estate regeneration

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