

## **Status of Environmental Life Cycle Assessment (LCA): Case study of South Korea**

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**Abstract**

The Life Cycle Assessment (LCA) as an environmental impact assessment tool has received increasing attention over the years. Unlike the water footprint (WF) and carbon footprint (CF) assessments whose focus is only on a single environmental aspect, the LCA systematically analyzes the different impacts along the entire life cycle, making possible the identification of potential environmental tradeoffs. In Korea, LCA has drawn much attention from both industry and academia since the mid-90s. However, the level of Korea-related LCA studies with respect to different sectors in the past 20 years has not been analyzed. This study, therefore, sought to assess the status of environmental Life Cycle Assessment (LCA) studies in Korea, with a view to understanding the current level of sustainability reporting and identify potential research gaps. Online searches of English written articles published between 2000 and 2019 were conducted on Google, Google scholar, Scopus, and Web of Science databases using the Keywords “life cycle assessment”, “lca”, and “Korea.” At the end of the search, about 88 LCA related studies were identified for Korea within the study period. Majority of these studies focused on the construction (49%) and energy (31%) sectors with fewer environmental studies on the transportation (9%), manufacturing (8%), agriculture (2%), and information and communication (1%) industries. Based on publication trend, results show that LCA studies in Korea have been on the rise in the past 20 years, even though the number of publications has not followed a constant pace. In comparison with the economic sectors of the country, reports show an inadequacy in the coverage of major industries of growing economic relevance like the tourism, health, and agriculture, suggesting a need to further increase and improve LCA related studies in these sectors.

**Keywords: Life cycle assessment; LCA; Environmental impact assessment; Sustainability reporting; South Korea**

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