

Mapping Circular Economy in Urban Contexts: A Systematic Literature Review

RESUMO

Introdução

The growth of urban waste is a global problem that threatens human health and the environment (Knickmeyer, 2020). Cities face challenges such as resource scarcity and climate change, making it vital to adapt their infrastructures to address these issues (Langergraber, 2020). In this context, the circular economy emerges as a possible solution for the sustainable development of cities. Therefore, to provide a comprehensive overview of this application, this research conducted a bibliometric review with a focus on the circular economy applied to the urban context.

Problema de Pesquisa e Objetivo

The growing generation of municipal solid waste represents a global challenge, with a projected increase of 40% in developing countries and 19% in developed countries by 2050 (Khan et al., 2022). Globally, 70% of this waste is still disposed of in landfills, while only 13.5% is recycled and recovered (Chen et al., 2020). Given this scenario, this study aims to map the literature and answer 3 questions: RQ1. How has scientific production on the circular economy in urban contexts evolved? RQ2. What are the most relevant sources and authors? RQ3. What are the main research hotspots (keywords)?

Fundamentação Teórica

Tsai et al. (2020) conducted a bibliometric review on the circular economy in municipal solid waste management, identifying critical indicators for future investigations. This study builds upon that work not only to update the findings, but also to expand the scope and the analyses performed. While the previous work focused on a quantitative approach and a more restricted analysis, this research aims to cover other urban problems that can be addressed by the circular economy, in addition to deepening the analyses.

Metodologia

The study employed a bibliometric review to analyze scientific output on the circular economy in urban contexts. Data were collected from the Web of Science Core Collection, chosen for indexing journals with impact factor and providing compatible metadata (Carvalho et al., 2013). The search string included “municipal waste management” and yielded 357 documents. The only filter applied was “type of documents”, selecting articles, reviews, and articles in press, given the robustness of peer review (Takey and Carvalho, 2016). Data were analyzed in Biblioshiny.

Análise e Discussão dos Resultados

Scientific production has grown notably since 2016, with a sharp rise after 2020, when yearly publications increased by over 60%. The leading countries are Italy, China, Poland, the UK, and Brazil. The main publication source is the Sustainability Journal, while Evina Katsou stands out as the most influential author by citations. Keyword co-occurrence highlights “circular economy” as the central term, followed by “municipal waste management.” Two thematic clusters emerge: waste management and applications such as incineration and waste-to-energy.

Considerações Finais

The study confirms the growing academic interest in the intersection of the circular economy and the urban context, with a sharp increase in scientific output in recent years. The leadership of countries such as Italy and China, and the prominent position of Brazil, reflect the political and academic initiatives of each nation in this area. The identification of thematic clusters, with municipal waste management as a central theme, provides a valuable roadmap for future investigations and for the development of more effective strategies.

Referências

Knickmeyer, D. (2020). Social factors influencing household waste separation: A literature review on good practices to improve the recycling performance of urban areas. *Journal of Cleaner Production*, 247, 118605. Tsai, F. M. et al. (2020). A bibliometric review of circular economy in the municipal solid waste management. *Journal of Cleaner Production*, 247, 124132. Langergraber, G. (2020). Implementing nature-based solutions for creating a resourceful circular city. *Environmental Science and Pollution Research*, 27(19), 23158-23169.

Palavras-Chave: Circular Economy / Urban Context / Bibliometric analysis