A Bibliometric Study on Research Trends and Top-Cited Publications in Green Building During the Last Decade

Marah Ali Ammar *
Department of Civil Engineering, Faculty of Engineering, Diponegoro University, Semarang, Indonesia

Mochamad Agung Wibowo
Department of Civil Engineering, Faculty of Engineering, Diponegoro University, Semarang, Indonesia

Ilham Nurhuda
Department of Civil Engineering, Faculty of Engineering, Diponegoro University, Semarang, Indonesia

Mochamad Arief Budihardjo
Department of Environmental Engineering, Faculty of Engineering, Diponegoro University, Semarang, Indonesia

Abstract

Research on green buildings has become a critical field for promoting environmentally responsible construction and urban development, especially with the growing global focus on sustainability and energy efficiency. Although the body of literature in this field has been expanding, a comprehensive understanding of research trends, thematic landscapes, and international research cooperation remains limited. To address this gap, this study conducted a bibliometric analysis of 17,379 keywords extracted from Scopus publications on green buildings between 2015 and 2024 using the VOSviewer software. The analysis identified six major thematic clusters: environmental quality and indoor climate, architectural design and planning policies, building materials and technological development, energy systems and renewables, computational and digital techniques, and sustainability and carbon control. Co-authorship analysis revealed major research contributions and collaborations from the United States, China, the United Kingdom, Australia, and Germany, along with emerging contributions from India, Malaysia, Brazil, and Saudi Arabia. The examination of the most cited works highlighted the synergistic interplay of advanced materials (e.g., smart photovoltaic windows), digital tools (e.g., Green BIM Triangle), and organizational frameworks (e.g., integration of GHRM and GSCM) as key drivers of sustainable construction. The results illustrate the multidisciplinary development of green building studies and suggest several future directions.

Keywords

Green Building, Sustainable Construction, Bibliometric Analysis, VOSviewer.