

Insights into SDG 6.6; Protecting and restoring water-related ecosystems through a bibliometric analysis

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The United Nations' Sustainable Development Goals (SDGs) were established to achieve several key challenges by 2030. SDG-6, "Clean Water and Sanitation" emphasizes the protection and restoration of water-related ecosystems under SDG-6.6. Exploring the research underpinning SDG- 6.6 is crucial for identifying research gaps and guiding future directions. This study aimed to find this gap through a bibliometric analysis with 'Biblioshiny' package in R. A total of 1181 articles (2015-June 2024) were retrieved from the Web of Science database using the search query: ALL = (((“aquatic” AND “ecosystem”) AND (“protect” OR “restore”)) NOT “seawater”). There was a predominant focus on freshwater ecosystems of lakes, rivers, wetlands, and aquifers, where China and United States emerged as top contributors. In line with SDG-6.6, "Management," "Biodiversity," "Water," and "Rivers" were the key research areas. The highest number of studies focused on lakes (24.38%) followed by rivers (22.26%), mountains and forests (13.29%), and wetlands (7.70%). Among them, rivers (187 articles) and lakes (176 articles) had the highest number of protection-focused studies. Chinese researchers published the highest number of publications (291), of which 73.85% were authored solely by them, while 27.15% were multi-country collaborations. Out of 1181 papers, 57% and 32 % addressed protection and restoration respectively highlighting a significant gap in freshwater ecosystems protection and emphasizing the need for a more balanced approach for their health and resilience. The study advocates prioritizing restoration research alongside protection strategies through global collaboration, interdisciplinary efforts, and increased investment to address these research gaps in freshwater ecosystems and achieve SDG-6.6.

Keywords: Bibliometric analysis, protection, freshwater ecosystems, restoration, SDGs

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