


## CHAPTER 5


## Achieving Sustainability Through Clean Water and Sanitation: A Review

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### Abstract

In 2015, UN Member States adopted the 2030 Agenda for Sustainable Development, including Sustainable Development Goal 6 (SDG 6): “Ensure availability and sustainable management of water and sanitation for all. The attainment of water and sanitation targets is difficult due to administrative, operational, political, trans-border, technical, and policy challenges. The paper conducts a systematic review of the literature with step-by-step procedure using the Web of Science database and extracting 273 documents for the study and thematic clusters are formed based on bibliographic coupling using VOS-Viewer software to consolidate the outcomes of scientific papers on Sustainable Development Goal 6 (SDG 6) established by the United Nations General Assembly in 2015. The outcome suggests that globally, the attainment of water and sanitation goals is dependent on economic development, the development of revolutionary measures for wastewater treatment, and the creation of awareness related to water usage, water recycling, water harvesting, hygiene, and sanitation. Behavioural changes are also required for a new water culture and the attainment of water and sanitation goals by 2030.

**Keywords:** Sustainable development goals; clean water; Sanitation; Systematic review; Water recycling.

### Introduction

Sustainable Development Goal (SDG) 6 of the United Nations, adopted in 2015, aims at equitable access to safe and affordable drinking water for all by 2030. According to Sustainable Development Report 2022, from 2015 to 2019 the world progressed on the SDG Index at an average rate of 0.5 points a year (Sachs et al., 2022). On the SDG index 2022, India ranks 121 with a score of 60.3 worldwide. The attainment of sustainable development in water and sanitation, i.e. Sustainable

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development of an algal projection model soon which could be applied to any lake on the earth and could check the level of water contamination.

*Cluster 9: Role of Citizen Science in monitoring water quality*

The study tested the use of field equipment by citizen scientists for SDG Indicator 6.3.2: “Proportion of bodies of water with good ambient water quality”. Data generated by 26 citizen scientists were compared with the results produced by an accredited laboratory. The result suggests the possible contribution of citizen science toward monitoring ambient water quality for Sustainable Development Goals (Quinlivan et al., 2020). (San Llorente Capdevila et al., 2020) identified three sets of factors for successful citizen science projects in water quality monitoring that will enable a systematic analysis and design of citizen science projects in the future. (Fraisl et al., 2020) demonstrate that citizen science is presently contributing to the monitoring of 5 SDG indicators, and in the future, it could contribute to 76 indicators, which, together, equates to around 33%.

### **Conclusion**

The study synthesizes the outcome of research articles on SDG 6 related to environmental sustainability through a thematic cluster analysis approach. Achieving the SDGs is fundamentally an investment agenda in physical infrastructure (including renewable energy) and human capital. Efforts to further increase national-level capacity for SDG 6 monitoring by developing technical and institutional capacity and infrastructure are urgently needed. In 2021, the progress update on SDG 6 highlights future actions driven by five accelerators i.e. optimized financing, improved data and information, capacity development, innovation, and governance. Improving farming systems will help reduce the water demand and alleviate the pressure on ecosystems. Sustainable, integrated water resources management is vital for long-term social, economic, and environmental well-being. Transboundary water cooperation plays a crucial role in supporting wider regional integration, peace, and sustainable development. Participation of users and communities helps ensure sustainable solutions for all aspects of SDG 6.

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