

## Biochar-based water treatment- a Sustainable Technology for Clean Water in Developing Countries

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The 17 Goals were adopted by all UN Member States in 2015, as part of the 2030 Agenda for Sustainable Development which set out a 15-year plan to achieve the Goals. Action is needed on a number of fronts, including harnessing and maximizing the potential of technological innovation. Such technologies include carbon capture and storage systems, more efficient irrigation methods, essential medicines, household water purification devices, and manufacturing processes that minimize waste and pollution. There are similarities between the Vedas and SDGs. In the ancient scriptures, Earth is treated as a mother and the well-being of Mother Earth is critical for Environment and Life preservation. Similarities are expected from the SDGs by considering the biodiversity importance and ecological balance. SDG 14 outlines the need for conservation and sustainable use of oceans and rivers to maintain marine biodiversity while SDG 15 addresses conservation of forests, protection of animals, land biodiversity and goal to prevent degradation and desertification. In other words, the 17 UN SDGs and

Ancient Indian scriptures are propagating the same sustainability principles. In Vedas, especially in Atharv Veda, references to water quality are available. A water treatment method was also suggested to improve the drinking water quality as explained in the following shloks:

अज्जनमुस्तोशीरैः शराजकोशातकामलकचूणैः ।

कतकफलसमायुक्तैर्योगः कूपे प्रदातव्यः ॥ Vr.S.54.121 ॥

कलुषं कटुकं लवणं विरसं सलिलं यदि वाशुभगन्धि भवेत् ।

तदनेन भवत्यमलं सुरसं सुसुगन्धि गणैरपरैश्च युतम् ॥ Vr.S.54.122 ॥

Similarities between the Vedas and SDGs will be discussed. How the sustainability was executed in the ancient times and how this got diluted over time will be overviewed. Some sustainable water treatment technologies developed by our group will also be discussed to revive our ancient practices to achieve the UN sustainable goals.



**Dr. Mohan** obtained his PhD in Chemistry from the Indian Institute of Technology, Roorkee, India. He has served as a visiting scholar at the University of Southern Queensland, Australia, Institute of Fundamental Studies, Kandy, Sri Lanka, Kangwon National University, Korea, Universidad Autónoma San Luis, México and Indian Institute of Technology (Indian School of Mines), Dhanbad, India. His research interests involve wastewater monitoring, assessment, modeling and remediation, climate change mitigation, biorefining and carbon cycling, development of low cost adsorbents, including biochar, and their applications in water and soil remediation. Dr. Mohan has over 150 publications to his name, with over 36,000 citations and a h-index of 71. He is currently serving as a Professor in the School of Environmental Sciences at Jawaharlal Nehru University, New Delhi and also as an adjunct professor at Department of Chemistry, Mississippi State University, USA.