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Sustainable solution for lake water purification in rural and urban areas

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Abstract

Even though water is abundantly available, the quantity of water available for direct use is very limited. At the another side, the quality of available water is also deteriorating because daily activities of human increase the load of pollutants which deteriorated the quality of surface as well as ground water also. Ultimately results in the reduction of usable quantity and quality of water. Moreover, water bodies such as lake is used for storage of water but in India, people dump their wastes in lakes which results into eutrophication of lake. Research was conducted on the lake water of Ambapur (unlined-rural) and Bopal (lined-urban) where water is available in large quantities but at the same time it is not useful for domestic purpose. Which lead to an adverse impact on biotic and abiotic environment of the surrounding area of particular place. Various tests (physical, chemical and biological) were performed to determine the extent of the pollutants and the viable ways to reduce this pollution were explored. Emphasis were made to inculcate more of the locally available materials which would result in a sustainable as well as cost-effective solution. Thus, in this research several experiments were conducted for the treatment of lake water with the usage of vetiver grass, conventional sand, rice husk, coconut fibers, activated carbon, oysters and moringa seeds. These layers will remove most of the

impurities and pollutants form the contaminated lake water and tests were again performed to check whether the water is useful for domestic purpose or not? The results shows that this treatment methods can remove most of the pollutants and also the treatment is very economical as this method uses locally available materials.

Keywords

Pollutants; Waste water; Lake; Economical treatment; Sustainable development