

Sources, pathways and treatment of contaminants in surface water: Applicability in developing countries

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This report presents the contamination degree, occurrence, distribution characteristics in the surface water and sediments from Dhaka Rivers (Buriganga and Shitalakshya River) and the Bay of Bengal coast of Bangladesh. A model water treatment method is developing using Baburail Canal Water linked with Shitalakshya River, a World Bank supported project, under Narayanganj City Corporation, Bangladesh. By evaluating hypoxic to anoxic low dissolve oxygen (DO) (below the 0.85 mg/L critical level) associated with very high concentrations of biological oxygen demands (BOD) (5-10 mg/L) and toxic metals (Cr, As, Pb, Cd etc.) in surface water, a model treatment process is developing by using micro bubbling system for increasing the DO level, Neem leaves and bamboo powder are for heavy metals removal process and finally TiO₂ (P25)/ Fe⁺⁺⁺ method is for the degradation and coagulation of organic content in treated water. The model method of this study should be applied to future water treatment focused on the potential to improve water quality in urban and surrounding areas in developing countries.

Keywords: Surface Water, Bay of Bengal, Dissolve Oxygen, Micro Bubbling System