Title:	Water criteria evaluation for drinking and irrigation purposes: a case study in one of the largest rivers of Sundarbans World Heritage region
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Published Journal Name:	Water Supply
Type of Publication:	Journal
Volume:	22 Issue 06
Publisher:	IWA Publishing
Publication Date:	1st June, 2022
ISSN:	1606-9749
DOI:	https://doi.org/10.2166/ws.2022.198
URL:	https://iwaponline.com/ws/article/22/6/5800/88707/Water-criteria-evaluation-for-drinking-and
Other Related Info.:	Pages 5800-5817

Abstract:

Pasur river is one of the largest rivers in the World Heritage Sundarbans mangrove forest region of the southwestern part of Bangladesh. Due to lack of alternative sources, more than 1 million inhabitants living in the Pasur river basin area rely heavily on the river water for domestic, irrigation, and industrial purposes without proper and reliable information on the water qualities and contamination types. The study aimed at evaluating the suitability and sustainability for irrigation and consumption practices, and suitable hydrogeochemical techniques and quality of Pasur river water of Sundarbon region of Bangladesh were investigated. Water samples were collected from six locations during pre-monsoon and post-monsoon seasons and assessed for suitability for drinking and irrigation application. The water quality index (WQI) was calculated to evaluate the suitability for drinking. WQI indicates that the river water samples during both the seasons are safe for drinking in the good category. Sodium percentage (Na%), sodium adsorption ratio (SAR), magnesium hazard (MH), residual sodium carbonate (RSC) were investigated to assess the feasibility for agricultural applications. Most of the indices, such as SAR, Na%, and RSC results recommend that the river water is safe for irrigation. A suggestion is made that MH in river water should be controlled for the use of water in irrigation. United States Salinity Laboratory (USSL) diagram and Wilcox diagram analysis also identified that river water as a usable category for irrigation purposes is feasible during both seasons.