Study of water quality improvements at a riverbank filtration site along the upper course of the River Ganga, India

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Received 3 June 2013; Accepted 27 February 2014

\textbf{ABSTRACT}

Along the upper course of the River Ganga, at Haridwar (India), production wells (PWs) (each of 10 m diameter), located at a distance of 4–250 m from the bank of either river or canal, are being used to abstract mixture of groundwater and river/canal water after passage through the soil. Water samples from river/canal and 16 PWs were analyzed in monsoon and non-monsoon periods from 2005 to 2006. A comparison of water quality clearly differentiates PW water from the surface water. TDS, conductivity, alkalinity, and hardness were found to be more in water from the PWs. During monsoon, surface water exhibited increased turbidity by 100–150 times, bacterial count by around 10 times, and conductivity by around 1.2 times compared to non-monsoon samples. The bacteriological quality of the bank filtrate was not found to vary significantly. The conductivity, however, was reduced by 20% in non-monsoon period. In monsoon months, riverbank filtration resulted in reduction of turbidity and total coliform by 2.9 and 2.6 logs, respectively. Removal of turbidity and coliform in non-monsoon was more than 0.4 and 4.2 logs, respectively. UV absorbance measured in non-monsoon period was found to be reduced by 0.4 log.

\textit{Keywords:} Water supply; River bank filtration; Groundwater/surface water interaction; Production wells; India

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