

Assessing risk of shallow tubewell water for drinking related to point sources of pollution in rural Bangladesh

Nepal C Dey^{1,2,3}, Mahmood Parvez¹ and Ratnajit Saha¹

¹BRAC, Bangladesh

²Noakhali Science and Technology University, Bangladesh

³Social Development Foundation, Bangladesh

Although a remarkable portion of population has gained access to improved drinking water sources in the last two decades, sustainable and safe water use for drinking purpose is becoming a major challenge related to sources of pollution including waste dumping points. Sanitary inspection of tubewells recommended by the World Health Organization (WHO) assesses the presence or absence of observable remedial sanitary hazards, which in turns provides the potential risk of microbial contamination of inspected tubewells. A total of 26,229 tubewells from 40 selected upazilas covering four hydrological regions of Bangladesh were inspected to determine the risk of selected shallow tubewells (depth<30 m) used for drinking purpose. A significant proportion of sampled shallow tubewells had a latrine or a pollution source within 10 m of tubewell, and/or cracked/damaged platform which may enhance the possibility of microbiological contamination of tubewell water. Over two-thirds of the inspected tubewells was at medium to high risk according to the WHO's sanitary inspection guidelines, having critical issues regarding placement, design, construction and maintenance of tubewells, all of which may facilitate the contamination of part of the aquifer from which the tubewell draws water. Furthermore, only 4% of households reportedly purify water before drinking, which increases the risk of waterborne diseases among rural population. As achieving the safety of water services through reduction of contamination is the key to improve the household environment followed by public health, proper guidelines for the installation of tubewells considering sanitary inspection should be followed. Proper distance between tubewell and potential sources of pollution including latrines, waste dumping points, contaminated ditches/ponds, etc., must be followed strictly along with soil texture and direction of groundwater flow. It is essential, water should be treated before drinking.

nepal_dey@yahoo.com