

1 **Title:** A pilot study on drinking water contamination from peri-urban Bangalore - India

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21 **Abstract:**

22 The presence of diarrhoeagenic bacteria such as *E. coli* in drinking water indicates fecal and sewage
23 contamination. Testing the microbial quality of drinking water at source (n= 29) and households (n=43)
24 of 29 peri-urban villages of Bangalore city, indicated that 80% and 93% of samples respectively were
25 unfit for human consumption per WHO standards, i.e., nil *E.coli* in 100 mL sample. This also indicated
26 that water gets further contaminated at the point-of-use as compared to the source. 41% of the source
27 drinking water samples had high *E. coli* counts which in turn means that the residing population would
28 be facing moderate to high risk of diarrhoea. A longitudinal study of the microbial quality of drinking
29 water at source of supply (n=45) was undertaken five times over an eight month period in a sub-set of
30 eight villages. Only around 18% of the total samples were microbially safe with nil *E. coli*/ 100 mL.
31 Microbial contamination was found to be lower in the months of January and March (<30 CFU/ 100
32 mL *E. coli*) when compared to December, May and September (>150 CFU/ 100 mL). Samples from
33 Chikkakuntanahalli and Kodiyalakeranahalli had ≥ 1000 CFU/ 100 mL *E. coli*. Total dissolved solids,
34 calcium, magnesium, alkalinity and hardness in source drinking water of the eight selected villages
35 were beyond acceptable levels. The nitrate levels were consistently high and beyond WHO permissible
36 levels. Alarming levels of microbial and chemical contamination of drinking water from the sites press
37 for appropriate remedial measures to reduce health threats, particularly among the vulnerable
38 population.

39 **Keywords:**

40 Water quality; Peri-urban Bangalore; Vrishabhavathi - Byramangala reservoir; Microbial
41 contamination