

## Trace Element Analysis in Ground-Water of Bhopal

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The aim of the present study is to assess the trace elements in ground water in year 1993–94 by atomic absorption spectrophotometer. Cu and Zn trace elements ranged from 0.010–0.480 and 0.066–1.850 ppm at different sampling stations of Bhopal City.

Bhopal, the capital of Madhya Pradesh, India is known the City of Lakes, situated on 23°16'N latitude and 77°25' E longitude. The methods in the present study are used as prescribed by APHA<sup>1</sup> and NEERI<sup>2</sup>. Nine sampling stations were chosen for analysis. Copper is essential component of key metalloenzyme. Zinc toxicity is due to galvanized pipes and percolation of wastes from industrial sewage. Zinc deficiency is associated with impaired growth and failure of sexual maturation. Acceptable limits of heavy metals are Cu = 0.05 and Zn = 5.0 mg/L. The heavy metals copper and zinc cause toxicity in drinking water. Concentration of copper is due to the sewage nallah and other domestic sewage percolating into ground-water. Kataria<sup>3</sup> noted Cu and Zn range of 0.00–1.32 and nil to 2.2 ppm respectively in ground water and Cu 10–30 and Zn 20–32 mg/L in lower lake water of Bhopal. (Table-1).

TABLE-1  
ANALYSIS OF HEAVY METAL IN BORE-WELL WATER OF BHOPAL

Sampling stations	Copper			Zinc		
	w	s	m	w	s	m
1.	0.025	0.030	0.011	0.190	1.600	0.210
2.	0.094	0.102	0.140	0.082	0.085	0.066
3.	0.011	0.012	0.110	0.315	0.364	0.298
4.	0.012	0.017	0.120	1.040	0.065	0.830
5.	0.310	0.480	1.160	0.025	0.054	0.075
6.	0.150	0.265	0.200	0.710	0.900	1.850
7.	0.033	0.036	0.030	0.440	0.460	0.458
8.	0.050	0.013	0.010	0.112	0.116	0.106
9.	0.220	0.230	0.140	0.170	0.200	0.180

w—winter, s—summer, m—monsoon, Cu = Minimum 0.010 – Maximum 0.480 ppm;  
Zn = 0.066–1.850 ppm.

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### REFERENCES

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2. NEERI, Manual on Water and Waste Water Analysis, National Environ. Engg. Res. Instt., Nagpur, p. 340 (1985).
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