



Letter to the Editor

Chemical Quality, Availability and Accessibility of Drinking Water at Some Rural Primary Schools in Singur, Hooghly.

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Madam,

Water plays an important role in maintaining child's overall health¹. Since children spend a large portion of their day at school, reliable and adequate amount of safe drinking water must be supplied in the schools. If drinking water supply services of schools were up to the standard then much could be achieved in terms of improved health and reduced child mortality and morbidity.

A study was conducted at 22 Rural Primary Schools in Singur, Hooghly to assess the availability and accessibility and chemical quality of drinking water in the schools. Chemical quality was assessed by analysing chemical parameters like pH, EC, Total Hardness, Total Alkalinity, Iron, Turbidity, Total Chloride, Total Dissolved Solid and comparing these values with the standard values of BIS Standards². A total of 23 samples of drinking water were collected from the 22 Primary schools from November 2014 to September 2016. Ground water was the main source of drinking water of these schools. The water samples were analysed at Sanitary Engineering Department of All India Institute of Hygiene & Public Health, Kolkata by adopting Standard procedure of APHA (1998)³. During water

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collection, the physical condition and location of the drinking water source of the schools were observed and The Headmasters or Headmistresses of the schools were interviewed. The questionnaire sought information on the demographics of the school, reliability and efficiency of the drinking water supply sources and the physical condition of the sources.

Analytical data revealed that pH, EC, Hardness, Alkalinity, Total Chloride, Total Dissolved Solid Value of all the samples were within the Permissible Limit of BIS 105000 Standard. Among 22 schools, in 8 Primary Schools the value of Iron exceeded the permissible limit of BIS Standard. In case of turbidity in 9 Primary Schools the value crossed permissible limit.

The questionnaire revealed that out of 22 Primary Schools 18 schools used hand pumps as drinking water source and remaining four schools used submersible pumps for drawing the ground water and utilised the ground water for drinking purpose via Tap. In these four schools a direct pipe line was attached from submersible pump to tap, which was the main drinking water source of these four schools. In these schools polyethylene water tank used for reserved ground water and the water tanks were washed in every two months.

The location and physical condition of the drinking water source of each school were observed during water collection. Except one (sharing a single hand pump with the surrounding community which was present within 20 meter of the school), in all schools the drinking water source was inside the school premises. Physical condition of the hand pump of each school was observed to be in good condition. Hand pumps were running and the platform of the hand pumps were well built and clean. The physical condition of the tap providing tap water in four primary schools was also good.

The questionnaire and observational data of the survey revealed that in each school, drinking water was easily accessible and available from reliable and efficient sources for the school students. So, students can easily avail adequate drinking water during school hours which is an urgent need for them for their productivity and growth.

Table 1: Chemical parameters of drinking water of the schools as per BIS Standards.

Parameter	Range	Number of School	Permissible limit of BIS Standard.	No of School with in permissible limit	No of School exceed permissible Limit
Total Iron (mg/l)	Below detection limit to 0.5	07	1 (mg/l)	14	08
	0.51 to 1	07			
	1.1 to 6	08			
Turbidity (NTU)	0 to 5	08	10 (NTU)	13	09
	5.1 to 10	05			
	Above 10	09			
pH	Below 6.5	00	6.5-8.5	22	00
	6.5-8.5	22			
	Above 8.5	00			
EC(μ s/cm)	0-500	00	No permissible limit set by BIS for EC.	–	–
	501-1000	22			
	Above 1000	00			
Total Hardness (mg/l)	0-300	06	600((mg/l)	22	00
	301-600	16			
	Above 600	00			
Total Alkalinity (mg/l)	0-300	07	600((mg/l)	22	00
	301-600	15			
	Above 600	00			
Total Chloride (mg/l)	0 to 250	22	1000((mg/l)	22	00
	251 - 1000	00			
	Above 1000	00			
Total Dissolved Solid (mg/l)	0-500	22	2000((mg/l)	22	00
	501-2000	00			
	Above 2000	00			

From the results of chemical analysis, the drinking Water Quality of these schools with respect to the studied parameters (pH, EC, Total Hardness, Total Alkalinity, Iron, Turbidity, Total Chloride, Total Dissolved Solids) can be regarded as good as most of the values are within the permissible limit of BIS standard. However studies with reference to the other

chemical and microbiological analysis need to be done to have a broad view of this water quality. Local government should take appropriate steps to analyse the drinking water quality of the schools at least once in a year. In those schools where turbidity and Iron value exceed the permissible limit school authority may use water filter to provide less turbid and iron free water to the school goers.

Survey revealed that, in most of the studied schools, the drinking water source was present within the school premises and physical condition of the water sources was reliable and efficient. Students of these schools have easy access to adequate and chemically safe drinking water during school hours which ensure their good health and productivity.

Reference:

- 1) Increasing Access to Safe Drinking Water in Schools and Communities Policy Statement Approved by AdCC June 2015. Available from https://www.heart.org/idc/groups/heart-public/@wcm/@adv/.../ucm_475974.pdf accessed on 20/09/2016.
- 2) BIS. (1992), Drinking Water Specification (First Revision) First reprint Bureau of Indian standards.
- 3) APHA, 1998. Standard Methods for the Examination of water and Waste water. 20th Edition; American Public Health Association, Washington, DC; USA.