



An Analytical Study Of The Arsenic Hazard Occuring At Dahapara Village Of Murshidabad District, West Bengal

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Abstract:

In West Bengal during 1980-2001, the arsenic problem spreaded out in 2005 villages of 75 blocks in 8 districts near about 10% population. The problem of the ground water pollution by arsenic is found in the inter fluvial region of Murshidabad and Hooghly district. The source of arsenic in ground water is tested out by establishing the relation between the river system and the area from where the river carried sediments. In this regard Urological Survey of India and Central Ground Water Board have studied and came out with a number of findings. Extensive study about the condition of reservoir, mode of recharge-discharge and their relationship, ground water movement, process of oxidation, potentiality of ground water is necessary to find out the cause of such arsenic concentration in ground water.

According to WHO, the permissible limit of arsenic till 1993 was 0.05 mg. /L of drinking water. In 1993, WHO modified the maximum level and brought it down to 0.01 mg./L. According to the report of School of Environment Studies of Jadavpur University (1992-1993), West Bengal has 6 districts, affected by arsenic contamination of ground water. The present paper attempts to find out the vulnerability and impact of arsenic on human being. A detailed survey was conducted at Dahapara village of Murshidabad district to assess the present condition of the area giving emphasis on the identification of sources of arsenic pollution.

INTRODUCTION

Since the early years of last century ground water has been considered as a major source of safe drinking water throughout the world. But recent research shows that there are several problems regarding the extraction of fresh consumable ground water. Ground water problem has spreaded far and wide in West Bengal. Arsenic contamination of ground water is a natural occurring.

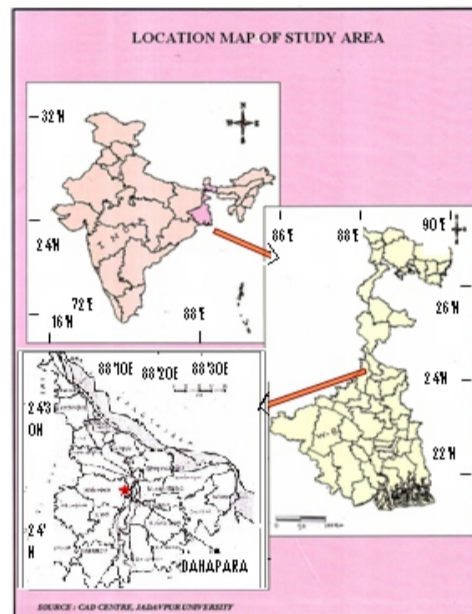
High concentration of arsenic in deeper levels of ground water became a high profile problem in recent years due to the use of deep tube wells for water supply in the Ganges Delta, causing serious arsenic poisoning to a large number of people. Arsenic is a carcinogen which causes many types of cancer including skin, lung, bladder and cardiovascular. Research shows that even at lower concentration there is a risk of arsenic contamination leading to a major cause of death. Preliminary study shows a relationship between arsenic exposures measured in urine and type II diabetes. The result supports the hypothesis that low level of exposures to inorganic arsenic in drinking water may play a role in diabetes prevalence. Today arsenic is a major cause of concern for the villagers of Dahapara because researchers of Jadavpur University have found arsenic in ground water.

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LOCATION OF THE STUDY AREA

Dahapara village, under Dahapara Gram Panchyat is a well known historical place of Murshidabad district in West Bengal. Dahapara is situated on the bank of river Ganga.



OBJECTIVES

The main objectives are-

- (1) To analyze the cause and background of the problem.
 - (2) To study its present situation and dimension.
 - (3) To analyse the social and physical effects on the people.
 - (4) To enquire among the people regarding the extent of awareness about the problem.
- To ensure proper planning and management measures.

DATASOURCE

This work is based on primary data obtained from Questionnaire survey, interview, and field visit. The study is largely based on secondary information is obtained from various books, journals, Gram Panchayet office of Dahapara and website leading with arsenic. The publication of School of Environmental Studies (SOES) of Jadavpur University and West Bengal State Pollution Board is a major source of information. A sample survey was done on a random basis. Arsenic effected places have been visited .Relevant photographs have been taken in support of the facts stated in the literature. Various maps and diagrams have been collected in order to fulfill the objective of the research.

METHODOLOGY AND DATABASE

Methodology for the present work is statistical as well as cartographic. For analyzing this data, various statistical techniques have been adopted to fulfill this objective.

Table: 1 Statement of water sample, tested in laboratory (C.P, M.I.T.)

S.L. No	J.L. No	Mouja	Arsenic	PH
1	009	Arazi Saikuli	0.022	7.33
2	009	Arazi Saikuli	0.018	7.40
3	009	Arazi Saikuli	0.018	7.90
4	009	Arazi Saikuli	0.014	7.90
5	009	Arazi Saikuli	0.009	7.48
6	009	Arazi Saikuli	0.006	7.49
7	008	Elahiganj	0.014	7.85
8	008	Elahiganj	0.022	7.65
9	008	Elahiganj	0.020	7.80
10	008	Elahiganj	0.018	7.70
11	008	Elahiganj	0.019	7.49
12	008	Elahiganj	0.020	7.56
13	008	Elahiganj	0.018	7.35
14	008	Elahiganj	0.009	7.48
15	008	Elahiganj	0.008	7.87

Source: Dahapara Gram Panchyat office

ARSENIC POISONING AND ITS IMPACT ON LOCAL PEOPLE OF DAHAPARA

Effect on Health:

- (1) Soluble inorganic arsenic is acutely toxic. Ingestion of large dose leads to gastrointestinal symptoms, disturbance of cardio-vascular and nervous system and eventually death. In survivors, bone marrow depression, haemolysis, hepatomegaly, melanosis, polyneuropathy and encephalopathy is observed.
- (2) Long term exposure to arsenic in drinking water is related to increased risk of cancer.

Impact on socio economic environment

- (1) Arsenic poisoning in rural communities of Dahapara has numerous effects and families are using a number of coping mechanisms. The absence of minimum information about the risk arsenic contamination creates inefficiencies and stress.
- (2) Access to safe water becomes difficult for social reasons. Families do not negotiate to use of water with others. Class and caste relationships such as rich-poor or landlord-tenant farmer, refrain sharing of water between families of different socioeconomic backgrounds. The use of financial incentives to enhance tubewell sharing may overcome some problems.
- (3) Villagers suffering from ailments caused by arsenic are being treated as untouchables. Men and women are facing difficulty to get married.



PROPER MANAGEMENT

Proper management is required to cope with the problem. The management measures are as follows:

1. To stop drinking arsenic contaminated water.
2. To use surface water from reserved tanks, ponds or from wells after proper disinfection.
3. Taking of high protein diet from animal source and vegetable source like pulses, soybeans, wheat and plenty of leafy vegetables and fruits having vitamins and antioxidants.
4. Systematic clinical manifestation complication is treated symptomatically at sub divisional, district, tertiary hospital.
5. Health education, community awareness, community participation and mobilization to deal with this social problem.

OTHER EFFORTS MADE BY GOVERNMENT

The Govt. of West Bengal constituted a committee to examine the arsenic contamination of ground water in different blocks of Murshidabad district. The committee recommends:

1. Change of cropping pattern requiring less ground water for irrigation.
2. Epidemiological, clinical and therapeutic studies.
3. Monitoring of ground water quality at least four times in a year.
4. Encouraging surface water scheme and rainwater harvesting.
5. Arsenic removal plant for pipe water supply scheme, developed by PHED.
6. Various surface water projects aiming to give safe water.

CONCLUSION

As per the information provided by Dahapara Gram Panchayat, there are so many people affected by arsenic. The affected people are facing some physical problems. They have symptoms like spotty pigmentation of skin, keratosis of hand and feet, weakness and anorexia. Literacy rate of Dahapara village is very poor. Here people are not well aware about the arsenic hazard. Research suggests that several awareness programmes are urgently required in this backward rural village.

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