

Status of groundwater arsenic contamination and human suffering in a Gram Panchayet (cluster of villages) in Murshidabad, one of the nine arsenic affected districts in West Bengal, India

Mohammad Mahmudur Rahman, Mrinal Kumar Sengupta, Sad Ahamed, Uttam Kumar Chowdhury, Dilip Lodh, Md. Amir Hossain, Bhaskar Das, Kshitish Chandra Saha, Imrul Kaies, Ajoy Kishore Barua and Dipankar Chakraborti

Mohammad Mahmudur Rahman, Mrinal Kumar Sengupta, Sad Ahamed, Uttam Kumar Chowdhury, Dilip Lodh, Md. Amir Hossain, Bhaskar Das and Dipankar Chakraborti (corresponding author)

School of Environmental Studies, Jadavpur University, Kolkata 700 032, India
Tel.: +91 33 2414-6233
Fax: +91 33 2414-6266
E-mail: dcsoesju@vsnl.com

Kshitish Chandra Saha

Retired Professor of Dermatology, School of Tropical Medicine, Kolkata 700 073, India

Imrul Kaies

Ajoy Kishore Barua

Dhaka Community Hospital, Dhaka 1217, Bangladesh

ABSTRACT

A detailed study was carried out in a cluster of villages known as Gram Panchayet (GP) to determine the status of groundwater arsenic contamination and its health effect on the inhabitants. Sagarpara GP covers an area of 20 km² and has a population of 24419. During our survey of this GP, all hand tubewells (n=565) in working condition were analyzed for arsenic and 86.2% of the tubewells were found to contain arsenic above 10 µg/l, 58.8% had arsenic above 50 µg/l. The groundwater samples from all 21 villages in Sagarpara GP had arsenic above 50 µg/l. In our preliminary survey, 3302 villagers had been examined from Sagarpara GP and of these 679 people (20.6%) across the 21 villages were registered with arsenical skin lesions. A total of 850 biological samples (hair, nail and urine) were analyzed from the affected villages of Sagarpara GP and on an average 85% of the samples contained arsenic above the normal level. Thus, many people of Sagarapara might be sub-clinically affected. An estimation of total population that may suffer from arsenical skin lesions and cancer in the Sagarpara GP has been calculated by comparing our data with international data. To combat the present arsenic crisis we urgently need proper watershed management and economical utilization of available surface water resources along with the villager's participation.