

HUMAN HEALTH AND ENVIRONMENT

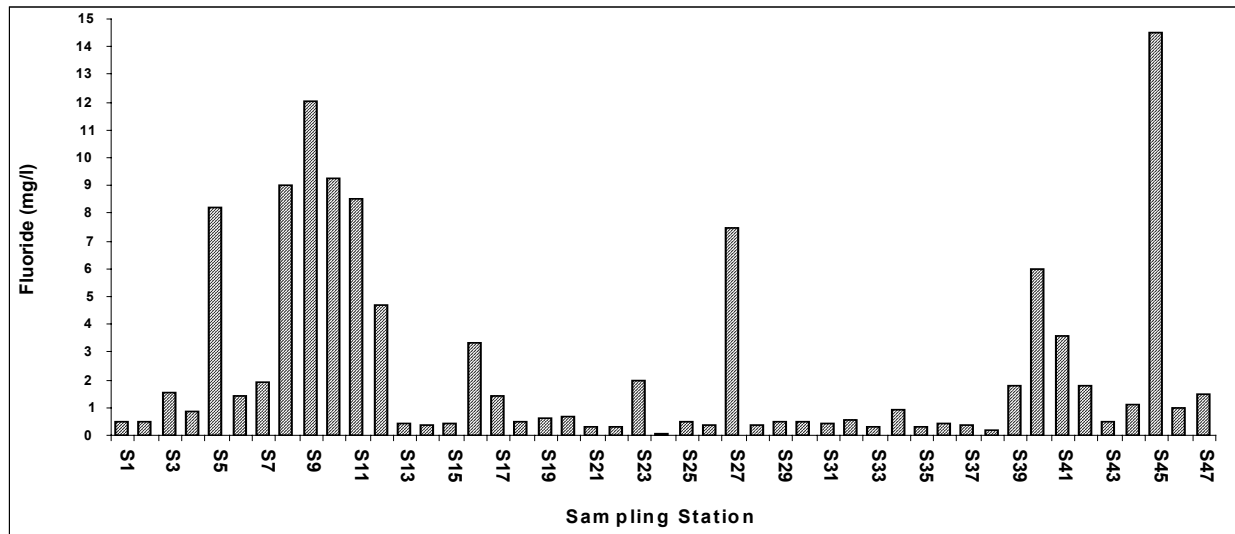
Health Impact of PAH in Kolkata

Urban populations are exposed to an array of toxic air pollutants released as combustion and pyrolysis products such as Polycyclic aromatic hydrocarbons (PAH), carbon mono-oxide, and volatile organic compounds. A study to evaluate effects of these pollutants on human health has been undertaken by CPCB Zonal office Kolkata. Traffic police having longer exposure to ambient air and chronic obstruction in pulmonary disorder (COPD) patients coming from different localities were taken into consideration to assess the level of urinary 1-hydroxypyrene. The study was further extended to assess the influence of PAH through estimation of chromosomal aberrations and micronuclei formation of these subjects. The second phase of sampling for Traffic police, COPD patients and school children's in the school situated near by roadside is in progress. The subjects for study were taken from different localities in an around Kolkata. Assessment of genotoxic changes and the urinary 1- Hydroxypyrene in these subjects indicate that people are exposed to PAHs. The level of 1-Hydroxypyrene in urine of different subjects so far analyzed showed wide variation. Genotoxicity of these exposed subject to the ambient air was studied for micronuclei and chromosomal aberrations. In both the groups there has been found an increase in the micronuclei and chromosomal aberrations when compared with unexposed individuals. The micronuclei per 1000 binucleated cells were almost 2.5 fold more in the traffic police, 3.0 fold more in the COPD patients and chromosomal aberrations were 3.0 fold more in the traffic police and COPD patients when compared with unexposed individuals. It can be interpreted from the results that there may be the probability of sister chromatid exchange in the peripheral blood lymphocytes. This nuclear abnormality is the direct indication of adverse cellular reaction.

Study of Fluoride Pollution in West Bengal

Groundwaters of several Districts in West Bengal and Orissa have been reported as fluoride contaminated. In the absence of organised water supply, tube wells are mainly used for the domestic purposes. Fluoride contamination in the groundwater is a natural phenomenon, influenced basically by the local and regional geography as well as hydro geological conditions. The main sources of fluoride in groundwater are the fluoride bearing minerals in the rocks and sediments. The weathering and leaching of rocks are expected as major governing factor. Although Fluoride is an essential element for all living beings from the health point of view because it helps the normal mineralization of bones and formation of dental enamel, but excess intake of Fluoride replaces the calcium component in teeth and bones and hinder building of calogen leading to damages of the teeth and bone.

Central Pollution Control Board carried out a study to assess the level of contamination of groundwater in the fluoride-contaminated areas of Birbhum district of West Bengal. The groundwater of nine blocks of Birbhum District, namely Nalhati I, Rampurhat I, Mohamadbazar, Khoyrasole, Rajnagar, Sianthia, Suri I and Suri II, Mayreswar and Dubrajpur were considered for monitoring. In this present study, 46 tubewells and one dug well in affected villages of four blocks, identified by PHED were selected for the monitoring.



No. of Tubewells covered in Different Development Blocks under The Study

Name of the Block	No. Of users (approximately)	No. of tube wells monitored
Rampurhat I	2000	12
Suri II	6000	16
Nalhati	9000	8
Khoyrasol	7500	11

75% tubewells in Rampurhat I Block, 46% in Khoyrasole block, 20% in Suri II block have been found contaminated with fluoride but in Nalhati 1 block no such contamination has been observed. The highest fluoride concentration of 14.48 mg/l and highest pH 8.01 has been found in Khoyrasole block. It has been observed that the groundwater below 100 ft depth was found safe and within the permissible limit whereas fluoride concentration was detected very high in the depth higher than 180 ft.

Risk Assessment of Pesticides Residues in Human with Special Reference to Adverse Reproductive Outcomes in Delhi Population

Pesticides use is widespread in agriculture and public health programme, which is a cause of environmental problems and potential health hazardous. Human beings on the top of food chain are vulnerable to health risk due to bio-magnification of ingested toxic contaminant. Organo-chlorinated pesticides (OCP) are persistent toxic contaminant having long half-life and tendency to accumulate in fatty tissues. Women having higher body fat percentage are relatively more prone to bioaccumulation of pesticides due to exposure. The hormonal changes during pregnancy, lactation and menopause, mobilizes the bio-accumulated pollutants in the body. The OCP can interfere in normal endocrine system, resulting into reproductive disorders and breast cancers. Elevated levels of DDT and DDE were reported during the period of lactation. Central Pollution Control Board is associated in a project being undertaken by UCMS & GTB Hospital and will facilitate study of pesticide residue levels in various human body fluids. The study is also being undertaken with view to provide insight about prenatal pesticide residue exposure, effect on adverse reproductive outcome and present status of pesticide pollution in Delhi.

Committee to Prevent Silicosis and Pneumoconiosis Disease due to Pollution from Quartz Industries

The news of the spreading of silicosis and pneumoconiosis amongst habitats of Alirajpur district in Madhya Pradesh, that have worked in the nearby quartz grinding units in Godhra, Gujarat was published in local news papers of MP. The MP Pollution Control Board brought the matter into the notice of Central Pollution Control Board. To examine the matter and suggest remedial measures, Central Pollution Control Board constituted a committee under the Chairmanship of Dr. H.N. Saiyed, Director, NIOH, Ahmedabad. The committee visited the quartz grinding units in Godhra area and made various recommendations both for controlling emissions and safeguarding the health of workers. The report was sent to all the concerned departments for implementation of recommendations.