



Ahmedabad
University

WORKING PAPER

WP-SEAS-21-006

A comprehensive and systematic study of Fluoride and Arsenic Contamination and its impact in India

Harshad Shah

harshad.shah@ahduni.edu.in

Disclaimer: The Research Working Paper Series is managed by the Ahmedabad University Research Board (URB) to help faculty members, research staff and doctoral students to share their pre-publication versions of academic articles, book chapters, or reviews etc. Papers posted on this site are under progress, under submission, or in press and forthcoming elsewhere. The form and content of papers are the responsibility of individual authors and not that of Ahmedabad University.

Ahmedabad University, Commerce Six Roads, Navrangpura, Ahmedabad-380009, Gujarat, INDIA
Email: workingpaper@ahduni.edu.in



**Ahmedabad
University**

WORKING PAPER

Serial: WP-SEAS-21-006

Title: A comprehensive and systematic study of Fluoride and Arsenic Contamination and its impact in India

Author/s: Shah Manan, Shah Harshad, Het Baboo, Takshil Patel, Rohan Faldu

Address: Ahmedabad University, Commerce College Six Roads, Navrangpura,
Ahmedabad 380009, Gujarat, India

Email: harshad.shah@ahduni.edu.in

Abstract (150 words): Groundwater pollution of arsenic and fluoride is a serious issue, It has gained a serious amount of consideration in the previous few years and the researchers are working towards various ways to control the pollution. They have got such great attention because of their ability, aggregation in the human body and toxicity. Fluoride and arsenic enter the drinking water resources through different sources. These contaminants are also an ill effect on the agriculture sector of the country as they pollute the soil and the crops. Human body is delicate to arsenic. Arsenic will get into the body through food that has been contaminated with arsenic. As per BIS Standards the acceptable limit of Arsenic is 0.01 mg/l (ppm) or 10 µg/L(ppb) for water. The degrees of arsenic in various parts of wheat and paddy crops were examined like root, stem, leaf and grain. Roots have highest arsenic concentration for wheat which is 4.82 mg/kg and for paddy plants which is 40.3 mg/kg. WHO allowable limit is 1.0 mg/kg. The allowable limit of water used for agricultural purposes is 0.10 mg/l given by FAO (Food and Agriculture Organization). Many technologies based on adsorption, membrane process, oxidation, ion exchange and co precipitation are developed and are used for the expulsion of arsenic from polluted water. creative innovations for the expulsion of arsenic from groundwater like phytoremediation, biological treatment, permeable reactive barriers and electro kinetic treatment, are likewise being utilized to treat arsenic polluted water. These advances might be created at full scale to treat arsenic defiled springs For the case of Fluoride it was observed that the majority of the states in India have crossed the permissible limit. Due to excess fluoride in the drinking resources lead to fluorosis which does not have a cure.

Keywords: Fluoride, Arsenic, Ground Water, Contamination