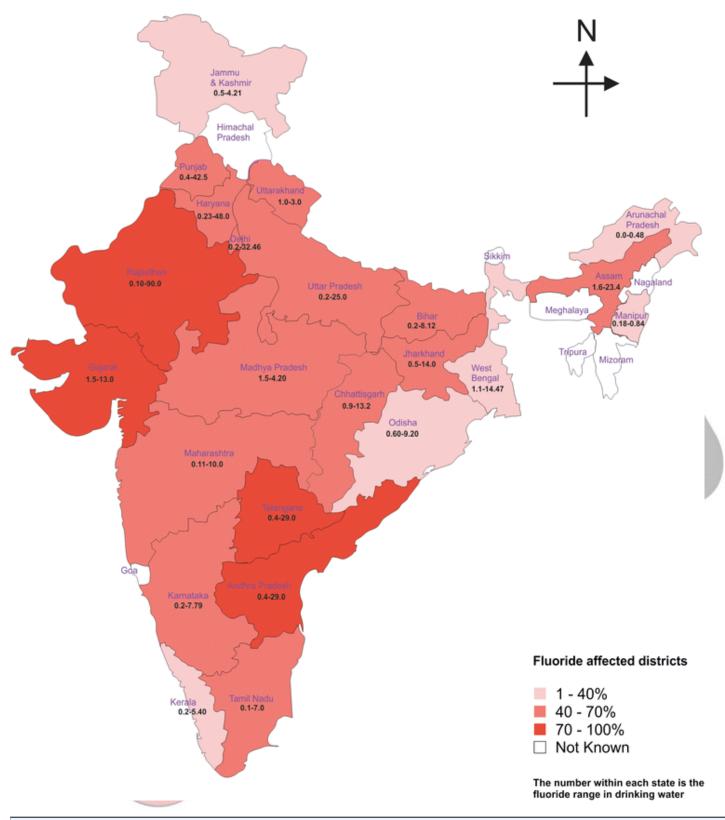


Fluoride Contamination

Source: IE

Excess Fluoride in Sonbhadra's groundwater (Uttar Pradesh), has triggered a growing public health crisis.

- **Fluoride:** It is a highly reactive element that does not occur in elemental form in nature.
 - It makes up **0.3 g/kg of the <u>Earth's crust</u>** and is found as fluoride (oxidation state -1) in minerals like fluorspar, cryolite, and fluorapatite.
- Major Uses: Widely used in aluminium production, and as fluxes in steel and glass fibre industries. They are also released during the manufacture of phosphate fertilizers, bricks, tiles, and ceramics.
 - Compounds like fluorosilicic acid, sodium hexafluorosilicate, and sodium fluoride are used in municipal water fluoridation.
- Health Impacts: Fluoride has a dual impact, it is beneficial in small amounts (prevents dental caries), but harmful in excess (causes dental fluorosis (mottling of teeth enamel, mainly in children) and skeletal fluorosis (bone/joint issues)).
 - As per the <u>Bureau of Indian Standards</u>, the safe fluoride level in water is 1 to 1.5 mg/L (milligrams per liter), levels above this are considered hazardous to health.
- Schemes for Fluoride Control in India: India launched the <u>National Programme for</u>
 <u>Prevention and Control of Fluorosis (NPPCF)</u> during the <u>11th Five Year Plan</u>. Additionally, the <u>Jal Jeevan Mission</u> aims to ensure safe drinking water.



Read more: Fluoride & Iron Removal technology of CMERI