

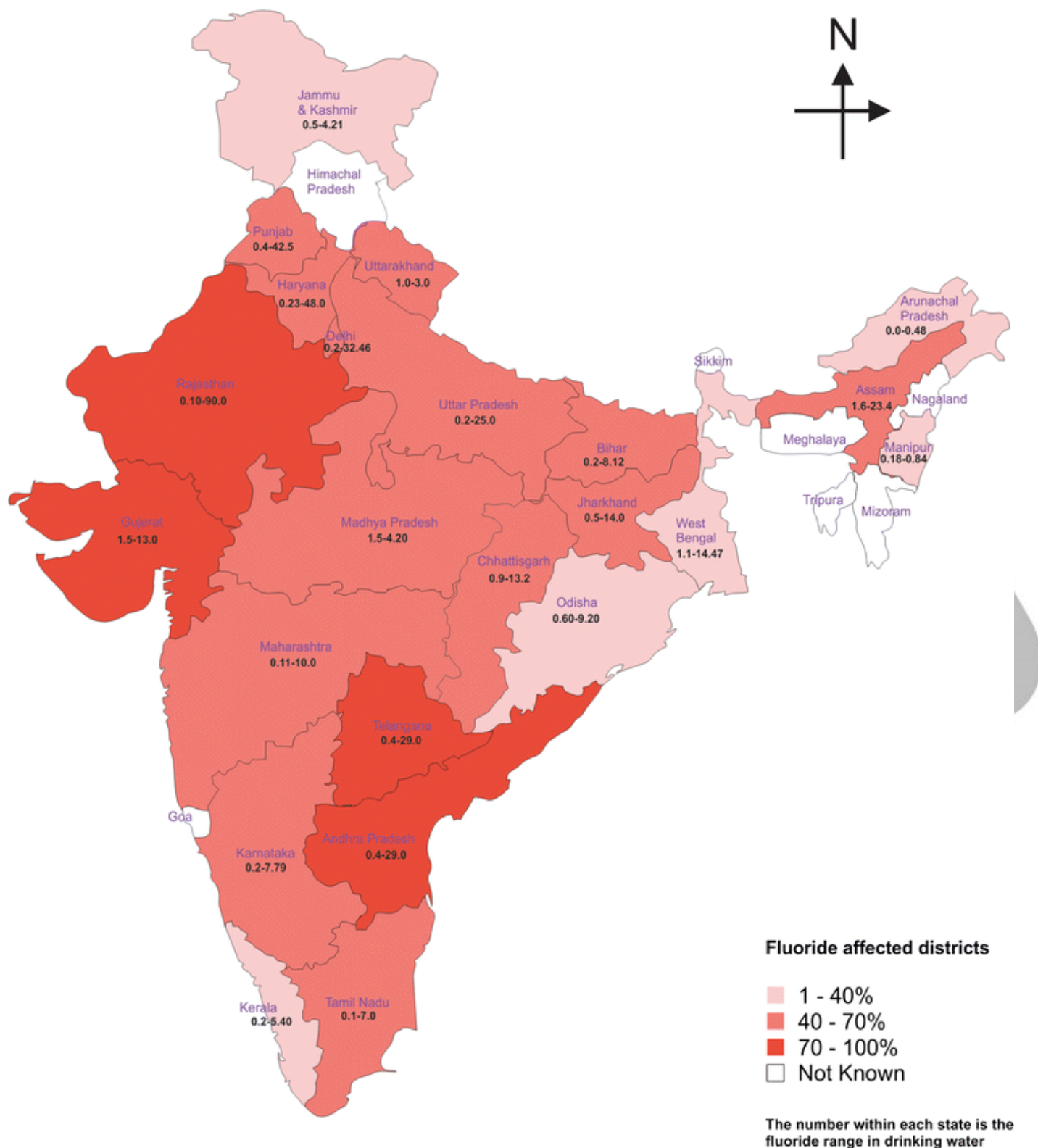


Fluoride Contamination

[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 [Earth's crust](#)** 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 [Bureau of Indian Standards](#), 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 [National Programme for Prevention and Control of Fluorosis \(NPPCF\)](#) during the 11th Five Year Plan. Additionally, the [Jal Jeevan Mission](#) aims to ensure safe drinking water.



Read more: [Fluoride & Iron Removal technology of CMERI](https://www.drishtiias.com/printpdf/fluoride-contamination)