Nitrates, fluorides in groundwater cause heavy contamination

By Pallavi Majumdar/TNN

New Delhi: There is bad news for over 50% Delhiites who rely on groundwater to satisfy their thirst. Pollutants like nitrates and fluorides are causing severe contamination.

Regular monitoring by the Central Ground Water Authority (CGWA) has shown that almost half of the city's groundwater is laced with nitrates and one-third with fluorides. Moreover, the freshwater aquifers are shrinking due to overdrawing of water. "Fresh water is limited to the active flood plain of river Yamuna and adjoining areas, Delhi ridge and Chattarpur basin", a CGWA official said.

The contaminants, concentrated mostly in West Delhi blocks, are moving towards central urban areas along specific flow pathways due to hydraulic gradient, and are polluting freshwater sources too, officials added.

According to CGWA officials the trend shows that wherever salinity is high in shallow aquifers, the fluoride content is also high.

Nitrates: Nitrates are concentrated in the western half of the city, which mostly constitutes the rural or Outer Delhi. In areas such as Qutub Minar, parts of south campus of Delhi University, Mundka, Nangloi, Sultanpuri, Mangolpuri, Shikarpur, Kakrola, Dhansa, Jharoda Kalan, Gazipur, Hastsal, Kishanganj, Naraina and adjoining areas, the concentration of nitrates has been found to be about double the permissible limit.

The desirable nitrate limit is 45 mg\l, while the maximum permissible limit is 100 mg\l.

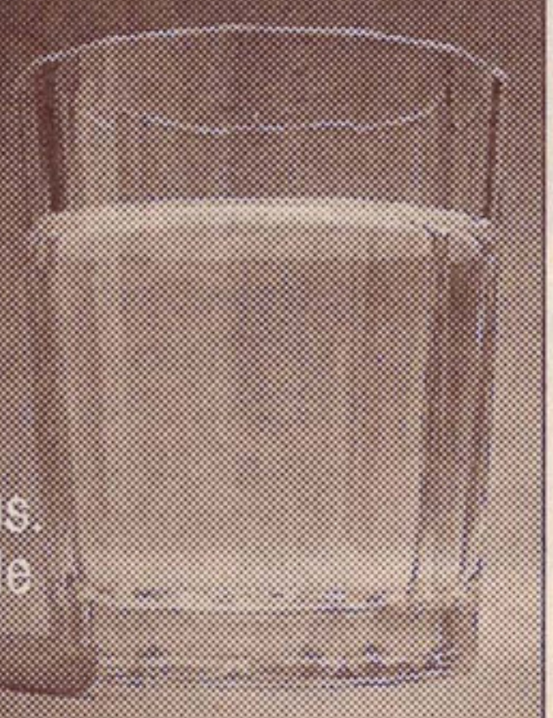
Excessive nitrates was also found in areas like Rajokri, New Friends Colony, Greater Kailash-I, Mathura Road, Jamia Millia market, Kotla Mubarakpur, Begumpur and Vasant Enclave.

Fluorides: Excess fluoride is scattered over nearly a third of the city area. Sector 8 Dwarka, Poothkalam (near Rohini), Nangloi, Kakrola, Dhansa, Dichau, Delhi Zoo, Rajouri Garden and Jeevan Nagar have double, or more, the permissible limits. Areas such as Kanjhawla, Pragati Vihar and Nizamuddin have as much as four to five times the permissible limit, which is 1.5 mg\l, the desirable limit being 1 mg\l.

Fluorides are either geogenic or may be caused due to brick kilns which use fluoride salts for brick manufacture.

FUMING DELHI

- Excess nitrate consumption can cause Methemoglobinemia, a condition where blood is unable to carry oxygen
- Excess fluoride may result in yellow teeth and can also cause skeletal changes
- Heavy metals can prove dangerous. Cadmium consumers are susceptible to cramps, nausea and vomiting. Lead, on prolonged intake, may cause death while arsenic is carcinogenic



Heavy metals: According to a joint study conducted by the Central Pollution Control Board (CPCB) and CGWA, traces of heavy metals was found in some parts of the city. The Shahdara region is one of the most severely affected, with heavy metal levels far exceeding permissible limits.

Water in the east Delhi region, says the report, has heavy metals like lead, chromium, and cadmium.

What is worse, point out officials, is that contamination has even seeped to a level of 40 metres, thereby polluting the freshwater aquifer which normally exists at a depth of 8-10 metres.

The authority maintains industries involved in electroplating and alloy work are the cause. Unlined drains do nothing to stop the hazardous lacing.

However, even though the traces were discovered, further monitoring of heavy metals has not been undertaken.

"We are now planning to monitor heavy metals in areas where traces had been discovered," said CGWB chairman P C Chaturvedi.