

Spike in Ammonia levels in the Yamuna river

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In news

Recently, the Delhi Jal Board(DJB) said water supply to parts of north, central and south Delhi would be disrupted on Wednesday following a spike in ammonia levels in the Yamuna.

Key highlights

- The most recent spike was noted on 28th & 29th December, when ammonia levels shot up to 7.3 parts per million (ppm) at the Wazirabad pond area – where DJB draws water from – against its acceptable limit of 0.5 ppm.
- When Ammonia concentration rises beyond the DJB's treatment capacity of 0.9 ppm, water production at 3 out of 9 water treatment plants – Wazirabad, Chandrawal and Okhla – have to be stopped or reduced, which impacts supply to parts of the city.
- This issue is a long-standing one between Haryana and Delhi, with DJB officials stating that the spike in ammonia levels has been more frequent this year.

Impact of increased levels of Ammonia

- Ammonia, which is highly soluble in water, is found in soil, air, and water; it is naturally present in the body and secreted by the kidneys to neutralise excess acid.
- When ammonia is present in water at high enough levels, it is difficult for aquatic organisms to sufficiently excrete the toxicant, leading to toxic buildup in internal tissues and blood, and potentially death. Environmental factors, such as pH and temperature, can affect ammonia toxicity to aquatic animals.

Yamuna Action Plan

- It is a bilateral project between the Government of India and Japan, introduced in 1993. It is one of the largest river restoration projects in India.
- YAP was entrusted under the National River Conservation Directorate (NRC) in Ministry of Environment and Forests (MoEF).
- Along with NRC other Project Implementing Agencies (PIAs) were Uttar Pradesh Jal Nigam (UPJN), the Public Health Engineering Department (PHED) in Haryana, the Delhi Jal Board (DJB) and the Municipal Corporation of Delhi (MCD) in Delhi.
- The Japan Bank for International Cooperation (JBIC), has provided financial aid of ₹17.7 billion to carry out the project, which is being executed by the National River Conservation Directorate, the Ministry of Environment and Forests, and the Government of India.



Blame on Haryana

The river Yamuna flows into Delhi from Haryana and the state has industrial units in Sonipat, close to Delhi's northern border. Ammonia is used as an industrial chemical in the production of fertilisers, plastics and dyes.

Reason for increased pollution in Yamuna river

- The mix of two drains: A specific area where both Haryana and Delhi agree on is the mixing of two drains carrying drinking water and sewage or industrial waste, or both, in Sonipat.
- The two drains often mix due to overflow or damage to the wall that separates them.

Way forward

- Increased capacity to treat ammonia levels in the water by DJB
- The Water Minister of Delhi has directed that ozone-based units to treat ammonia levels up to 4 ppm should be installed at Chandrawal and Wazirabad WTPs.
- The laying of a conduit pipeline to separate the two drains would also reduce pollution of potable water