

Nitrate pollution

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Why in news?

- A major international research programme called South Asian Nitrogen Hub is being carried out to tackle the challenge that nitrogen pollution poses for the environment, food security, human health and the economy in South Asia.

What is this?

- Nitrate is an inorganic compound that occurs both naturally and synthetically.
- Nitrate (NO₃) is composed of one atom of nitrogen (N) and three atoms of oxygen (O).
- **Agriculture is the largest single source** of nitrate (runoff, leaching) pollution due to overuse of nitrogenous fertilizers, although **households and industries** also contribute to some extent.
- Excessive accumulation of oxidized nitrogen in the form of nitrates in the groundwater, which in some cases may exceed the 50 mg/l limit, thus making **water unfit for consumption**.
- Excessive nitrate in water causes **Blue baby syndrome** (Methemoglobinemia).
- In surface waters, particularly lakes and closed gulfs, excessive accumulation of nitrogen as well as phosphorus may lead to **eutrophication**, with adverse impact, due the proliferation of algae and their byproducts, on fish, oxygen levels and amenity value.
- **South Asian Nitrogen Hub:**
- South Asian Nitrogen Hub is a partnership led by the UK's Centre for Ecology & Hydrology and comprising around 50 organizations from across the UK and South Asia.

- It will be established with funding from UK Research and Innovation (UKRI) under its **Global Challenges Research Fund (GCRF)**.
- **India is a major partner** with 18 Indian institutions in this project.
- India is the only country in South Asia that has completed its nitrogen assessment over a year ago.