

E-Eye for Toxicant Detection

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Why in News?

Recently, Researchers at IIT Guwahati have developed a portable optical sensing device named E-Eye. The device offers a low-cost solution for on-site water quality checks, especially in rural areas.

Key Features

- **Detection** - Arsenic, lead, iron, chromium, fluoride, and *Escherichia coli* bacteria.
- **Cost** - Device priced at about Rs. 3,500; each test around Rs. 2.
- **Technology** - Operates on **Beer-Lambert law**, combining optical sensing with digital electronics.
- **Mechanism**
 - Uses **chemical reaction to produce coloured compounds**.
 - **Colour intensity shows contaminant concentration**.
 - Converts **readings into digital data** and displays concentration.
- **Accuracy** - Results comparable to UV-Visible and Atomic Absorption spectrophotometers.

Applications

- **Water Quality** - Direct deployment at water sources; wireless transmission of results to treatment facilities.
- **Jal Jeevan Mission** - Supports safe tap water supply in rural households.
- **Other Uses** - Testing environmental and biological samples, vegetables, food products, tea, herbal products, soil, and milk.
- **Industrial Monitoring** - Helps industries check effluents containing heavy metals, bacteria, and odour-causing compounds.

Reference

[E-Eye | TOI](#)

