

Heavy Metal Contamination in Rivers

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Recently the Central Water Commission (CWC) has released a report on Heavy Metal contaminating of Indian rivers which mention that samples taken from two-thirds of the water quality stations across the major river of India are contaminated by one or more heavy metal.

What is heavy metal?

- Although there is no specific definition of heavy metal, literature has defined it as a naturally occurring element having a high atomic weight and high density which is five times greater than that of water

Key findings of the report

- According to the survey, the samples taken from two-thirds of the water quality stations spanning India's major rivers showed contamination by one or more heavy metals, **exceeding safe limits set by the Bureau of Indian Standards.**
- These findings are part of a report, which is the third edition of an exercise conducted by the Central Water Commission (CWC) from May 2014 to April 2018.
- This exercise did not cover the ground water and it **(the survey) was restricted to surface water only**
- The presence of metals in drinking water is to some extent unavoidable and certain metals, in trace amounts, required for good health. However, when present above safe limits, they are associated with a range of disorders.
- Among the sample, Iron emerged as the most common contaminant with 156 of the sampled sites registering levels of the metal above safe limits

- The **other major contaminants found in the samples were lead, nickel, chromium, cadmium and copper**
- The study spanned 67 rivers in 20 river basins. Lead, cadmium, nickel, chromium and copper contamination were more common in non-monsoon periods while iron, lead, chromium and copper exceeded 'tolerance limits' in monsoon periods most of the time
- As per the report, **Arsenic and zinc** are the two toxic metals whose concentration was always **obtained within the limits** throughout the study period
- **Sources of Heavy metal pollution:** The main sources of heavy metal pollution are mining, milling, plating and surface finishing industries that discharge a variety of toxic metals into the environment.
- **Reason for the contamination:** According to the report population growth and rise in agricultural and industrial activities were the reasons for contamination

What are the impacts?

Long-term exposure to the above-mentioned heavy metals may result in slowly progressing physical, muscular, and neurological degenerative processes that mimic Alzheimer's disease, Parkinson's disease, muscular dystrophy and multiple sclerosis.