***General Studies-3; Topic: Conservation***

# Uranium Contamination in Ground Water

## 1) Introduction

- There are reports of widespread uranium contamination in groundwater across India that demands an urgent response.
- Scientists have found widespread uranium contamination in groundwater from aquifers across 16 states in India, much above the WHO provisional standard for the country.

## 2) Uranium Contamination

- A study has found over 30 micrograms per litre (mcg/l) of the heavy metal are found in parts of north-western, southern and southeastern India.
- Drinking such water can damage one's kidneys, and the World Health Organization prescribes 30 mcg/l as an upper limit.
- Evidence of uranium contamination has accumulated from across India over the last decade.
- A 2015 Bangalore study, for example, found uranium levels of over 2000 mcg/l in the southern part of the city.
- Other studies found levels of over 500 mcg/l in Andhra Pradesh and Telangana.
- More recently, parts of Gujarat and Rajasthan recorded undesirable uranium levels in their waters.
- The mechanism by which uranium enters groundwater is still under research.
- In Rajasthan and other north-western regions, uranium occurs mostly in alluvial aquifers.
- In southern regions such as Telangana, crystalline rocks such as granite seem to be the source.
- When groundwater is over-extracted from such soils, the uranium is exposed to air, triggering its release.
- These hypotheses must be explored, because they will help determine where to find safer water.

## 3) Present Crisis

- Excessive withdrawal of groundwater across India is lowering the water table, and also contaminating water with uranium.
- People are using the contaminated wells as their main source of drinking water.
- Groundwater is the primary source of drinking water and irrigation in India.
- These findings highlight a major gap in India's water-quality monitoring.
- As the Bureau of Indian Standards does not specify a norm for uranium level, water is not tested regularly for it.
- The chronic effects of uranium consumption are still unknown.

## 4) Way Forward

- The groundwater contamination across India must be probed, and safe sources must be identified.
- We need comprehensive systematic studies to establish the chronic health effects of uranium exposure.
- India's water agencies must make groundwater management a priority to protect people from the harmful effects of exposure to uranium.
- Make testing for uranium a routine part of groundwater quality monitoring.
- Evaluation of human health risks in areas of high uranium prevalence.

- Development of adequate remediation technologies, and, implementation of preventive management practices.
- Include a uranium standard in the Bureau of Indian Standards' Drinking Water Specification.
- Exploring new ways to prevent or treat uranium contamination will help ensure access to safe drinking water.
- Behavioural changes that promote conservation and adoption of efficient water use practices to reduce ground water use for irrigation.
- Managing water resources is the key to create a water-secure future.