



DELHI TECHNOLOGICAL UNIVERSITY
Formerly, Delhi College of Engineering
Govt. of NCT of Delhi
Shahbad Daulatpur, Main Bawana Rd., Delhi - 110042



REPORT

Event Name: Distinguished Lecture on "Groundwater Quality in India and its Significance for Human Health"

Date of Event: 26.05.2026

Venue: Seminar Hall, Department of Environmental Science and Engineering, Delhi Technological University (DTU)

Organised by: Department of Environmental Science and Engineering, Delhi Technological University

Speaker: Dr. Arunangshu Mukherjee



DELHI TECHNOLOGICAL UNIVERSITY

Department of Environmental Science & Engineering

Organizes

Distinguished Lecture Series

In

ENVIRONMENTAL SCIENCE & ENGINEERING

on

"Groundwater Quality in India and its Significance for Human Health"

26th MAY, 2026

Chief Patron
Prof. Prateek Sharma
Hon'ble Vice Chancellor, DTU

Chairperson
Dr. Geeta Singh
HOD, Dept. of Env. Sc. & Engg., DTU

Coordinator
Dr. Harsh Pipil
Dept. of Env. Sc. & Engg., DTU

5th Lecture



Speaker
Prof. Arunangshu Mukherjee
Professor & Director,
Manav Rachna Center for Advance Water
Technology and Management,
MRIIRS Faridabad

Organized by :
Department of Environmental Science & Engineering, DTU

In collaboration with :
Paryavarnam DTU

2 PM Onwards

SEMINAR HALL (LW4 TF-1A), 3rd Floor, Dept. of Env. Sc. & Engg., DTU

Introduction

The Department of Environmental Science and Engineering, Delhi Technological University (DTU), organized an expert lecture on "Groundwater Quality in India and its Significance for Human Health" on 26th May 2026. The lecture was delivered by Dr. Arunangshu Mukherjee, Director, Center for Advance Water Technology and Management, Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad. The session focused on the importance of groundwater resources, factors affecting groundwater quality, human health implications, and the growing challenges related to water sustainability in India. The lecture also emphasized the role of scientific water quality

assessment and sustainable water management practices in civil and environmental engineering projects. The speaker also interacted with the faculties, research scholars and students present in the class regarding their rights and duties along with the issues they face regarding safe drinking water during their daily activities. It was also an awareness programme to disseminate water literacy among audiences.

Objectives of the Programme

- To create awareness about groundwater quality and its significance for human health
 - To understand the factors influencing groundwater contamination and deterioration
 - To promote awareness regarding safe drinking water standards and water quality assessment
 - To sensitize students towards sustainable groundwater management practices
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Key Highlights of the Lecture

The lecture delivered by Dr. Arunanghsu Mukherjee was highly informative and research-oriented, focusing on groundwater quality challenges in India and their implications on human health and sustainable development.

1. Understanding Groundwater and Groundwater Resources

The speaker explained that groundwater is the water present beneath the Earth's surface within the pore spaces of geological formations called aquifers. Groundwater resources include all extractable and usable groundwater available for human use.

Key points discussed:

- Groundwater originates mainly from percolating rainwater
- Water acts as a universal solvent
- Water-rock interaction significantly affects groundwater quality
- Mineral composition, temperature, and residence time influence groundwater characteristics

2. Groundwater Contamination and Quality Deterioration

The lecture highlighted the major causes of groundwater contamination and deterioration.

The speaker categorized contamination into:

- Anthropogenic contamination caused by municipal, industrial, and agricultural activities
- Geogenic contamination caused by natural rock-water interactions leading to elevated concentrations of harmful elements

3. Importance of Water for Human Health

The lecture emphasized the significance of water for maintaining human health and well-being.

The following benefits of adequate water consumption were discussed:

- Supports physical performance and body functions
- Helps maintain energy levels and brain function
- Aids nutrient absorption and digestion
- Prevents dehydration and kidney-related issues
- Supports overall metabolic activities

4. Impact of Chemical and Biological Contaminants

The speaker elaborated on the effects of contaminants present in groundwater.

Important discussions included:

- Excess fluoride concentration may cause dental fluorosis

- Recommended fluoride levels in drinking water range between 0.6–0.8 mg/l
- Maximum permissible fluoride limit is 1.5 mg/l
- Biological contaminants can lead to diseases such as cholera, typhoid, dysentery, and fever

5. Water Use in Civil and Environmental Engineering Projects

The lecture highlighted the role of water in engineering applications.

The speaker discussed:

- Water as a raw material and regulatory component in projects
- Importance of precipitation as the primary source of freshwater
- Dependence of India on groundwater resources
- Challenges posed by climate change and rapid development on water sustainability
- India's transition towards water stress conditions due to declining per capita water availability

6. Water Quality Considerations

The speaker explained the major parameters used to assess water quality.

The following categories were discussed:

- Physical properties: colour, odour, temperature, turbidity, density
- Chemical properties: major and trace elements, radioactive elements
- Biological properties: coliform bacteria and microbial contamination

The importance of pollution indicators such as BOD, COD, and DO was also highlighted.

7. Interactive Discussion Session

The lecture concluded with an interactive session where students and faculty members discussed:

- Groundwater quality challenges in India
- Sustainable groundwater management practices
- Water quality monitoring techniques
- Public health impacts of contaminated groundwater
- Future scope in water research and environmental engineering

Participation and Outcome

The event witnessed active participation from students, faculty members, and research scholars of Delhi Technological University.

Learning Outcomes

- Enhanced understanding of groundwater quality and contamination sources
- Increased awareness regarding water-related health impacts
- Improved knowledge of water quality assessment parameters
- Understanding of sustainable groundwater management practices
- Motivation towards environmental conservation and responsible water use

Sustainable Development Goals (SDGs) Alignment

SDG 3: Good Health and Well-being

- Focus on safe drinking water and prevention of waterborne diseases

SDG 6: Clean Water and Sanitation

- Emphasis on groundwater quality monitoring and sustainable water management

SDG 11: Sustainable Cities and Communities

- Promotion of sustainable urban water resource management

SDG 12: Responsible Consumption and Production

- Encourages responsible utilization and conservation of water resources

SDG 13: Climate Action

- Highlights the impact of climate change on groundwater sustainability

SDG 17: Partnerships for the Goals

- Promotes collaboration between academia and experts for environmental awareness
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SDG-Based Outcome

- Strengthened awareness regarding groundwater conservation and public health
 - Increased understanding of sustainable water management practices
 - Encouragement towards responsible environmental behavior and water conservation initiatives
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Conclusion

The expert lecture on "Groundwater Quality in India and its Significance for Human Health" was highly insightful and educational. The session provided valuable knowledge regarding groundwater resources, contamination mechanisms, water quality assessment, and their impacts on human health and environmental sustainability. The lecture successfully enhanced awareness among faculties, research scholars and students regarding the importance of groundwater conservation and sustainable water management practices. The Department expresses sincere gratitude to Dr. Arunangsu Mukherjee for delivering an informative and engaging lecture.



