

NATIONAL INSTITUTE OF TECHNOLOGY RAIPUR
DEPARTMENT OF CIVIL ENGINEERING

Report on Expert Lecture
on
Urban River Systems and their Management

Organized by

Department of Civil Engineering
National Institute of Technology Raipur

Under the aegis of

Industry Institute Collaboration Cell (IICC)

Date: 10th April 2026

Venue: F-05 Classroom, Department of Civil Engineering, NIT Raipur

Introduction

As part of continuing efforts to expose students and research scholars to contemporary environmental challenges and sustainable development practices, the Department of Civil Engineering, NIT Raipur, organized an expert lecture on **“Urban River Systems and their Management”** under the aegis of the Industry Institute Collaboration Cell (IICC) on 10th April 2026.

The lecture focused on the growing concerns surrounding urban rivers and highlighted the scientific, ecological, and governance dimensions associated with their management. The event provided an excellent platform for students, faculty members, and research scholars to interact with an expert actively working in the field of urban water systems and environmental sustainability.

About the Expert

The lecture was delivered by **Dr. Moumita Karmakar**, Senior Programme Associate at the National Institute of Urban Affairs (NIUA).

Dr. Karmakar is an environmental scientist, aquatic ecologist, and paleolimnologist with more than a decade of experience spanning academic research, environmental consulting, and policy-oriented initiatives. Her professional journey includes research and teaching engagements at prestigious institutions in India, Canada, and the United States. Prior to joining NIUA, she was associated with projects involving freshwater ecology, artificial intelligence-based algal classification, sediment studies, and lake restoration initiatives.

Her expertise in water science, urban ecosystems, aquatic biodiversity, and environmental policy made the session particularly valuable for students interested in sustainable urban development and environmental engineering.

Proceedings of the Lecture

The session commenced with a formal welcome and introduction of the expert to the audience. Dr. Karmakar began the lecture by discussing the historical significance of rivers in the growth and development of cities. She explained how urban rivers have traditionally served as sources of water supply, transportation, cultural identity, and ecological support.

The discussion then moved towards the present-day challenges faced by urban river systems. Through several examples from Indian cities, she illustrated how rapid urbanization, untreated wastewater discharge, solid waste dumping, encroachment of floodplains, and changing land-use patterns have significantly altered river ecosystems. The audience gained an appreciation of the complex interactions between urban growth and river health.

A major focus of the lecture was on understanding rivers as dynamic ecological systems rather than mere drainage channels. The expert highlighted the consequences of habitat degradation, loss of biodiversity, declining water quality, and increased vulnerability to urban flooding. Particular emphasis was placed on the influence of climate variability and extreme weather events on river systems and urban resilience.

The lecture also explored various management approaches adopted globally and within India for restoring and protecting urban rivers. Discussions covered river rejuvenation strategies, integrated watershed management, nature-based solutions, ecological restoration techniques, community participation, and policy interventions. The importance of scientific monitoring and evidence-based decision-making in river management was strongly emphasized.

Drawing upon her extensive research and field experience, Dr. Karmakar shared practical examples demonstrating how interdisciplinary approaches involving ecology, engineering, urban planning, governance, and public engagement can contribute to sustainable river management.

Interaction and Discussion

The session witnessed active participation from students and faculty members. The interaction segment generated insightful discussions on topics such as:

- River rejuvenation projects in Indian cities.
- Management of urban flooding and stormwater systems.
- Water quality monitoring and ecological assessment.
- Role of artificial intelligence and emerging technologies in environmental monitoring.
- Challenges associated with balancing urban development and environmental conservation.

- Career opportunities in environmental research, urban planning, and water resource management.

The expert addressed the queries with practical examples and encouraged students to adopt multidisciplinary approaches while addressing environmental challenges.

Significance of the Lecture

The lecture successfully broadened participants' understanding of the environmental, social, and governance issues associated with urban rivers. It highlighted the urgent need for sustainable management practices to restore ecological integrity and improve the resilience of urban water systems.

The event was particularly beneficial for students pursuing studies in environmental engineering, water resources engineering, geoenvironmental engineering, urban infrastructure planning, and sustainability-related disciplines. The lecture also encouraged participants to view rivers as living ecosystems that require integrated management rather than isolated engineering interventions.

Outcome of the Programme

The expert lecture enabled participants to:

- Understand the ecological importance of urban river systems.
- Recognize major challenges affecting urban rivers in rapidly growing cities.
- Appreciate the role of scientific research in environmental management.
- Gain insights into river restoration and rejuvenation strategies.
- Understand the importance of integrating engineering, ecology, and urban planning for sustainable development.
- Develop awareness regarding emerging environmental challenges associated with climate change and urbanization.

Participation

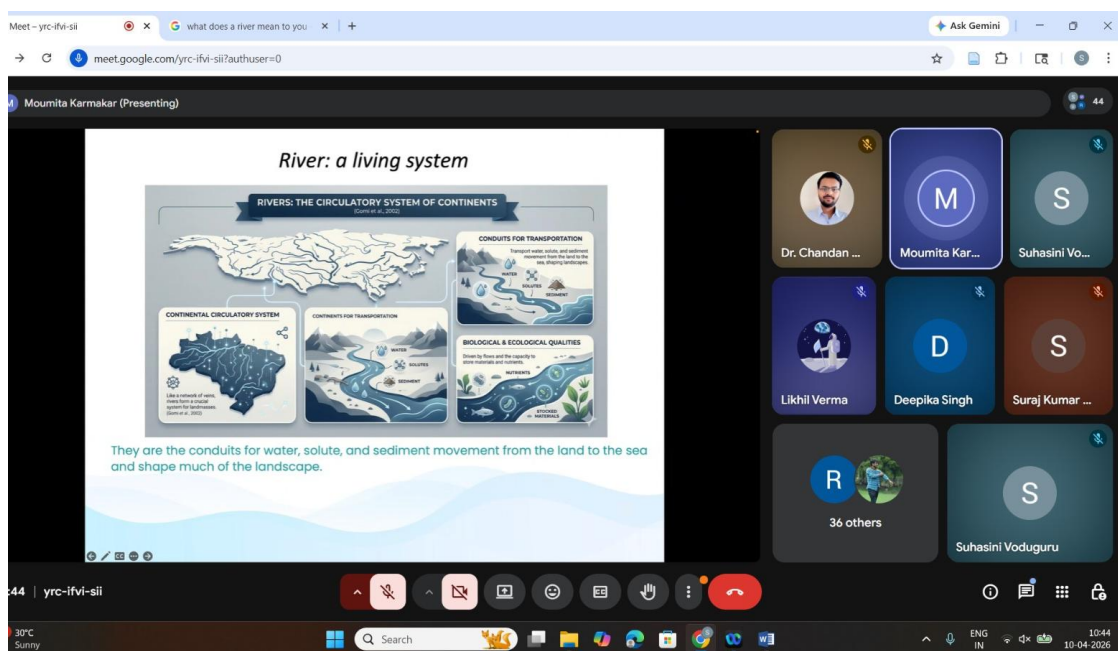
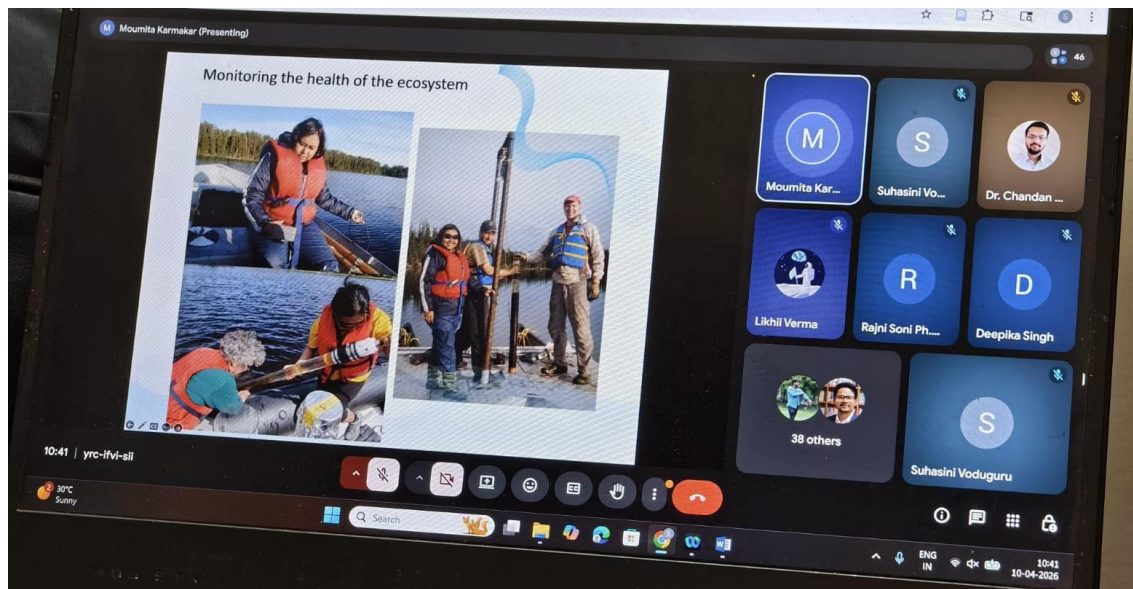
Faculty Members: 02

Research Scholars: 05

Students: 54

Total Participants: 61

Photographs





Coordinator

Dr. Ritesh S. Ingale

IICC Coordinator

Department of Civil Engineering

National Institute of Technology Raipur



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Date- 02/04/2026

NOTICE

The Department of Civil Engineering, under the aegis of Industry Institute Collaboration Cell (IICC), is pleased to organize an expert lecture on the theme **Urban River Systems and their Management**. The lecture aims to highlight the growing environmental and management challenges associated with urban river systems. Rapid urbanisation, pollution, encroachment, and climate change have severely impacted the health and sustainability of rivers in urban areas.

Faculty, staff, and students are requested to take note of the information and necessary participation.

Details	
Name of the Expert	Dr. Moumita Karmakar
Designation	Senior Programme Associate, National Institute of Urban Affairs (NIUA)
Department	Civil Engineering
Title of lecture	"Urban River Systems and their Management"
Date	10 th April 2026
Venue	F-05 Classroom, First Floor, Dept. of Civil Engg., NIT Raipur
Time	09:50 AM

Prof. (Dr) Laxmikant Yadu

Professor and Head

Dept. of Civil Engineering

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