



ICED Workshop on  
**Application of Geosynthetics in Dam Engineering**  
Indian Institute of Science, Bangalore



### **BACKGROUND**

Food security has been of utmost importance for India since its independence. India's economic growth also mainly depends on its water resource management. Dams have a fulcrum role to play in Water Resource Management. India has approximately 6400 dams out of which many have been aging. Their repairs and rehabilitation have been a major concern for dam authorities. The enactment of Dam Safety Act has mandated the responsibilities of dam authorities and professionals to respond to the needs of the dams instantaneously. With the advancements in materials and techniques for repairs, strategies for dam repairs have largely changed. Geosynthetics have driven such large changes in restoration strategies for dams and have offered time tested solutions throughout the world. This workshop has been designed to bring awareness amongst the professionals in this field and to provide a cross-section of domains of dam engineering which could be benefitted by resorting to innovative approaches using geosynthetics. The aim is to show the way to economising the solutions, squeezing the timings for repairs, staying away from conventional invasive techniques and providing sustainable solutions.

### **OBJECTIVES OF THE PROGRAM**

- To provide understanding of issues related to dam health
- To introduce innovative solutions to problems being faced by aging dams
- To enable participants to draft technical specifications and acceptance criteria for geosynthetics and to prepare the rate analysis and S.O.R.; to instil professional skills for project execution into the dam engineers
- To build confidence by way of referencing case studies to make the process of adaption easier
- To provide a platform for deliberations on further progress in the dam repair techniques

### **EXPECTED OUTCOMES**

The participants will learn about:

- **Understanding of Issues of Aging Dams:** Participants will gain insights into the general problems related to aging dams and their consequences if not attended timely
- **Issues of Earthen Dams and Their Remedies:** Interpreting signs of distresses in earthen dams, understanding the probable reasons therefor and devising solution strategy for them
- **Issues of Masonry/ Concrete Dams and Their Remedies:** Interpreting signs of distresses in concrete/ masonry dams, understanding the probable reasons therefor and devising solution strategy for them
- **Problems with Spillway Sections/ Channels and Their Solutions:** Understanding the problems of spillway sections and channels in light of hydrodynamics and learning advanced approaches to improve the performance
- **Problems with River Banks and Their Solutions:** Addressing the problem of erosion of river banks so as to protect the nearby habitation and infrastructure

**DATES:** The training programme will be held during 13-14 February, 2025.

## COURSE CONTENTS AND SCHEDULE

| Time                   | Program Details  |            | Speakers/Experts   |
|------------------------|--|------------|--|
| <b>Day 1</b>           |  |            |  |
| 9:30 to 10:00 AM       | Registration   |            |  |
| 10:00 to 10:30 AM      | Inaugural Session  | 30 minutes |  |
| 10:30 to 11:00 AM      | Tea Break  | 30 minutes |  |
| 11:00 AM to 13:00 PM   | Overview of Problems of Aging Dams   | 60 minutes | Dr. Bikram Patra<br>(Director, CPMU, DRIP)   |
|                        | Inspecting (manually and with geophysical techniques) Earthen Dams and Masonry/ Concrete Dams and Preparing the Factsheets | 60 minutes | Dr. R.K. Gupta<br>(Former Chairman, Central Water Commission)  |
| <b>Lunch Break</b>     |  |            |  |
| 2:00 PM to 3:00 PM     | Hydraulic properties of Geosynthetics and Applications in Dam Engineering  | 60 minutes | Dr. Akanksha Tyagi<br>(Assistant Professor, IIT Roorkee)   |
| <b>Tea Break</b>       |  |            |  |
| 3:30 to 5:30 PM        | Drainage and Filter Applications for Earthen Dams  | 60 minutes | Prof. G. L. Sivakumar Babu<br>(Professor, IISc Bengaluru)  |
|                        | Barrier Applications for Earthen, Masonry, Concrete and rock fill Dams   | 60 minutes | Mr. Jagadeesan Subramanian<br>(General Manager, Carpi India)   |
| <b>Day 2</b>           |  |            |  |
| 9:30 to 10:30 AM       | Testing of Geosynthetics for Application in Dam Engineering  | 60 minutes | Dr. Anil Dixit<br>(Landmark Managing Director at Landmark Material Testing And Research Laboratory Pvt. Ltd) |
| 10:30 to 11:30 PM      | River Bank Protection Works with Geosynthetics   | 60 minutes | Ms. Dola Roychowdhury<br>(Principal Consultant & Founder Director, G Cube Consulting)                        |
| <b>Tea Break</b>       |  |            |  |
| 12.00 PM to 1:00 PM    | Application of Geosynthetics in Dam Engineering: Historical and Modern Perspectives  | 60 minutes | Mr. Vivek P. Kapadia (Retd. Secretary, Government of Gujarat)  |
| <b>Lunch</b>           |  |            |  |
| 2:00 PM to 3:00 PM     | Some Causes for Failure of Earth Dams - summary of some case studies   | 60 minutes | Prof. K. Rajagopal<br>(Retired professor, IIT Madras)  |
| 3:00 PM to 4:00 PM     | Geosynthetic barriers  | 60 minutes | Prof. Dali Naidu<br>(Professor, IIT Madras)  |
| <b>Tea Break</b>       |  |            |  |
| 4:30 to 5:30 PM        | Application of geosynthetics in dam engineering – Case studies   | 60 minutes | Dr. Chitra R<br>(Director, CSMRS, New Delhi)   |
| <b>Closing session</b> |  |            |  |

### **TARGET AUDIENCE**

This training program is designed for professionals and engineers working in the Dam Rehabilitation and Improvement Project (DRIP) implementing agencies, state and central water resource departments, design organizations engaged in providing solutions in hydraulic structures and power sector units like NTPC Limited, NHPC Limited, THDCIL, SJVNL, Damodar Valley Corporation, KSEB, NEEPCO, Meghalaya State Electricity Board, and design offices such as L&T India, AECOM and PMCs etc.

### **COURSE FEE**

The fee for the 2-day training programme is Rs 10000 + GST @18% per participant. The training fee includes the charges for the registration kit, working tea and snacks and working lunch for two days. Participants from DRIP implementing agencies need to pay a nominal registered fee of Rs 100 including GST. The registrations will close by 10<sup>th</sup> Feb 2025.

**The course registration and fee payment should be done in advance at:**

[https://receipts.iisc.ac.in/form/v1/conferences/IISC\\_CONF\\_ICED\\_2025/registration](https://receipts.iisc.ac.in/form/v1/conferences/IISC_CONF_ICED_2025/registration)



### **ACCOMMODATION**

Limited accommodation is available in IISc guest houses on payment basis. Delegates are advised to contact the organisers in advance for booking the rooms.

### **NUMBER OF PARTICIPANTS**

**The seats are limited to 60 participants only.**

### **ORGANISING COMMITTEE**

Prof. G L Sivakumar Babu  
Chair

Mr. Vivek Kapadia & Ms. Dola Roychowdhury  
Vice-chairs

Prof. Gali Madhavi Latha  
Coordinator

### **CONTACT DETAILS**

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