

# Mechanism of River Bank Erosion and its Protection – Geotechnical Aspect

## Overview

The erosion of bank is a perpetual problem in almost all rivers in India. Every year mainly during the monsoon, the erosion of river bank causes tremendous loss of properties and human life. Problems related to the erosion of the river banks have required increased attention during the past few decades, and notable advancements have been made during the past ten years. Recent contributions include new theoretical procedures for understanding the mechanism of river bank erosion, improved field and laboratory methods for quantifying the amount of erosion, and field measurements to evaluate the performance of the prototype.

It is the purpose of this course to describe the state-of-the-art as it relates to the procedures for analysis, design, and measurements of the river bank erosion, and the possible protection techniques. The emphasis is directed toward the erosion mechanism, the principles and many of the results can be adapted to the river bank protection technology.

The primary objectives of the course are as follows:

- ✚ Exposing participants to the fundamentals and the mechanism of river bank erosion including surface and internal erosion
- ✚ Building in confidence and capability amongst the participants in the application of soil erosion concept in the design of river bank protection techniques
- ✚ Providing exposure to practical problems and their solutions, through case studies and live projects in the field of river bank protection
- ✚ Enhancing the capability of the participants to identify, control and handle different challenging projects in the field of river bank protection

<b>Schedule</b>	<b>Course: November 09 – 13, 2020, Examination: November 14, 2020</b> <b>Number of participants for the course will be limited to 50</b>
<b>Syllabus</b>	Introduction of internal erosion, Hydraulics in porous media and seepage force from micro-mechanical point of view, Critical hydraulic gradient and piping phenomenon, Migration of soil particles due to seepage flow, Introduction of surface erosion, Hydraulics on river bank, Erosion rates of cohesive and cohesionless soils, Surface erosion of river bank, Conventional measures for river bank protection, River bank protection using geosynthetics
<b>You Should Attend If...</b>	<ul style="list-style-type: none"><li>✚ you are an civil engineer or research scientist interested in analysis, design, and measurements of the river bank erosion, and the possible protection techniques.</li><li>✚ you are a student or faculty from academic institution interested in analysis, design, and measurements of the river bank erosion, and the possible protection techniques.</li></ul>
<b>Fees</b>	The participation fees for taking the course is as follows: <b>Participants from abroad : US \$600</b> <b>Industry/ Research Organizations: INR 16000</b> <b>Academic Institutions: INR 8000</b> The above fee includes all instructional materials, laboratory equipment usage charges, 24×7 free internet facility. The participants will be provided with accommodation on payment basis.

## The Faculty



**Prof. Kazunori Fujisawa** is the faculty of Graduate School of Agriculture, Kyoto University, Japan. His research interests include Erosion and Sedimentation, Fluid Dynamics, Geotechnical engineering, Agricultural engineering.



**Prof. Priyanka Ghosh** is a Professor in the Department of Civil Engineering, Indian Institute of Technology Kanpur. His research interests include Analysis of shallow foundation, Retaining walls and earth pressure theory, Pullout resistance of anchors, Vibration screening, Geopolymers, Stability of slopes.

## Course Coordinator

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