TRAINING COURSE

on

Constructed Wetlands: Principles, Design, Operation and Maintenance

(July 01 - 05, 2024)

Organized by

National Institute of Hydrology
Jal Vigyan Bhawan
Roorkee

Sponsored by

Dept. of Science & Technology
Govt. of India
New Delhi

Project Partners

INTRODUCTION

Constructed wetlands represent a sustainable and effective approach to wastewater treatment, influencing natural processes to address a variety of environmental challenges. Constructed wetland engineered ecosystems has been designed for the treatment of domestic, agricultural, industrial, and stormwater runoff. Their ability to harness physical, chemical, and biological processes makes them an invaluable technology in the field of environmental engineering and sustainable development.

The underlying principles of constructed wetlands depends on their ability to remove contaminants from wastewater through the utilization of vegetation, soil, and associated microbial communities. These systems can degrade organic matter, remove nutrients, and mitigate pathogens, offering an environmentally friendly alternative to conventional treatment methods. The design of constructed wetlands requires a careful consideration of various factors, including hydrology, substrate composition, plant selection, and the specific contaminants present in the influent. Each component plays a crucial role in ensuring the efficiency and longevity of the treatment process.

The effectiveness of constructed wetlands depends on proper operation and maintenance. Regular monitoring and management are required to maintain optimal conditions for removal of contaminants and address potential problems such as clogging, invasive species, and changes in influent characteristics. The maintenance practices must be altered to the specific type of constructed wetland, whether it is a surface flow, subsurface flow, or hybrid system, to ensure that it continues to function effectively over its intended lifespan.

COURSE CONTENTS

The training course will consist of lectures and field visits led by esteemed Scientists and Professors with wide range of experience in this field. The course begins with a detailed exploration of water resources management in India, the role of wetlands in water management, and the mechanisms of constructed wetlands for wastewater treatment. Over the days, participants will learn about the design and sizing of constructed wetlands, advanced septic systems for rural areas, and energy-efficient wastewater treatment systems.

A significant portion of the course is dedicated to understanding the economics and environmental benefits of natural wastewater treatment systems, aerated constructed wetlands, and their application in various geographical contexts, including hilly regions. A full-day field visit will provide hands-on experience on constructed wetlands and sequencing batch reactor-based systems. The final day will address the cost and benefits of constructed wetlands, regulatory policies, and include an interactive session for participant evaluations and discussions with faculty members. This comprehensive course is designed to be highly interactive, enabling participants to share and discuss field-related challenges.

WHO CAN PARTICIPATE?

The course is intended for professionals (Engineers, Scientists, Policymakers & Academicians) of various governments, private organizations actively working in wastewater management. Masters' students and research scholars are encouraged to attend this course.

REGISTRATION

The registration fee per participant is Rs. 1000 for Students/Research Scholars and Rs. 2000 for Working Professionals. This fee includes the registration kit, working lunch, session tea, field visit, and certificate. For accommodation, the Guest House facility of NIH Roorkee can be availed on a payment basis depending on availability. It is intended to register only a limited number of participants (30) for this training program on a first-come, first-served basis after the registration fees have been paid. The interested participants are required to fill in the registration form through Online Link latest by **25th June 2024**. The selected participants are requested to provide the proof of online payment of registration fee. An Institute/University identity card is required to be uploaded while submitting the application.

VENUE

The training course will be held at National Institute of Hydrology, Jal Vigyan Bhawan, Roorkee in physical mode during July 01-05, 2024.

ABOUT NIH

National Institute of Hydrology (NIH) is a premier Research and Development organization under the Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Government of India. It was established as an autonomous society in 1978 with its headquarters at Roorkee, Uttarakhand. The main objectives of NIH are to undertake, aid, promote and coordinate systematic and scientific work in all aspects of hydrology and water resources management. The Institute was declared a Science and Technology (S&T) organization in 1987.

The Institute is an ISO 9001:2015 Certificated organization. Over the years, the Institute has grown as a centre of excellence for pursuing research activities in hydrology and water resources with emphasis on technology transfer and demand driven, user-defined, strategic research. The research in the Institute has been carried out under six scientific divisions at the headquarter at Roorkee and seven Regional Centres located at Jammu, Patna, Guwahati, Jodhpur, Bhopal, Belgaum, and Kakinada. The institute has state of the art laboratories for Water Quality, Nuclear Hydrology, Soil & Water, Remote Sensing, and Hydrological Instrumentation. The institute pursues capacity development by way of organizing specialized training courses. For more information about NIH, please visit https://nihroorkee.gov.in/

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