





GREEN WATER INFRASTRUCTURE II – INNOVATIVE AND SUSTAINABLE WASTEWATER MANAGEMENT

May 29- June 09, 2017; Starts at 09.30 am Indian Institute of Technology, Roorkee

Under the Aegis of MHRD | Government of India Ministry of Human Resource Development

Contact:

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Overview

As the timeframe for the Millennium Development Goals (MDG) neared completion, minds are now turned to the post-2015 development agenda. This is accompanied by the realization that the focus on Storm water, drinking-water and sanitation without due attention being paid to the end products of water and sanitation provision (i.e. wastewater) may have exacerbated some of the water quality problems seen globally. *It is increasingly being recognized that the issue of wastewater management and water quality have cross-linkages with a range of other water- and non-water issues, not least in respect of the water, energy and food nexus. It has also been acknowledged that wastewater management clearly plays a role in achieving future water security in a world where water stress will increase. Against this backdrop, there is an emerging consensus on the need for a dedicated water goal in the post-2015 development agenda, one which includes explicit recognition of the importance of good wastewater management and its contribution to protecting water quality, especially in the context of rapidly growing developing nations like India.*

Considering the magnitude of investment needed in conventional wastewater treatment technologies and systems, government and private sector have only been able to mobilize funds towards construction of large treatment plants employing conventional methods in few large towns, metropolitan areas and industrial complexes only. Needless to say, this fact has already resulted in development of insanitary conditions in most of our urban and rural areas. The conservative thought process in this area alongwith the other resource limitations in the areas of energy availability, skilled manpower and general apathy even render the urban areas equipped with these treatment plants quite miserable. *Innovative and sustainable treatment technologies and disposal methods are hence an urgent need of the time to fill in the knowledge gaps and address the issues of economy, ease of construction and operation, wider accessibility, availability and acceptability besides being eco-friendly and promoting cleanliness, an important agenda of the Government within the "Smart Cities paradigm".*

In this regard, in many cases, **Constructed or Engineered wetlands** promise to serve as an ideal alternative wastewater treatment technology which is simpler, economical and environment-friendly. Wetland systems are engineered ecosystems that can be used for improving water quality, whether it relates to wastewater, ground water, industrial waste streams, or diffuse pollution; and can be implemented in urban, peri-urban, and agricultural landscapes. Wetland technologies are based on natural principles and have been shown to be one of the most efficient and cost-effective methods for improving water quality while providing benefits to the landscape. Wetland systems offer many advantages over conventional technologies, including increased local biodiversity and creation of green space within urban areas besides being economically viable. The technology is also robust and can be easily adapted to solve even the most challenging water pollution problems. Sustainability and resiliency are essential components of future planning, and wetland systems can play an important role.

Decentralising the treatment train into smaller units instead of a single large system has also found lot of attention globally as it really targets the pollution at the source besides reducing the maintenance needs of treatment systems drastically as well as integrating these systems with the local and regional landscape. **Reuse of treated wastewater** in agriculture and horticulture has also received considerable attention globally as it employs the wastewater as a resource and defers the freshwater demand.

In view of the above, the proposed academic program intends to bring academics, researchers and practitioners together for brainstorming on the above stated topic and interaction with the internationally and nationally acclaimed experts, researchers and practitioners through lectures, case studies and hands-on tutorial and practical sessions. *It may be noted that the various subjects/issues proposed in this program are currently not being handled in an integrated and a holistic manner in currently running engineering/science programs in the country.*

Objectives

The primary objectives of the course are as follows:

- i) Exposing participants to the current practices of Wastewater management and challenges therein alongwith the related issues,
- ii) Introducing the concept of "Innovative and Sustainable Wastewater Management" and various tools/techniques for the design of treatment and disposal systems incorporating the discussed concept.
- iii) Providing exposure to field oriented problems and their solutions, through case studies and live national and international projects,
- iv) Building in confidence and capability amongst the participants for further research and field application of the introduced concept.
- v) Identifying the knowledge gaps in current academic programs and policy framework regarding Wastewater Management and providing recommendations for suitable modifications.

Brief:

	A: Duration : May 29-June 9, 2017 (12 days)		
Modules	B: Venue : Department of Hydrology, Indian Institute of Technology Roorkee		
	Number of participants for the course module will be limited.		
You Should Attend If	Participants from Industry, Research, Government and Non- Government Organisations, Faculty and Students from Institutions all over the world who are interested in the course are welcome to register.		
	The participation fees for attending the course are as follows: Participants from abroad: US \$ 500		
Fees	Officers of Industry/ Govt. Organizations: Rs. 20000 (Rs. 10000 for participation in 2 nd week only if so desired)		
	Faculty or Scientists of Research / Academic Institutions/ NGOs: Rs. 10000		
	Students of Academic Institutions: Rs. 5000		
	The above participation fee includes soft copy of all instructional materials, laboratory and computer use for tutorials and internet facility. The participants will be provided with single/double occupancy accommodation on payment basis at the IITR/NIH guest house. Hotel accommodation may also be arranged on payment basis at nearby places, if requested.		
	For more details please visit <u>www.iitr.ac.in</u>		

About: Topics Covered

Wastewater: a resource; Wastewater analysis and characterization; Legislative and regulatory framework for wastewater treatment and disposal; Overview of conventional and advanced treatment; Issues and challenges in design, operation and management of wastewater treatment systems; Sustainable wastewater management: concept and practices; Decentralized wastewater treatment; Wastewater reuse; ECOSAN principles; Constructed wetlands: concept and application for domestic and industrial wastewater; Design and operation of Horizontal flow, Vertical flow, French type and Multi stage constructed wetlands; Modelling of wetlands. (*An in-depth coverage on the Constructed Wetlands is proposed in the 2nd week of the program and officers of industry or government organizations only are being provided a choice to attend in the 2nd week if they wish so*).

About: General

Experts from academia and field in the areas of Engineering Hydrology, Civil/Environmental Engineering and Science and other affiliated areas will conduct the course which will be planned and offered as per the norms set under the GIAN program. Course participants will be provided exposure to all the related topics through lectures and hands-on exercises. Case studies and group assignments will be shared to stimulate research motivation of participants. Field visits to existing plants will also be conducted.

The Faculty



Dr.Fabio Masi is a Technical Director, R&D manager of the Italian engineering company IRIDRA SrI, Since 1998 and Vice-president of Global wetland Technology (companies association since 2012. His background is a PhD in Environmental Sciences and a MSc in Environmental Chemistry (1991). He is currently the chair of the IWA SG on Wetland Systems for Water Pollution Control, and has been

the organizer of the IWA 12th SG Wetlands conference in Venice (October 2012).he is the associate Editor for the IWA journal water Science & Technology since 2010.

He is the project co-author for over 350 Designs of constructed Wetlands and reuse worldwide. Lecturer and speaker in numerous university masters in Italy, France and Spain, public and NGO organized conferences, courses and seminars in sustainable sanitation, environmental chemistry, water and air pollution, wastewater natural treatment, EIA. Author of more than 70 scientific (25 peer reviewed) or informative papers and books. He has been consulting for Sustainable Water Managemnet projects in Europe, Asia, Africa and South America. He is currently involved in EC funded projects in the FP7, ENPI-CBCMED, Interreg and life+ programs.



Dr Himanshu Joshi is a Professor in the Department of Hydrology, Indian Institute of Technology, Roorkee, Uttarakhand State. His areas of interest are Environmental Monitoring, Modeling and Management; Environmental Impact Assessment, Sustainable Urban Water and Wastewater Management, Urban Infrastructure Planning and Water Footprint assessment.

He is an Environmental engineer by training, having earned his academic degrees from IIT Roorkee and IIT Kanpur. He has diverse experience of more than 30 years of working on teaching, research and consultancy assignments, which include a 4 year stint in Consulting Engineering Services (India) Pvt. Ltd., a reputed consulting firm. Besides supervising over 30 M.Tech. and 10 Ph.D. research dissertations, he has handled sponsored National and International research projects worth about Rs. 16.0 Million, more than 20 consultancy projects worth about Rs. 8.5 Million, and Capacity building projects worth about Rs. 15.0 Million till date. Some of the major agencies, which have sponsored the assignments include World Bank (Hydrology project Phase 1 and 3), UNESCO, IWA (International Water Association), ICLEI, Central Pollution Control Board (MOEF), Department of Science & Technology, University Grants Commission, Ministry of Water Supply and Sanitation and All India Council of Technical Education. He has also served as a member of many important National and International technical committees, and as Editor of Hydrology Journal (India). He is a recipient of Group Study Exchange award of Rotary International in 1985; US Fulbright Indo-American Environmental Leadership Award in 2006; Endeavour Executive award of Govt. of Australia in 2008; Royal Society-DST Indo-UK networking fellowship award in 2008 and British Council's UKIERI Indo-UK Exchange award in 2012.

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Course Co-ordinator

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REGISTRATION AND ACCOMODATION REQUEST FORM (To reach electronically by May 12, 2017)

GREEN WATER INFRASTRUCTURE II-INNOVATIVE AND SUSTAINABLE WASTEWATER MANAGEMENT May 29-June 9, 2017 Department of Hydrology, Indian Institute of Technology Roorkee Roorkee, Uttarakhand

After Completion, please mail to: Prof. Himanshu Joshi	
Department of Hydrology	Affix passport size photograph
Roorkee.Uttarakhand-247667. India	
Phone: +91-1332286534, 285390 (O)	
+91-1332285403 (R), +91-9412394288	
E-mail: joshihfy@iitr.ac.in	
Alternate mail id: https://www.hitescom.com Alternate mail.com	

1. Name of applicant (in block letters): Ms./Mr. /Dr.

2. Status (Mark anyone): Student...., Not a student.....

(a) If a Student:

- Academic program under which registered currently.....
- Date when registered.....
- Name of Academic/ Research Institution.....

(b) If not a Student

- Nature of employment (Teaching, Research, Govt. service, NGO, Industry)......
- Organization where employed.....
- Employed since.....
- Designation.....
- Academic qualifications.....
- 3. Full Postal Address for Communication:

4. E-mail id (s):

Date:

Signature of applicant

Note:

- (i) Application should reach DOH Office at the above address latest by May 12, 2017. Scanned copy may be sent by email.
- (ii) The seats are limited and will be filled generally on the first come first serve basis. Decision of the course coordinator will be final and binding to all in this regard.

(iii) Please start your travel to Roorkee to attend the course only if you have received a formal confirmation.