



# Integrated Water Resources Management (IWRM)

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## Overview

Planet earth is rich in water and often referred to as "Blue Planet". But 97 per cent of its water resources are salty and brackish. The remaining 3 per cent is fresh water, but the major portion of this is tied up and in inaccessible polar caps, glaciers, or deep aquifers. Only 0.03 per cent of fresh water is accessible- in rivers, lakes, and shallow aquifers- for human use. Unfortunately even this fresh water is not uniformly distributed in space and time and often remotely located from the centres of human habitation. The world's population tripled during the past century and the demand for fresh water increased by six fold. The worldwide fresh water demand is being constantly pushed to new heights by industrialization, irrigated agriculture, massive urbanization, ever rising standards of living, and growing populations. More than one-half of all available freshwater supplies are now used for human activities, and the world's water demand is doubling every 20 years. There are many dimensions to the emerging world water crisis. More than 500 million people (about 8 per cent) face serious fresh water shortages. By 2025 this will grow to about 2.8 billion (about 35 per cent of the projected population). Water scarcity will be acute in developing countries of Asia and Africa. Most experts agree that the goal of achieving global water security is not limited so much by water scarcity, but by the absence of effective management of the water resources. This course provides comprehensive discussion on fresh water which is finite and vulnerable resource, essential to sustain life, development, and environment. Freshwater governance is inter-agency, multi-jurisdictional and interdisciplinary in nature. Policies, regulations and programs have to be flexible to accommodate the mandates of water management agencies at all levels of governance. The course will incorporate multi-dimensional nature of water management and the institutional framework needed through appropriate government policies and programs from time. IWRM as envisaged by several International agencies focuses mainly on economic aspects as it is more driven by developed countries. Social, cultural, religious, and indigenous uses of water, the role rural women particularly in developing countries are not specifically included. The course will highlight these aspects through interactive sessions with participants to share their experiences with their local, regional and national experiences and international initiatives from Canada, US, Europe and Russia.

<b>Date</b>	<b>11-02-2019 to 15-02-2019</b>
<b>Location</b>	<b>B.M.S College of Engineering, Bull Temple Road, Bangalore-560019</b>
<b>Course Schedule</b>	<b>Day 1:</b> Introduction to IWRM, Govt. Policies, programs, and Institutional framework to meet multi-jurisdictional mandates to meet competing demands for water (municipal, industrial, recreational and ecological) sustainably. National and International perspectives. <b>Day 2:</b> Water Resources development and management: Conventional (Business as usual approach) Vs Imaginative approaches (Hard and soft paths) emphasizing

	<p>conservation. Technological innovations, smart solutions for minimizing leakages and recovery of non-revenue water, appropriate pricing etc. Artificial intelligence and Decision Support Systems in Water Resources Management.</p> <p><b>Day 3:</b> Challenges to plan safe and sustainable drinking water for cities; IWRM Case studies of drinking water for cities in Canada, US and Europe. Identification of scientific and technological research and knowledge to support integrated approaches to water resources development and management. Analysis for improvement of water distribution system through reduction in unaccounted for water (UFW) - A case study from Bangalore.</p> <p><b>Day 4:</b> Conflict resolution of shared water resources through IWRM principles: Case studies from Canada/US Boundary Water Treaty, Russia and Europe.</p> <p><b>Day 5:</b> Privatization of water resources and its implications: Is water a commodity or social good? Public Vs Private sector ownership. Bottled water industry, privatized Tankers etc. Examples from Canada, US, European Union and developing countries. Socio-economic, cultural and indigenous aspects of water uses and management with specific reference to rural communities.</p>
<b>Who can attend</b>	Students or faculty from academic/research institutions, executives, engineers and researchers from private service and government organizations including R&D laboratories.
<b>Fees</b>	<p><b>Participants from abroad : US \$500</b>  <b>Industry/ Research Organizations : Rs. 5,000</b>  <b>Faculty from other Institutions : Rs. 3,000</b>  <b>Students from other Institutions : Rs. 1,000</b>  <b>Faculty from BMSCE : Rs. 1,000</b>  <b>Students from BMSCE : Rs. 500</b>  The above fee includes instructional materials.  <b>Payment to be made through NEFT. The details are as follows:</b>  <b>Name of Account Holder : GIAN-CIVIL</b>  <b>Account Number :50470958055</b>  <b>Bank &amp; Branch : Allahabad Bank, Hanumanthnagar Branch</b>  <b>IFSC Code : ALLA0212011</b>  <b>MICR Code : 560010007</b>  The participants will be provided with accommodation based on availability on payment basis.  <b>All course registrations will be processed via the national GIAN portal (<a href="http://www.gian.iitkgp.ac.in">www.gian.iitkgp.ac.in</a>), where Rs. 500/- one-time fee is payable in addition to the above amount.</b>  <b>Number of participants is limited to 40.</b>  <b>Last date for registration is 5.02.2019.</b></p>

## The Faculty



**Prof. Rajasekara Murthy is an Emeritus Scientist at the Canada Centre for Inland Waters, Canada. His research interests include Geophysical Fluid Mechanics with applications to environmental problems, Monitoring, Transport, Dispersion and Modeling of pollutants in the Natural Environment, Water Resources Research and Integrated Water Resources Management (IWRM). C. Rajasekara Murthy received M.E degree from Indian Institute of Science, Bangalore, India; and PhD from University of Waterloo, Canada. He has visited Indian Institute of Science, Bangalore, Indian Institute of Technology Delhi, Indian Institute of Technology Bombay, and National Environmental Engineering Research Institute, Nagpur and to many other international level institutions as a visiting Professor/Scientist/Consultant.**

## Local Institutional Co-ordinator



**Dr. Ravishankar Deekshit**  
**Vice Principal**  
**BMS College of Engineering**

## Course Co-ordinators



Dr. Ramakrishnaiah.C.R is currently working as Associate Professor in PG (Env.Engg) program in the Department of Civil Engineering, BMS College of Engineering. He has obtained Ph.D degree from Visvesvaraya Technological University, Karnataka. He has published 60 papers in peer reviewed journals, national and international conferences. He is involved in teaching PG (Env.Engg) courses and research interest is in water and wastewater treatment and solid and hazardous waste management. He has guided 42 M.Tech projects, 2 MSc (Engg) by research students and is presently guiding 3 research scholars for their Ph.D. He has set up Advanced Environmental Engineering laboratory utilizing TEQIP-II fund. He has reviewed for more than 35 International Journals.



Dr. Reshmi Devi T.V is a Faculty of the Department of Civil Engineering, BMS College of Engineering, Bangalore. She has completed M.Tech and Ph.D from IIT Bombay and worked as Post-Doctoral Research Fellow at CISED, and as Research Scientist at Indian Institute of Science, Bangalore prior to joining BMS College of Engineering. She is specialized in Surface Water Hydrology, Modelling of Hydrological Systems, Water Resources Planning and Management, Artificial intelligence and Decision Support Systems in Water Resources Management, Climate Change impact Assessment, Remote Sensing and GIS. She has published more than 15 papers in peer reviewed journals, national and international conferences. Also she has served as the reviewer for Journal of Hydrologic Engineering (ASCE) and other journals.

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**Course Registration:**  
<http://www.gian.iitkgp.ac.in>