OFFICE OF THE CHIEF ENGINEER LOCAL SELF GOVERNMENT DEPARTMENT 3<sup>RD</sup> FLOOR, REVENUE COMPLEX PUBLIC OFFICE COMPOUND THIRUVANANTHAPURAM –33

Phone : 0471-2324951 0471-2325071 TeleFAX:0471-2324951 email: <u>celsgd@gmail.com</u> website: <u>www.celsgd.kerala.gov.in</u>

No. DB4/5878/2015/CE/LSGD

## Dated : 01.08.2018

## **Circular**

Sub:- CWRDM – WRMTP Training for the year 2018-19 - Reg. Ref:- Lr. No. CWRDM/TEED/WRMTP/18 dated 18.07.2018

CWRDM Kozhikkode has informed this office regarding the training programmes on various water related topics under Water Resource Management Project (WRMTP) for the year 2018-19. There is no registration fee for the above training courses and the boarding and lodging expenditure will be borne by CWRDM. The venue and date of training are mentioned in the training calendar 2017-18. Further details will be available from <u>www.cwrdm.org</u>.

The interested officers of the department can participate in the training programme, with prior sanction from the higher officers, without affecting their office duty.

Encl : Training Calendar 2018-19

Chief Engineer

P1034

## 2018

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For More information, Contact : **Executive Director** 

## Centre For Water Resources **Development and Management (CWRDM)**

Kunnamangalam, Kozhikode - 673571, Kerala

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## **KSCSTE-CWRDM**

# **TRAINING CALENDAR** 2018-19

# WATER RESOURCES MANAGEMENT AND TRAINING PROJECT (WRMTP)





#### Water Resources Management and Training Project (WRMTP)

#### Training Calendar 2018-19

#### About the Organization

Centre for Water Resources Development and Management (CWRDM) is a premier Research & Development (R&D) institution of Kerala State Council for Science, Technology and Environment (KSCSTE).CWRDM basically caters to the R&D needs in the fields of water and water related aspects (surface water, groundwater, water management-agriculture, water quality etc) with special reference to Humid Tropics. The Centre has about 50 scientists and technical staff specialized in different disciplines of water resources and allied subjects. The Research Council, consisting of eminent scientists, guides the research activities of the Centre. The three Sub Centres located at Manimalakunnu (Ernakulam), Kottayam and Neyyattinkara (Thiruvananthapuram) work with the major objective of solving the water related issues and problems of the respective locations.

## Water Resources Management & Training Project (WRMTP)

In 1988, CWRDM was identified as the State level organization to play the role of Water and Land Management Institute (WALMI) of Kerala to carryout water resources management training for the user departments. Accordingly, the Irrigation Management Training Project (IMTP) assisted by the USAID started functioning in the Centre in May 1988. The programme has been renamed as Water Resources Management &Training Project (WRMTP) and now training is imparted in all aspects of water management. WRMTP is envisaged to bridge the gap between irrigation potential created and utilized by imparting active training to all personnel involved in irrigated agriculture and through action research programmes. In addition to the training programmes being conducted for officers and farmers, CWRDM regularly takes up action research and adaptive trials on various aspects of irrigation water management in the command areas.

## **Fee structure**

The WRMTP training courses are offered free of cost to the officials of Kerala State Departments.

Training Calendar 2018-19

## **Campus and facilities**

The main campus of CWRDM with 30 Ha of land area is located at Kottamparamba, situated about 13 km east of Kozhikode city. Kozhikode is well connected to the rest of the country by road, rail and air. The Centre is well equipped with all facilities for excellent conduct of training courses viz. air conditioned auditorium, class rooms, conference rooms, laboratories, computer facilities, canteen etc. Lodging facilities can be provided to the participants in the trainees hostel within the CWRDM campus.

### How to reach

Please see the route sketch shown on the back cover of this training calendar.

#### Nominations

Nominations with complete office and residence address along with e-mail address & phone numbers of the participants may be sent to the respective Course Co-ordinators with a copy to the Head, Training Education & Extension Division (TEED), CWRDM at least a fortnight in advance. There is no formal registration/application form for the training programmes.

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## WRMTP Training Calendar 2018-19 at a glance

SI	Name of the Training Course	Date	Month & Year	Venue
No	Name of the Training Course	Date		
1	Induction Training Course on Irrigation Water Management (2 Weeks)	03-19	September 2018	CWRDM, Kozhikode
2	Groundwater Development and Management (5 Days)	11-15	September 2018	CWRDM, Kozhikode
3	Integrated Watershed Management-Monitoring and Evaluation (3 Days)	27-29	September 2018	CWRDM, Kozhikode
4	Coastal Erosion Problems and Protection Measures in Kerala (4 Days)	08-11	October 2018	CWRDM, Kozhikode
5	Water and Waste Water Treatment Technologies (4 Days)	24-27	October 2018	CWRDM, Kozhikode
6	Water Quality Monitoring Techniques (5 Days)	13-17	November 2018	CWRDM, Kozhikode
7	Application of Decision Support System in Irrigation Management (3 Days)	22-24	November 2018	CWRDM, Kozhikode
8	Introduction to QGIS and QSWAT (5 Days)	26-30	November 2018	CWRDM, Kozhikode
9	Integrated Water Resources Management (3 Days)	04-06	December 2018	CWRDM, Kozhikode
10	Introduction to Application of RS & GIS in Water Resources Management (3 Days)	11-13	December 2018	CWRDM, Kozhikode
11	Introduction to Advanced Mapping Techniques for Water Resources Management (3 Days)	08-10	January 2019	CWRDM, Kozhikode
12	Wetland Conservation and Management (3Days)	15-17	January 2019	CWRDM, Kozhikode

SI No	Name of the Training Course	Date	Month & Year	Venue
13	Preparation of Detailed Project Report for Water Resources Sector (3 Days)	22-24	January 2019	CWRDM Kozhikode
14	Environmental Impact Assessment of Water Resources Projects (5 days)	04-08	February 2019	CWRDM, Kozhikode
15	Water Related Disaster Management (3 Days)	12-14	February 2019	CWRDM, Kozhikode

## Profile of Training Courses Offered During 2018-19

1. Induction Training Course on Irrigation Water Management

Duration: 2 Weeks Date: 03-19 September 2018 Venue: CWRDM, Kozhikode Course Coordinators

Er. Babu Mathew, Er. C M Sushanth & Dr. Venu Prasad H D

#### Contents

Irrigation scenario-global/local; soil-plant water relationships; social aspects of irrigation projects; Environmental Impact Assessment; irrigation methods; irrigation scheduling; benchmarking and performance evaluation; drip and sprinkler system design and layout; water quality parameters; hydrological information system; legal aspects of water management; basics of drainage; impact of climate change on water resources; application of GIS and remote sensing in WRM, river basin management; isotope techniques in water management; introduction to application of softwares in WRM; irrigation system design; time management; interpersonal relationships and communication skills. Field visit to major irrigation projects/organizations/farmers fields; project data collection and preparation of project report.

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### **Expected Deliverables**

An exposure and basic understanding of the different aspects of irrigation water management, which will facilitate the trainees to efficiently carryout the activities in the State Irrigation Department.

## **Target Participants**

Newly inducted/promoted Assistant Engineers in the State Irrigation Department.

2. Groundwater Development and Management

Duration: 5 Days Date: 11-15 September 2018 Venue: CWRDM, Kozhikode

#### **Course Coordinators**

Dr. PRArun, Dr. CPPriju, Er. E Abdul Hameed & Er. CM Sushanth.

#### Contents

Hydrogeology and groundwater scenario of Kerala; methods for groundwater targeting; Geophysical prospecting (including field and laboratory sessions); groundwater resources estimation; application of Remote Sensing and GIS for groundwater studies; groundwater modeling; aquifer characteristics; isotope technologies for groundwater studies; water conservation- strategies and practices; artificial recharge methodologies.

### **Expected Deliverables**

To introduce the techniques, practices and concerns involved in planning and implementation of groundwater exploration development, assessment, conservation and management.

## **Target Participants**

Officers from LSGD, GWD, Jalanidhi, WRD, AGRI, KWA, SS & SCD and RDD.

**3. Integrated Watershed Management-Monitoring and Evaluation** Duration: 3 Days Date: 27-29 September 2018 Venue: CWRDM, Kozhikode

#### **Course Coordinators**

Er. Babu Mathew, Er. CM Sushanth & Dr. Venu Prasad H D

## Contents

Concept of watershed and its importance as a planning unit; different aspects of watershed development and management; community participation in watershed management programmes; formulating an

#### Water Resources Management and Training Project (WRMTP)

#### Training Calendar 2018-19

integrated watershed development plan for a typical watershed in Kerala; integration of watershed development and management programmes; hydrologic, agronomic, social and economic indicators for evaluation of watershed development projects.

## **Expected Deliverables**

Understanding the various aspects of integrated watershed management, including monitoring and evaluation.

## **Target Participants**

Junior and middle level officers from Irrigation Dept., Agri. Dept., LSGD, GWD, RDD and SS & SCD.

## 4. Coastal Erosion Problems and Protection Measures in Kerala

Duration: 4 Days Date: 08-11 October 2018 Venue: CWRDM, Kozhikode

## **Course Coordinators**

Er. PK Abdulla & Er. C Dinil Sony

#### Contents

Features of Kerala coast; wind systems; ocean waves – measurement and analysis; wave mechanics; coastal processes; coastal environmental data collection and analysis; coastal regulation zone; planning and design of coastal protection works.

#### **Expected Deliverables**

An exposure to the coastal erosion problems and possible solutions, with special reference to Kerala coast.

#### **Target Participants**

Junior and middle level Engineers from Irrigation Department.

## 5. Water and Wastewater Treatment Technologies

Duration: 4 Days Date: 24-27 October 2018 Venue: CWRDM, Kozhikode

#### **Course Coordinators**

Er. B Vivek, Er. P Jayakumar & Er C Dinil Sony

#### Contents

Planning of water supply schemes; collection, transportation and distribution of water; water treatment techniques; planning of waste water treatment system; principles and operation of waste water treatment units; sanitation measures; visit to a water treatment/waste

#### water treatment plant.

#### **Expected Deliverables**

To introduce the technical aspects and recent developments in the field of water and wastewater treatment to the officers involved in the planning and implementation of water treatment, waste water treatment and disposal projects.

## **Target Participants**

Professionals involved in planning and implementation of projects from the Departments of LSG, KWA, Jalanidhi, Municipalities / Corporations & Pollution Control Board.

#### 6. Water Quality Monitoring Techniques

Duration: 5 Days Date: 13-17 November 2018 Venue: CWRDM, Kozhikode

## **Course Coordinators**

Dr. P S Harikumar & Dr. K Madhavan

#### Contents

Sample collection and preservation techniques; physicochemical and microbiological characteristics of water; water quality standards for drinking, irrigation and industrial sectors; sanitation related water quality issues; laboratory methods for water quality analysis/ monitoring; methods/ action to improve water quality; application of remote sensing and GIS in water quality monitoring; conventional and modern techniques in water treatment; health, hygiene and water quality.

#### **Expected Deliverables**

This course will help the participants to understand various methods of water quality assessment, water quality parameters, its significance, water quality standards and regulations, modern methods of water quality testing, application of GIS and remote sensing in water quality monitoring, water purification methods, hygiene, health and water quality etc. The course provides hands-on training on field and laboratory practical on water sampling and analysis.

## **Target Participants**

Officers from KWA, GWD, SS&SCD, Irrigation Dept., Pollution Control Board & Jalanidhi.

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7. Application of Decision Support System in Irrigation Management Duration: 3 Days Date: 22-24 November 2018 Venue: CWRDM, Kozhikode

## **Course Coordinators**

Dr. U Surendran, Dr. Ashish K Chaturvedi & Dr. K Madhavachandran Contents

Overview; new concepts- application of geospatial tools (GIS, RS and GPS) and DSS in irrigated agriculture; agricultural productivity; land and soil characterization using agro- ecological potential concept of yield gaps; crop water requirement and its estimation using different methods focusing on CROPWAT and AQUACROP- theory and practical sessions; precision farming irrigation management: design and maintenance (sprinkler& drip); automation of pressurized irrigation systems with fertigation, DSS for irrigation scheduling- principles, layout and planning of irrigation scheduling; real time soil moisture assessment through sensors; soil health management using DSS- NUTMON, CWRDM -ICNMS; carbon sequestration; climate change and its impact on agriculture along with the management options linking to models; crop growth simulation models - cropping systems models - intensification and diversification using inclusive market oriented development.

## **Expected Deliverables**

This course will help the participants for using the DSS in irrigated agriculture planning, monitoring and evaluation activities. For instance, calculation of Evapotranspiration (ET), soil moisture based irrigation schedules, soil and crop need based nutrient application through models for better efficiency. On the whole, the participants will gain the knowhow about the DSS and how these DSS can be effectively used for improving the crop productivity and profitability. Besides, this course also provides hands on training for using the DSS and familiarizes the same and also develop a linkage between CWRDM and the concerned departments for their future use.

## **Target Participants**

Officers from Agri. Dept, AED, Irrigation / WRD., SS & SCD, Commodity Boards, KVKs inside Kerala and ICAR Institutes within Kerala.

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#### Training Calendar 2018-19

## 8. Introduction to QGIS and QSWAT

Duration: 5 Days Date: 26 - 30 November 2018 Venue: CWRDM, Kozhikode

## **Course Coordinators**

Dr. Celine George & Er. TK Drissia

#### Contents

Introduction to QGIS; preparation of maps in QGIS; SWAT – Overview; introduction to QSWAT; execution of QSWAT with examples.

#### **Expected Deliverables**

Exposure to hydrologic modeling, open source GIS and to use SWAT model for problem solving and decision making.

### **Target Participants**

Engineers and Officers working in the Irrigation Dept. GWD, Agri. Dept. and KSEB.

#### 9. Integrated Water Resources Management (IWRM)

Duration: 3 Days Date: 04-06 December Venue: CWRDM, Kozhikode

**Course Coordinators** 

Er. Babu Mathew, Dr. George Abe & Dr. Venu Prasad H D

#### Contents

IWRM as a management concept; why IWRM? key issues in watershed development & management; principles of IWRM; the process of IWRM implementation; policy and legal framework; case studies and problem solving strategies.

#### **Expected Deliverables**

The participant will gain knowledge about the main principles of IWRM, benefit of IWRM, identification of the main challenges in implementing IWRM and the possible solutions for the same.

#### **Target Participants**

Officers from Irrigation Dept. Agri. Dept., GWD, LSGD, KWA, Land Use Dept, Revenue and SS & SCD.

#### Water Resources Management and Training Project (WRMTP)

#### Training Calendar 2018-19

10. Introduction to Application of RS & GIS in Water Resources Management

Duration: 3 Days Date: 11-13 December 2018 Venue: CWRDM, Kozhikode

#### **Course Coordinators**

Dr. Girish Gopinath, Dr. V P Dinesan & Dr. K Ch. V N Kumar

#### Contents

General principles of remote sensing; data formats & data collection platforms; image processing and information extraction; GIS – basic principles; digital photogrammetry; case studies.

#### **Expected Deliverables**

Exposure to the application potential of RS/GIS in various fields of water resources management. Hands-on exercise with the process and software system involved.

#### **Target Participants**

Junior and middle level officers from Departments of Irrigation, GW, Agri., LSG, KWA and Revenue.

11. Introduction to Advanced Mapping Techniques for Water Resources Management

Duration: 3 Days Date: 08-10 January 2019 Venue: CWRDM, Kozhikode

#### **Course Coordinators**

Dr. VPDinesan, Dr. Girish Gopinath, & Dr. K Ch. VN Kumar

#### Contents

Remote sensing concepts; application of GIS and digital cartography in water resources management; Google mapping techniques; application of Global Positioning System(GPS); Differential GPS; Total Station; Bathymetric survey and introduction to mapping software.

#### **Expected Deliverables**

Conventional and advanced mapping techniques for water resources management enabling the participants to apply advanced concepts learnt during practical sessions in the field.

#### **Target Participants**

Junior and middle level officers from Irrigation Dept., GWD, Agri. Dept., SS &SCD, KWA and Revenue.

#### 12. Wetland Conservation and Management

Duration: 3 Days Date: 15-17 January 2019 Venue: CWRDM, Kozhikode

Training Calendar 2018-19

#### **Course Coordinators**

Dr. PS Harikumar & Dr. S Dipu

#### Contents

Wetlands of Kerala and need for conservation; hydrology of wetlands; biodiversity of wetlands; economic evaluation of wetlands; importance of soil and water conservation in wetland protection; environmental flows and its impacts on wetlands; legal and institutional aspects of wetlands conservation and management; CRZ notification and wetlands of Kerala; chemical and physical process in wetlands.

#### **Expected Deliverables**

Overview of the status of wetlands of Kerala, preparation of MAP of wetlands, methods for the conservation of wetlands, preparation of DPR for the conservation of wetlands, Environmental laws related to wetland conservation.

#### **Target Participants**

Officers from Departments of Environment, Irrigation, Soil Survey & Soil Conservation, Fisheries, R & D Institutions, Tourism, LSGD, Shipping and Inland Navigation and Biodiversity Board.

## 13. Preparation of Detailed Project Report for Water Resources Sector

Duration: 3 Days Date: 22-24 January 2019 Venue: CWRDM, Kozhikode

**Course Coordinators** 

Er. C M Sushanth & Dr. V P Dinesan

#### Contents

Investigation, design, cost benefit analysis, Environmental Impact Assessment, stakeholder participation, construction and its management in relation to the preparation of a DPR for water related projects.

## **Expected Deliverables**

The participants will be capable of preparing DPR of various water resources development projects.

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## **Target Participants**

Officers from Irrigation, KWA, GWD & LSGD.

14. Environmental Impact Assessment of Water Resources Projects

Duration: 5 Days Date: 04-08 February 2019 Venue: CWRDM, Kozhikode

#### **Course Coordinators**

Er. P Jayakumar, Er. B Vivek & Er. C Dinil Sony

#### Contents

Introduction and overview of EIA, Water resources projects: consequences on environment, EIA process and methods, mitigation and impact management, social impact assessment, environmental acts and legislations, case studies, preparation of EIA report.

#### **Expected Deliverables**

To introduce the basic concepts of EIA and procedures for carrying out EIA and getting environmental clearance for water resources projects.

## **Target Participants**

Professionals involved in planning, development and implementation of projects from the departments of irrigation, GW, KSEB & KRWSA.

15. Water Related Disaster Management

Duration: 3 Days Date: 12-14 February 2019 Venue: CWRDM, Kozhikode

#### **Course Coordinators**

Er. TK Drissia, Er. PJ Jainet, & Er. C Dinil Sony

#### Contents

Need for disaster management studies (flood and drought) -Conventional techniques, flood frequency-modern techniques in drought and flood risk assessment-importance of disaster preparedness-emergency evacuation plan-drought mitigation measures- An introduction to software MIKE 11\HEC RAS- coastal flooding-landslides and landslips.

#### Expected Deliverables

Enhanced information of conventional and modern techniques used for the studies related to disaster management.

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Water Resources Management and Training Project (WRMTP)



#### **Target Participants**

Junior and middle level Engineers from Water Resources Department, Irrigation Department, KSEB, Agricultural Department & LSGD.

#### **PAID COURSE**

#### 1. Hands-on Training Programme on Instrumental Techniques in Water Analysis

Duration: 3 Days Date: 04-06 February 2019 Venue: CWRDM, Kozhikode

#### **Course Coordinators**

Dr. PS Harikumar, Dr. K Madhavan & Dr. S Dipu

#### Contents

The 3 day training course includes theory and hands-on training on basic instruments and advanced instruments like TKN Analyser; UV-Visible Spectrophotometer (Thermo) ; Atomic Absorption Spectrophotometer (Thermo-M series); ICP-OES (Thermo-iCAP 7000); GC (Varian-CP3800); GC-MS (Thermo - Trace-1300); FTIR Spectrophotometer (Perkin Elmer)

#### **Expected Deliverables**

Awareness and application methods in advanced water quality techniques.

## **Target Participants**

Teachers, Researchers, Consultants and Quality Control Supervisors.

## **Course Coordinators and Contact Details**

SI No	Name	Designation & Division	Phone No	E-mail
1	Er. Abdulla P K	Sr. Principal Scientist, Surface Water Division	0495 2351825	apk@cwrdm.org
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3	Dr. Arun P R	Scientist, Ground Water Division	0495 2351857	arun@cwrdm.org
4	Dr. Ashish K Chaturvedi	Scientist B, Water Management (Agri) Division	0495 2351848	ashispc@cwrdm.org
5	Er. Babu Mathew	Sr. Principal Scientist& Head, Training Education& Extension Division	0495 2351841	babu@cwrdm.org
6	Dr. Celine George	Principal Scientist & Head,CWRDM Sub Centre, Manimalakunnu, Ernakulam	0485 2253517	celine@cwrdm.org
7	Dr. K Ch. V N Kumar	Scientist B, Geomatics Division	0495 2351890	chinni@cwrdm.org
8	Dr. Dinesan V P	Sr. Principal Scientist& Head, Geomatics Division	0495 2351891	dvp@cwrdm.org
9	Er.Dinil Sony C	Sr. Principal Scientist& Head, Surface Water Division	0495 2351853	dsc@cwrdm.org
10	Dr. Dipu S	Scientist B, Water Quality Division	0495 2351870	dipu@cwrdm.org

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		Abbreviations
Irrigation Dept.	-	Irrigation Department
LSGD	-	Local Self Government Department
Agri. Dept.	-	Agriculture Development and Farmers' Welfare Department
GWD	-	Groundwater Department
KSEB	-	Kerala State Electricity Board
KRWSA	-	Kerala Rural Water Supply and Sanitation Agency
KWA	-	Kerala Water Authority
RDD	-	Rural Development Department
SS & SCD	-	Soil Survey & Soil Conservation Department
AED	-	Agricultural Engineering Division
WRD	-	Water Resources Department
WRM	-	Water Resources Management

a di C	r Resources Management and Training Project		Train	ing Calendar 2018—19
11	Er.Drissia T K	Senior Scientist, Surface Water Division	0495 2351827	drissia@cwrdm.org
12	Dr. George Abe	Chief Scientist & Head, CWRDM Sub Centre,Kottayam	0481 2563197	gb@cwrdm.org
13	Dr. Girish Gopinath	Senior Scientist, G e o m a t i c s Division	0495 2351892	gg@cwrdm.org
14	Dr. Harikumar P S	Sr. Principal Scientist & Head, Water Quality Division	0495 2351871	hps@cwrdm.org
15	Er. Jainet P J	ScientistB&Officer i/c,Sub Centre, Neyyattinkara	0471 2222319	jainet@cwrdm.org
16	Er. Jayakumar P	Sr. Principal Scientist & Head, Environment and Climate Change Studies Division	0495 2351881	jp@cwrdm.org
17	Dr. Madhavan K	Scientist, Water Quality Division	0495 2351872	km@cwrdm.org
18	Dr. Madhavachandran K	Sr. Principal Scientist, & Head, Water Management (Agri) Division	0495 2351846	mck@cwrdm.org
19	Dr. Priju C P	Scientist, Ground Water Division	0495 2351858	priju@cwrdm.org
20	Er. Sushanth C M	Sr. Principal Scientist& Head, Groundwater Division	0495 2351854	scm@cwrdm.org
21	Dr. Surendran U	Senior Scientist, Water Management (Agri) Division	0495 2351852	suren@cwrdm.org
22	Dr. Venu Prasad H D	Scientist B, Training Education & Extension Division	0495 2351842	venu@cwrdm.org
23	Er. Vivek B	Scientist B, Environment and Climate Change Studies Division		vivek@cwrdm.org

