



Model Training Course
On
"ENHANCING WATER PRODUCTIVITY IN
AGRICULTURE THROUGH THE
APPLICATION OF MODERN
TOOLS/TECHNIQUES OF WATER
MANAGEMENT IN CROPS"

(December, 18-25th, 2014)



Course Director: Dr. Anil Kumar Mishra

Water Technology Centre
Indian Agricultural Research Institute,
New Delhi-110012

AGRICULTURAL WATER MANAGEMENT

Water a key natural resource, fundamental to life, livelihood, food security and sustainable development is rapidly becoming scarce and limiting. India has only 4% of renewable water resources with 2.6% of land area and more than 17 % of the world's population to support. As per present estimates, India receives an average annual precipitation of about 4000 Billion Cubic Meter (BCM). Out of this, after considering the natural evapotranspiration, only about 1869 BCM is average annual natural flow through rivers. Due to spatio-temporal variations, only about 690 BCM of surface water is utilizable. Add to this 432 BCM of replenishable groundwater means, only about 1122 BCM is gross utilizable through all the development and all the present strategies, (if large inter-basin transfers are not considered). Thus, the availability of water is limited but the demand of water is increasing rapidly due to growing population, rapid urbanization, industrialization and economic development. In addition, there are inequalities in distribution and qualities mainly due to natural reasons, partially due to anthropogenic causes and partially due to lack of a unified perspective in planning, management and use of water resources. Water is required for domestic, agricultural, hydro-power generation, thermal power, navigation, recreation, etc. Utilization in all these diverse uses of water should be optimized and an awareness of water as a scarce resource should be fostered.

Agriculture is the major water user in our country utilizing nearly 70-80 per cent of all the utilizable water resources of the country. Therefore, Agricultural Water Management (AWM) interventions aim at enhancing per capita benefits, while preventing the degradation of natural resource bases of land, water and ecosystem services. Evidence shows that AWM interventions have increased yields, which has helped areas with low productivity. At the same time, there are numerous examples where the same interventions have led to undesired changes such as the depletion of groundwater levels, reductions in stream flows, diminished aquatic and terrestrial biodiversity, and/or increased social inequities. In recent past a large number of new techniques and advanced tools have been invented in recent past which can enhance the water productivity in agriculture to a very high level. Knowledge adoption and extensive use of these tools and techniques needs proper dissemination. There is a dearth of ample number of technically trained manpower to undertake the work of On-farm AWM. Therefore, the proposed training programme has been designed with following specific objectives:

OBJECTIVES:

- To impart the advanced knowledge of On-farm water management using modern concepts, tools and techniques for assessing, planning and designing the AWM (irrigation and drainage) systems and to disseminate these techniques for enhancing crop water use efficiencies.
- To train the officers/field workers in designing, installation operation and automated operation, controls and management of high-tech irrigation water management systems.
- To provide the participants an opportunity to discuss and exchange the new ideas/knowledge with experts/resource persons who have contributed substantially in the area of Agricultural Water Management (AWM).

COURSE CONTENT:

The course has a very wide spectrum covering almost all topics pertaining to advanced concepts and methods of modern Agricultural Water Management. Some topics are listed ahead but are not limiting.

The present training aims at imparting a thorough and comprehensive knowledge on advanced concepts in Soil-Plant-Climate interactions, scientific estimation of crop water demand, various irrigation scheduling criterions and application of modern tools and techniques such as; application of computer soft ware's for irrigation planning and management; under different water supply scenarios. The proposed training will also provide to the participants; an in-depth understanding of various related topics pertaining to highly efficient irrigation water management for crop production and enhancing agricultural water productivity such as scientific design and layout of farm irrigation and drainage, soil water content measurement using TDR/Neutron Moisture meters/Soil moisture probe, geophysical techniques of groundwater exploration etc. Hands on experience of using modern instruments and systems of irrigation such as drip, sprinkler, rain gun, level basin system etc would be an added benefit. Applications of modern techniques such as GIS and remote sensing applications for enhancing water resources use efficiencies in irrigation project, sensor based weather data collection and automated irrigation management and control systems under open field and covered cultivation, hands on experience on softwares. The training will impart comprehensive knowledge on advanced concepts in Soil-Plant-Climate interactions, scientific estimation of crop water demand, various irrigation scheduling criterions and application of modern tools and techniques such as; application of computer softwares (such as EQUITA/DRIPD/CROPWAT/AQACROP/IMPASSE/USAR etc.) for irrigation planning and management; under different water supply scenarios.

TRAINING STYLE:

The training will be participative and action oriented. The emphasis will be on learning through practical experiments along with theoretical backgrounds. Group assignments, discussions, hands on experiences etc. would be major interactive modes. The programme will consist of blend of classroom lectures, experimental learning, interactions with farmers and group discussions. The programme will provide excellent opportunities for practical experience, field visits and mutual interaction and information sharing among the participants, with experts, farmers and entrepreneurs.

COURSE FACULTY:

The course will be conducted in the overall supervision of Dr. Ravinder Kaur, Project Director, Water Technology Centre. Dr. Anil Kumar Mishra, has been designated as the Course Director for the model course. Faculty of the Water Technology Centre, resources persons from other divisions of IARI, ICAR, HIPA, IGNOU, WB, CGWB, CSSRI Karnal etc. and renowned experts of the field will be invited to conduct the sessions.

DATES AND DURATION:

The duration of the Model Training Course will be eight days from December, 18th to 25th December, 2014. The participants are expected

to arrive on 17th December, 2014 and leave only after 5.00 PM on December, 25th, 2014.

BOARDING AND LODGING:

The lodging, boarding and travel (TA) expenses (as per the entitlement maximum up to AC-II tier of train or state transport bus by the shortest route, to and fro) of the selected participants will be borne under training programme budget as per the guidance's. The participants will be provided accommodation in the **Kavery Trainees Hostel of the Institute** on twin haring basis.

WHO CAN PARTICIPATE?

The model training course is meant for State, Regional and District Level Officers and Extension Personnel of State Departments of Agriculture/Irrigation (Minor/Major)/Water Resources Management/Soil and Water Conservation and Watershed Management etc. The total number of participants shall be limited to 20.

HOW TO APPLY?

Nominations for participation in the training programme may be filled in the prescribed application form as given herewith and forwarded by the competent authority where the candidate is employed. Applicants may send an advance copy if they anticipate delay in forwarding through proper channel.

LAST DATE FOR SENDING THE NOMINATIONS:

Duly filled in nomination forms should be sent to the Course Director, Dr. Anil Kumar Mishra, Principal Scientist (Soil and Water Conservation Engineering) Water Technology Centre, Indian Agricultural Research Institute, New Delhi-110012 on or before 15th October, 2014 by speed/registered post.

CONFIRMATION OF PARTICIPANTS:

The candidates will be intimated through e-mail/Telephone five days after the closing date (i.e. on or before 20th October, 2014) of the receipt of the application. All the selected candidates should reply with firm acceptance. Cancellation at the last moment for casual reasons after acceptance is undesirable as it will deprive other eager candidates who could have availed of the opportunity.

ABOUT WATER TECHNOLOGY CENTRE:

WTC is designated as Centre of Excellence in Training (CET) by Ministry of Agriculture and Cooperation, since 1989 and has made significant contributions in imparting several trainings on various aspects of water related issues in agriculture. The Water Technology Centre (WTC) is an inter-disciplinary facility for research, teaching, training and extension in agricultural water management. It was established in 1969 with the technical collaboration of University of California, Davis and partial financial support from the Ford Foundation (USA). Since then, the Centre has evolved into a unique institution, addressing a wide range of issues pertaining to water management at farm, large irrigation commands and watershed scales. The centre also renders training and consultancy services to a wide range of clientele on the various aspects of agricultural water management through an innovative range of programmes of 3 days to 6 months duration. In fact it was the first centre in the country to undertake the responsibility of training senior, middle and junior level administrative and technical personnel of the Command Area Development Authorities & Irrigation Departments, Central Water

Commission, Agricultural Universities, State Soil and Water Conservation Departments and sponsored candidates from foreign countries on interdisciplinary aspects of water management. As a result of which, it was recognized as the "Centre of Excellence in Water Management" by the Directorate of Extension of the Department of Agriculture and Cooperation, Ministry of Agriculture and was also one of the headquarters for the two All India Coordinated Research Projects on the Agricultural Drainage and the Pumps and Wells. A unit of the Precision Farming Development Centre scheme, of the Ministry of Agriculture, is also housed in the Centre. In 1996, the Academic Council of IARI recognized the Centre for the award of the M.Sc. and the Ph. D. degrees in the discipline of Water Science and Technology.

WEATHER DURING THE PERIOD:

It will be cold to very cold but overall pleasant weather during December with average maximum temperature 15-20 °C and average minimum temperature 5-10 °C with rainfall of 10 mm. The candidates are advised to bring heavy woollens accordingly.

VENUE:

Water Technology Centre, Indian Agricultural Research Institute, New Delhi-110012 will be the proposed venue for the **Model Training Course on "Enhancing water productivity in agriculture through the application of modern tools/techniques of water management in crops" (December, 18-25th, 2014)**. The present campus of the Institute is located about 8 km (5 miles) west of New Delhi Railway Station and about 16 km (10 miles) east of IGI Airport (Palam). The location stands at 28.08 °N and 77.12 °E, the height above mean sea level being 228.61 meters (750 feet).

COURSE DIRECTOR:

Dr. Anil Kumar Mishra

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For more information please contact:

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Project Director

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Application for participation in

Model Training Course On "Enhancing water productivity in agriculture through the application of modern tools/techniques of water management in crops" (December, 18-25th, 2014)

(To be sent to the Course Director of the **Model Training Course concerned**)

1. Full Name (IN BLOCK LETTERS):
2. Designation and address:
3. Present employer with address:
4. Address for correspondence (IN BLOCK LETTERS):
Phone*: Fax: Mobile*: Email*:
- *Mandatory
5. Permanent address:
6. Date of birth:
7. Sex: Male/Female; Marital status: Married/Unmarried:
8. Nature of work and experience:
9. The trainings attended in last five years

Sl. No,	Trainings attended	Duration (days)	Year

10. Experience in management, if any (No. of years):

11. Academic record

Date:

Place:

(Signature of the Applicant)

Recommendation of the forwarding Organization:

It is certified that the above information has been furnished as per the office record and found correct.

Signature of the sponsoring authority

(with name, designation, address and seal)

Date:

Place: