



# IPTRID Inventory on Capacity Development Opportunities for Improved Irrigated Agriculture



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Improved Irrigated Agriculture

IPTRID Secretariat  
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# IPTRID Inventory on Capacity Development Opportunities for Improved Irrigated Agriculture

The IPTRID Programme supports capacity development for sustainable agricultural water management and increased water productivity in agriculture, with a central focus on technology transfer and research uptake. Capacity development focuses on developing effective organizations within which individuals work on establishing an enabling institutional environment in which organizations and individuals can flourish.

Such process requires the assessment of existing capacities and future desired state in order to be able to identify the capacity gaps and plan strategies and actions designed to fill them and achieve the desired goals. Such strategies and actions take into account the existing learning basis.

To establish a reference for its new activities on capacity development with a special emphasis on technology transfer, The IPTRID secretariat decided to undertake a worldwide survey based on questionnaires sent to institutions/organizations in order to obtain a global overview of the available learning tools for professionals, technicians and farmers.

The programmes presented in this inventory are also available on line, on the IPTRID web site: [www.fao.org/iptrid](http://www.fao.org/iptrid).

## Objectives of the Inventory

The Inventory aims at providing information on activities that cover the typically applied instruments used in the process of training the stakeholders involved in irrigated agriculture management: classroom/field-based courses, distance learning, workshops/seminars, virtual networking, exchange programmes, etc. The specific objectives of the Inventory are to:

- help readers find training programmes for improved irrigated agriculture worldwide;
- provide relevant information on the type of programme, content, duration, target groups, etc;
- provide institutes/organizations with the opportunity to introduce their programmes for improved irrigated agriculture and to reach interested applicants and a wide audience; and
- provide relevant information on the institute/organization that runs the programme along with contact details.

## Structure of the Inventory

One page is dedicated to each program presented. On the left column, the information concerning the programme itself is given, while the right column provides summarized details about the institution/organization running it.

An index listing the programmes by the types of subjects they address is provided on page iii.

An index listing the programmes by country they take place is provided on page vii.

The information is given according to the language of the responses received from the survey (English, French and Spanish).

The IPTRID Programme hopes that the Inventory will offer a useful service to those seeking information on the above-mentioned activities.

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**Adoption of modern irrigation and intensive agricultural systems****Contact person**

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**Type of programme**

Course

**Certificate**

Certificate of participation

**Frequency of programme**

Past event (1999, Jordan), may be repeated upon request.

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

ICARDA's training activities are designed to improve the capabilities of national agricultural research scientists in developing countries and to assist them in conducting their research independently. These activities foster transfer of technology and address issues related to farmers' decisions in adopting or rejecting new technologies.

ICARDA runs short courses that focus on specialized problems or topics of interest to national agricultural research programmes and are conducted at ICARDA's headquarters or other sites.

The course on the adoption of modern irrigation and intensive agricultural systems was for farmers and was held in Jordan in March, June, August 1999. The course may be repeated upon request.

**Target group**

Farmers

**Programme WWW**

<http://www.icarda.cgiar.org/Training.htm>

**Dates/duration**

Nine days

**Language**

Arabic

**International Center for Agricultural Research in the Dry Areas****Acronym**

ICARDA

**Country**

Syria

**Address**

PO Box 5466  
Aleppo  
Syria

**Tel** +963-21-2213433/2225012

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[icarda@cgiar.org](mailto:icarda@cgiar.org)

**Institute/organization www**

<http://www.icarda.cgiar.org/index.htm>

**Brief description of institution/organization**

Established in 1977, the International Center for Agricultural Research in the Dry Areas (ICARDA) is one of 16 centers strategically located around the world and supported by the Consultative Group on International Agricultural Research (CGIAR).

With its main research station and offices based in Aleppo, Syria, ICARDA works through a network of partnerships with national, regional and international institutions, universities, non-governmental organizations and ministries in the developing world; and with advanced research institutes in industrialized countries.

## Advanced course on water saving and increasing water productivity: challenges and options

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Dr Samir El-Sebae Ahmed – Head of Unit

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### Contact person's E-mail

S.AHMED@CGIAR.ORG

### Type of programme

Course

### Certificate

Certificate of participation

### Frequency of programme

Past event (2001, Jordan), can be repeated upon request.

### Programme's main focus

Enhancement of the capabilities of water professionals.

### Programme prospectus

ICARDA's training activities are designed to improve the capabilities of national agricultural research scientists in developing countries and to assist them in conducting their research independently. These activities foster transfer of technology and address issues related to farmers' decisions in adopting or rejecting new technologies.

ICARDA runs short courses that focus on specialized problems or topics of interest to national agricultural research programmes and are conducted at ICARDA's headquarters or other sites.

### Target group

National agricultural research scientists

### Programme WWW

<http://www.icarda.cgiar.org/Training.htm>

### Dates/duration

Four days

### Language

English, Arabic

## International Center for Agricultural Research in the Dry Areas

### Acronym

ICARDA

### Country

Syria

### Address

PO Box 5466  
Aleppo  
Syria

**Tel** +963-21-2213433/2225012

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### E-mail

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### Institute/organization www

<http://www.icarda.cgiar.org/index.htm>

### Brief description of institution/organization

Established in 1977, the International Center for Agricultural Research in the Dry Areas (ICARDA) is one of 16 centers strategically located around the world and supported by the Consultative Group on International Agricultural Research (CGIAR).

With its main research station and offices based in Aleppo, Syria, ICARDA works through a network of partnerships with national, regional and international institutions, universities, non-governmental organizations and ministries in the developing world; and with advanced research institutes in industrialized countries.

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**Contact person's E-mail**

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**Type of programme**

Course  
Certificate  
Certificate of participation

**Frequency of programme**

With sufficient participants and upon request.

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

Drip/Micro irrigation is fast becoming the standard for orchards and row crops. This comprehensive course is designed to teach how to design efficient and economical systems. The class will cover the entire design procedure, i.e. determining crop water requirements, filtration, pumping requirements, high efficiency design procedures, determining number of irrigation blocks, pressure regulation, emission uniformity and emitter/sprayer selection and uniformity.

It is strongly recommended that the participants meet the following prerequisites: have a sound understanding of irrigation system hydraulics and soil-plant-water relationships. Participants should also be familiar with the concepts of uniformity and efficiency.

**Target group**

Junior professionals

**Programme WWW**

<http://www.irrigation.org/education.htm>

**Dates/duration**

Two days

**Language**

English, Spanish

**The Irrigation Association****Acronym**

IA

**Country**

USA

**Address**

The Irrigation Association  
6540 Arlington Boulevard  
Falls Church, VA 22042-6638  
USA

**Tel** +1-703-536 7080

**Fax** +1-703-536 7019

**E-mail**

education@irrigation.org

**Institute/organization www**

<http://www.irrigation.org/>

**Brief description of institution/organization**

The Irrigation Association (IA) is a non-profit, North American organization. Its mission is to improve the products and practices used to manage water resources and to help shape the worldwide business environment of the irrigation industry. The Irrigation Association's interest in water resources encompasses the application conservation, drainage, improvement and recovery of water for economic and environmental enhancement in agriculture, turfgrass, landscape and forestry.

The Irrigation Association's efforts focus on playing significant roles and providing leadership in four areas:

- The IA interacts with private and governmental organizations and other associations in the development of legislation and regulations to ensure the availability, quality and accessibility of water supplies for, or affected by, irrigation and the efficacy of trade policies.
- IA establishes and conducts authoritative educational programmes to broaden and focus public awareness on issues related to water management, to provide professional certification of practitioners of irrigation-related disciplines and to ensure the accessibility of research information pertinent to industry practices and products.
- IA perceives itself as an effective catalyst and umbrella organization for outreach, communication and coordination among the diverse parties and interests involved in irrigation.
- IA contributes to the establishment of recognized standards and guidelines dealing with irrigation-related products, engineering applications and practices worldwide.



## Agricultural extension practices

### Contact person

Dr Wiboon Boonyatharokul – Director

### Contact person's address

AIT Extension, Asian Institute of Technology  
PO Box 4 Klong Luang, Pathum Thani 12120, Thailand

### Contact person's Telephone/Fax

**Tel** +66-2-5245268 **Fax** +66-2-5245247

### Contact person's E-mail

wiboon@ait.ac.th

### Type of programme

Field-based/Workgroup/seminar

### Certificate

Certificate of participation

### Frequency of programme

Annual

### Programme's main focus

Enhancement of the capabilities of water professionals.

### Programme prospectus

This programme is designed to provide an opportunity for the participants to visit, observe and critically analyse the effectiveness, success and shortcomings of the methods being used by the Thai government agencies and multinational private agro-industry companies in transferring technologies to farmers. The programme will be organized so that the participants will:

- Visit leading farms (the types will be selected according to the responsibilities and interests of the participants) to observe and discuss farming practices with farmers, including management, problems related to production, farm input and marketing of the produce, etc.
- Meet extension officers and farmers to discuss approaches used by the Thai government agencies and universities in transferring new technologies to the farmers with different levels of knowledge, attitude and socio-economic background.
- Visit and observe a technology transfer centre, a new agricultural extension approach where farmers take leading roles in sharing their knowledge and experiences with their peers and other supporting services and facilities provided by the government as necessary measures for the success of agricultural development programmes.
- Learn the strategic approaches used by private sector and multinational agro-industry companies in transferring advanced production technology for high value products such as vegetables, hybrid seeds, poultry, etc. to farmers.
- Meet international participants and local counterparts to discuss and share experiences from their respective countries.

At the end of the programme, participants will be able to assess the effectiveness of various extension strategies and methods being implemented in Thailand by both government and private sectors in transferring agricultural technologies to farmers, select the most appropriate practices and approach and develop an action plan for implementation in their own country.

### Target group

Senior level staff/Junior professionals

### Programme WWW

<http://extension.ait.ac.th/ecourseDetail.asp?CourseCode=SV12>

### Dates/duration

Two weeks, November – December

### Language

English

### Partners

Department of Agriculture; Department of Agricultural Extension; Royal Development Project; Kasetsart Universities

## Asian Institute of Technology Extension

### Acronym

AIT Extension

### Country

Thailand

### Address

AIT Extension  
Asian Institute of Technology  
PO Box 4  
Klong Luang  
Pathum Thani 12120  
Thailand

**Tel** +66-2-524 5272

**Fax** +66-2-524 5247

### E-mail

extension@ait.ac.th

### Institute/organization www

<http://extension.ait.ac.th/>

### Brief description of institution/organization

The Asian Institute of Technology (AIT) is an autonomous, international post-graduate institute based in Bangkok, Thailand. Established in 1959, AIT responds to the needs of the Asia-Pacific region through higher education, training and research.

AIT Extension adds an exciting new dimension to AIT's work. Bringing together the Institute's highly-regarded academic and outreach centres, Extension identifies and responds to regional opportunities for continuing education, training and consultancy and thus helps realize AIT's mission to develop highly qualified and committed professionals who will play a leading role in the sustainable development of the region.

Through its three divisions: Agriculture Resources and Development (ARD), Information Technology (IT), Management and Education Development (MED) and Language Centre, Extension offers on-campus and off-campus short-term education and training programmes and consultancy services that respond to clients' needs.

Programme title

Institution/organization

**Agricultural irrigation specialist****Contact person**

Ms Meg Ogea – Education Manager

**Contact person's address**

The Irrigation Association  
6540 Arlington Boulevard  
Falls Church, Virginia, 22042-6638  
USA

**Contact person's Telephone/Fax****Tel** +1-703-536 7080 **Fax** +1-703-536 7019**Contact person's E-mail**

Meg@irrigation.org

**Type of programme**

Course  
Certificate  
Certificate of participation

**Frequency of programme**

With sufficient participants and upon request.

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

This class is designed for individuals involved in the management and operation of on-farm irrigation systems. These systems include surface irrigation methods such as furrow and border strip irrigation, as well as pressurized systems such as micro irrigation and sprinklers.

There are two basic questions faced by on-farm water managers: when to irrigate and how much to irrigate. Participants will address these questions with sections on evapotranspiration and crop coefficients, practical irrigation scheduling techniques, how irrigation efficiency and uniformity influence irrigation scheduling and salinity effects.

It is recommended that the student meet the following prerequisites: Field experience with the management and operation of on-farm irrigation systems is desired, but not required.

**Target group**

Junior professionals

**Programme WWW**<http://www.irrigation.org/education.htm>**Dates/duration**

Two days

**Language**

English

**The Irrigation Association****Acronym**

IA

**Country**

USA

**Address**

The Irrigation Association  
6540 Arlington Boulevard  
Falls Church, VA 22042-6638  
USA

**Tel** +1-703-536 7080**Fax** +1-703-536 7019**E-mail**

education@irrigation.org

**Institute/organization www**<http://www.irrigation.org/>**Brief description of institution/organization**

The Irrigation Association (IA) is a non-profit, North American organization. Its mission is to improve the products and practices used to manage water resources and to help shape the worldwide business environment of the irrigation industry. The Irrigation Association's interest in water resources encompasses the application conservation, drainage, improvement and recovery of water for economic and environmental enhancement in agriculture, turfgrass, landscape and forestry.

The Irrigation Association's efforts focus on playing significant roles and providing leadership in four areas:

- The IA interacts with private and governmental organizations and other associations in the development of legislation and regulations to ensure the availability, quality and accessibility of water supplies for, or affected by, irrigation and the efficacy of trade policies.
- IA establishes and conducts authoritative educational programmes to broaden and focus public awareness on issues related to water management, to provide professional certification of practitioners of irrigation-related disciplines and to ensure the accessibility of research information pertinent to industry practices and products.
- IA perceives itself as an effective catalyst and umbrella organization for outreach, communication and coordination among the diverse parties and interests involved in irrigation.
- IA contributes to the establishment of recognized standards and guidelines dealing with irrigation-related products, engineering applications and practices worldwide.

**Application of system techniques in water resources****Contact person**

Dr U.C. Chaube – Professor and Head

**Contact person's address**

Water Resources Development Training Centre  
Indian Institute of Technology Roorkee  
Roorkee – 247-667 (UA)  
India

**Contact person's Telephone/Fax**

**Tel** +91-1332-285251 **Fax** +91-1332-271073

**Contact person's E-mail**

wrdtc@iitr.ernet.in

**Type of programme**

Module of a comprehensive M.Sc. course (selective module).

**Certificate**

University credits

**Frequency of programme**

Annual

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

This is a module (selective) of a comprehensive M.Sc. course in Irrigation Water Management, which is oriented to training in-service engineers in the irrigation water management.

Trainees are exposed to the relevant specializations of the concerned subject matter as elective courses as per their choice of interest.

The programme includes field visits to project sites, seminars and discussions.

**Target group**

In-service engineers

**Programme WWW**

<http://www.rurkiu.ernet.in/acads/depts/wrdtc/academia.shtml>

**Dates/duration**

Two weeks, selective module

**Language**

English

**Water Resources Development Training Center,  
Indian Institute of Technology Roorkee****Acronym**

WRDTC-IIT

**Country**

India

**Address**

Indian Institute of Technology Roorkee  
Roorkee – 247 667 (UA)  
India

**Tel** +91-1332-285251/271073

**Fax** +91-1332-271073/273560

**E-mail**

wrdtc@iitr.ernet.in

**Institute/organization www**

<http://www.iitr.ernet.in/acads/depts/wrdtcnew/index.htm>

**Brief description of institution/organization**

The objective of the Center is to train serving engineers from Asia, Africa and other developing countries in various aspects of water resources engineering. It seeks to bring together engineering talent from these countries for a first hand understanding and appreciation of each other's problems and to help evolve, by pooling knowledge, new techniques in water resources development and utilization suited to conditions in this region. In addition, the education programme at the Center helps foster a feeling of fellowship amongst the engineers of these countries.

Since its creation in 1951 the Center has trained 2 032 serving engineers from 38 countries in the field of Water Resources Development and Irrigation Water Management.

Programme title	Institution/organization
<p><b>Appropriate modernization and management of irrigation systems</b></p> <p><b>Contact person</b> Professor Atef Hamdy – Director of Research</p> <p><b>Contact person's address</b> Istituto Agronomico Mediterraneo Via Ceglie 9 70010 Valenzano (Bari) Italy</p> <p><b>Contact person's Telephone/Fax</b> <b>Tel</b> +39-80-4606221 <b>Fax</b> +39-80-4606206</p> <p><b>Contact person's E-mail</b> Hamdy@iamb.it</p> <p><b>Type of programme</b> Course</p> <p><b>Certificate</b> Certificate of participation</p> <p><b>Frequency of programme</b> Past event (2001, Turkey) may be repeated upon request.</p> <p><b>Programme's main focus</b> Enhancement of the capabilities of water professionals.</p> <p><b>Programme prospectus</b> CIHEAM/IAMB organizes thematic short-term courses covering different aspects of land and water management in irrigated agriculture.</p> <p>These are addressed to agronomists, agricultural and civil engineers and researchers with a number of years of practical or research experience after graduation. The courses cover new subjects and techniques while giving an overview of the experience and applications in the Mediterranean region.</p> <p>The course on appropriate modernization and management of irrigation systems was held in Kahramanmaras, Turkey, in September 2001 in collaboration with the Cukurova University, Adana, Turkey and can be repeated upon request.</p> <p><b>Target group</b> Agronomists, agricultural and civil engineers and researchers</p> <p><b>Programme WWW</b> <a href="http://netserver.iamb.it/en/index.htm">http://netserver.iamb.it/en/index.htm</a></p> <p><b>Dates/duration</b> Two weeks</p> <p><b>Language</b> English</p> <p><b>Partners</b> National Water Research Center, Cairo, Egypt; FAO, Rome, Italy; IAV Hassan II, Agadir, Morocco; INRAT, IRESA, Tunisia; University of Bari, Italy; University of Bologna, Italy; ICARDA, Syria; ILRI, Faculty of Agriculture, Wageningen, The Netherlands; University of Davis, USA; Fordham University, New York, USA; Cukurova University, Adana, Turkey; National Research Council, Zaragoza, Spain; INRA, Thiverval-Grignon, France; CEMAGREF, France; CIHEAM, Montpellier, France; Technical University, Lisbon, Portugal.</p>	<p><b>Centre International de Hautes Etudes Agronomiques Méditerranéennes/Institut Agronomique Méditerranéen de Bari</b></p> <p><b>Acronym</b> CIHEAM/IAMB</p> <p><b>Country</b> Italy</p> <p><b>Address</b> Istituto Agronomico Mediterraneo Via Ceglie 9 70010 Valenzano (Bari) Italy</p> <p><b>Tel</b> +39-080-4606201</p> <p><b>Fax</b> +39-080-4606206</p> <p><b>E-mail</b> iamdir@iamb.it</p> <p><b>Institute/organization www</b> <a href="http://www.iamb.it/">http://www.iamb.it/</a></p> <p><b>Brief description of institution/organization</b> The Mediterranean Agronomic Institute of Bari (IAMB) is one of four Institutes that make up the Centre International de Hautes Etudes Agronomiques Méditerranéennes (CIHEAM). It was founded in 1962 as the Intergovernmental Organization under the auspices of the OECD (Organization for Economic Co-operation and Development).</p> <p>The CIHEAM mandate is to be an instrument of cooperation between the countries of the Mediterranean in the areas of postgraduate agricultural education and the promotion of agricultural research through cooperative networks.</p> <p>Currently, CIHEAM comprises 13 member countries: Albania, Algeria, Egypt, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Spain, Tunisia and Turkey. Over four decades of activity, CIHEAM has become recognized for excellence in the fields of education and research in agriculture, water-resource management, agri-food industry and the environment, working in partnership with the specialist national institutions as well as in cooperation with the international organizations active in the Region (e.g. ICARDA, FAO, OADA, etc.).</p>

## Automation of irrigation canals

### Contact person

Dr Timothy K. Gates – Co-Director

### Contact person's address

Colorado Institute for Irrigation Management  
Colorado State University  
Fort Collins, CO 80523-1372  
USA

### Contact person's Telephone/Fax

**Tel** +1-970-491-5043 **Fax** +1-970-491-6787

### Contact person's E-mail

tkg@engr.colostate.edu

### Type of programme

Course  
Field trip included

### Certificate

Certificate of participation

### Frequency of programme

Available on request

### Programme's main focus

Enhancement of the capabilities of water professionals.

### Programme prospectus

The objective of the course is to provide irrigation engineers an understanding of the different types of automation schemes that are available and the advantages and disadvantages of each scheme. The participants will have an opportunity to see canal automation equipment in action.

The course focuses on problems with existing water delivery schedules, prerequisites for improved performance of irrigation canals and the need for automation, real-time estimation of crop water requirements, flow measurement structures, upstream and downstream control operational concepts and methods, automation equipment, local control using hydromechanical and electro-mechanical devices, feedback, constant-volume and constant-level control, data transmission equipment, advantages and disadvantages of gate stroking algorithm for scheduled deliveries, real-time feedback control for demand deliveries, hybrid control algorithm and dynamic regulation.

The course will include field trips to the Salt River Project and Central Arizona Project.

### Target group

Irrigation engineers who are responsible for planning and designing schemes for automated flow monitoring and control in irrigation systems.

### Programme WWW

<http://www.engr.colostate.edu/ce/centers/ciim/courses/course10.html>

### Dates/duration

Two to four weeks, upon request, negotiable with at least 90 days advance notice.

### Language

English, with interpreters upon request.

## Colorado Institute for Irrigation Management

### Acronym

CIIM

### Country

USA

### Address

Colorado Institute for Irrigation Management  
Department of Civil Engineering  
Colorado State University  
B212 Engineering Building  
Fort Collins, Colorado 80523-1372  
USA

**Tel** +1-970-491-5247

**Fax** +1-970-491-6787

### E-mail

CIIM@engr.colostate.edu

### Institute/organization www

<http://www.engr.colostate.edu/ce/centers/ciim/index.shtml>

### Brief description of institution/organization

The Colorado Institute for Irrigation Management (CIIM) coordinates the resources of Colorado State University and its experienced professional faculty in the area of irrigation management. The CIIM provides integrated interdisciplinary training, technical assistance and project management services worldwide to organizations involved in all phases of irrigation management. In addition, CIIM has responsibility for Colorado State's large-scale interdisciplinary irrigation project activities.

With access to the University's vast resources of expertise and experience for its special courses and other activities, CIIM's resources include Colorado State's computers; the University's hydraulic and irrigation laboratories; the National Technological University (worldwide satellite communication technical training courses); Colorado State's engineering facilities, world famous for irrigation research and hydraulic engineering; and comparative databases on Irrigation Management issues in a number of countries.

CIIM and Colorado State University are committed to excellence in training. CIIM conducts custom study tours, workshops, intensive short courses and field trips for a wide variety of irrigation topics.

CIIM's activities involve: Research, Technical Assistance and Development and Education and Training.

Programme title	Institution/organization
<p><b>Basic pipeline hydraulics</b></p> <p><b>Contact person</b> Dr Charles M. Burt – Chairperson</p> <p><b>Contact person's address</b> ITRC/BRAE 1 Grand Avenue Cal Poly State University San Luis Obispo, CA 93407 USA</p> <p><b>Contact person's Telephone/Fax</b> <b>Tel</b> +1-805-756-2379 <b>Fax</b> +1-805-756-2433</p> <p><b>Contact person's E-mail</b> cburt@calpoly.edu</p> <p><b>Type of programme</b> Classroom/laboratory Certificate Certificate of participation</p> <p><b>Frequency of programme</b> Annual</p> <p><b>Programme's main focus</b> Enhancement of the capabilities of water professionals.</p> <p><b>Programme prospectus</b> This course is a part of the ITRC's comprehensive educational programme Designer/Manager School of Irrigation, which offers a variety of classes designed for both agricultural and landscape irrigation professionals.</p> <p>The course includes the following:</p> <ul style="list-style-type: none"> <li>– Pipe materials and sizes</li> <li>– Mainline computations, tapered pipe and branches</li> <li>– Energy equation, friction and elevation changes</li> <li>– Minor losses</li> </ul> <p><b>Target group</b> Junior professionals</p> <p><b>Programme WWW</b> <a href="http://www.itrc.org/classes/IDSchoolO.rr.html">http://www.itrc.org/classes/IDSchoolO.rr.html</a></p> <p><b>Dates/duration</b> Two days, August</p> <p><b>Language</b> English</p> <p><b>Partners</b> US Bureau of Reclamation, Mid-Pacific Region</p>	<p><b>Irrigation Training and Research Center, Cal Poly State University</b></p> <p><b>Acronym</b> ITRC</p> <p><b>Country</b> USA</p> <p><b>Address</b> ITRC/BRAE 1 Grand Avenue Cal Poly State University San Luis Obispo, CA 93407 USA</p> <p><b>Tel</b> +1-805-756 2429</p> <p><b>Fax</b> +1-805-756 2433</p> <p><b>E-mail</b> cburt@calpoly.edu</p> <p><b>Institute/organization www</b> <a href="http://www.itrc.org">http://www.itrc.org</a></p> <p><b>Brief description of institution/organization</b> The Irrigation Training and Research Center of Cal Poly State University provides direct technical assistance in irrigation district modernization to over 90 irrigation districts in the western US. The Center specializes in SCADA, modernization plans, canal and pump automation and water balances. Focus is on a pragmatic approach, with successful field applications. In addition, the Center works with field irrigation (drip, sprinkler, surface, fertigation, salinity and drainage). Training, which is based on the extensive field experience of ITRC, occupies about 30 percent of the annual budget. Research is about 20 percent and technical assistance is 50 percent. The Center is 100 percent financially self-supporting and houses offices, an excellent outdoor facility for teaching field irrigation techniques and a unique Water Delivery Facility to teach all forms of canal modernization, pumping, SCADA, etc.</p> <p>One speciality of the Center is automation of canals, including development of a complete modernization plan, modeling of the canal system to tune control algorithms, specifications of hardware and software and providing quality control during field installation, so that the end result is an effective, working system.</p>

## Basic principles and developments in flow measurement

### Contact person

Mr Tony Wahl – Hydraulic Engineer

### Contact person's address

Water Resources Research Laboratory  
Mail Code: D-8560  
Bureau of Reclamation, Department of Interior  
PO Box 25007  
Denver CO 80225-0007  
USA

### Contact person's Telephone/Fax

**Tel** +1-303-445-2155 **Fax** +1-303-445-6324

### Contact person's E-mail

twahl@do.usbr.gov

### Type of programme

Classroom/laboratory

### Certificate

Certificate of participation

### Frequency of programme

Annual

### Programme's main focus

Enhancement of the capabilities of water professionals.

### Programme prospectus

A training course on basic principles and developments in flow measurement has been developed at the Bureau of Reclamation's Water Resources Research Laboratory for water conservation specialists, canal operators, managers and design engineers who are interested in improved water measurement methods.

The course covers open channel and closed pipe measurement methods and instrumentation. Laboratory workshop sessions involve each trainee in hands-on flow measurement using different techniques and various types of water measurement equipment. A computer laboratory is also included in the class with in-depth coverage and application of a Windows-based programme to design long-throated flumes (WinFlume); the preferred alternative for many new flow measurement sites, since the devices can be custom designed for the site. They are cheaper to build than Parshall flumes and are more versatile since they can be designed to operate with a small head difference. The computer programme produces rating tables, equations and staff gage templates at full scale.

### Target group

Watermasters, canal operators, managers and engineers irrigation district managers and operators.

### Programme WWW

[http://www.usbr.gov/pmts/hydraulics\\_lab/workshops/flowmeasurementworkshop.html](http://www.usbr.gov/pmts/hydraulics_lab/workshops/flowmeasurementworkshop.html)

### Dates/duration

Three days, January

### Language

English

## Water Resources Research Laboratory, US Bureau of Reclamation

### Acronym

WRRL

### Country

USA

### Address

Water Resources Research Laboratory  
Mail Code: D-8560  
Bureau of Reclamation, Department of Interior  
PO Box 25007  
Denver CO 80225-0007  
USA

**Tel** +1-303-445-2139

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### E-mail

wrrlcontact@kayak.do.usbr.gov

### Institute/organization www

<http://www.usbr.gov/wrrl/>

### Brief description of institution/organization

The Water Resources Research Laboratory (WRRL) Group (formerly known as the Hydraulics Branch) has a long history of applying hydraulic modeling expertise to the solution of water resources, hydraulics and fluid mechanics problems. Today's Water Resources Research Laboratory Group provides technical services and pursues applied research to provide application based solutions and new water resource management tools to reclamation managers. Studies are also conducted for other government agencies at all levels, including international, federal, state and local.

WRRL staff provide hydraulic analysis and testing through physical modeling, computer modeling, field investigations and analytical studies. Working teams conduct project specific investigations, provide training and pursue research in water conservation, environmental hydraulics, testing and evaluation of hydraulic systems and dam safety.

Programme title	Institution/organization
<p><b>Canal modernization</b></p> <p><b>Contact person</b> Dr Charles M. Burt – Chairperson</p> <p><b>Contact person's address</b> ITRC/BRAE 1 Grand Avenue Cal Poly State University San Luis Obispo, CA 93407 USA</p> <p><b>Contact person's Telephone/Fax</b> <b>Tel</b> +1-805-756-2379 <b>Fax</b> +1-805-756-2433</p> <p><b>Contact person's E-mail</b> cburt@calpoly.edu</p> <p><b>Type of programme</b> Classroom/laboratory</p> <p><b>Certificate</b> Certificate of participation</p> <p><b>Frequency of programme</b> Annual</p> <p><b>Programme's main focus</b> Enhancement of the capabilities of water professionals.</p> <p><b>Programme prospectus</b> The Cal Poly ITRC, on behalf of the Mid-Pacific Region of the USBR and the Water Conservation Office of the California Department of Water Resources, provides an annual series of training and educational opportunities for staff, engineers, board members of agricultural irrigation districts, as well as field operators. The classes utilize the excellent indoor and outdoor facilities at Cal Poly.</p> <p><i>Canal modernization</i> is a class in this series that includes:</p> <ul style="list-style-type: none"> <li>- Details of how to automate gates</li> <li>- Determining reservoir capacity and citing</li> <li>- Control structure design and sizing</li> <li>- Flow control</li> <li>- Capacity requirements</li> <li>- Upstream, downstream, combination controls and centralized control options.</li> </ul> <p><b>Target group</b> Engineers, managers and technicians</p> <p><b>Programme WWW</b> <a href="http://www.itrc.org/classes/IDSchoolO.rr.html">http://www.itrc.org/classes/IDSchoolO.rr.html</a></p> <p><b>Dates/duration</b> Two days, March</p> <p><b>Language</b> English</p> <p><b>Partners</b> Mid-Pacific Region of the USBR Water Conservation Office of the California Department of Water Resources</p>	<p><b>Irrigation Training and Research Center, Cal Poly State University</b></p> <p><b>Acronym</b> ITRC</p> <p><b>Country</b> USA</p> <p><b>Address</b> ITRC/BRAE 1 Grand Avenue Cal Poly State University San Luis Obispo, CA 93407 USA</p> <p><b>Tel</b> +1-805-756-2429</p> <p><b>Fax</b> +1-805-756-2433</p> <p><b>E-mail</b> cburt@calpoly.edu</p> <p><b>Institute/organization www</b> <a href="http://www.itrc.org">http://www.itrc.org</a></p> <p><b>Brief description of institution/organization</b> The Irrigation Training and Research Center of Cal Poly State University provides direct technical assistance in irrigation district modernization to over 90 irrigation districts in the western US. The Center specializes in SCADA, modernization plans, canal and pump automation and water balances. Focus is on a pragmatic approach, with successful field applications. In addition, the Center works with field irrigation (drip, sprinkler, surface, fertigation, salinity and drainage). Training, which is based on the extensive field experience of ITRC, occupies about 30 percent of the annual budget. Research is about 20 percent and technical assistance is 50 percent. The Center is 100 percent financially self-supporting and houses offices, an excellent outdoor facility for teaching field irrigation techniques and a unique Water Delivery Facility to teach all forms of canal modernization, pumping, SCADA, etc.</p> <p>One speciality of the Center is automation of canals, including development of a complete modernization plan, modeling of the canal system to tune control algorithms, specifications of hardware and software and providing quality control during field installation, so that the end result is an effective, working system.</p>



**Canal operation****Contact person**

Dr Charles M. Burt – Chairperson

**Contact person's address**

ITRC/BRAE  
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San Luis Obispo, CA 93407  
USA

**Contact person's Telephone/Fax**

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**Contact person's E-mail**

cburt@calpoly.edu

**Type of programme**

Classroom/laboratory

**Certificate**

Certificate of participation

**Frequency of programme**

Twice a year

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

Cal Poly ITRC, on behalf of the Mid-Pacific Region of the USBR and the Water Conservation Office of the California Department of Water Resources, is providing the seventh annual series of training and educational opportunities for staff, engineers and board members of agricultural irrigation districts, as well as field operators. The classes utilize the excellent indoor and outdoor facilities at Cal Poly.

*Canal operation* is a class in this series that includes:

- The service concept, including farmer constraints and needs;
- Purposes of different check structures
- Water level vs flow rate control
- Minimizing tail-ender problem while still achieving good service
- How to get more water through various structures
- Introduction to SCADA
- Interaction between canals and turnouts

**Target group**

Irrigation district field operators

**Programme WWW**

<http://www.itrc.org/classes/IDSchoolOfIrr.html>

**Dates/duration**

One day, January and March

**Language**

English

**Partners**

Mid-Pacific Region of the USBR  
Water Conservation Office of the California Department of Water Resources

**Irrigation Training and Research Center, Cal Poly State University****Acronym**

ITRC

**Country**

USA

**Address**

ITRC/BRAE  
1 Grand Avenue  
Cal Poly State University  
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**Institute/organization www**

<http://www.itrc.org>

**Brief description of institution/organization**

The Irrigation Training and Research Center of Cal Poly State University provides direct technical assistance in irrigation district modernization to over 90 irrigation districts in the western US. The Center specializes in SCADA, modernization plans, canal and pump automation and water balances. Focus is on a pragmatic approach, with successful field applications. In addition, the Center works with field irrigation (drip, sprinkler, surface, fertigation, salinity and drainage). Training, which is based on the extensive field experience of ITRC, occupies about 30 percent of the annual budget. Research is about 20 percent and technical assistance is 50 percent. The Center is 100 percent financially self-supporting and houses offices, an excellent outdoor facility for teaching field irrigation techniques and a unique Water Delivery Facility to teach all forms of canal modernization, pumping, SCADA, etc.

One speciality of the Center is automation of canals, including development of a complete modernization plan, modeling of the canal system to tune control algorithms, specifications of hardware and software and providing quality control during field installation, so that the end result is an effective, working system.

Programme title	Institution/organization
<p><b>Capacity building for Participatory Irrigation Management (PIM), training of trainees</b></p> <p><b>Contact person</b> Professor Atef Hamdy – Director of Research</p> <p><b>Contact person's address</b> Istituto Agronomico Mediterraneo Via Ceglie 9 70010 Valenzano (Bari) Italy</p> <p><b>Contact person's Telephone/Fax</b> <b>Tel</b> +91 –744-500642/682 <b>Fax</b> +39-80-4606206</p> <p><b>Contact person's E-mail</b> Hamdy@iamb.it</p> <p><b>Type of programme</b> Course</p> <p><b>Includes brainstorming workshops</b> Certificate Certificate of participation</p> <p><b>Frequency of programme</b> Past event, can be repeated upon request.</p> <p><b>Programme's main focus</b> Enhancement of the capabilities of water professionals.</p> <p><b>Programme prospectus</b> Faced with a clear need for training related to PIM in the Mediterranean region, CIHEAM/IAMB worked with the World Bank and the International Fund for Agricultural Development (IFAD) to develop a capacity-building programme for training in key countries embarking on PIM.</p> <p>Since 1997, CIHEAM/IAMB has successfully been running its course on PIM in Bari, Italy. Experts from several countries in the region have attended the course. This shows that donors and government authorities now recognize the importance of the PIM approach in the development of water resources.</p> <p>Training of trainees is another programme run jointly with the World Bank and IFAD at Bari. The programme included several brainstorming workshops to discuss plans, policies and strategies to enhance the PIM concept.</p> <p><b>Target group</b> Trainers</p> <p><b>Programme WWW</b> <a href="http://netserver.iamb.it/en/index.htm">http://netserver.iamb.it/en/index.htm</a></p> <p><b>Dates/duration</b> Upon request</p> <p><b>Language</b> English</p> <p><b>Partners</b> World Bank, Washington, USA International Fund for Agricultural Development (IFAD), Italy Wageningen University, The Netherlands</p>	<p><b>Centre International de Hautes Etudes Agronomiques Méditerranéennes/Institut Agronomique Méditerranéen de Bari</b></p> <p><b>Acronym</b> CIHEAM/IAMB</p> <p><b>Country</b> Italy</p> <p><b>Address</b> Istituto Agronomico Mediterraneo Via Ceglie 9 70010 Valenzano (Bari) Italy</p> <p><b>Tel</b> +39-080-4606201</p> <p><b>Fax</b> +39-080-4606206</p> <p><b>E-mail</b> iamdir@iamb.it</p> <p><b>Institute/organization www</b> <a href="http://www.iamb.it/">http://www.iamb.it/</a></p> <p><b>Brief description of institution/organization</b> The Mediterranean Agronomic Institute of Bari (IAMB) is one of four Institutes endowing the Centre International de Hautes Etudes Agronomiques Méditerranéennes (CIHEAM), it was founded in 1962 as an intergovernmental organization under the auspices of the OECD (Organization for Economic Co-operation and Development).</p> <p>The CIHEAM mandate is to be an instrument of cooperation between the countries of the Mediterranean in the area of postgraduate agricultural education and the promotion of agricultural research through cooperative networks.</p> <p>Currently, CIHEAM comprises 13 member countries: Albania, Algeria, Egypt, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Spain, Tunisia and Turkey. Over four decades of activity, CIHEAM has become recognized for excellence in the field of education and research in agriculture, water-resource management, agri-food industry and the environment, working in partnership with the specialist national institutions as well as in cooperation with the international organizations active in the Region (e.g. ICARDA, FAO, OADA, etc.).</p>

### Capacity building training course for members of managing committee of Water Users Associations (WUAs) and agriculture extension service persons

#### Contact perso

Mr L.K. Nuwal – Director

#### Contact person's address

Irrigation Management and Training Institute  
Dadabadi  
Kota (Rajasthan) 324009  
India

#### Contact person's Telephone/Fax

**Tel** +91-2402376 **Fax** +91-744-2500682

#### Contact person's E-mail

dirimt12@sancharnet.in

#### Type of programme

Course

#### Certificate

Certificate of participation

#### Frequency of programme

Scheduled annually, may be repeated upon request.

#### Programme's main focus

Enhancement of the capabilities of water professionals.

#### Programme prospectus

The objective of the course is to strengthen the capacity of elected representatives to take up their duties and responsibilities and to generate confidence. The training includes the concept of Participatory Irrigation Management (PIM) as well as the technical aspects of operation and maintenance, agriculture, revenue, accounts, etc.

The course includes: status of water resources development in Rajasthan, PIM concept, necessity and governmental policy, interdisciplinary approach, farmers organizations (objectives, functions, duties and responsibilities), powers of Water Users Associations, levying and fees, offences and penalties, election of members and managing committees of WUA, settlement of disputes, sustainability of WUA, existing and future role of agriculture department PIM activities, socio-economic aspects of farming communities, rehabilitation of irrigation systems, exposure to hydraulic parameters of irrigation systems, discharge measurements, preparation of operation plan of canal and water regulation systems, Warabandi, maintenance of irrigation systems, maintenance of accounts and records and financial audit of WUAs, monitoring and evaluation of irrigation activities under PIM, social audit of farmers' organization, water budgeting and irrigation scheduling.

#### Target group

Members of managing committee of WUAs and agriculture extension service personnel.

#### Dates/duration

Five days, scheduled upon request but may change as per requirement.

#### Language

Hindi

### Rajasthan Irrigation Management and Training Institute

#### Acronym

Rajasthan IMTI

#### Country

India

#### Address

Irrigation Management and Training Institute  
Dadabadi  
Kota (Rajasthan) 324009  
India

**Tel** +91-744-500642/682

**Fax** +91-744-2500682

#### E-mail

dirimt12@sancharnet.in

#### Institute/organization www

[Http://www.rajirrigation.com/2imti.htm](http://www.rajirrigation.com/2imti.htm)

#### Brief description of institution/organization

Accelerated irrigated land use and optimization of agriculture production through efficient soil-crop-water management without resources degradation is essential to meet food and fibre needs of India's population. Sustained and increased agriculture production is possible only through an Integrated Participatory Development Approach where all concerned are dedicated to Nation development. This entails appropriate training of all planners, field workers and farmers by a management institute that is well equipped with the necessary tools and training facilities. The Irrigation Management and Training Institute, Kota (Rajasthan) fulfils this requirement.

The Institute was established in August 1984 under the Water Resources Management and Training (WRMT) Project, which was assisted by the United States Agency for International Development Programme.

Its main objectives are:

- Training the in-service personnel of Irrigation and Agriculture Departments and farmers in irrigation management through regular courses, workshops and seminars, to improve their job performance to optimize agriculture production in the irrigated areas.
- Provide training in irrigation management and irrigated agriculture.

Programme title	Institution/organization
<p><b>Capsule course on drip and sprinkler irrigation</b></p>	<p><b>Water &amp; Land Management Institute</b></p>
<p><b>Contact person</b> Mr S.L. Bhingare – Director General</p>	<p><b>Acronym</b> WALMI</p>
<p><b>Contact person's address</b> Water and Land Management Institute WALMI Campus Kanchanwadi Post Box No. 504 Aurangabad – 431 005 Maharashtra India</p>	<p><b>Country</b> India</p>
<p><b>Contact person's Telephone/Fax</b> <b>Tel</b> +91-240-2376-021 <b>Fax</b> +91-240-2376-836</p>	<p><b>Address</b> Water and Land Management Institute WALMI Campus Kanchanwadi Post Box No. 504 Aurangabad – 431 005 Maharashtra India</p>
<p><b>Contact person's E-mail</b> walmi@sancharnet.in</p>	<p><b>Tel</b> +91-240-2376-159/160/161/162 <b>Fax</b> +91-240-2376 836</p>
<p><b>Type of programme</b> Field-based/Course</p>	<p><b>E-mail</b> walmi@sancharnet.in</p>
<p><b>Certificate</b> Certificate of participation</p>	<p><b>Institute/organization www</b> <a href="http://www.walmi.org/default.html">http://www.walmi.org/default.html</a></p>
<p><b>Frequency of programme</b> Scheduled once a year, may be repeated on request.</p>	<p><b>Brief description of institution/organization</b></p>
<p><b>Programme's main focus</b> Enhancement of the capabilities of water professionals.</p>	<p>Water and Land Management Institute (WALMI, Aurangabad) is a premier in-service training institute in irrigation and water management. The institute was established as an autonomous registered society and a first institute in India by the Irrigation Department, Government of Maharashtra with the financial support of the World Bank and USAID. The Institute provides in-service training in irrigation water management for the officers of the Irrigation and Agriculture Department, Government of Maharashtra and to the farmers in the state.</p>
<p><b>Programme prospectus</b> The course curriculum includes: drip and sprinkler irrigation development in Maharashtra, components and design principles, soil characteristics and water quality aspects in drip and sprinkler irrigation, estimates of water requirement for irrigated crops by drip and sprinkler irrigation, planning, design and irrigation scheduling of drip and sprinkler irrigation systems, evaluation procedures, chemigation, fertigation, operation and maintenance, field demonstration on farmers field, economic flexibility and planning and design of drip irrigation system on the basis of field data and discussion. The training course is beneficial to executive junior engineers of the Irrigation Department and agriculture officers of the Agricultural Department of Maharashtra State.</p>	<p>The Institute also conducts national and international programmes in irrigation water management sponsored by various donor agencies. The Institute's other activities include the Action Research Programme and Consultancy Services in the field of irrigation water management for the different stakeholders.</p>
<p><b>Target group</b> Executive, middle level and junior engineers from the irrigation department and agriculture officers of the Agricultural Department</p>	
<p><b>Programme WWW</b> <a href="http://www.walmi.org/training.htm">http://www.walmi.org/training.htm</a></p>	
<p><b>Dates/duration</b> Five days, scheduled upon request but may change as per requirement.</p>	
<p><b>Language</b> English</p>	

**Centre pivot design****Contact person**

Ms Meg Ogea – Education Manager

**Contact person's address**

The Irrigation Association  
6540 Arlington Boulevard  
Falls Church, Virginia, 22042-6638  
USA

**Contact person's Telephone/Fax**

**Tel** +1-703-536-7080 **Fax** +1-703-536-7019

**Contact person's E-mail**

Meg@irrigation.org

**Type of programme**

Course

**Certificate**

Certificate of participation

**Frequency of programme**

With sufficient participants and upon request.

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

This is an agriculturally oriented class where participants will learn how to design Centre Pivot systems. This advanced class includes inventory resources, application rates, hydraulics, mainline layout and sizing, nozzle selection and scheduling. Both theory and practical applications are covered. It is strongly recommended that the student meet the following prerequisites: Principles of irrigation, design hydraulics, understanding pumps, controls and wells and chemigation/fertigation are excellent precursors for this class.

**Target group**

Junior professionals

**Programme WWW**

<http://www.irrigation.org/education.htm>

**Dates/duration**

Two days

**Language**

English, Spanish

**The Irrigation Association****Acronym**

IA

**Country**

USA

**Address**

The Irrigation Association  
6540 Arlington Boulevard  
Falls Church, VA 22042-6638  
USA

**Tel** +1-703-536-7080

**Fax** +1-703-536-7019

**E-mail**

education@irrigation.org

**Institute/organization www**

<http://www.irrigation.org/>

**Brief description of institution/organization**

The Irrigation Association (IA) is a non-profit North American organization. Its mission is to improve the products and practices used to manage water resources and to help shape the worldwide business environment of the irrigation industry. The Irrigation Association's interest in water resources encompasses the application conservation, drainage, improvement and recovery of water for economic and environmental enhancement in agriculture, turfgrass, landscape and forestry.

The Irrigation Association's efforts focus on providing leadership in four areas:

- The IA interacts with private and governmental organizations and other associations in the development of legislation and regulations ensure the availability, quality and accessibility of water supplies for, or affected by, irrigation and the efficacy of trade policies.
- IA establishes and conducts authoritative educational programmes to broaden and focus public awareness of issues related to water management, to provide professional certification of practitioners of irrigation related disciplines and to ensure the accessibility of research information pertinent to industry practices and products.
- IA perceives itself as an effective catalyst and umbrella organization for outreach, communication and coordination among the diverse parties and interests involved in irrigation.
- IA contributes to the establishment of recognized standards and guidelines dealing with irrigation-related products, engineering applications and practices worldwide.

**Central American Water Resource Management Network****Contact person**

Mr David Bethune  
CARA Project Manager and Canadian Coordinator

**Contact person's address**

International Centre  
University of Calgary  
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Calgary, Alberta  
T2N 1N4  
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**Contact person's E-mail**

bethune@geo.ucalgary.ca

**Type of programme**

Virtual network

**Certificate**

None

**Frequency of programme**

Available online

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

The objective of the Network is to increase the capacity of Central American countries and train human resources in hydrology and water resources management and link institutes to a network of public/private professionals and nongovernmental agencies.

The Network's fields of interest cover technical, environmental, legal, economic and the social aspects of water resources management.

**Target group**

Junior professionals

**Programme WWW**

<http://www.caragua.org/HTML/HomePageEnglish.htm>

**Dates/duration**

Available online

**Language**

English

**Partners**

University of Calgary  
University of Waterloo  
University of San Carlos of Guatemala  
University of Costa Rica  
The National Autonomous University of Nicaragua

**Canadian International Development Agency****Acronym**

CIDA

**Country**

Canada

**Address**

Canadian International Development Agency  
200 Promenade du Portage  
Hull, Quebec  
K1A 0G4  
Canada

**Tel** +1-819-997-5006

**Fax** +1-819-953-6088

**E-mail**

[info@acdi-cida.gc.ca](mailto:info@acdi-cida.gc.ca)

**Institute/organization www**

<http://www.acdi-cida.gc.ca/index.htm>

**Brief description of institution/organization**

CARA is a network of water management programmes in Central America comprising the University of Calgary, University of Waterloo, University of San Carlos of Guatemala, University of Costa Rica and the National Autonomous University of Nicaragua.

## Change management

### Contact person

Ms J.J. Bos – Course Coordinator

### Contact person's address

Department of Management and Institutions  
IHE  
PO Box 3015  
2601 DA Delft  
The Netherlands

### Contact person's Telephone/Fax

**Tel** +31-15-2151-770 **Fax** +31-15-2122-921

### Contact person's E-mail

jjb@ihe.nl

### Type of programme

Course

### Certificate

Certificate of participation

### Frequency of programme

Annual

### Programme's main focus

Enhancement of the capabilities of water professionals.

### Programme prospectus

The course prepares participants for positions of leadership in the water sector and utility management. Successful participants will be able to: understand the concepts of change management, including drivers for change in a water organization; understand the key objectives of measuring, monitoring and benchmarking; be able to implement, guide and manage a change programme in a water organization.

The syllabus covers topics such as: Managing Change: What is Change? The Change Process, Key Dimensions for Managing Operations and Change, Approach to Change, Barriers to Change; Institutional Strengthening, People and Change, Capacity Building, Human Resources Development, Training Capabilities; Management Information Systems, Benchmarking and Improvement; Total Quality Management, Quality Circles, Quality Assurance; Performance Objectives; Case Studies in Utilities; Management skills: Leadership; Delegation; Motivation; Team-building; Time Management; Communications and Effective Meetings.

### Target group

Mid-career professionals

### Programme WWW

<http://www.ihe.nl/vmp/articles/Short-Courses/SHO-MAI-CM.html>

### Dates/duration

18 days, May – June

### Language

English

### Partners

Guest lecturers from universities, research institutes, water management, agencies and government agencies.

## International Institute for Infrastructural, Hydraulic and Environmental Engineering

### Acronym

UNESCO – IHE

### Country

The Netherlands

### Address

IHE  
PO Box 3015  
2601 DA Delft  
The Netherlands

**Tel** +31-15-2151 715

**Fax** +31-15-2122 921

### E-mail

ihe@ihe.nl

### Institute/organization www

<http://www.ihe.nl/vmp/contentsHomePage.html>

### Brief description of institution/organization

IHE's vision is a world in which people control their water and environmental resources in a sustainable manner, in which all sectors of society, particularly the poor, can enjoy the benefits of the basic services. IHE's mission is to contribute to the education and training of capable professionals and to build the capacity of knowledge centres and other organizations in the fields of water, the environment and infrastructure in developing countries and countries in transition.

IHE offers a range of Masters and Ph.D. degree programmes, as well as shorter certificate and tailor-made training courses. These courses annually attract professionals of more than 70 different nationalities. IHE's research and development activities, including Ph.D. research, focus on priority areas of immediate concern to developing countries and countries in transition. These activities also aim to contribute to the overall knowledge base in a wide range of fields covered by each of IHE's main themes for research, education and institutional development.

Five research themes are distinguished at IHE. These are water security, environmental integrity, urbanization, integration and information and communication.

**Communication in irrigation management****Contact person**

Dr Timothy K. Gates – Co-Director

**Contact person's address**

Colorado Institute for Irrigation Management  
Colorado State University  
Fort Collins, CO 80523-1372  
USA

**Contact person's Telephone/Fax**

**Tel** +1-970-491-5043 **Fax** +1-970-491-6787

**Contact person's E-mail**

tkg@engr.colostate.edu

**Type of programme**

Course  
Field visits included

**Certificate**

Certificate of participation

**Frequency of programme**

Available on request

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

The objective of the course is to provide participants with the information, technology and tools to develop integrated, comprehensive, communication strategies for irrigation agencies or for support programmes within irrigation projects. The course introduces participants to the basic principles of communication, the underlying models of the communication process, methods of audience analysis and inclusion, campaign strategies including the development of measurable outcomes and the role of technology in message dissemination.

Depending on how the course is customized, participants will learn through developing their own specific communication strategies or campaign. They will be exposed to a broad range of communication tools including video and multi-media and visit a major communication programme in irrigation, for example, the Salt River Project, Arizona.

**Target group**

Administrators, planners, engineers and communication specialists who are responsible for developing and maintaining communication programmes within irrigation agencies

**Programme WWW**

<http://www.engr.colostate.edu/ce/centers/ciim/courses/course10.html>

**Dates/duration**

Four weeks, upon request, negotiable with at least 90 days advance notice.

**Language**

English, with interpreters upon request.

**Colorado Institute for Irrigation Management****Acronym**

CIIM

**Country**

USA

**Address**

Colorado Institute for Irrigation Management  
Department of Civil Engineering  
Colorado State University  
B212 Engineering Building  
Fort Collins, Colorado 80523-1372  
USA

**Tel** +1-970-491-5247

**Fax** +1-970-491-6787

**E-mail**

CIIM@engr.colostate.edu

**Institute/organization www**

<http://www.engr.colostate.edu/ce/centers/ciim/index.shtml>

**Brief description of institution/organization**

The Colorado Institute for Irrigation Management (CIIM) coordinates the resources of Colorado State University and its experienced professional faculty in the area of irrigation management. The CIIM provides integrated interdisciplinary training, technical assistance and project management services worldwide to organizations involved in all phases of irrigation management. In addition, CIIM has the responsibility for Colorado State's large-scale interdisciplinary irrigation project activities.

With access to the University's vast resources of expertise and experience with its special courses and other activities, CIIM's resources include Colorado State's computers; the University's hydraulic and irrigation laboratories; the National Technological University (worldwide satellite communication technical training courses); Colorado State's engineering facilities, world famous for irrigation research and hydraulic engineering; and comparative databases on Irrigation Management issues in a number of countries.

CIIM and Colorado State University are committed to excellence in training. CIIM conducts custom study tours, workshops, intensive short courses and field trips for a wide variety of irrigation topics. CIIM's activities involve: Research, Technical Assistance and Development and Education and Training.



## Control of irrigation water for Water Users Associations (WUAs)

### Contact person

Dr Timothy K. Gates – Co-Director

### Contact person's address

Colorado Institute for Irrigation Management  
Colorado State University  
Fort Collins, CO 80523-1372  
USA

### Contact person's Telephone/Fax

**Tel** +1-970-491-5043 **Fax** +1-970-491-6787

### Contact person's E-mail

tkg@engr.colostate.edu

### Type of programme

Course/Field visits included, case studies investigated

### Certificate

Certificate of participation

### Frequency of programme

Available on request

### Programme's main focus

Enhancement of the capabilities of water professionals.

### Programme prospectus

The objective of the course is to provide participants with an understanding of the fundamentals of water control (regulation of flow discharge and water levels) and its practice, for the design and management of irrigation systems under participatory management. In any social effort, such as irrigation, there is an underlying requirement for organization, which includes the use of appropriate engineering designs to support the organizational rules and procedures. The role of appropriate water control designs becomes increasingly important in participatory irrigation management where a vital public resource (water) is jointly managed by government agencies and Water Users Associations.

Participatory irrigation management challenges professionals to design water control facilities to meet both agency and farmer requirements and aptitudes.

The fundamentals of irrigation water control will be studied by using case studies of irrigation systems in diverse social and physical settings such as in Egypt, Spain, Indonesia and Pakistan. Simultaneously, the participants will observe the practice of these fundamentals in the field by visiting several private and public irrigation enterprises in Colorado.

### Target group

Irrigation professionals who are responsible for the design and management of water control facilities, water delivery and its distribution among water users

### Programme WWW

<http://watercenter.colostate.edu/Shortcourses/control.htm>

### Dates/duration

Four weeks, upon request, negotiable with at least 90 days advance notice.

### Language

English, with interpreters upon request

## Colorado Institute for Irrigation Management

### Acronym

CIIM

### Country

USA

### Address

Colorado Institute for Irrigation Management  
Department of Civil Engineering  
Colorado State University  
B212 Engineering Building  
Fort Collins, Colorado 80523-1372  
USA

**Tel** +1-970-491-5247

**Fax** +1-970-491-6787

### E-mail

CIIM@engr.colostate.edu

### Institute/organization www

<http://www.engr.colostate.edu/ce/centers/ciim/index.shtml>

### Brief description of institution/organization

The Colorado Institute for Irrigation Management (CIIM) coordinates the resources of Colorado State University and its experienced professional faculty in the area of irrigation management. The CIIM provides integrated interdisciplinary training, technical assistance and project management services worldwide to organizations involved in all phases of irrigation management. In addition, CIIM has responsibility for Colorado State's large-scale interdisciplinary irrigation project activities.

With access to the University's vast resources of expertise and experience for its special courses and other activities, CIIM's resources include Colorado State's computers; the University's hydraulic and irrigation laboratories; the National Technological University (worldwide satellite communication technical training courses); Colorado State's engineering facilities, world famous for irrigation research and hydraulic engineering; and comparative databases on Irrigation Management issues in a number of countries.

CIIM and Colorado State University are committed to excellence in training. CIIM conducts custom study tours, workshops, intensive short courses and field trips for a wide variety of irrigation topics. CIIM's activities involve: Research, Technical Assistance and Development and Education and Training.

Programme title	Institution/organization
<p><b>Course on Water Users Associations (WUAs) for field level functionaries</b></p> <p><b>Contact person</b> Mr S.L. Bhingare – Director General</p> <p><b>Contact person's address</b> Water and Land Management Institute WALMI Campus Kanchanwadi Post Box No. 504 Aurangabad – 431 005 Maharashtra India</p> <p><b>Contact person's Telephone/Fax</b> <b>Tel</b> +91-240-2376-021 <b>Fax</b> +91-240-2376-836</p> <p><b>Contact person's E-mail</b> walmi@sancharnet.in</p> <p><b>Type of programme</b> Course</p> <p><b>Certificate</b> Certificate of participation</p> <p><b>Frequency of programme</b> Scheduled annually but may be repeated upon request.</p> <p><b>Programme's main focus</b> Enhancement of the capabilities of water professionals.</p> <p><b>Programme prospectus</b> The course curriculum includes the concept and present status of Participatory Irrigation Management (PIM) in Maharashtra, benefits of Water Users Associations (WUA), formation process of Water User cooperatives (WUCs), MOU and bylaws of WUCs, water supply to WUCs and cropping patterns. Case studies and experience sharing of participants are included. The training course is useful for the updating of knowledge on water users cooperatives WUCs (or WUAs); the various facets of WUA of Dafter Karkuns Record Keeping Clerks at the Irrigation Division, headed by an Executive Engineer in Irrigation Department/CADS.</p> <p><b>Target group</b> Grassroot level functionary at division level in the Irrigation Department</p> <p><b>Programme WWW</b> <a href="http://www.walmi.org/training.htm">http://www.walmi.org/training.htm</a></p> <p><b>Dates/duration</b> Scheduled annually, may be repeated upon request.</p> <p><b>Language</b> Marathi (Local Language)</p>	<p><b>Water &amp; Land Management Institute</b></p> <p><b>Acronym</b> WALMI</p> <p><b>Country</b> India</p> <p><b>Address</b> Water and Land Management Institute WALMI Campus Kanchanwadi Post Box No. 504 Aurangabad – 431 005 Maharashtra India</p> <p><b>Tel</b> +91-240-2376-159/160/161/162 <b>Fax</b> +91-240-2376 836</p> <p><b>E-mail</b> walmi@sancharnet.in</p> <p><b>Institute/organization www</b> <a href="http://www.walmi.org/default.html">http://www.walmi.org/default.html</a></p> <p><b>Brief description of institution/organization</b> Water and Land Management Institute (WALMI, Aurangabad) is a premier in-service training institute in irrigation and water management. The institute was established as an autonomous registered society and a first institute in India by the Irrigation Department, Government of Maharashtra with the financial support of the World Bank and USAID. The Institute provides in-service training in irrigation water management for the officers of the Irrigation and Agriculture Department, Government of Maharashtra and to the farmers in the state.</p> <p>The Institute also conducts national and international programmes in irrigation water management sponsored by various donor agencies. The Institute's other activities include the Action Research Programme and Consultancy Services in the field of irrigation water management for the different stakeholders.</p>

**Course on improving irrigation efficiency****Contact person**

Mr S. L. Bhingare – Director General

**Contact person's address**

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WALMI Campus  
Kanchanwadi  
Post Box No. 504  
Aurangabad – 431 005 Maharashtra  
India

**Contact person's Telephone/Fax**

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**Contact person's E-mail**

walmi@sancharnet.in

**Type of programme**

Workgroup/seminar

**Certificate**

Certificate of participation

**Frequency of programme**

Annual

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

The course curriculum includes: irrigation projects off-farm and on-farm efficiencies and evaluation procedure, measurement of conveyance losses, discharge data keeping and analysis, crop water requirements, practices of canal operation with the introduction of various controls, important flow measuring devices, improved practices of canal maintenance, adopting pressurized irrigation, ways and means to improving assessment and recovery, irrigation scheduling, evaluation and improvement of existing measuring devices, water distribution methods, water level regulation in irrigation canals, economic evaluation of irrigation projects, efficient use of water through implementation of irrigation act, diagnostic analysis of irrigation project, farmers participation in Integrated Water Management (IWM), improving project performance through conjunctive use and discharge carrying capacity and discussion.

The training course is beneficial to AE-I, SDO/SDE/JE of the Irrigation Department in Maharashtra State.

**Target group**

Junior professionals

**Programme WWW**

<http://www.walmi.org/training.htm>

**Dates/duration**

Five days, July.

**Language**

English

**Water & Land Management Institute****Acronym**

WALMI

**Country**

India

**Address**

Water and Land Management Institute  
WALMI Campus  
Kanchanwadi  
Post Box No. 504  
Aurangabad – 431 005 Maharashtra  
India

**Tel** +91-240-2376-159/160/161/162

**Fax** +91-240-2376-836

**E-mail**

walmi@sancharnet.in

**Institute/organization www**

<http://www.walmi.org/default.htm>

**Brief description of institution/organization**

Water and Land Management Institute (WALMI, Aurangabad) is a premier in-service training institute in irrigation and water management. The Institute was established as an autonomous registered society and a first institute in India by Irrigation Department, Government of Maharashtra with the financial support of the World Bank and USAID. The Institute provides in-service training in irrigation water management for the officers of the Irrigation and Agriculture Department, Government of Maharashtra and to the farmers of the state. The institute also conducts national and international programmes in irrigation water management sponsored by different donor agencies. The Institutes other activities include the Action Research Programme and Consultancy Services in the field of irrigation water management for the different stakeholders.

**Course on irrigation management****Contact person**

Mr Orhan Oden – Director

**Contact person's address**

Agrohydrology Research and Training Center  
PO Box: 20  
35660 Menemen  
Izmir  
Turkey

**Contact person's Telephone/Fax**

**Tel** +90-232-8310512 **Fax** +90-232-8311051

**Contact person's E-mail**

thm\_ae@khgm.gov.tr

**Type of programme**

Course

**Certificate**

Certificate of participation

**Frequency of programme**

Annual

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

Irrigation management is a 12-day intensive course. The following topics are included in the main curriculum:

- Modern irrigation techniques
- Crop-Water relationship
- Cotton irrigation performance
- Irrigation management transfer
- Irrigation water socio-economics
- The use of GIS in agriculture

The course also includes an introduction to various models in agriculture such as hydrological, erosion, crop growth and salinity models.

**Target group**

Mid-career professionals

**Dates/duration**

12 days, September.

**Language**

English

**Agrohydrology Research and Training Center****Acronym**

ARTC

**Country**

Turkey

**Address**

Agrohydrology Research and Training Center  
PO Box: 20  
35660 Menemen  
Izmir  
Turkey

**Tel** +90-232-8311052 (Switchboard)

**Fax** +90-232-8311051

**E-mail**

thm\_ae@khgm.gov.tr

**Institute/organization www**

<http://www.khgm.gov.tr/iartc.htm>

**Brief description of institution/organization**

To provide a focus for international cooperation in land and water research and training in Turkey, the General Directorate of Rural Services has built a new Center at Menemen near Izmir. The mission of the Center is to raise levels of sustainable performance in land and water management and so meet client, national and international goals. The objectives of the Center are to identify the constraints to sustainable performance, develop and test appropriate cost-effective responses to address the constraints and guide and accelerate the learning of individuals so that they realize their potential.

The Center continues to identify land and water research and training needs. In line with client demands the Centre and its partners are further developing the Center's capacity to offer relevant programmes and services.

The Center offers programmes and services that include international collaborative research opportunities, short courses and study tours, tailor-made programmes designed to meet the specific needs of individual clients, international conferences, symposiums, seminars and workshops.

**Course on operation of MI Schemes****Contact person**

Mr S.L. Bhingare – Director General

**Contact person's address**

Water and Land Management Institute  
WALMI Campus  
Kanchanwadi  
Post Box No. 504  
Aurangabad – 431 005 Maharashtra  
India

**Contact person's Telephone/Fax**

**Tel** +91-240-2376-021 **Fax** +91-240-2376-836

**Contact person's E-mail**

walmi@sancharnet.in

**Type of programme**

Course

**Certificate**

Certificate of participation

**Frequency of programme**

Scheduled once a year may be repeated on request.

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

The Course curriculum includes planning of MI schemes, flow measurement in canal and outlets, crop and cropping pattern for MI schemes, irrigation scheduling, problems in execution, flow measurement demonstration, maintenance procedure and priorities for MI works, planning execution and maintenance, formation of WUA and assessment and recovery. Also includes case studies and discussions.

The training course is beneficial to site AEE to JE of the Irrigation Department in Maharashtra state.

**Target group**

Junior and middle level officers of the Irrigation Department

**Programme WWW**

<http://www.walmi.org/training.htm>

**Dates/duration**

Five days, scheduled upon request. but may change as per requirement.

**Language**

English

**Water & Land Management Institute****Acronym**

WALMI

**Country**

India

**Address**

Water and Land Management Institute  
WALMI Campus  
Kanchanwadi  
Post Box No. 504  
Aurangabad – 431 005 Maharashtra  
India

**Tel** +91-240-2376-159/160/161/162

**Fax** +91-240-2376-836

**E-mail**

walmi@sancharnet.in

**Institute/organization www**

<http://www.walmi.org/default.htm>

**Brief description of institution/organization**

Water and Land Management Institute (WALMI, Aurangabad) is a premier in-service training institute in irrigation and water management. The Institute was established as an autonomous registered society and a first institute in India by the Irrigation Department, Government of Maharashtra with the financial support of the World Bank and USAID. The Institute provides in-service training in irrigation water management for the officers of the Irrigation and Agriculture Department, Government of Maharashtra and to the farmers in the state.

The Institute also conducts National and International Programmes in irrigation water management sponsored by different donor agencies. The Institute's other activities include the Action Research Programme and Consultancy Services in the field of irrigation water management for the different stakeholders.

## Curso internacional de Técnicas de Riego y Gestión de Regadío

### Persona de contacto

Sr. Alejandro Tomás Espinosa – Director Técnico de CENTER

### Dirección

CENTER  
Apartado de correos 109  
Torrejón de Ardoz  
28850 Madrid  
España

### Teléfono/Fax de la persona de contacto

**Tel** +34-91-347-92-08 **Fax** +34-91-347-16-50

### Correo-e

atomases@mapya.es

### Tipo de programa

Clases teóricas/laboratorio  
Visitas de campo  
Curso

### Certificado

Certificado de participación

### Frecuencia

Anual

### Objetivo del programa

Refuerzo de la capacidad de los profesionales del agua

### Contenido del programa

El objetivo es transmitir experiencias en el campo de la tecnología de riegos para una mayor capacitación de los participantes y conseguir así una mejora de la producción agraria y una gestión más eficaz del agua.

El programa trata los siguientes aspectos:

- Aspectos legales, administrativos y de organización
- Programación de riegos
- Sistemas de riego
- Drenaje
- Prácticas
- Visitas técnicas

### Destinatarios

Ingenieros agrónomos o titulados superiores relacionados con agronomía o hidráulica agrícola, que tengan experiencia en redes colectivas de riego y/o comunidades de regantes.

### Fecha/duración

7 semanas, Septiembre–Octubre

### Idioma

Español

## Centro Nacional de Tecnología de Regadíos

### Acrónimo

CENTER

### País

España

### Dirección

CENTER  
Apartado de correos 109  
Torrejón de Ardoz  
28850 Madrid  
España

**Teléfono** +34-91-347-92-00

**Fax** +34-91-347-92-28

### Correo-e

center@mapya.es

### Página Web del instituto/organismo

<http://www.mapya.es/desarr/pags/center/index.htm>

### Breve descripción del instituto/organismo

El Centro Nacional de Tecnología de Regadíos (CENTER) depende del Ministerio de Agricultura, Pesca y Alimentación y está adscrito a la Dirección General de Desarrollo Rural. CENTER fue concebido por el MAPA como una herramienta al servicio del regadío español, pieza fundamental del sistema agroalimentario, en los siguientes aspectos:

- Transferencia de tecnología
- Normalización de los equipos y sistemas de riego
- Evaluación de los sistemas de riego
- Cooperación internacional sobre regadíos

**Curso sobre modernización de regadíos****Persona de contacto**

Sr. José Marcelo Rodríguez García de Muro  
Director del Gabinete de Formación y Documentación

**Dirección**

Gabinete de Formación y Documentación  
C/ Alfonso XII  
3-28014 Madrid  
España

**Teléfono/Fax de la persona de contacto**

**Tel** +34-91-335-7310 **Fax** +34-91-335-7249

**Correo-e**

JMarcelo.Rodriguez@cedex.es

**Tipo de programa**

Módulo de master en Ingeniería de Regadíos del CEDEX

**Certificado**

Certificado de participación

**Frecuencia**

Anual

**Objetivo del programa**

Refuerzo de la capacidad de los profesionales del agua

**Contenido del programa**

El contenido temático del master corresponde a la revisión de los principios básicos y a la exposición de los criterios de diseño y construcción, y de las técnicas de planificación y de gestión de las obras de infraestructura y equipamiento de riego, en especial de las de carácter público. A estos efectos, el master está estructurado en 10 módulos y Curso sobre modernización de regadíos es uno de ellos.

**Destinatarios**

Jóvenes profesionales

**Página Web**

<http://www.cedex.es/formacion/online.html>

**Fecha/duración**

Dos semanas

**Idioma**

Español

**Socios**

Dirección General de Obras Públicas y  
Calidad de las Aguas (MIMAM)  
Agencia Española de Cooperación Internacional (AECI) del MAE  
Organización de Estados Americanos (OEA)

**Centro Nacional de Tecnología de Regadíos****Acrónimo**

CENTER

**País**

España

**Dirección**

CENTER  
Apartado de correos 109  
Torrejón de Ardoz  
28850 Madrid  
España

**Teléfono** +34-91-347 92 00

**Fax** +34-91-347 92 28

**Correo-e**

center@mapya.es

**Página Web del instituto/organismo**

<http://www.mapya.es/desarr/pags/center/index.htm>

**Breve descripción del instituto/organismo**

El Centro Nacional de Tecnología de Regadíos (CENTER) depende del Ministerio de Agricultura, Pesca y Alimentación y está adscrito a la Dirección General de Desarrollo Rural. CENTER fue concebido por el MAPA como una herramienta al servicio del regadío español, pieza fundamental del sistema agroalimentario, en los siguientes aspectos:

- Transferencia de tecnología
- Normalización de los equipos y sistemas de riego
- Evaluación de los sistemas de riego
- Cooperación internacional sobre regadíos

Programme title	Institution/organization
<p><b>Customized training</b></p> <p><b>Contact person</b> Dr Wiboon Boonyatharokul – Director</p> <p><b>Contact person's address</b> AIT Extension Asian Institute of Technology PO Box 4 Klong Luang Pathum Thani 12120 Thailand</p> <p><b>Contact person's Telephone/Fax</b> <b>Tel</b> +66-2-5245268 <b>Fax</b> +66-2-5245247</p> <p><b>Contact person's E-mail</b> wiboon@ait.ac.th</p> <p><b>Type of programme</b> Tailor-made</p> <p><b>Certificate</b> Certificate of participation</p> <p><b>Frequency of programme</b> Upon request</p> <p><b>Programme's main focus</b> Enhancement of the capabilities of water professionals.</p> <p><b>Programme prospectus</b> AIT Extension has a comprehensive catalogue of professional development training courses. It is well known by AIT Extension that every organization it works with is unique and that change interventions required by clients are specific to that organization. Where required, AIT Extension therefore works closely with clients to develop unique training solutions that meet their specific needs.</p> <p>For all customized training programmes, the process usually begins with the clients' own terms of reference, to which Extension responds. Meetings are scheduled with the client to discuss all details of the training and to ensure that the clients' needs are met.</p> <p>Such training is often a critical component of organizational change. The training process itself is user-driven and interactive, with course facilitators encouraging participants to share their own knowledge, skills and ability in work-related simulations.</p> <p><b>Target group</b> As required by the client.</p> <p><b>Programme WWW</b> <a href="http://extension.ait.ac.th/customizedtrain.asp">http://extension.ait.ac.th/customizedtrain.asp</a></p> <p><b>Dates/duration</b> Time and schedule to be specified by the client.</p> <p><b>Language</b> English</p>	<p><b>Asian Institute of Technology Extension</b></p> <p><b>Acronym</b> AIT Extension</p> <p><b>Country</b> Thailand</p> <p><b>Address</b> AIT Extension Asian Institute of Technology PO Box 4 Klong Luang Pathum Thani 12120 Thailand</p> <p><b>Tel</b> +66-2-524-5272</p> <p><b>Fax</b> +66-2-524-5247</p> <p><b>E-mail</b> extension@ait.ac.th</p> <p><b>Institute/organization www</b> <a href="http://extension.ait.ac.th/">http://extension.ait.ac.th/</a></p> <p><b>Brief description of institution/organization</b> The Asian Institute of Technology (AIT) is an autonomous, international post-graduate institute based in Bangkok, Thailand. Established in 1959, AIT responds to the needs of the Asia-Pacific region through higher education, training and research. AIT Extension adds an exciting new dimension to AIT's work. Bringing together the Institute's highly regarded academic and outreach centres, Extension identifies and responds to regional opportunities for continuing education, training and consultancy and thus helps realize AIT's mission to develop highly qualified and committed professionals who will play a leading role in the sustainable development of the region.</p> <p>Through its three divisions: Agriculture Resources and Development (ARD), Information Technology (IT), Management and Education Development (MED) and Language Centre, Extension offers on-campus and off-campus short-term education and training programmes and consultancy services that respond to clients' needs.</p>



**Design and evaluation of farm irrigation systems****Contact person**

Mr Rajib Ahsan – Associate Manager

**Contact person's address**

Regional Environmental Management Center  
School of Civil Engineering  
Asian Institute of Technology  
PO Box 4, Klong Luang  
Pathumthani 12120  
Thailand

**Contact person's Telephone/Fax**

**Tel** +66-2-524-6066 **Fax** +66-2-524-6425

**Contact person's E-mail**

remc@ait.ac.th

**Type of programme**

Course

**Certificate**

Certificate of participation

**Frequency of programme**

Upon request

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

The course teaches the following subjects:

- Appropriate and economic design of farm irrigation systems
- Surface, sprinkler and drip systems
- Selection of pumping equipment, pumps, prime mover and ancillary equipment

**Target group**

Junior professionals

**Programme WWW**

<http://www.sce.ait.ac.th/remc/>

**Dates/duration**

Varies from a few days to several weeks depending on the clients' needs and faculty staff availability.

**Language**

English, Thai

**Regional Environmental Management Center****Acronym**

REMC

**Country**

Thailand

**Address**

Regional Environmental Management Center  
School of Civil Engineering  
Asian Institute of Technology  
PO Box 4, Klong Luang  
Pathumthani 12120  
Thailand

**Tel** +66-2-524-6066

**Fax** +66-2-524 6425

**E-mail**

remc@ait.ac.th

**Institute/organization www**

<http://www.sce.ait.ac.th/remc/>

**Brief description of institution/organization**

The Regional Environmental Management Center (REMC), affiliated to the Asian Institute of Technology (AIT), is a unique research and development consultancy forum for private and public sector environmental organizations from Asia-Pacific countries in need of appropriate solutions to water resources and environmental problems.

REMC carries out its activities in six broad categories in various fields. These are software development, research, consultancy, member services, publications and training.

Training, consultancy and research and development projects are undertaken independently by the Center or jointly with companies, institutes and universities in and outside Thailand.

Programme title	Institution/organization
<p><b>Design and implementation of modern irrigation systems</b></p> <p><b>Contact person</b> Dr Samir El-Sebae Ahmed – Head of Unit</p> <p><b>Contact person's address</b> Human Resources Development Unit ICARDA PO Box 5466 Aleppo Syria</p> <p><b>Contact person's Telephone/Fax</b> <b>Tel</b> +1-963-21-2213433/2213477 <b>Fax</b> +963-21-2225105/2213490</p> <p><b>Contact person's E-mail</b> S.AHMED@CGIAR.ORG</p> <p><b>Type of programme</b> Course</p> <p><b>Certificate</b> Certificate of participation</p> <p><b>Frequency of programme</b> Past event (1998–1999, Jordan), can be repeated upon request.</p> <p><b>Programme's main focus</b> Enhancement of the capabilities of water professionals.</p> <p><b>Programme prospectus</b> ICARDA's training activities are designed to improve the capabilities of national agricultural research scientists in developing countries to assist them in conducting their research independently. These activities also foster transfer of technology and address issues related to farmers' decisions in adopting or rejecting new technologies.</p> <p>ICARDA runs short courses that focus on specialized problems or topics of interest to national agricultural research programmes and are conducted at ICARDA's headquarters or other sites. The course on the design and implementation of modern irrigation systems was held in Jordan in December 1998 – January 1999 and could be repeated upon request.</p> <p><b>Target group</b> National agricultural research scientists</p> <p><b>Programme WWW</b> <a href="http://www.icarda.cgiar.org/Training.htm">http://www.icarda.cgiar.org/Training.htm</a></p> <p><b>Dates/duration</b> Six weeks</p> <p><b>Language</b> English, Arabic</p>	<p><b>International Center for Agricultural Research in Dry Areas</b></p> <p><b>Acronym</b> ICARDA</p> <p><b>Country</b> Syria</p> <p><b>Address</b> PO Box 5466 Aleppo Syria</p> <p><b>Tel</b> +963-21-2213433/2225012</p> <p><b>Fax</b> +963-21-2213490</p> <p><b>E-mail</b> <a href="mailto:icarda@cgiar.org">icarda@cgiar.org</a></p> <p><b>Institute/organization www</b> <a href="http://www.icarda.cgiar.org/index.htm">http://www.icarda.cgiar.org/index.htm</a></p> <p><b>Brief description of institution/organization</b> Established in 1977, the International Center for Agricultural Research in Dry Areas (ICARDA) is one of the 16 centres strategically located around the world and supported by the Consultative Group on International Agricultural Research (CGIAR).</p> <p>With its main research station and offices based in Aleppo, Syria, ICARDA works through a network of partnerships with national, regional and international institutions, universities, non-governmental organizations and ministries in the developing world; and with advanced research institutes in industrialized countries.</p>

## Design and management of local irrigation organizations

### Contact person

Dr Timothy K. Gates – Co-Director

### Contact person's address

Colorado Institute for Irrigation Management  
Colorado State University  
Fort Collins, CO 80523-1372  
USA

### Contact person's Telephone/Fax

**Tel** +1-970-491-5043 **Fax** +1-970-491-6787

### Contact person's E-mail

tkg@engr.colostate.edu

### Type of programme

Course

### Certificate

Certificate of participation.

### Frequency of programme

Available on request.

### Programme's main focus

Enhancement of the capabilities of water professionals.

### Programme prospectus

The objective of the course is to provide engineers and professionals with the concepts and procedures for analysing the social-organizational aspects of creating new local irrigation organizations or for improving existing local organizations.

By the end of the course, participants should be able to conduct an interdisciplinary analysis that will produce results that are useful in decision-making.

The course focuses on concepts and procedures for analysing the social-organizational aspects of creating new local organizations or for improving existing organizations to obtain effective local water control to enhance production of food and fibre, to encourage farmer involvement in the operation and management of local irrigation facilities, to mobilize local resources such as irrigation assessments, fees and taxes and to develop linkages between central project managers and local farmers.

### Target group

Engineers and professionals who are responsible for creating local irrigation organizations or improving those already existing.

### Programme WWW

<http://www.engr.colostate.edu/ce/centers/ciim/courses/course7.html>

### Dates/duration

Four weeks, upon request, negotiable with at least 90 days advance notice.

### Language

English, with interpreters upon request.

## Colorado Institute for Irrigation Management

### Acronym

CIIM

### Country

USA

### Address

Colorado Institute for Irrigation Management  
Department of Civil Engineering  
Colorado State University  
B212 Engineering Building  
Fort Collins, Colorado 80523-1372  
USA

**Tel** +1-970-491-247

**Fax** +1-970-491-6787

### E-mail

CIIM@engr.colostate.edu

### Institute/organization www

<http://www.engr.colostate.edu/ce/centers/ciim/index.shtml>

### Brief description of institution/organization

The Colorado Institute for Irrigation Management (CIIM) coordinates the resources of Colorado State University and its experienced professional faculty in the area of irrigation management. The CIIM provides integrated interdisciplinary training, technical assistance and project management services worldwide to organizations involved in all phases of irrigation management. In addition, CIIM has responsibility for Colorado State's large-scale interdisciplinary irrigation project activities.

With access to the University's vast resources of expertise and experience for its special courses and other activities, CIIM's resources include Colorado State's computers; the University's hydraulic and irrigation laboratories; the National Technological University (worldwide satellite communication technical training courses); Colorado State's engineering facilities, world famous for irrigation research and hydraulic engineering; and comparative databases on irrigation management issues in a number of countries.

CIIM and Colorado State University are committed to excellence in training. CIIM conducts custom study tours, workshops, intensive short courses and field trips for a wide variety of irrigation topics. CIIM's activities involve: Research, Technical Assistance and Development and Education and Training.

Programme title	Institution/organization
<p><b>Design and management of sprinkler and trickle irrigation systems</b></p> <p><b>Contact person</b> Dr Timothy K. Gates – Co-Director</p> <p><b>Contact person's address</b> Colorado Institute for Irrigation Management Colorado State University Fort Collins, CO 80523-1372 USA</p> <p><b>Contact person's Telephone/Fax</b> <b>Tel</b> +1-970-491-043 <b>Fax</b> +1-970-491-687</p> <p><b>Contact person's E-mail</b> tkg@engr.colostate.edu</p> <p><b>Type of programme</b> Course</p> <p><b>Certificate</b> Certificate of participation</p> <p><b>Frequency of programme</b> Available on request.</p> <p><b>Programme's main focus</b> Enhancement of the capabilities of water professionals.</p> <p><b>Programme prospectus</b> The objective of the course is to provide irrigation engineers with principles and practices needed to design, implement and evaluate efficient sprinkler and trickle irrigation systems and to provide irrigation specialists with modern irrigation sprinkler and trickle irrigation management information.</p> <p>The course focuses on principles of sprinkler and trickle irrigation systems, irrigation flow measurement and water control systems, system performance and evaluation procedures and system automation. Local visits are made to various sprinkler and trickle irrigation systems to discuss their operation and performance with system operators and managers. Exercises will include the use of personal computers to facilitate system design and analysis.</p> <p><b>Target group</b> Irrigation engineers who are responsible for planning and designing sprinkler and trickle irrigation systems.</p> <p><b>Programme WWW</b> <a href="http://www.engr.colostate.edu/ce/centers/ciim/courses/course6.html">http://www.engr.colostate.edu/ce/centers/ciim/courses/course6.html</a></p> <p><b>Dates/duration</b> Four weeks, upon request, negotiable with at least 90 days advance notice.</p> <p><b>Language</b> English, with interpreters upon request.</p>	<p><b>Colorado Institute for Irrigation Management</b></p> <p><b>Acronym</b> CIIM</p> <p><b>Country</b> USA</p> <p><b>Address</b> Colorado Institute for Irrigation Management Department of Civil Engineering Colorado State University B212 Engineering Building Fort Collins, Colorado 80523-1372 USA</p> <p><b>Tel</b> +1-970-491-5247</p> <p><b>Fax</b> +1-970-491-6787</p> <p><b>E-mail</b> CIIM@engr.colostate.edu</p> <p><b>Institute/organization www</b> <a href="http://www.engr.colostate.edu/ce/centers/ciim/index.shtml">http://www.engr.colostate.edu/ce/centers/ciim/index.shtml</a></p> <p><b>Brief description of institution/organization</b> The Colorado Institute for Irrigation Management (CIIM) coordinates the resources of Colorado State University and its experienced professional faculty in the area of irrigation management. The CIIM provides integrated interdisciplinary training, technical assistance and project management services worldwide to organizations involved in all phases of irrigation management. In addition, CIIM has responsibility for Colorado State's large-scale interdisciplinary irrigation project activities.</p> <p>With access to the University's vast resources of expertise and experience for its special courses and other activities, CIIM's resources include Colorado State's computers; the University's hydraulic and irrigation laboratories; the National Technological University (worldwide satellite communication technical training courses); Colorado State's engineering facilities, world famous for irrigation research and hydraulic engineering; and comparative databases on irrigation management issues in a number of countries.</p> <p>CIIM and Colorado State University are committed to excellence in training. CIIM conducts custom study tours, workshops, intensive short courses and field trips for a wide variety of irrigation topics. CIIM's activities involve: Research, Technical Assistance and Development and Education and Training.</p>

**Design and management of surface irrigation systems****Contact person**

Dr Timothy K. Gates – Co-Director

**Contact person's address**

Colorado Institute for Irrigation Management  
Colorado State University  
Fort Collins, CO 80523-1372  
USA

**Contact person's Telephone/Fax**

**Tel** +1-970-491-5043 **Fax** +1-970-491-6787

**Contact person's E-mail**

tkg@engr.colostate.edu

**Type of programme**

Course

**Certificate**

Certificate of participation.

**Frequency of programme**

Available on request.

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

The objective of the course is to provide irrigation engineers with principles and practices needed to design, implement and evaluate efficient surface irrigation systems and to provide irrigation specialists with modern surface irrigation management information.

The course focuses on principles of surface irrigation systems and management structures, irrigation flow measurement and water control systems, land levelling, system performance and evaluation procedures, system automation. Local visits are made to various surface irrigation systems to discuss their operation and performance with system operators and managers. Exercises will include the use of personal computers to facilitate system design and analysis.

**Target group**

Irrigation engineers who are responsible for planning and designing surface irrigation systems and for advising specialists on surface irrigation management principles and practices.

**Programme WWW**

<http://www.engr.colostate.edu/ce/centers/ciim/courses/course02.shtml>

**Dates/duration**

Four weeks, upon request, negotiable with at least 90 days advance notice.

**Language**

English, with interpreters upon request.

**Colorado Institute for Irrigation Management****Acronym**

CIIM

**Country**

USA

**Address**

Colorado Institute for Irrigation Management  
Department of Civil Engineering  
Colorado State University  
B212 Engineering Building  
Fort Collins, Colorado 80523-1372  
USA

**Tel** +1-970-491-5247

**Fax** +1-970-491-6787

**E-mail**

CIIM@engr.colostate.edu

**Institute/organization www**

<http://www.engr.colostate.edu/ce/centers/ciim/index.shtml>

**Brief description of institution/organization**

The Colorado Institute for Irrigation Management (CIIM) coordinates the resources of Colorado State University and its experienced professional faculty in the area of irrigation management. The CIIM provides integrated interdisciplinary training, technical assistance and project management services worldwide to organizations involved in all phases of irrigation management. In addition, CIIM has responsibility for Colorado State's large-scale interdisciplinary irrigation project activities.

With access to the University's vast resources of expertise and experience for its special courses and other activities, CIIM's resources include Colorado State's computers; the University's hydraulic and irrigation laboratories; the National Technological University (worldwide satellite communication technical training courses); Colorado State's engineering facilities, world famous for irrigation research and hydraulic engineering; and comparative databases on Irrigation Management issues in a number of countries.

CIIM and Colorado State University are committed to excellence in training. CIIM conducts custom study tours, workshops, intensive short courses and field trips for a wide variety of irrigation topics. CIIM's activities involve: Research, Technical Assistance and Development and Education and Training.

Programme title	Institution/organization
<p><b>Design of irrigation and drainage works</b></p> <p><b>Contact person</b> Dr U.C. Chaube – Professor and Head</p> <p><b>Contact person's address</b> Water Resources Development Training Centre Indian Institute of Technology Roorkee Roorkee – 247 667 (UA) India</p> <p><b>Contact person's Telephone/Fax</b> <b>Tel</b> +91-1332-285251 <b>Fax</b> +91-1332-271073</p> <p><b>Contact person's E-mail</b> wrdtc@iitr.ernet.in</p> <p><b>Type of programme</b> Module of a comprehensive M.Sc. course.</p> <p><b>Certificate</b> University credits</p> <p><b>Frequency of programme</b> Annual</p> <p><b>Programme's main focus</b> Enhancement of the capabilities of water professionals.</p> <p><b>Programme prospectus</b> This is a module of a comprehensive M.Sc. course in Irrigation Water Management that is oriented to educate and train in-service engineers in the broad area of irrigation water management.</p> <p>Trainees are exposed to the relevant specializations of the concerned subject matter as elective courses as per their interest. The programme includes field visits to project sites, seminars and discussions.</p> <p><b>Target group</b> In-service engineers</p> <p><b>Programme WWW</b> <a href="http://www.rurkiu.ernet.in/acads/depts/wrdtc/academia.shtml">http://www.rurkiu.ernet.in/acads/depts/wrdtc/academia.shtml</a></p> <p><b>Dates/duration</b> Two weeks, Autumn Semester</p> <p><b>Language:</b> English</p>	<p><b>Water Resources Development Training Center, Indian Institute of Technology Roorkee</b></p> <p><b>Acronym</b> WRDTC-IIT</p> <p><b>Country</b> India</p> <p><b>Address</b> Indian Institute of Technology Roorkee Roorkee – 247 667 (UA) India</p> <p><b>Tel</b> +91-1332-285251/271073</p> <p><b>Fax</b> +91-1332-271073/273560</p> <p><b>E-mail</b> wrdtc@iitr.ernet.in</p> <p><b>Institute/organization www</b> <a href="http://www.iitr.ernet.in/acads/depts/wrdtcnew/index.htm">http://www.iitr.ernet.in/acads/depts/wrdtcnew/index.htm</a></p> <p><b>Brief description of institution/organization</b> The objective of the Center is to train serving engineers from Asia, Africa and other developing countries in various aspects of water resources engineering and to bring together engineering talent from these countries for a first hand understanding and appreciation of each other's problems and to help evolve, by pooling knowledge, new techniques in water resources development and utilization suited to conditions in this region. In addition, the education programme at the Center helps foster a feeling of fellowship amongst the engineers of these countries.</p> <p>Since its creation in 1951 the Center has trained 2 032 serving engineers from 38 countries in the field of Water Resources Development and Irrigation Water Management.</p>

**Design of sprinkler and trickle irrigation****Contact person**

Dr Humberto Yap-Salinas – Director

**Contact person's address**

International Irrigation Center  
Utah State University  
Logan, Utah 84322-4150  
USA

**Contact person's Telephone/Fax**

**Tel** +1-435-797 2801 **Fax** +1-435-797 1248

**Contact person's E-mail**

hyaps@cc.usu.edu

**Type of programme**

Course

**Certificate**

Certificate of participation  
University credits

**Frequency of programme**

Annual

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

This course is comprised of a 15-week university engineering design course (for which three semester hours of credit from Utah State University may be obtained, if desired) and the simultaneous course on applied microcomputer use in irrigation and drainage of the IIC. The course syllabus includes:

- Review of soil-water-plant relationships
- Sprinkle irrigation design factors
- Pipeline hydraulics and economics
- Sprinkle lateral design
- Sprinkle mainline design
- Pump selection
- Trickle system components and layouts
- Trickle design factors
- Trickle design approach
- Center pivot irrigation systems
- Linear move irrigation systems
- Applied microcomputer use in irrigation and drainage

This course is designed for agricultural and civil engineers and agronomists having knowledge of soil-water-plant relationships, crop water requirements, flow of water in soils, fluid mechanics.

**Target group**

Junior professionals

**Programme WWW**

<http://www.irri-net.org/projects/IIC/English/Study%20Options/Courses/08%20Design/Design%20Introduction.htm>

**Dates/duration**

Eight weeks, August – October

**Language**

English, Spanish

**International Irrigation Center****Acronym**

IIC

**Country**

USA

**Address**

International Irrigation Center  
Utah State University  
Logan, Utah 84322-4150  
USA

**Tel** +1-435-797 2800

**Fax** +1-435-797 1248

**E-mail**

icc@cc.usu.edu

**Institute/organization www**

<http://www.irri-net.org/projects/IIC/IIC.htm>

**Brief description of institution/organization**

The International Irrigation Center (IIC) was established in 1980 as part of the Department of Biological and Irrigation Engineering at Utah State University. The Center was created as a response to an increasing need for providing training and research to enhance the capabilities of professionals and scientists outside the USA for improving irrigated agriculture in their countries.

The general objectives of the IIC are to:

- Provide a unique training experience in agricultural water management and utilization geared to the responsibilities and functions of personnel managing water for societal development.
- Promote applied research with the goal of contributing to the knowledge base and creating research specialists. Research that is basic to the needs and constraints of developing societies is to be emphasized.
- Maintain a technical resource entity specializing in the processes of utilizing water for agricultural production and societal development.
- Contribute to international cooperation and understanding through professional activities of the technical staff, effective research and special studies, enhanced capability of the trainees and the professional reputation of former students.

Programme title	Institution/organization
<p><b>Design of water control structures</b></p> <p><b>Contact person</b> Dr Varawoot Vudhivanich – Head of Department</p> <p><b>Contact person's address</b> Department of Irrigation Engineering Faculty of Engineering Kasetsart University Kamphaengsaen Campus Nakhon Pathom 73140 Thailand</p> <p><b>Contact person's Telephone/Fax</b> <b>Tel</b> +66-34-281658 <b>Fax</b> +66-34-351404</p> <p><b>Contact person's E-mail</b> fengwv@ku.ac.th</p> <p><b>Type of programme</b> Course Module of a comprehensive M.Sc. programme</p> <p><b>Certificate</b> Certificate of participation University credits</p> <p><b>Frequency of programme</b> Annual</p> <p><b>Programme's main focus</b> Enhancement of the capabilities of water professionals.</p> <p><b>Programme prospectus</b> This course is a module of a comprehensive Master of Engineering programme in Irrigation Engineering. The course teaches the following subjects: – Design of weirs – Diversion dams – Head regulators – Check regulators; – Canal turnouts to laterals and farm ditches – Waterways, water regulating and measuring structures</p> <p>To attend this course, preliminary knowledge of flow in open channels is required.</p> <p><b>Target group</b> Junior professionals Postgraduate students in Irrigation Engineering</p> <p><b>Programme WWW</b> <a href="http://www.eng.ku.ac.th/%7Eirre/EMENG.HTM">http://www.eng.ku.ac.th/%7Eirre/EMENG.HTM</a></p> <p><b>Language</b> Thai, English (on request)</p>	<p><b>Department of Irrigation Engineering, Faculty of Engineering, Kasetsart University</b></p> <p><b>Acronym</b> IRRE</p> <p><b>Country</b> Thailand</p> <p><b>Address</b> Department of Irrigation Engineering Faculty of Engineering Kasetsart University Kamphaengsaen Campus Nakhon Pathom 73140 Thailand</p> <p><b>Tel</b> +66-34-351897</p> <p><b>Fax</b> +66-34-351404</p> <p><b>E-mail</b> fengwv@ku.ac.th</p> <p><b>Institute/organization www</b> <a href="http://www.eng.ku.ac.th/%7Eirre/">http://www.eng.ku.ac.th/%7Eirre/</a></p> <p><b>Brief description of institution/organization</b> The Department of Irrigation Engineering is the first department in the Faculty of Engineering, previously called School of Irrigation then Faculty of Irrigation Engineering. Since it was founded in 1938, more than 1 100 irrigation engineers have been trained</p> <p>The department consists of five laboratories: field experimentation, irrigation engineering laboratory, surveying laboratory, material testing laboratory and soil mechanics laboratory.</p> <p>The department offers Bachelor, Master and Doctoral degree programmes in irrigation engineering. Upon request, the department can also provide training courses in irrigation design and water management.</p> <p>The department's major research programmes are the development of micro and sprinkler irrigation system, project water allocation scheduling and monitoring, planning, design and development of modern irrigated agriculture systems, application of GIS in planning and management of irrigated agriculture system and simulation and optimization of irrigation and water resources systems.</p>



**Designing surface irrigation methods****Contact person**

Dr Basant Maheshwari – Associate Professor

**Contact person's address**

School of Environment and Agriculture  
University of Western Sydney  
Locked Bag 1797  
South Penrith Distribution Centre  
NSW 1797  
Australia

**Contact person's Telephone/Fax**

**Tel** +61-2-45701235 **Fax** +61-2-45701684

**Contact person's E-mail**

b.maheshwari@uws.edu.au

**Type of programme**

Classroom/laboratory  
Field-based  
Course

**Certificate**

Certificate of participation  
University credits

**Frequency of programme**

Any time of the year with a minimum of ten participants

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

About three-quarters of the land in Australia is irrigated using surface irrigation methods. Due to their low capital and energy requirements, these methods will continue to be used in future. The methods are simple but require a thorough understanding of surface irrigation hydraulics for efficient design, operation and management of the methods.

The participants will learn about different types of surface methods, advance and recession characteristics, infiltration during irrigation, water application and storage efficiency, runoff reuse systems, surface irrigation models and design software and whole-farm planning for efficient irrigation layouts.

**Target group**

Junior professionals

**Dates/duration**

1–2 weeks, upon request.

**Language**

English

**School of Environment and Agriculture****Acronym**

SEA

**Country**

Australia

**Address**

School of Environment and Agriculture  
University of Western Sydney  
Locked Bag 1797  
South Penrith Distribution Centre  
NSW 1797  
Australia

**Tel** +61-2-4570 1307

**Fax** +61-2 4570 1684

**E-mail**

l.duncan@uws.edu.au

**Institute/organization www**

<http://www.uws.edu.au/sea/>

**Brief description of institution/organization**

Diverse, young, energetic and democratic, the University of Western Sydney (UWS) has a universal outlook that is reflected in our rapidly expanding international student population and our offshore programmes.

UWS was founded with the clear and fundamental purpose of providing high quality and accessible higher education and research to Greater Western Sydney. The mission of the university is to be a university of international standing and outlook, achieving excellence through teaching, learning, research and service to its regional and international communities.

The School of Environment and Agriculture at the University of Western Sydney, Hawkesbury Campus is entrusted with the responsibility of developing strong irrigation teaching and learning programmes. The School is well known nationally and internationally for its experiential learning approach to education and follows this approach to combine sophisticated irrigation theory with a hands-on approach to provide useful training to irrigation professionals. The UWS has access to indoor and outdoor laboratories related to water and irrigation, a campus farm (1 500 ha), a meteorological observatory, a conference centre and computer facilities, for running the short courses and carrying out research in irrigation.

Programme title	Institution/organization
<p><b>Development of self-teaching courses</b></p> <p><b>Contact person</b> Mr Pulat Umarov – Director</p> <p><b>Contact person's address</b> ICWC Training Center 11 – building, Kara-su 4 mass. Tashkent 700187, Uzbekistan</p> <p><b>Contact person's Telephone/Fax</b> <b>Tel</b> +998-71-1691493 <b>Fax</b> +998-71-1691495</p> <p><b>Contact person's E-mail</b> umarovp@icwc-aral.uz</p> <p><b>Type of programme</b> Self-teaching programmes such as CD-ROM</p> <p><b>Frequency of programme</b> Available on CD-ROM</p> <p><b>Programme's main focus</b> Enhancement of the capabilities of water professionals.</p> <p><b>Programme prospectus</b> To promote good governance and environmental sustainability in the Aral Sea Basin through the development of a water resources training network and long-term international cooperation at the policy, management and operations levels, a five-year project began in March 2000, funded partially by the Canadian International Development Agency (CIDA). The establishment of the ICWC Training Center was the first step required to achieve the project objectives.</p> <p>This project envisions a combination of study tours, seminars, courses and train-the-trainer programmes aimed to increase the capacity of water management professionals at all levels from the grassroots, through management up to policy levels.</p> <p>Among these activities is included the development of self-teaching courses for the grassroots users of water and groundwater operations personnel in the water basins of Central Asia.</p> <p>These courses are designed for a grassroots, non-technical audience: basic computer use, data collection and data use, simple water saving methods, community Water Users Associations, water quality and quantity management and safety and inspection of local facilities.</p> <p>These programmes are developed in cooperation with Mount Royal College and will be delivered in a CD-ROM format. This will allow the project to reach beyond Tashkent and into local water management facilities, agricultural communities and educational institutions throughout the region.</p> <p><b>Target group</b> Operations personnel</p> <p><b>Programme WWW</b> <a href="http://www.tc.icwc-aral.uz/project/description.html">http://www.tc.icwc-aral.uz/project/description.html</a></p> <p><b>Dates/duration</b> Not applicable</p> <p><b>Language</b> Russian</p> <p><b>Partners</b> Canadian International Development Agency (CIDA); McGill University, Brace Center for Water Resources Management, Canada; Mount Royal College, Canada; United States Agency for International Development (USAID), USA; Recipient Country. Partners in the Aral Sea</p>	<p><b>Training Center of the Interstate Commission for Water Coordination</b></p> <p><b>Acronym</b> TC-ICWC</p> <p><b>Country</b> Uzbekistan</p> <p><b>Address</b> ICWC Training Center 11–building, Kara-su 4 mass Tashkent 700187 Uzbekistan</p> <p><b>Tel</b> +998-71-1691493</p> <p><b>Fax</b> +998-71-1691495</p> <p><b>E-mail</b> umarovp@icwc-aral.uz</p> <p><b>Institute/organization www</b> <a href="http://www.tc.icwc-aral.uz/">http://www.tc.icwc-aral.uz/</a></p> <p><b>Brief description of institution/organization</b> (TC-ICWC) gives advanced training to high and middle level specialists; informs them of technological know-how in the fields of water and land resources management, irrigation, drainage and protection of the environment.</p> <p>Together with improving professional skills, TC-ICWC is intended to foster cooperation between the countries of the region in the areas of the use and management of water resources and the development of unified approaches at the level of water specialists and decision-makers.</p>

## Discharge and level regulation in Water Users Associations (WUAs) area

### Contact person

Mr S.L. Bhingare – Director General

### Contact person's address

Water and Land Management Institute  
WALMI Campus  
Kanchanwadi  
Post Box No. 504  
Aurangabad – 431 005 Maharashtra  
India

### Contact person's Telephone/Fax

**Tel** +91-240-2376 021 **Fax** +91-240-2376 836

### Contact person's E-mail

walmi@sancharnet.in

### Type of programme

Classroom/laboratory  
Field-based  
Course

### Certificate

Certificate of participation

### Frequency of programme

Scheduled twice a year but may be repeated upon request.

### Programme's main focus

Enhancement of the capabilities of water professionals.

### Programme prospectus

Discharge and level regulation in a canal system is a prerequisite for proper functioning of the subsystem handed over to Water Users Associations (WUAs). It is, therefore, necessary to refresh and impart additional knowledge and skills to junior and middle level managers in the area of discharge and level regulation. The topics covered are: (i) constraints in carrying capacity of canal and low cost remedial measures, (ii) maintaining water level in the channel using low cost structures such as weirs, (iii) flow measurement using different devices and methods, (iv) controlling discharge using appropriate regulators and outlets and (v) advances in water control technology. Visits to the sites and/open channel hydraulics laboratory are also arranged.

### Target group

Junior professionals  
Middle level professionals

### Programme WWW

<http://www.walmi.org/training.htm>

### Dates/duration

Three days, scheduled upon request but may change as per requirement.

### Language

English, Marathi (Local Language)

## Water & Land Management Institute

### Acronym

WALMI

### Country

India

### Address

Water and Land Management Institute  
WALMI Campus  
Kanchanwadi  
Post Box No. 504  
Aurangabad – 431 005 Maharashtra  
India

**Tel** +91-240-2376 159/160/161/162

**Fax** +91-240-2376 836

### E-mail

walmi@sancharnet.in

### Institute/organization www

<http://www.walmi.org/default.htm>

### Brief description of institution/organization

Water and Land Management Institute (WALMI, Aurangabad) is a premier in-service training institute in irrigation and water management. The Institute was established as an autonomous registered society and a first institute in India by the Irrigation Department, Government of Maharashtra with the financial support of the World Bank and USAID.

The Institute provides in-service training in irrigation water management for the officers of Irrigation and Agriculture Department, Government of Maharashtra and to the farmers of the state.

The Institute also conducts National and International Programmes in irrigation water management sponsored by different donor agencies. The Institute's other activities include the Action Research Programme and Consultancy Services in the field of irrigation water management for the different stakeholders.

**Discharge measurement and assessment of conveyance losses in canal system****Contact person**

Mr S.L. Bhingare – Director General

**Contact person's address**

Water and Land Management Institute  
WALMI Campus  
Kanchanwadi  
Post Box No. 504  
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India

**Contact person's Telephone/Fax**

**Tel** +91-240-2376 021 **Fax** +91-240-2376 836

**Contact person's E-mail**

walmi@sancharnet.in

**Type of programme**

Field-based  
Course

**Certificate**

Certificate of participation

**Frequency of programme**

Scheduled twice a year, may be repeated on request.

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

Participants in this training course will acquire technical knowledge pertaining to following flow measuring devices and skills for the installation and maintenance, observations for the measurement of discharges and record keeping for the correct operation of the system (Orifices and V-notch, Cut-throat flumes and Parshall flumes, Standing Wave flumes and Replogle flumes).

Participants will also acquire the knowledge and skills regarding conveyance losses, efficiencies in irrigation systems and measurements thereof using different methods.

Through the practical exercises, participants will develop the skills to apply the knowledge to enable them to assess the actual conveyance losses in live systems.

**Target group**

Junior professionals  
Middle level professionals

**Programme WWW**

<http://www.walmi.org/training.htm>

**Dates/duration**

Five days, scheduled upon request but may change as per requirement.

**Language**

English, Marathi (Local Language)

**Water & Land Management****Acronym**

WALMI

**Country**

India

**Address**

Water and Land Management Institute  
WALMI Campus  
Kanchanwadi  
Post Box No. 504  
Aurangabad – 431 005 Maharashtra  
India

**Tel** +91-240-2376 159/160/161/162

**Fax** +91-240-2376 836

**E-mail**

walmi@sancharnet.in

**Institute/organization www**

<http://www.walmi.org/default.htm>

**Brief description of institution/organization**

Water and Land Management Institute (WALMI, Aurangabad) is a premier in-service training institute in irrigation and water management. The Institute was established as an autonomous registered society and a first institute in India by the Irrigation Department, Government of Maharashtra with the financial support of the World Bank and USAID.

The Institute provides in-service training in irrigation water management for the officers of Irrigation and Agriculture Department, Government of Maharashtra and to the farmers of the state.

The institute also conducts National and International Programmes in irrigation water management sponsored by different donor agencies. The Institute's other activities include the Action Research Programme and Consultancy Services in the field of irrigation water management for the different stakeholders.

**Drip and sprinkler irrigation system****Contact person**

Mr L.K. Nuwal – Director

**Contact person's address**

Irrigation Management and Training Institute  
Dadabadi  
Kota (Rajasthan) 324009  
India

**Contact person's Telephone/Fax**

**Tel** +91-744-500642/682 **Fax** +91-744-2500682

**Contact person's E-mail**

dirimt12@sancharnet.in

**Type of programme**

Field-based  
Course

**Certificate:**

Certificate of participation

**Frequency of programme**

Scheduled annually, may be repeated on request.

**Programme's main focus**

Enhancement of the capabilities of water professionals.

**Programme prospectus**

The objective of this training course is to acquaint participants with up-to-date techniques of pressurized irrigation methods in order to achieve a high level of efficiency for yields and better quality produce. The training course on Drip and Sprinkler Irrigation Systems will enable officials/staff to gain confidence in irrigation water management and will provide participants with the appropriate learning experience, attitudes, knowledge and skills through practical exercises and teamwork for the planning and design of drip and sprinkler irrigation system.

This course emphasizes the importance and applicability of pressurized irrigation in the state, financial assistance provided by the Government and types, components and design aspects of the drip and sprinkler irrigation system. Special emphasis is given to the recent advances, agronomic innovations and research highlights of drip/sprinkler irrigation, the economics of pressurized irrigation and use of saline water through drip/sprinkler irrigation system. Field exercises on the determination of soil characteristics and evaluation of drip/sprinkler irrigation systems will be conducted. Intensive exercises on the design of drip and sprinkler irrigation systems will enable the trainees to become self-sufficient in applying the knowledge gained in the field.

**Target group**

Irrigation Officers

**Dates/duration**

Scheduled in July but may change as per requirement.

**Language:** Hindi

**Rajasthan Irrigation Management and Training Institute****Acronym**

Rajasthan IMTI

**Country**

India

**Address**

Irrigation Management and Training Institute  
Dadabadi  
Kota (Rajasthan) 324009  
India

**Tel** +91-744-500642/682

**Fax** +91-744-2500682

**E-mail**

dirimt12@sancharnet.in

**Institute/organization www**

<http://www.rajirrigation.com/2imti.htm>

**Brief description of institution/organization**

Accelerated irrigated land use and optimization of agriculture production through efficient soil-crop-water management without resources degradation is essential in meeting the food and fibre needs of India's population. Sustained and increased agriculture production is possible only through an Integrated Participatory Development Approach where all concerned are dedicated to Nation development. This requires the appropriate training of all planners, field workers and farmers by a management institute, equipped with the necessary tools and training facilities. The Irrigation Management and Training Institute, Kota (Rajasthan) fulfils this requirement.

The Institute was established in August 1984 under the Water Resources Management and Training (WRMT) Project assisted by the United States Agency for International Development (USAID).

Its main objectives are:

- Training the in-service personnel of Irrigation and Agriculture Departments and farmers in irrigation management through regular courses, workshops and seminars, to improve their job performance to optimize agriculture production in the irrigated areas.
- Provide consultancy in irrigation management and irrigated agriculture.