

ICID News

MANAGING WATER FOR SUSTAINABLE AGRICULTURE



MESSAGE FROM THE PRESIDENT

Dear Colleagues,

With the COVID-19 Pandemic that gravely affected the world socially and economically, it would not be wrong to say that human civilizations over years have evolved through fighting one crisis after another. One could say that we are used to having problems, both big and small, around us all the time but we manage to find solutions. With this perspective, it is nothing new with the on-going COVID-19 situation and the challenges of overcoming it. This virus impacts on every living soul on the face of the earth and their day-do-day living. In precarious times of such nature, our attention is automatically directed to survival for which food security is one of the most basic ingredients. Virus or no virus, people have to eat to survive. And, when we talk about food security the first thing that comes to our minds is availability of water for growing crops and that's where organizations such as ICID have to be on their toes to sustain food availability. Agriculture is very much a knowledge-driven physical activity involving significant movement

of both inputs and outputs. In the current situation movement of people has become quite restricted and this is having a significant effect on food production processes. Climate change further compounds these problems. With this in mind, ICID has focused more on "virtual" consultations and events such as webinars, web meetings and online training courses avoiding face-to-face contacts. So, you will find technical outcomes of these in the current issue of ICID News.

In this regard, the 71st ICID Foundation day had to be celebrated through an extended global webinar aptly entitled "Agricultural Water Management Strategies in Changing Situations." This "virtual" event, with several global experts presenting, was attended by more than 200 participants from across the continents. The event was filled with excellent presentations on various aspects of agricultural water management and you will find the technical outcomes of the event in the first article in this issue.

A similar exercise was undertaken by the World Bank in collaboration with ICID. A global webinar on the impact and recovery from COVID-19 in the irrigation and drainage sector was held with very useful participation of global water sector professionals and their presentations were very specific with regard to dealing with the COVID-19 pandemic. The second article presents the technical content of this webinar.

The third article of this issue is on a heritage-related success story of farmer-led irrigation. A group of progressive farmers from central India has revived an age-old practice of constructing ridges around the farm and planting

trees on the ridges to conserve water application in water-intensive crops such as rice and also recharge the depleting groundwater resources.

Finally, I am pleased to announce that ICID in collaboration with academic institutes and global private sector experts on irrigation and water resources management is offering two online courses – one on micro-irrigation and the other on dam safety. You will find the details of these courses in various ICID publications, including this one.

On a separate note, I would like to draw your attention to two of ICID's programs, Recognition of World Heritage Irrigation Structures (WHIS) and Water Saving Awards (WatSave), that represent a unique continuum of wisdom from the past to the present to the future. WHIS recognize the age-old engineering marvels and WatSave the current innovations for water saving in agriculture. To coincide with the 70th Foundation Day Celebrations of ICID, two publications are currently in progress and these books are expected to be ready at the time of the next major event. The WHIS book extracts knowledge from irrigation structures that are 100 years or older to learn about sustainability. The WatSave book presents the current technologies and management practices that lead to better utilization of water.

Best Wishes

Felix Reinders
President, ICID



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ICID Foundation Day: 71st Year Celebration An Extended Webinar Event Theme: 'Agricultural Water Management Strategies in Changing Situations'

The International Commission on Irrigation and Drainage (ICID) celebrated its 71st Foundation Day on 24th June 2020 via a webinar because of limitations posed by COVID-19. The webinar was organized on the theme 'Agricultural Water Management Strategies in Changing Situations' and was attended by more than 200 participants from International Organizations, ICID National Committees and other esteemed institutions.

Welcome Address

Eng. Felix Britz Reinders (South Africa)
President, ICID

An internationally renowned professional engineer with around 40 years of experience in the field of agriculture and civil engineering.

International Commission on Irrigation and Drainage
A water secure world free of poverty and hunger through sustainable rural development
ICID-CIID

ICID SG welcomed all the panelists and the participants, more than 200 in all, to the 71st Foundation Day celebrations through a webinar by the international organizations as well as some NCs. Following the introduction, ICID President gave a welcome speech giving a brief overview of ICID's evolution since its humble beginning 71 years ago in 1950 and congratulated all the ICID stakeholders. After explaining the ICID mission, objectives, activities and its deliberate expansion to cover almost 90% of irrigated area (300 Mha) out of the total 1233 Mha arable area, including rainfed agriculture, the President also reminded that the present day challenges of feeding a growing population amidst climate change and its impact on the global water resources. He emphasized cooperation as the way forward to meet these challenges in a sustainable manner.

The Secretary of Indian Ministry of Water Resources, Mr U P Singh, also congratulated ICID for its steadfast growth over the 7 decades. Sharing

his experiences of Indian scenario, he identified national food security or self-sufficiency as key driver for agricultural water management (AWM). Irrigated agriculture has contributed significantly in making India a net exporter of food after the "Green Revolution" of 1960's and 1970's. However, he cautioned that the unsustainable groundwater (GW) extraction is making the future of irrigated agriculture vulnerable in India, considering the spatial-temporal variability of rains caused by the climate change. The present Indian government has taken up the water management issues in a mission mode to ensure higher irrigation efficiency using the most modern technologies, tools and policy interventions. The Secretary pointed out that in India the water use efficiency and agricultural productivity are low compared to the similar sized population and area of neighboring country China. The focus of the present government's demand-side management includes smart irrigation using approaches such as micro-irrigation systems (MIS), deficit

irrigation and wastewater application in agriculture, to name a few. Adoption of cropping systems that are aligned with local water availability is also under active discussion in policy circles.

Regulatory Interventions in Water Sector in India – A Case Study

Mr. KP Bakshi, the former chairman of Maharashtra Water Resources regulatory Authority, talked about the role of such agencies in the water sector in India based on his experiences. The primary roles played by the regulator include water tariff rationalization based on volumetric water use efficiency, water entitlements of various sectors/stakeholders and water management by water user associations (WUA), using state level water policy, institutional reforms and administrative mechanisms. WUAs are responsible for operations and management at the field level under the principle of participatory irrigation management (PIM) to promote water use efficiency by micro-irrigation. Regulatory body also

provides a common platform to various stakeholders of water resources to discuss, share experiences and positions on water sharing conflicts/disputes, particularly in inter-basin water transfer situations. He concluded that water reforms follow a slow process, however, the final solutions should satisfy the diverse stakeholders in the long run and improve the knowledge capacities at various levels for future sustainability. Based on his experiences, he asserted that such regulatory practices do improve the water availability for various sectoral activities.

Agricultural Water Management Strategies in Changing Situation: The EU Approach: Case Study on Italy

Dr. Marco Arcieri from Italy congratulated ICID and briefly shared EU-wide framework for international cooperation on water issues as agriculture still plays a significant role in the rural economy of many EU countries and regions, including Italy. He identified that out-of-the-box smart solutions are needed for future post-COVID19 work in the area of AWM. IRRIFRAME tool, as a case study, was described, which is an IT-based solution to facilitate information sharing with farmers, local government and host of other water sector stakeholders in a transparent manner for efficient water use at the farm level in the agriculture sector. This tool also sends SMS alert to farmers about the water availability and crop demand in a real-time situation. He identified the important part that professional network of water resources experts such as ICID have in promoting efficiency in the global water sector.

Challenges ahead in Agricultural Water Management: Partnering for effective response

FAO Representative, Ms. Sasha Koo-Oshima, presented FAO's response to the global food and water challenges using WASAG, a global water scarcity management network of international partners and countries. She talked about the various aspects of WASAG of which ICID is a very active member in thematic working groups of ICID's interest. She identified the challenges ahead in AWM and the urgent need of partnering for effective response to address demographic, nutritional and climatic changes. Water scarcity has both physical and economic aspects

that have to be considered while managing it through better information sharing (AQUASTAT), capacity building and socio-political strengthening of FAO and ICID member countries. ICID Vision 2030, in which FAO has actively contributed to its development, is also aligned to several SDGs, including 1, 2, 6 and 17. FAO has developed various indicators to map the country progress in these SDGs as a custodian of 22 SDG indicators out of a total of 230. She expressed her satisfaction with her involvement in ICID working groups and major events which FAO has steadfastly supported for many decades.

Water-saving irrigation development strategies in China in changing situation

Dr. Ding Kunlun from Chinese National Committee of ICID (CNCID) also congratulated ICID for the 71st Foundation Day and gave an overview of Chinese assessment of changes in the situation (demographic and climatic), current status of irrigation in China and the response strategies for the Chinese water sector. The demand for water is increasing in all sectors of the Chinese economy and water allocation has gained significant importance in the strategy development. Agriculture uses almost 62% of the available freshwater. He also showed the visuals of Hetao Irrigation System in China that has been included in the ICID Register of World Heritage Irrigation Structures. He concluded his presentation with an invitation to all participants for the 4th World Irrigation Forum of ICID to be held in the Chinese capital Beijing in the year 2022.

Irrigation Developments in India

R. K. Jain, Chairman of Central Water Commission (CWC) and that of the Indian National Committee of ICID (INCID) spoke about long-term cooperation with ICID and joint conduct of several events. CWC, an apex organization has contributed to the technical knowledge through several manuals and guidelines for design and operation of irrigation infrastructure that are available to ICID member countries and partners. He explained the role of CWC and its evolution in India's water sector, and in improving irrigation potential and water utilization efficiency through modernization of irrigation infrastructure such as piped

distribution network, MIS and canal network improvement. He informed that in India, flood management is being done through better forecasting, embankment construction, and canal dredging. CWC is actively involved in flood forecasting activities across India, with more than 5700 large dams in India where CWC provides technical support to various states for dam inspection and safety. The Water Resources Information System (WRIS), a CWC initiative, gives real-time information to states for their water management decision support systems. Recently, the National Water Academy of CWC and ICID have planned several distance learning courses for water resources engineers, planners and managers with the first course on micro irrigation system.

Management Trends for Protecting Agricultural Water and Coping with Water Scarcity in Morocco

Dr. El Houssine Bartali of Morocco National Committee of ICID (ANAFIED) demonstrated through his presentation the state of irrigation in the country, its role in increasing food production that allows agricultural exports to foreign markets and the on-going projects of the government addressing AWM. While the country has 36 M people living on 700,000 sq km area have access to only 1.8 Billion Cubic Meter surface water, indicating a severe water scarcity problem. The country is able to irrigate only 1.6 Mha of its 8.7 Mha arable land. Under the "Green Morocco Plan 2008-2020" the micro-irrigation has expanded to 35% of total irrigation with an emphasis on comprehensive water policy to address water governance and integrated water resources management. ANAFIED will be hosting an international conference, 5th African Regional Conference, 71st IEC Meeting of ICID and a young professionals training program in December 2020; and he extended an invitation to the webinar participants to these events.

Concluding the webinar proceedings, ICID SG Pandya thanked the panelists for sharing their vast experiences, case studies and expert opinions with all the participants. The webinar presentations and recordings are available at: http://icid-ciid.org/inner_page/132



Participatory and Decentralized Rural Water Management in India

Uma Shankar Pandey, Convener, Jalgram*



Agriculture plays a major role in the Indian economy. Almost 70% of Indian population lives in rural areas and nearly 75% of them are dependent on agriculture for survival. However, due to increasing drought and water scarcity, agriculture and subsequently the rural population are taking a major hit. Consequently, the drought results in mass-migration from rural to urban areas which further exacerbates the water scarcity problems in the urban areas.

Located in the arid region of Central India, a small village called Jakhni, has become a world class example of how community efforts of water conservation can transform the fate of village and the region. The National Institute for Transforming India ('NITI Aayog'), policy think-tank of the Government of India, has declared Jakhani, a village under the district Banda of the drought-stricken region of Bundelkhand, as the model for entire country— which has used traditional ways and community participation for water-conservation. These conservation efforts have been recognized and appreciated by the high-level ministers, officials and the water sector experts, nationally as well as internationally. The Jakhani model has been recognized by the scientists as well as agriculturists from Israel and Nepal. The village of Jakhni has a population of 2500+ people with 990 acres of agricultural land. The

rural population in the region, which depended mostly on agriculture for its income, was harshly affected by the drought which used to last for years. Subsequently, the water crisis resulted in migration, starvation, poverty and illiteracy in the region. Before the community intervention, the drought resulted in the scarcity of even potable water which was transported from Delhi to Bundelkhand using goods-train over a distance of almost 600 km.

This participatory drought and water-scarcity mitigation model has been recognized globally and has been declared an ideal by the Indian Government for other villages to follow to promote agriculture production in arid regions. The nearby villages are already following the Jakhani model in more than 1200 acres of land. Furthermore, following the footprints of Jakhani which is declared as the model Jalgram nationally, nearly 1050 water-stressed villages of the country are conserving water in the similar way. The local conservation efforts have transformed the drought-affected region of Bundelkhand, with the water-level rising as much as 20 feet, revival of 5 old ponds and construction of several new ponds.

Community Participation

Without requesting any grants or support from the government, the farmer's-

led community raised awareness on importance of water and its conservation through various means. Under the leadership of visionary farmers, a local voluntary organization was formed to raise awareness amongst villagers to preserve the water resources.

Traditional Farming Practices

With the basic knowledge of traditional farming that ridges help in water logging, essential for cultivating basmati rice, the farmers revitalized the centuries-old agricultural practices in the region. The most successful conservation practice is reviving traditional methods of creating ridges in the farm and subsequently growing trees on it to facilitate water logging (and groundwater recharge) for growing water-intensive and high-value crops such as basmati rice, vegetables, fruits and so forth. The farmers follow the 'khet ke oopar med, med ke oopar ped' (ridge on the farm, tree on the ridge). In several places, barren-land is also converted into productive one by making ridges. Crops like pigeon-pea, green-gram, black-gram, flaxseed, mustard which require less water and are grown even on the ridges. Trees such as stone-apple, drumstick, hardwood, bengal-currant, lemon, indian-gooseberry, and guava are also grown in the farm. Apart from keeping environment unpolluted, these trees ensure extra income too by giving timber and fruits.

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Taking their efforts further, the villagers have constructed drains to channel the unutilized domestic water to the farms. Over a period of 15 years, these collective endeavors for water-conservation such as construction of farm ponds, restoration/rejuvenation/restoration of water bodies, collection and utilization of grey water, raising of farm bunds, and intensive plantation of trees have resulted in the groundwater recharge of the region.

Prior to the water conservation efforts in the region, Jakhani produced nearly 11.6 tonne of basmati rice with great difficulties owing to the drought conditions. However, in the mere period of 15-20 years, the now water-rich region boasts production of nearly 2500 tonne basmati rice and 1600 tonne wheat as the main crops known for their quality of grains.

Reverse migration

The villages in India see a trend of youth farmers migrating from rural to urban areas to improve their financial status. This has put a huge stress on the urban areas in terms of management of limited resources such as land and water, and even jobs. Going against the prevalent trend, the economic opportunities created in Jakhani because of water conservation efforts have seen a trend of migrant workers returning to the rural areas and involving in activities such



as farming and cultivating vegetables, animal husbandry, dairy production, sericulture-oriented farming carried out in their own ponds, goat-rearing and cultivating farm-products. The financial standing of the villagers, especially small-scale farmers has improved to a great extent. As a matter of fact, with the advent of water, Jakhani has seen migration of workers from the surrounding villages in search of jobs as farm laborers. At present, as many as 1700 laborers are working in the farms of this village. These migrant farmers also learn several practical tricks of the cultural practices related to plowing, harrowing, sowing, replanting of paddies, harvesting, ridge-making etc.

Benefits to the community

The community efforts in bringing water back to the village has also resulted in

rural development. In a mere 20 years' time period, the village where most of the population was illiterate, has seen transformation with the establishment of several schools and colleges. Furthermore, higher-level educational infrastructure such as university and institute for technical training are being established. The community efforts have also encouraged women for self-employment and self-dependence by creating seven women-groups.

Water can't be manufactured, but can only be preserved. Enriched with the spirit of collectiveness and following just the traditional way, the villagers of Jakhani including youths and laborers preserved the pristine water resources of the village and converted their water-stressed village to a water-rich model for the rest of the nation to follow.

Global Webinar on the Impact and Recovery from COVID-19 in the Irrigation and Drainage Sector – Proceedings Report

The World Bank's Water in Agriculture Global Solutions Group (WiA GSG), the International Commission on Irrigation & Drainage (ICID), and the 2030 Water Resources Group (WRG) organized a webinar on May 18th 2020, to discuss the impact of COVID-19 on the irrigation and drainage (I&D) sector and how the sector can contribute to future economic recovery.

The primary objective of the webinar was to share experiences from around the world. The collective experiences highlighted that irrigation agencies continue to function despite challenging circumstances, but there were multiple constraints impacting service delivery, such as fiscal constraints, lack of access to credit, interruption of supply chains due to travel restrictions, and lack of availability of labor. While the conversation centered on the difficulties presented by COVID-19, the discussion also focused on the opportunities moving forward to reform

and modernize the irrigation sector in terms of technology and automation, leverage private sector investment, and reinvest in a more efficient and sustainable sector when Rebuilding Better.

The webinar was chaired by Pieter Waalewijn, the Global Lead for Water in Agriculture (WiA), and was moderated by Svetlana Valieva, Coordinator for WiA GSG. The event was divided into three sections: (i) Farmer and private sector perspectives; (ii) Service provider perspective; (iii) Labor-intensive public

works. The webinar was attended by over 200 participants.

Introduction: Irrigation in the time of COVID-19

- **Jennifer Sara, Global Director of Water at the World Bank**, opened the webinar by emphasizing the World Bank's role in supporting not only governments' immediate responses to the outbreak of COVID-19, but also the need to protect poor and vulnerable people, support job creation and longer

term-socio-economic responses. This includes supporting irrigation service providers that deliver critical services, particularly to vulnerable communities.

- **Felix Reinders, President of ICID**, similarly emphasized the importance of working with partners to facilitate exchange of knowledge, technology, and training and research, especially to encourage innovation to support three actors: researchers, companies, and farmers. This will allow for services to be delivered more effectively.
- **Pieter Waalewijn** presented the main findings from online survey, which were gathered prior to the event, as well as on the World Bank's approach to COVID-19 recovery in dialogue with partners. The main points included the following:
 - o While agriculture food stocks and prices are stable, there could be a pandemic of hunger if vulnerable groups are unable to access food supplies due to lockdown policies or due to the large surge in unemployment.
 - o The migration of people from cities back to rural areas resulted in the reduction of remittances and a greater reliance on making a living from agriculture.
 - o There are multiple pressures on the irrigation and drainage sector as irrigation agencies face enormous fiscal stress and liquidity issues, while continuing to deliver services.
 - o There is also a need for (i) a comprehensive strategy that tackles all aspects of the crisis (including those pertaining to the health response and continuity of services), (ii) for reaching the most vulnerable through an economic stimulus that will support food production, and (iii) structural support for strengthening policies, institutions, as well

as investments for rebuilding a stronger and more resilient sector.

Farmer and private sector perspectives: challenges, constraints, and opportunities

Farmers and private sector¹ presented the challenges facing the farming and private sector communities due to COVID-19 and the lessons learned regarding mitigating its impact. These included:

- Limited staff in the field has led to the introduction of automated irrigation systems. Small-scale farmers should be facilitated in taking advantage of more efficient, automated and affordable irrigation systems.
- The interruption in the supply chain due to the travel restrictions has prevented certain suppliers from coming to farms to collect produce preventing the produce from reaching the market. On the other hand, prices in the market have been low, which has impacted the overall revenue made by farmers.
- Low revenue has led to farmers being unable to make payments on their loans to banks.
- There has been a lack of accessibility of irrigation equipment and inputs due to the lockdown.
- There is a need to explore opportunities of selling output online, which could be facilitated by farmers forming cooperatives and being supported by post-harvest processing facilities so that they would have greater capacity to store produce.
- From the private sector perspective, most contracts have been negatively impacted and many contractors have filed requests for further extension of time, or other notifications which could result in disputes.

- The impact of the pandemic has presented opportunities that shape new sets of demands that will optimize the water resources and irrigation services such as the use of public-private partnerships (PPPs) and the use of more automated systems. Companies will also look for more highly skilled personnel from the local community or try to train local staff. This could have a positive impact on the local communities.

Service provider perspective: disruptions and mitigation measures

Service providers and government representatives from Indonesia, Australia, India, Italy, Mali, Mexico, Dominican Republic, and Argentina² presented their challenges in service delivery and the measures they adopted in response. Some of the primary disruption and mitigation measures highlighted were:

- Demand for agricultural products has declined due to the closure of many restaurants, hotels, and business activities, causing a contraction in the growth in the agriculture sector and deflation in the market. Simultaneously, there has been a hike in the price of imported commodities.
- Most farming communities are facing labor shortages due to reliance on labor that comes from temporary migration.
- The suspension of infrastructure work and deferment of maintenance could impact safety and the quality of service delivery. In India, the pre-monsoon activities related to irrigation such as dam inspection, maintenance, etc. have been interrupted.
- However, the irrigation and drainage sector also boosted employment levels and improved livelihoods. One example from Mexico was the construction of the Centenario Channel. This provided direct funds to the farmers to produce crops for

1 Representatives from the private sector included the following speakers: Mbali Nwoko (Chief Executive Farmer of Green Terrace), Alphonse Kizihira (Professional Farmer from Rwanda), Sina Velioglu (Country Director, Temelsu, Uzbekistan, Tajikistan, and Ukraine).

2 Service providers and government representatives included: Abdul Malik Sadait Idris, Director for Water Resources and Irrigation, Ministry of National Development Planning (BAPPENAS), Indonesia; Tony Slatyer, Water Policy Group, Australia; Vivek P Kapadia, Government of Gujarat, India; Marco Arcieri, Secretary General, Comitato Nazionale Italiano ICID, Ministry of Agriculture and Forestry, Italy; Adama Sangare, Secretary of State to the Minister for Agriculture, Mali; Blanca Jimenez Cisneros, Director General, Mexico National Water Commission (CONAGUA), Mexico; Jenny Rosanna Vásquez Susana, National Institute for Water Resources (INDHRI), Dominican Republic; Sergio Marinelli, Superintendent of the Mendoza General Department of Irrigation (DGI), Argentina.

food security and built infrastructure to provide employment.

- An important mitigation has been to promote the role of ICT and technology. Italy adopted 'smart systems' for the managing of water resources in order to ensure service provision. In Australia, there has been an increase in online delivery from farms and an increased use of remote extension services.
- Some governments have also prioritized irrigation and food production in order to ensure that there is enough food supply. However, essential equipment, engineering, inputs and maintenance services are hampered. In Mali, the government has developed long-term responses that include measures to ensure food security by promoting irrigation. In Indonesia, the government is promoting irrigation-based food security through programs such as revitalization of low-land areas for agricultural crops, and cash injections in communities through community contracting.
- The role in economic recovery is articulated in different ways. First and foremost through continuing to enable 'normal' production and ensuring livelihoods, second through switching to social support with employment intensive construction in large and small scale irrigation as well as watershed management, third

through financial stimulus: grants, equity injections, relaxing credit and tax for small and medium SMEs and farming enterprises, risk guarantees, and finally by accelerating critical works.

Labor-intensive public works: placing irrigation at the forefront of recovery (a case study from Tunisia)

Kamel Boulemi presented on ILO's Employment-Intensive Works program, which was successfully tested in Tunisia and could serve as a potential recovery strategy going forward in rebuilding better, supporting jobs, and facilitating cash injection in impacted communities. The ILO intervention involved the construction of new irrigation canals, resulting in better water distribution and reduced irrigation time. The main purpose of this program has been to enhance the employment outcomes through public investments in infrastructural and environmental works. The program has had a strong community impact as it created working days (including an emphasis on hiring of women and handicapped persons) in the monitoring and maintenance of irrigation systems. Such efforts have led to an overall increase in farmers' incomes and improvement in environmental protection. This project showcases that irrigation works can address a new demand for creating jobs while mitigating the economic impact of COVID-19.

Discussion: Looking Ahead

The discussion moderated by IJsbrand de Jong reflected on some critical issues facing the irrigation and drainage sector moving forward. These range from financing the sector, reform and modernization, more public-private partnerships, greater automation versus employment security, and the role of international donors to provide platforms for sharing experiences and channel funding to support communities. The consensus of the discussion was that the international community had an opportunity to course correct for the vulnerabilities that COVID-19 has exposed and to build back better, more resilient, and greener, in light of longer-term challenges of climate change and water resource constraints. Irrigation and watershed programs in the future should be used as vehicles for growth through labor intensive works to ensure continuity of services and the maintenance of productive assets for livelihoods. The crisis exposed many weaknesses in a fragile sector, but also enhanced valuing of irrigation services due to public concern on food security and economic impact, and made visible the grit and resolve by clients, private sector and farmers to bounce back stronger with new and improved focus on service provision post-COVID, with more resilient institutions and thriving farms, more innovation in management, in engaging clients in service provision (virtually).

ICID Invites Expression of Interest for Online International Certificate Course on Micro Irrigation Systems

Introduction

Global water scarcity and increased demand for food are two main drivers for the urgent efforts to improve food productivity in agriculture, the sector that consumes 70-80% of annual freshwater availability. Micro-irrigation Systems (MIS) are fundamentally designed and operated to economize water application in crop fields. As MIS is an evolving technology, the existing curricula on these systems is still not adequately covered in regular academic programs. Also, the professionals who are already working in the area of agricultural water management (AWM) irrigation planning have had limited exposure to MIS concepts and practices thus far.

The proposed short duration certification course offers to fill such existing knowledge and skills gaps.

Course Structure

The course, based on a points-system, has an inherent flexibility to suit the learning needs of prospective trainee through 3 main modules on MIS, namely:

- (a) Agronomic Aspects
- (b) Engineering Aspects
- (c) Management Aspects

Course Schedule

September to December 2020 (Tentative).

Course Requirements

Prospective trainees will undergo an intensive learning exercise over a period of 3 months through a series of lectures, webinars, assignments, quizzes, hands-on activities, and face-to-face interactions with the course faculty to earn minimum points in each module for an international certificate that will add value to their professional credentials.

Prospective Beneficiaries

The course is intended for those who are working in the area of AWM and the programs projects oriented towards broader aspects of AWM including MIS.

How to Enroll

Since the course is being offered in a Distance Learning (DL) mode on Moodle platform at present, the interested individuals will have to enroll on ICID's DL platform (<https://icid.moodlecourse.com>) that provides a very conducive learning environment through interactive online activities.

All academic and training processes, right from registration to certification, are online. Interested professionals can send an e-mail to icid@icid.org with copy to sahdevsingh@icid.org for receiving further instructions.

ICID-Aqua Foundation Online Certificate Course on Dam and Network Safety Assurance

ICID and Aqua Foundation (AF) are collaborating to offer an online course on Dam and Network Safety Assurance presented by the industry stalwarts and subject matter specialists.



Course Focus

Water management projects, especially the irrigation projects, are long lasting entities with practically indefinite life. Even if the beneficiary land area changes its character in terms of land use, the utility of the head conservation works and the distribution networks remain or improve as they are required to deliver the water for larger economic good in keeping with development in economy of the area. On the other hand, the tenure of a professional employed for managing the project may be limited. Many of the developing countries are facing this problem due to a smaller pool of manpower resources not in keeping with the growth in population of the projects. At any point of time, a change of hands is inevitable with concomitant dangers of gaps in knowledge transfer. Keeping this in mind, the course content has been designed for fresh and practicing engineers who are involved with the dam operations, surveillance and safety assurance works and dam portfolio managers responsible for setting up dam safety programmes. The course aims at improving the skills of the professional entrusted with the responsibility in directly managing the

facilities and ensuring their safety as well as reporting the status to the higher level of managements.

Course Content

- Overview of Dam Safety Aspects
- Geotechnical Investigations of Existing Dams
- Use of Temperature and Strain Sensing for Dams
- Latest Developments including Optical Fibre Sensors
- Geophysical Investigation Techniques

Course Delivery

The course will be delivered through a Learning Management System (LMS), where pre-recorded lectures, videos, presentation, reading material etc. will be uploaded, so that participants can go through these at their own pace, within the time frame of 6 months. Live sessions also will be organized wherein participants can directly interact with experts and raise their queries. Preferred mode of receiving questions would remain through email, enabling development of a comprehensive Q&A.

Fee Structure per (participant)

Government Departments, Ministries	INR 6,000	USD 120
Private, PSUs, Boards	INR 10,000	USD 200
Students, Research Scholars (Full Time)	INR 4,000	USD 80

Note: Government Tax will be charged extra as applicable (present rate of GST is 18%)

Registration Process

Registration can be done online using the link www.damsafety.co/register. In case of bulk registrations, please contact ICID/ AF Academy at details provided hereunder:

Contact Details

AF Academy: Ms. Praggya Sharma, Secretary General, AF Academy, E-166, 2nd Floor, Kalkaji, New Delhi 110 019; Mobile: +91-9818568825, 9873556395; Email: info@aquafoundation.in; praggya@damsafety.co

ICID: Mr. Harish Kumar Varma, Executive Director, ICID, 48 Nyaya Marg, Chanakyapuri, New Delhi 110021, India, E-mail: icid@icid.org; Website: <https://www.icid-ciid.org>

