Dear Colleagues and Friends,

First of all, please allow me to thank each one of you for supporting my candidature for the position of ICID presidency. I know it is going to be a tough tenure considering the ongoing crises on several fronts, however, I also believe strongly that "when going gets tough, the tough get going" and from our 70+ year experience of managing agricultural water I draw an immense solace. Though our physical movements may be temporarily restricted due to COVID19 outbreak, our collective will to ride through this difficult situation is not shaken. Let us all hope that by the latter half of 2021 we will be back in normal business.

As I see it, ICID is undergoing a knowledge transformation by addressing not only the traditional engineering approach to manage agricultural water, but also socio-economic impacts, climate change adaptation and capacity enhancement in all its forms. Informed decision making based on sound observations requires engagement of all our intellectual faculties and that is what ICID has been promoting throughout its 70+ year existence. We have evolved as a cohesive professional network of water sector professionals with varied competencies and experiences that allow us to approach global issues of water scarcity, food security and economic development in a holistic manner.

I would like to also highlight the underlying need of institutional and individual parentships to achieve our common objectives in a cost-effective way by synergizing our resources, sharing knowledge and facilitating research collaborations. Research should not be viewed as a luxury, but a need of a knowledge-driven society that constantly finds solutions for complex problems that the humankind faces.

I fully appreciate the hard work and dedication of my predecessors who have made ICID reach many milestones from its humble beginnings in 1950 and assure us all that with the spirit of cooperation that exists among the ICID stakeholders, we will conquer present and future challenges.

In this issue of ICID News, you will find articles on both hardcore science of agricultural water management and a new partnership approach to ensure irrigation service delivery.

I would like to take this opportunity to inform Global Water Leaders about an interesting survey by the Water Policy Group (WPG), a non-profit group of all former/current policy makers, to produce the Global Water Policy Report. WPG is conducting a confidential survey of national water leaders towards the very first Global Water Policy Report. The purpose of the report is to gain a better understanding of the real issues facing national water leaders as you strive to improve water outcomes at the national level. The report will increase the relevance of multilateral water processes and ensure they are better directed to support countries striving to achieve their water policy goals. The main input to the report, based on the above Water Leaders Survey, will contain opinions and perspectives of national water leaders. The questions are set in the framework of Sustainable Development Goal 6, as that is where most global water policy effort is currently directed.

The survey has been prepared in collaboration with the scientists and researchers at the University of New South Wales Sydney (UNSW), which provides the scientific as well as secretarial services, and which will receive and analyze the responses. The individual responses will be combined and analyzed to provide an understanding of the issues globally as well as broken down by region and by economic development status. The data will be handled by the UNSW researchers and not by the WPG members.

I urge ICID national committees to indicate their expression of interest by writing to icid@icid.org and we will forward it to WPG.

Wishing you a safe and healthy 2021!

Dr. Ragab Ragab
President, ICID
Irrigation and Drainage Developments in Canada to Expand Food Production and Achieve Water Security

President Honoraire Prof. Dr. Chandra A. Madramootoo
Vice President Honoraire Dr. Laurie C. Tollefson

Intensifying water constraints threaten food security and nutrition. Thus, urgent action is needed to make water use in agriculture more sustainable and equitable. Irrigated agriculture remains by far the largest user of freshwater, but scarcity of freshwater is a growing problem owing to increasing demand and competition for freshwater resources. At the same time, rainfed agriculture is facing increasing precipitation variability driven by climate change. These trends will exacerbate disputes among water users and inequality in access to water. Major trends in Canada include fewer but larger farms and greater demand for water supply. While non-irrigated agriculture is predominant in Canada, 80% of irrigation takes place in arid and semi-arid regions of the country. Improvements in water use efficiency have positively impacted not only agricultural outcomes but also the better management of resources and greater maintenance of the land. “Climate change and water are closely linked. Water availability is affected, with periods of scarcity and excess. Extreme weather events are expected to be more frequent. “Research, development, innovation and, technology transfer are key to increase the water use efficiency, and tackle water scarcity”.

Introduction

Canada is a water rich country with some 2 million lakes and rivers and 20% of the world’s fresh water supply. It has 25 major watersheds that flow to the three oceanic coasts which cross international, provincial and territorial boundaries. Despite this fact, the majority of Canada’s water resources is to the northern less populated regions, and as close to the major population centers. Our five largest drainage regions provide 55% of the country’s annual water supply, but are home to only 8% of the population. Important agricultural regions in western Canada have much lower freshwater supplies.

Water withdrawal by sector consists of: electric power generation and distribution at 65%, manufacturing 10%, agriculture 7%, and mining and oil extraction 3%. Agriculture, and particularly the irrigation sector is the largest consumer of water.

Agriculture, as a large consumer of water and a sector with a diverse production system, faces particular challenges in the context of climate change. These challenges include drought and flooding, impacts on water quality and quantity and competition between other economic sectors and the environment. They vary regionally, with drought often prevalent in the Western Canadian Prairies and flooding in Eastern Canada.

Irrigation and drainage are considered key to adaptation to climate change. Irrigation is practiced in every province in Canada with the vast majority in the semi-arid regions of Western Canada. Surface and subsurface drainage are primarily used in the higher precipitation regions of Eastern and Atlantic Canada.

Irrigation Development in the Prairies Region of Western Canada

Irrigation is practiced on one million hectares of Canada’s 44 million ha of arable land (0.2%). 80% of the irrigation takes place in the arid/semiarid regions of Western Canada with surface water as the primary irrigation source. Irrigation is very important to the Canadian economy. It provides a key support for drought mitigation, crop diversification, economic development, and added value. Non irrigated agriculture is however, prevalent in Canada.

Scientific evidence for global warming is unequivocal. Canada is estimated to be warming at twice the global rate. In addition, higher precipitation throughout Canada is projected particularly in Northern Canada. Climate change and water are closely linked. Water availability is affected with periods of scarcity and excess. Extreme weather events are expected to be more frequent with severe heat waves, excess precipitation and drought as the new normal.

Models predict that Western Canada will have a much warmer and drier growing season in the future. They predict a 2.5 to 4.0 °C temperature increase along with a 2-10% increase in precipitation. Warming temperatures would eclipse any increase in precipitation by increasing evapotranspiration and reducing soil moisture. This poses serious threats to water availability in this region which accounts for 80% of Canada’s farm land.

Irrigation expansion will be critical for adaptation to climate change. Many experts believe that Western Canada could benefit from climate change. Additional heat units and a longer growing season could allow for production of heat resistant and longer growing season crops. Research and technology transfer will be essential for this to happen.

Irrigation development has long been considered essential to western Canadian agriculture. Early settlers in the 1900’s faced land reclamation and water supply concerns. During the 1920’s and 1930’s multiyear droughts caused a national crisis leading to soil drifting and abandoning of prairie farms. A federal agency called the Prairie Farm Rehabilitation Administration (PFRA) was created to help this region recover from drought and economic disaster. PFRA was
Responsible for irrigation development. One such development project was the creation of Gardiner Dam and Lake Diefenbaker in the heart of the dryland region. The dam was completed in 1967 but was never fully developed for irrigation. Constraints such as farm level economics, water supply infrastructure costs, regulatory issues, competing water uses, future demands and public perception were factors constraining development.

Recently, however, the Saskatchewan government has announced the development of 500,000 new acres of irrigation to be developed from Lake Diefenbaker over ten years in three phases. Work is just beginning and it is an exciting new phase for Saskatchewan agriculture.

Alberta is Canada’s largest irrigated province, with some 600,000 hectares under irrigation, primarily in Southern Alberta. Irrigation is primarily farmer managed within 13 irrigation districts. In terms of water supply infrastructure, the Government of Alberta owns 15 on and off-stream reservoirs totaling some 1.8 million dam³ and with 340 km of headworks canals. The irrigation districts have 1.1 million dam³ of off-stream storage in 41 reservoirs. The districts deliver water to irrigators through a network of 8,000 km of pipelines and canals. Cereals (wheat, barley, corn), pastures and forages, specialty crops (potatoes, sugar beets, peas, beans), and oilseeds (canola, flax, mustard) are the major irrigated crops.

Irrigation is of significant economic value to Alberta. Although only 5% of the province’s cultivated land is irrigated, it produces 20% of the agri-food gross domestic product. Economic benefits go beyond crop production, to livestock production, to value-added processing and to job creation and economic and social well-being of rural communities.

While agriculture is by far the largest water user in Alberta, with an allocation of 4.25 billion cubic metres, the industry must adapt to the fact that water resources of the province are finite, and other sectors, including the environment, must have sustainable and reliable water allocations. With this in mind, no new irrigation water licenses are being granted, and the Alberta Irrigation Strategy aims at managing future risks, assessing opportunities, and maintaining a social license.

In order to drive up irrigation efficiency, the Government of Alberta maintains a cost share program with the irrigation districts (75% government-25% districts) to modernize water conveyance infrastructure. This includes canal rehabilitation and modernization, and installation of pressurized pipelines to replace leaky ditches. Irrigators have also been converting from gravity schemes and high pressure center-pivots, to more water and energy efficient low pressure center-pivots. Overall, over the past 50 years, irrigation efficiency has significantly increased from 30%-50% in the 1970s to over 85% today. This is a remarkable achievement! Even more remarkable is that irrigators are today using about 300 mm of water per hectare compared to 600 mm per hectare in 1960, to irrigate a larger acreage and grow more food!

Going forward the irrigation sector will benefit from a major investment of $815 million towards infrastructure improvements and development of additional off-stream water storage. This will likely see some moderate increase of irrigated area. Once again, these investments are based on a cost share program between the province and the irrigation districts, and a loan from the Canada Infrastructure Bank.

**Drainage Needs and Systems in Eastern Canada**

The Eastern Canadian provinces of Quebec and Ontario are major producers of livestock products, predominantly dairy and dairy based products, chicken, eggs, turkey, pork, and sheep. In order to support this extensive livestock production, the two provinces grow much of the feed inputs, particularly corn and soybean. The estimated area under these two predominant field crops plus wheat is just over 3.25 million hectares in both provinces. In addition, there are regions of intensive vegetable and fruit production. All of these crops require an elaborate drainage network to attain highest levels of productivity.

The region has a wet humid climate with approximately 1000 mm precipitation per year, comprising both rainfall and snowmelt. This rainfall and runoff must be removed to provide an optimum air environment in the root zone, and to limit crop damage due to wet stress. Furthermore, the Eastern Canadian region has a short growing season, extending from late May, after snowmelt, to November before the ground is frozen and snow occurs. Crop producers must therefore use all available technologies to cope with such a short growing season, and limited growing-degree days and heat units. They need to get on the field in mid-May for seedbed preparation, tillage and planting. Failure to do so will not allow the crops to achieve full maturity. Drainage is therefore integral to overcoming the above climatic limitations.

The original settlers, over 100 years ago, relied primarily on surface ditches, open drains and a ridge and furrow cultivation system to remove excess soil water. However, with time and improved crop varieties, surface drainage alone was inadequate. The soils of Quebec and Ontario which originated from the period after the glaciers receded, 12,000-15,000 years ago, are layered, highly variable in texture, and have low hydraulic conductivity, due to the compression and weight of the glaciers. This resulted in soils of restrictive internal drainage, and due to the relatively flat lands, with poor hydraulic gradients to rivers and watercourses, additional drainage improvements were required.

Land owners used shallow buried clay tile, together with surface drainage to provide additional drainage. The installation of clay tile was primarily by hand, and with time the tile became broken or clogged by sediment and tree roots. Some major breakthroughs
in drainage technology occurred in the 1970s and 1980s with the introduction of corrugated plastic pipe and trenchless drain laying plows equipped with laser grade control. Growers were then able to systematically drain their fields with plastic pipe laterals and collector pipes, exiting to main drains and eventually to major waterways. Clay tiles were gradually replaced with closer spaced plastic pipe. Subsurface pipe drainage lowered the water table, thereby allowing crop producers to plant their fields earlier in May without machine trafficability restrictions, and also removing excess soil water during the growing season, resulting from unpredictable summer rainfalls.

The advent of subsurface drainage saw growers convert from lower value crops such as grasses and forages, to higher value and more nutritional cereal grains. This dramatically increased dairy production in Eastern Canada. There are also some pockets of subsurface drainage in Manitoba, Alberta, Saskatchewan, British Columbia, and Nova Scotia.

Generally, the drain pipe laterals are installed at 1.0-1.5m below the land surface. Now, there is a move towards using the same lateral pipes for irrigation during the dry summer periods. Known as sub-irrigation, water can be stored in the drainage ditches and sumps, and move in a reverse mode back into the lateral pipes, and then upwards through the soil profile to the crop root zone, via capillary rise or upward flux. The aim is to keep the water table at 50-70cm below the land surface, via a water control structure at the collector pipe outlet. There are removable gates in the water control structure, that can be removed when drainage is required.

Water table control is also very useful for vegetable production on organic soils, of which there are some significant deposits in Quebec and Ontario. Complete drainage of these soils leads to oxidation and subsidence, and eventual loss of these highly productive soils. By keeping the water table at 30-50cm below the land surface during the growing season, given that the vegetable crops have a shallower rooting depth, the multiple soil, crop and environmental benefits can be simultaneously achieved.

While subsurface pipe drainage systems have been traditionally installed by private drainage contractors, growers are now using smaller trenchless plows pulled by larger tractors to randomly install additional lateral pipes, replace damaged or blocked clay pipes, repair systems, or drain wet sections of fields. With the aid of yield monitors on combine harvesters, farmers can identify regions of low yield and productivity, and investigate whether drainage improvements are needed. The ability to undertake their own subsurface drainage is considered advantageous, as they can make improvements in drier times of the year, using smaller equipment, thereby reducing damage to their fields.

Today, drainage must take into account the many water quality problems being witnessed in the US-Canada Great Lakes, and tributaries of the St. Lawrence River. These include the proliferation of harmful algal blooms and cyanobacterial outbreaks, both resulting from excessive nitrogen and phosphorus loads from agricultural lands. On-going measures to improve drainage water quality, through a suite of best practices including water table control, implementation of riparian vegetative buffer strips, no-till and conservation tillage, application of nutrient management techniques, and precision agro-chemical management will all help to achieve sustainability of food and water systems for future generations.
Case for Ensuring Robust Irrigation Service Delivery

Er. Ashwin B Pandya and Er. Prachi Sharma
International Commission on Irrigation and Drainage

The prevailing water scarcity and the looming threat of climate change coupled with the increasing population are expected to impact global food and water security adversely. The agriculture sector consuming nearly 70% of the global freshwater sources is facing severe competition from other sectors of economies (FAO, 2017). As we are moving towards more sustainable pathways for water management in agriculture, irrigation service delivery is often not given due importance in the larger picture of practicing sustainable farming.

In agriculture, service delivery principally ensures the agricultural water management services provided by the various agencies in terms of irrigation and drainage (I&D) services and other water uses to the tail-end water users. Some of the metrics that are used to identify the functionality of the I&D services include operations and maintenance performance, benchmarking, technical innovation in infrastructure and system operation, water and energy efficiency, business planning strategy, customer service and engagement strategies, budgetary provisions, financial modalities and cost recovery mechanisms.

Apt and sustainable agricultural water management requires a robust irrigation and drainage service delivery mechanism to ensure the sustainability of irrigation projects and systems. It has been observed that irrigation service delivery is a primary area of concern, however, efforts to improve service delivery does not rank very high on the planning agenda of the irrigation professionals. Rather, historically, it has been noted that the gaps in the delivery services are considered inevitable and adopt the ‘Build-Neglect-Rehabilitate Cycle’ focusing mainly on the “infrastructure-only” approach to irrigation development (The World Bank, 2020).

Due diligence is required otherwise it may lead to failure of I&D services. Some of the prevalent irrigation service delivery challenges are listed below:

- Farming Demands: Globally, due to increased population and changing diet patterns, the farming systems are evolving ever more rapidly resulting in growing and changing demands for crops across the world. This results in generating new demands for service delivery.

- External Pressures: Rapid urbanization and globalization are resulting in increasing demand for water from other sectors, limiting the availability of water for agriculture. These competing sectoral demands combined with limited resource availability as well as with climate change uncertainties require attention towards the irrigation and drainage services.

- Disruptive Innovation: Advanced research and developments, ongoing technical revolutions and institutional professionalization allow for quantum leaps, however, creating challenges in fulfilling the gaps in translation of these innovations into real field practices.

- Information Gaps: Planning of irrigation projects requires extensive data, however, due to a lack of sufficient infrastructure and capacities, there is a gap in reliable data. This inadequacy of data hinders service delivery.

- Changing Societies: Irrigation projects, especially in developing countries, are more socially oriented. Establishing projects, especially in developing countries, where such irrigation projects are a part of the social fabric, the acceptance of the irrigation projects as a common public-good play a vital role in the successful execution of the project. The rapidly changing societal trends impact how agencies become inclusive and engage with clients and society at large. Participatory approaches need to be encouraged and facilitated.

- Professional Responses: Improved service delivery is possible, imperative, and driven by service providers in many parts of the world.

Experiences of several countries have been documented and it has been observed that inept I&D service delivery mechanisms for quality water supply, cost recovery and other aspects are hindering the efficient performance of water users’ associations in several countries such as India, Iran, Indonesia, Nepal, Sudan and so on (Gany, Sharma and Singh, 2018).

Irrigation projects essentially last for a very long time and thus pose a never-ending exercise for the irrigation managers and agencies for its upkeep. Continuous maintenance and, in certain cases, rehabilitation and modernization, is required for these projects due to various factors such as ever-changing water utilization, obsolescence of technologies and management techniques. Thus, irrigation agencies have to be on their toes with respect to irrigation service delivery. Fundamentally, each project is unique based on the size of the project, prevalent environmental, social and political
norms and availability of resources as well as technologies. Thus, it would prove highly beneficial to improve the quality of I&D services if the experiences of these projects are well-documented and exchanged through a professional network consisting of irrigation professionals from around the world offering advisory on the best practices, discuss hands-on experiences and innovations and deliberating pathways for technical and institutional innovations. The network can also become a “go to” resource where the professional advice and services can be sought.

To address the above-mentioned concerns, an established global network of practitioners facilitating the sharing of knowledge, information, and technology would prove to be very beneficial. The success of the I&D development and services lies in the sustainable collaboration between water management institutions, service providers and water users to enable knowledge generation and exchange of global best practices, cross-learning, promoting innovations, capacity strengthening, and technical assistance for informed decision-making.

To this end, the World Bank Group in close collaboration with the International Commission on Irrigation and Drainage (ICID) is incubating the International Network of Service Providers for Irrigation Excellence (INSPIRE) to provide a global platform for knowledge exchange on service delivery among managers of irrigation and drainage (I&D) systems. INSPIRE is a technical working platform for I&D service providers with a worldwide reach, supported by multiple leading development organizations in the water sector, namely, Asian Development Bank (ADB), Asian Infrastructure Investment Bank (AIIB), Food and Agriculture Organization (FAO), Islamic Development Bank (IsDB) and International Water Management Institute (IWMI). The INSPIRE platform is currently in its nascent stage, with a vision to achieve economically and financially viable, and environmentally and socially sustainable irrigation, attuned to the needs of clients, climate and its role in the wider basin and agri-value chains. It also recognizes the role of irrigation systems’ managers in achieving the vision and aims to support them and strengthen their capacities by collecting best practices and information exchange (The World Bank, 2020).

With its vision to enable a water secure world free of poverty and hunger achieved through sustainable rural development, ICID is working with its partners and stakeholders towards sustainable agriculture water management using inter-disciplinary approaches to economically viable, socially acceptable and environmentally sound irrigation, drainage and flood management (ICID, 2017). With its vast global network, ICID aims to channel its efforts to support the cause of INSPIRE by advocating strategic advancements and policy reforms and facilitating knowledge sharing, cross-disciplinary and inter-sectoral engagement and capacity development.

References:


The nominations for 2021 WatSave Awards and Recognition of World Heritage Irrigation Structures (WHIS) for the upcoming ICID Events and 72nd IEC Meeting at Marrakesh, Morocco are now open for all. The nomination submission deadline is 30 June 2021.

(1) WatSave Awards 2021

Nominations are invited from individuals/team through National Committees/Committee (NC) for the ‘WatSave Awards 2021’. The entries are open to all professionals/teams from ICID member countries as well as non-member countries. In case of an application from a ‘non-member’ country, the nomination has to be routed through and validated by an active National Committee of ICID, who should be in touch with the nominee and must be aware of his/her work.

The WatSave Awards are given in four categories: (i) Technology (ii) Innovative Water Management (iii) Young Professionals; and (iv) Farmer(s) to recognize outstanding contribution to water conservation or water saving for the benefit of all water users. Only one nomination in each category is allowed from a member NC.

More details about the award such as scope and objective, procedure for submitting nominations can be accessed at http://icid-ciid.org/view_page/9.

Each of the above award carries an honorarium of US$ 2000 and a Citation/ Plaque. In the event, the award is given to a team; the amount shall be paid to the nominated leader of the team for equally sharing among themselves later.

The nominations should be certified by a National Committee about the originality of the nominated work by the Professionals/Team prior to its submission to the Central Office as provided in the nomination form. This authentication by NC is ESSENTIAL to ensure the genuineness of the nominated work, ensuring that it has not been submitted earlier or elsewhere.

While screening the nominations, NCs may note that WatSave awards are not given to a person for variety of works done by him/her for water saving in his/her lifetime, but for a particular technology or innovation. As such the technology or innovation being nominated needs to be clearly highlighted in the submission.

More details about WatSave Award are available here: http://icid-ciid.org/award/watsave/43

(2) World Heritage Irrigation Structures (WHIS) 2021

Nominations are invited for selection of “World Heritage Irrigation Structures” (WHIS) that includes both old operational irrigation structures as well as those having an archival value. National Committee can nominate up to 4 structures, using separate nomination form for each. Associated Members and non-member countries can nominate their structures through the neighboring active national committees. The process for receiving WHIS nominations from National Committee is continuous and open.

All NCs are invited to send nominations of World Heritage Irrigation Structures in the prescribed form available at http://icid-ciid.org/view_page/9. The nominations for WHIS 2021, if received before the deadline, will be considered by the Panel of Judges for inclusion in the ICID Register of Heritage Irrigation Structures. The successful nominee will be presented a “Plaque”, citing the salient features of the WHIS during the 72nd IEC meeting in Marrakesh, Morocco.

More details about World Heritage Irrigation Structures are available here: http://icid-ciid.org/award/his/44

National Committees are requested to kindly circulate this announcement widely amongst professionals/teams within their country. NCs may submit to the Central Office electronically on or before the last date for receipt of the nominations, i.e., 30 June 2021. For any difficulty in nominating and/or clarifications, please contact icid@icid.org.
ICID in collaboration with the National Water Academy of India and two international industry leaders - Jain Irrigation Systems Limited (JISL) and Netfim Irrigation Private Limited - organized an online certificate course on Micro-Irrigation Systems from October 2020 to April 2021. The faculty team included world renowned micro-irrigation experts and field research specialists on adoption of drip and sprinkler systems by farming communities. The concluding webinars for the course were conducted by JISL and Netfim Irrigation Private Limited. A brief introduction and link to the webinars are given below.

**The JISL Perspective on Micro-Irrigation Systems: Resource to Root**

Irrigation permits the possibility of multiple cropping by bringing additional land under cultivation and by utilizing the same land more than once. There is an intimate relationship between cropping intensity, land use and water management.

Modern drip and sprinkler irrigation systems have proved that yield of the crops increases up to 70% as compared to conventional flow irrigation systems. Adoption of modern irrigation systems also results in water savings up to 50%, fertilizer costs, energy consumption by about half. Other advantages such as the utilisation of difficult terrain, maintenance of soil health, use of degraded / waterlogged areas, are rendered feasible by technological interventions which include effectively using Biotechnology, Information and Communication Technologies.

As the prevailing irrigation set-up in many developing countries is not a very encouraging scenario, Jain Irrigation has yet again innovated and introduced the revolutionary concept - Jain Integrated Irrigation Solution (JIS) - From Resource to Root. This concept will have additional advantages of minimum land rehabilitation issues, lower gestation period and higher return on investments. This pattern has been adopted all over the world, including underdeveloped regions of Africa. The need of the hour is to take agriculture as an article of faith and not merely a business. We also need to make it more inclusive to achieve greater equality to reduce political and social tensions. Hence our motto ‘More Crop Per Drop’.

The webinar was held on 19 April 2021. For the detailed webinar, please visit: [https://www.youtube.com/watch?v=5hzw2xAKLEA](https://www.youtube.com/watch?v=5hzw2xAKLEA)

**Netfim Outlook: Micro Irrigation Solution to Address Food and Water Crisis**

By 2050, we would need to produce more than 50% more food to feed increased population. But there will also be 20% less arable land per person – so there will not be enough space to even grow enough food. India is also not exception, in India also by 2050, there will be four billion people living under severe water stress, and 25% less water to go around in general. That is not the 2050 we want to see. So, to address these serious issues and to ensure food & safe drinking water to ever increasing population, we need to find solution to Grow More with Less. And adoption of Micro Irrigation (MI) is probably one of the best solutions which has potential to double the crop productivity with almost 50% saving in irrigation water. In conventional flood irrigation method, more than 50% water goes as waste as runoff, deep percolation & evaporation. Also, irrigation frequency is flow irrigation is depends on crop, climate & soil type and it can be even 10-15 days. So, during this irrigation cycle crop suffers either in soil moisture saturation or very low moisture at crop root zone which plant cannot use. So effectively plants perform best only for 3-5 days during entire irrigation cycle and suffers water saturation or stress for rest of the period. But with Micro Irrigation, attempt can be made to supply water as per crop need and that too directly at root zone of crops without any water losses in conveyance etc. So, as plants gets water just as per their need and at regular interval, Drip irrigated crops performs best and improves productivity to great extent.

Netfim – being Pioneer & Global leader in smart irrigation solutions has most advanced irrigation products, machineries & advanced farming technologies like Digital Farming.

The webinar was held on 30 April 2021. For the detailed webinar, please visit: [https://www.youtube.com/watch?v=Qye0k5qKd4](https://www.youtube.com/watch?v=Qye0k5qKd4)