



From Secretary General's Desk...



Dear Colleagues,

We are fast approaching the 72nd ICID Foundation Day next month on 24 June 2021. There is high probability that this year too we will celebrate it in clouds considering the “new normal” situation we are all very well aware of and living in. Change is sometimes difficult to accept and adopt, but

there are few options available to us at this juncture of time other than continuing with online activities to simulate our traditional physical events.

On the brighter side, restricted physical movements for commute to work and/or participation in distant professional events have given us more time to contemplate the current scenario of global food-water security and related rural livelihoods in the shadow of the pandemic rampage. In my view, it is an opportune window of time to plan the future, factoring in the uncertainties that we are so used to ignore otherwise when things are going as planned and worked out to the finest details. Future risks of unknown nature are difficult to quantify at best, however, the science of probability and its judicious use in project formulation and planning now seem to be more

important than ever because significantly large investments of all kinds have already been made over the last couple of centuries in creating development infrastructure of all types, including irrigation, drainage and flood management. The immediate task is to develop suitable risk management regimes for our existing infrastructure assets and resilient design methodologies for future infrastructure.

In closing the above line of thought, I would say that the future is a combination of both deliberately deterministic and unknown probabilistic events; and our greatest challenge is to maximize our steadfast deterministic efforts to minimize future uncertainties using all possible intellectual and physical resources available to us.

This issue of the ICID News Update covers our participation in various relevant online events, conclusion of on-going online courses of ICID, our writing contributions to international publications, and reminder announcements to invite nominations for the 2021 WatSave Awards and Recognition of World Heritage Irrigation Structures (WHIS).

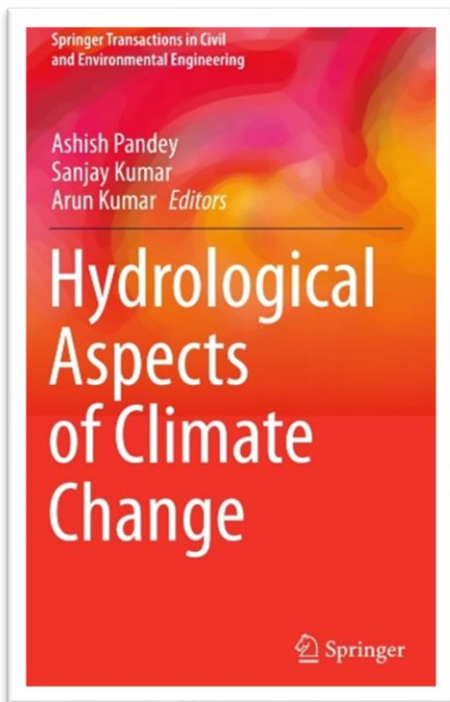
Wishing you all a safe and serene time!

Ashwin Pandya
Secretary General, ICID

ICID Contributes Book Chapter in Hydrological Aspects of Climate Change

Springer Transactions in Civil and Environmental Engineering (STICEE) publishes the book “Hydrological Aspects of Climate Change” which covered the latest developments in Civil and Environmental Engineering. The intent is to cover all the main branches of Civil and Environmental Engineering, both theoretical and applied.

The ICID Secretary General, Eng. A.B. Pandya and Knowledge Officer, Eng. Prachi Sharma have written a chapter in the book “Hydrological Aspects of Climate Change”. The chapter entitled “Importance of Data in Mitigating Climate Change” aims to promote awareness of water resource Management. They describe how climate change can impact the components of the hydrologic cycle, causing changes in the precipitation characteristics, evapotranspiration, surface runoff, snow and glacier melts, recharge of the groundwater, etc. These changes can directly affect the storage of water in surface and



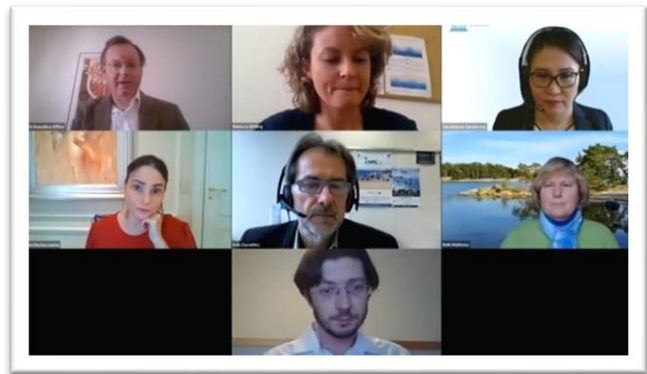
subsurface reservoirs and accelerate the frequency of floods and droughts. They also stress upon the scientific adaptation strategies to minimize the adverse impacts of climate change on any country's water resources. It is also to ensure the sustainable development and management to deal with the global challenge of climate change and its effects on water resources.

Abstract of the Chapter

Climate change is bringing unprecedented changes in the hydrological regimes globally. This could severely impact the availability of freshwater resources, especially in regions which are already water stressed. Thus, the scientific research, policy-making and project implementation need to stay ahead of the curve to ensure viable water resources management. In this regard, data science can play a vital role in the decision-making process of holistic water resources management to ensure water security, particularly in the context of river basin development, transboundary issues and complementing food and energy security. Reliable data is essential for better forecasting, monitoring, and implementing control processes based on water resources and topography of the case in question. A proper monitoring system needs to be combined with an efficient information system, followed by a sound operation and planning system culminating in capacity development and policy implementation for the effective use of data.

IWRA Webinar on "Source to Sea Management"

This IWRA webinar on Source to Sea Management was a success with over **450 registered attendees** who explored this important topic in-depth. The panelists



presented a range of **case studies and perspectives** highlighting diverse applications of the **source-to-sea approach** to improve coordinated management of land, freshwater, coastal and marine systems. One panelist discussed the complexities of addressing pharmaceutical pollutants entering freshwater ecosystems. Particularly concerning, the broader impacts of these pharmaceuticals on flora and fauna in the freshwater and marine ecosystem are also not known. In the **Baltic Sea**, pharmaceutical pollution was identified as one of the major emerging pollutants that were not addressed by standard wastewater treatment.

Other panelists discussed both the successes and ongoing challenges to control nutrient pollution in the **Danube River and Black Sea**. They showed how significant measures taken improved environmental quality of these water bodies in recent decades, but require continuous care as diffuse pollution from agriculture across the river system remains challenging to control. Another panelist shared experiences from the **Ethiopian Rift Valley**, where a source-to-lake framework was applied to develop strategic interventions to reduce sedimentation in Lake Hawassa. It also shared insights on how to connect source-to-lake approaches to the development of basin plans to reduce sediment loads in the region.

Moreover, presentations explored ways that governance networks can be leveraged to better address the issues at different levels of scale and in different sectors. Such networks could support improved agency coordination and multi-stakeholder platforms to connect actors across the source-to-sea continuum. Methods to align common objectives between parties and jointly consider the broader range of social, environmental and economic benefits have strong potential to support adoption of source-to-sea approaches.

Finally, the webinar panel explored some critical points in **trans-boundary water law and management**. International water law is a still growing body of jurisprudence whose key themes, such as the drainage basin scale approach and the community of interests doctrine, hold promise for addressing these freshwater and marine linkages. The panel agreed that the Source to Sea Management perspective has significant **potential to address** in a more holistic perspective the linkages between freshwater and marine ecosystems and the shared governance between them.

ICID Staff Members Attend On-Line International Training Program

Under the existing collaborative arrangements between ICID and African-Asian Rural Development Organization (AARDO), ICID was invited to nominate a few of its staff to attend the Online International Training Programme on “A Panorama of Affordable Innovative Technologies and Solutions for Rural Development” organized in collaboration with the Indian Institute of Technology Madras (IITM), a premier technical institute in India, during 22 March - 01 April 2021. The broad objective of the programme was to sensitize the participants about adaptation of innovative and affordable rural technologies and share their experiences. The ICID staff, who attended the Program, found it to be very useful in terms of providing a forum for sharing innovative affordable technologies among LDC countries; developing framework and policies for transfer of rural technologies; using innovative affordable rural technologies for raising the living standard of rural people; and creating awareness towards replacing traditional/obsolete technologies with environmentally friendly and climate resilient technologies. The lectures and training provided during the entire program are available at <https://www.youtube.com/channel/UCUFTWSn-mqfTqJjAkGh2Gog> featured for benefit of the participants as well as those interested in providing affordable and innovative technologies for Rural Development such as technologies enhancing productivity of small farmers, facilitating access to value chains and markets, etc., besides enlightening insight into technology transfer and intellectual property rights and developing institutions for rural technologies, especially in underdeveloped and developing countries.

ICID Secretary General Writes in Popular Media on Inter-linking River Projects in India

This article first appeared in Times of India, a popular Indian Daily

“With Uneven Rain, River Linking Only Way to Ensure Equitable Distribution”



Interlinking of rivers will help the country fulfil its dream of ensuring equitable distribution of water and, thereby, prosperity for all. There have been several such steps in this direction, and in 1980 a National Perspective Plan was formalised. This involved transfer of water from water-surplus basins to water-deficit regions. Somehow, the term ‘river interlinking’ stuck in the

public imagination though its real name would have been the National Inter Basin Water Transfer Projects.

So why do we need to link rivers? Though India receives about 4,000 BCM (billion cubic meters) of precipitation annually, utilisable resources are only 1,123 BCM. Even these are not distributed evenly in space or time. Most of the precipitation occurs in about 90 days in a year and the distribution of annual average availability ranges from 510 BCM for Ganga, 527 BCM from Brahmaputra and 11.02 BCM for Pennar and 12.06 BCM for Sabarmati. This shows the skew between potential demands and availability. It has, therefore, been recognised that the inter-basin transfer of water is the only recourse for making an equitable distribution of water across the country and thereby ensuring equal opportunities of development.

Inter-basin water transfer is not a new concept and there have been many such successful examples in the country. It has been practised in India since 1887 when the Mulla Periyar dam was built and water of the west-flowing river basin was transferred to east-flowing Vaigai basin, transforming agricultural development in and around Madurai City for about 68,000 hectares. Similarly India has already made trans-basin transfer in case of the Beas Satluj link, Sardar Sarovar projects, Kurnool Cuddapah canal to name a few, which are functioning well. In the US, the Colorado-Big Thompson project has been functioning since the 1930s and has contributed greatly to the economy of the Colorado state.

Critics of this concept propound myths like massive rehabilitation requirements environmental damage etc but these are all based on conjecture rather than reality. One of the crucial features of the project is location of reservoirs in areas with very low population density with only the canals running in agricultural areas.

More than connecting multiple rivers like an electricity grid, the projects aims at serving irrigation to the lower commands and transferring the corresponding surplus waters from upper commands of the neighbouring basin. We do not have an extreme disparity in terms of flora and fauna b/w flora and fauna b/w neighbouring basins in peninsular India. Hence this talk of mixing of waters and invasion of foreign species etc are not founded in any reality. Existing water transfer have also not indicated any such effects.

There is a clamour about the disruption of climate due to such transfer. Once again, the same is purely conjectural as the impacts required to be created for such a climate change versus the actual transfers envisaged are tiny. As an example the total yield of Ganga & Brahmaputra combined in Bay of Bengal due to land topography. In any case, the linkage b/w any of the basins & their outlets into the seas are being modified.

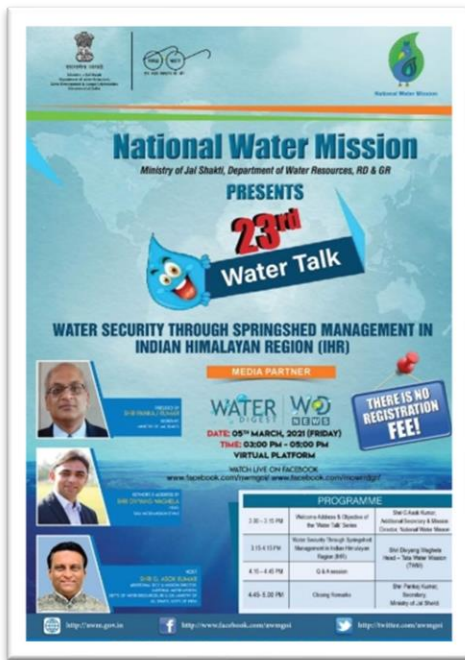
On the other hand, the proposals can provide 172 lakh hectares of annual irrigation which, considering an average farm size of one hectare, can benefit 17.2 million farmer families and possibly 86 million people. In addition, 780 million can get assured drinking water supply. Surface water in water scarce areas will stop unsustainable groundwater utilisation as well. Thus, the benefits far outweigh costs. The question as to why such beneficial schemes are not yet getting implemented is due to our internal wrangling.

Ken Betwa happens to be the first link which was identified for implementation. It will benefit the perennially water-short Bundelkhand region of India and other associated regions of Bina and upper Betwa basins. Besides irrigation and drinking water, it will generate 103 MW of hydropower and 27 MW solar power, Like any other infrastructure project, KBLP will also have some environmental and resettlement and rehabilitation (R&R) issues. Daudhan reservoir will cause submergence of about 9,000 ha land of which 5,800 ha is forest land.

However, with a comprehensive environmental management plan (EMP), compensatory afforestation and liberal R&R policy, these impacts these impacts will be taken care of. A comprehensive landscape management plan is also being prepared for the conservation of Panna Tiger Reserve. Even wildlife will get sustenance in hot summers with assured water supply from the reservoir. The reservoir remaining at relatively low level will expose large tracts of land allowing fodder to be grown, benefitting the lower rung of wildlife which, in turn, can support the whole pyramid.

The projects will provide year-round employment in Bundelkhand region, controlling forced migration to far flung areas for livelihood. The assured drinking water supply will also uplift health standards of the local populace.

23rd Water Talk of National Water Mission



The National Water Mission (NWM) of India has been organizing a seminar series-‘Water Talk’ -to promote dialogue and information sharing among participants on a variety of water-related topics. The ‘Water Talk’ is intended to create awareness, build capacities of stakeholders and encourage people to become active participants in the conservation and saving of water. NWM has so far organized 22 ‘Water-Talks’ on a range of topics dominating the sector concerns. The twenty-third (23rd) Water Talk in this series was held on 5 March 2021 on a virtual platform due to the outbreak of the Covid-19 pandemic in the world. The talk that witnessed more than 650 participants was organized by NWM with the support of Water Digest, the official media partner for the webinar. The talk was delivered by Mr. Pankaj Kumar, Secretary, Ministry of Water. Mr. G. Asok Kumar, Additional Secretary and Mission Director, NWM and officials of NWM attended the webinar along with more than 650 participants. The keynote speaker of the event was Mr. Divyang Waghela, Head of TATA Water Mission. The webinar included participants from across the country from various spheres of life. The talk was also live-streamed through Facebook

on the 11 social media platforms of various organizations under Department of Water Resources (DoWR-India). It was noted that there were over 4,000 total viewers in this e-water talk. Mr. G. Asok Kumar, Additional Secretary and Mission Director, NWM welcomed the participants and introduced NWM along with its 5 goals, 39 strategies and the successful campaign like ‘Catch the Rain’. He highlighted the shifting ‘Catch the Rain’ Campaign to Water Resource Management. He talked about the NWM initiative “Water Empowerment: Catch the Rain” as awareness generation campaign which will be implemented across 623 districts of the country. The invited experts shared their experiences on how they transformed the lives of local communities through motivation and people engagement.

The topic of the e-talk by Mr. Divyang Waghela, Head TATA Water Mission was “Water Security through Spatial Water Management in the Indian Himalayan Region”. Mr. Waghela explained the goal of TATA mission to make a difference through technological intervention for integrated water sanitation with livelihood and women empowerment program. The speaker shared the core area of water resources management like the importance of water security in semi-arid and coastal region as India has approximately 7000-km coastal line. He also shared how Himalayan region having spring water as their core water management strategy. Many public awareness programmes were organised related to this project. The benefits of the restoration process have shown improvement in water resources of the area, increase in agricultural output, creation of additional drinking water sources and also helped in increasing employment opportunities.

The event received an overwhelming response from both the audience and the participants. Ms. Anupama Madhok, Water Digest and Mr. G. Ashok Kumar, Addition Secretary & Mission Director NWM, thanked all jury members for their efforts for making the event a grand success. Further, he talked about the integrated approach to achieve sustainable water resources development and the importance of recognizing the individuals and entities working towards water conservation and management.

ICID Webinars on Micro-Irrigation Systems for its International Certificate Courses

ICID, in collaboration with the National Water Academy of India and two international industry leaders Jain Irrigation Systems Limited (JISL) and Netafim 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 Netafim Irrigation Private Limited. A brief introduction and link to the webinars are given below.

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.

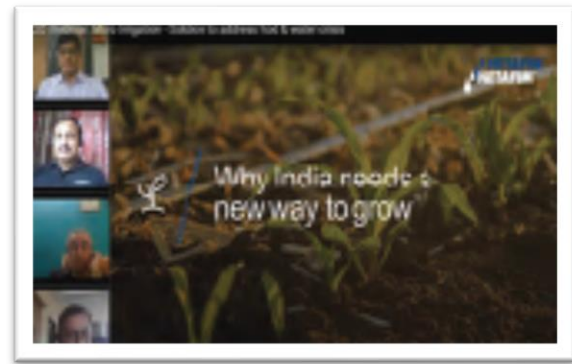
Modern drip and sprinkler irrigation systems have proved that yield of the crops increases up to 70% as compared to conventional flow irrigation systems. Adoption of modern irrigation systems also results in water savings up to 50%, fertilizer costs, energy consumption by about half. Other advantages 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 (JIIS) - 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=Shzw2xAKIE>

Netafim 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 in flow irrigation 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 get water just as per their need and at regular interval, Drip irrigated crops perform best and improve productivity to great extent. Netafim – 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=Qqe0k5qcKd4>

ICID Invites Nominations for 2021 Watsave Awards and Recognition of World Heritage Irrigation Structures

ICID has the pleasure to announce “Call for 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. Kindly note that the nomination submission deadline is 30 June 2021.

(a) Watsave Award 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.

(b) World Heritage Irrigation Structures (WHIS)

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 in a given year, using separate nomination form for each. Associated Members and non-member countries can nominate their structures through the neighbouring active national committees. The process for receiving WHIS nominations from National Committee is always 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.

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. We look forward to receiving nominations from the esteemed National Committees.

JNCID Appoints New Secretary General

Mr. Hiromichi Kitada is appointed as a new Secretary of the Japanese National Committee of Irrigation & Drainage JNCID. He is also the Director of Overseas Land Improvement Cooperation Office in the Ministry of Agriculture, Forestry and Fisheries (MAFF) of Japan. Mr. Hiromichi Kitada experienced many international cooperation programs so far as a negotiator in International Affairs of MAFF, Irrigation Policy Advisor for the Government of Myanmar (JICA program), Agricultural attaché of the Japanese Embassy in Pakistan and so on.

Upcoming ICID Events and Upcoming International Summit

72nd IEC Meeting and 5th African Regional Conference (AFRC) will be held during 24 - 30 November 2021 at Marrakesh, Morocco. More details and procedures will be released as and when finalized. The Young Professional's Training Program (YP-TP) will also be organized during the 5th African Regional Conference.

73rd IEC Meeting and 24th ICID Congress will be rescheduled from 30 May to 6 June 2022 at Adelaide, Australia, hosted by Irrigation Australia Ltd., and Irrigation Australia's Committee on Irrigation and Drainage (IACID). More details will be shared shortly.

74th IEC Meeting and 4th World Irrigation Forum (WIF4) will be held during 16-22 April 2023 in Beijing, China.

75th IEC Meeting and 25th ICID Congress will be held in November 2023, Visakhapatnam (Vizag), Andhra Pradesh State, India

76th IEC and 9th Asian Regional Conference (AsRC) will be held from 27 April-2 May 2024 in Sydney, Australia

5th Arab Water Forum -

The series of triennial Arab Water Forum (AWF) is considered the most important water-related event in the Arab region. The 5th edition of AWF will be convened by the Arab Water Council during the period 21 - 23 September 2021 in Abu Dhabi under the patronage of the United Arab Emirates' Ministry of Energy & Infrastructure and supported by the League of Arab States (LAS) and the Ministry of Water Resources and Irrigation of Egypt (MWRI), in collaboration with national, regional and international partners. Providing a unique platform for communication, the 5th AWF is considered the stage where Arab water community leaders and key decision-makers thoroughly discuss water challenges that the Arab region is facing, being one of the most water-scarce regions in the world. The Forum also



represents an important milestone in the run-up to the World Water Forum (WWF) and a meeting point for stakeholders who wish to be involved in the Arab regional process to reflect the voice of the Arab region in the WWF, promoting priority areas for development in key water-related sectors and mobilizing key actions towards achieving water security for the Arab region.

15th World Aqua Congress, September 14 - 17, 2021 - Aqua



Foundation's World Aqua Congress (Conference & Exhibition) brings together water, environment and related professionals from around the world and offers new insights into how cutting-edge research, technological innovation and leading practices shape the major transformation in water management. The conference provides a unique opportunity to learn about the latest trends in best practices, innovative technologies and cutting edge research. The 2021 edition of World Aqua Congress aligns itself with theme of UN World Water Day. This year's theme is 'Valuing Water'. This focus will extend beyond issues of pricing to include the environmental, social, and cultural value people place on water. Water means different things to different people. In households, schools and workplaces, water can mean health, hygiene, dignity and productivity. The conference is being organized along with exhibition on water technology. Various new technologies have emerged for efficient use of water, water management, waste water treatment, distribution, desalination, recycling, re-use etc., and exhibition provides a platform for display of these technologies.

IUCN World Conservation Congress, 3-11 September 2021 in Marseille. The International Union for Conservation of Nature (IUCN) and the French government have agreed to hold the IUCN World Conservation Congress 2020 from 3-11 September 2021 in Marseille. The event, originally scheduled for June 2020, was postponed due to the COVID-19 pandemic. The Forum is a hub of public debate, bringing together people from all walks of life to discuss the world's most pressing conservation and sustainability challenges. It includes many different types of events from high-level dialogues to training workshops that explore the depths of conservation and innovation.

IWRA World Water Congress 13-17 September 2021, Daegu, Korea. IWRA organizes and supports international water congresses and events related to advancing water resources knowledge, policy, and management around the world. Since 1973, IWRA has held a World Water Congress every three years in various locations around the world. The objective of the World Water Congress is to provide a meeting place to share experiences, promote discussion, and present new knowledge, research results, and new developments in the field of water sciences around the world. For almost four decades the World Water Congresses have been excellent events for the identification of major global themes concerning the water agenda, and for the bringing together of a large cross-section of stakeholders for the development and implementation of decisions in the field of water. Visit the

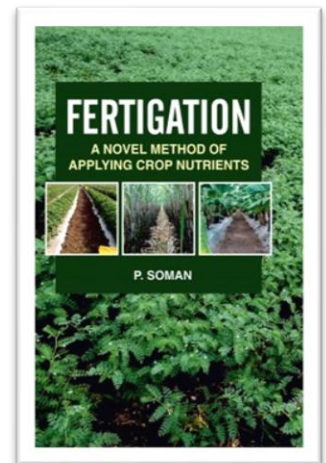
XVII World Water Congress website for detailed information on a call for abstracts, special sessions, and side events, the exhibition and sponsorship opportunities, as well as the early registration and much more. Website <http://www.worldwatercongress.com> / Email office@iwra.org

Granada, Spain 39th IAHR World Congress, 2022 From Snow to Sea On behalf of the International Association for Hydro-environment Engineering and Research (IAHR) the 39th IAHR World Congress to be held in Granada, Spain, from June 19th to 24th, 2022. For more than seventy-five years, the biennial IAHR World Congresses have brought together leading experts to help address the world's pressing water environment engineering challenges. The event has traditionally provided researchers and decision-makers the opportunity to share recent advances and experiences, identify emerging technology trends, and engage in lively debates that have positively impacted our world. Following the last IAHR Congress held in 2019 in Panama City, Panama under the theme "Water – Connecting the World", the main theme of the 39th IAHR World Congress will be "From Snow to Sea" focusing attention on the importance of considering the integral water cycle to address present and future challenges.

New Publication

Fertigation - A novel method of applying crop nutrients by Dr. P. Soman

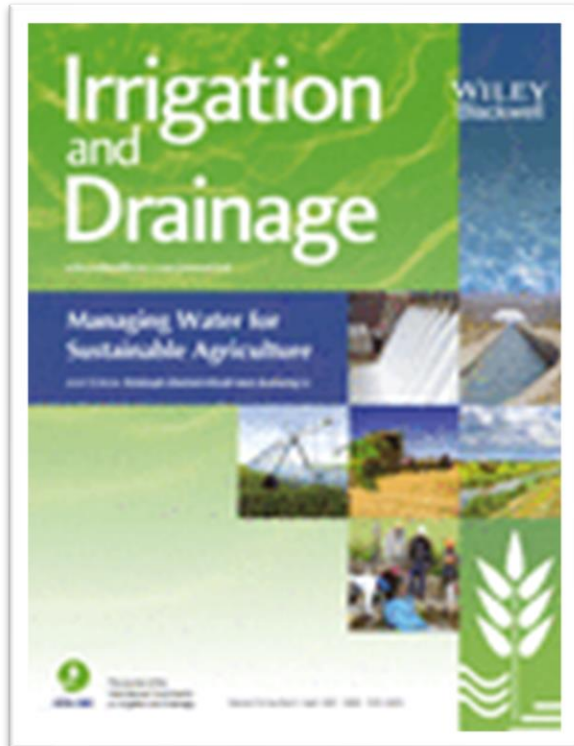
Fertigation requires a thorough understanding of the science behind the technology to make it deliver the immense possibility it offers in crop production. Though the idea of fertigation existed from the times of solution culture, it did not receive the necessary attention from among plant nutritionists and agronomists when it reappeared in the context of micro-irrigation. Fertilizer application in field agriculture has also not developed as a precision technology. Recommendations of the quantum of fertilizers required for a crop, at least in India are not based on current varieties of the crops, nor have they anything to do with the growth rate and developmental changes occurring while a crop is managed by the grower. Most of the fertilizer recommendations are itself very old and efforts to make them relevant to the current growing conditions, soil status, crop variety and crops reaction to the environment etc. are very limited. It is even worse when growers follow traders' recommendations whose idea is to sell more the fertilizer they supply. Not only lower yields and very low fertilizer use efficiencies, but the deterioration of soil and water bodies are the results.



Irrigation and Drainage Journal of ICID

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Click for direct access to the page with the papers of this issue of Irrigation and Drainage at <https://onlinelibrary.wiley.com/doi/abs/10.1002/ird.2305>

World Earth Day 2021: US hosts Earth Day Climate Summit



On Earth Day, 22 April, the US President hosted a summit with the world's leaders titled the "Leaders Summit on Climate Change". The summit is supposed to "galvanise efforts by the major economies to tackle the climate crisis" and "underscore the urgency – and the economic benefits – of stronger climate action." US President Biden has urged the other leaders to use this summit as an opportunity to release their countries' climate ambition and how they will take action to reduce emissions. The main objectives of this summit were:

- Get the world's major economies to reduce emission in this decade while also getting the public and private sector involvement.
- Show how climate action can have economic and social benefits. Build new businesses and industries.
- Using the technology available to adapt to climate change but also reduce emissions. Use nature-based solutions to achieve net-zero emissions by 2050.
- Protect lives and livelihoods by finding ways to adapt to climate change.

This summit got together the 17 major economies that are responsible for approximately 80 percent of global emissions as well as global GDP.

