

News Update

A Water Secure World Free of Poverty and Hunger through Sustainable Rural Development



December 2021

From Secretary General's Desk...

Dear Colleagues,

As the year 2021 comes to a close, I am happy to state that ICID made notable achievements despite the COVID-19 pandemic related disturbances, closures, travel restrictions and movements of all kinds that an international network like ICID needs to fulfil its mission and objectives.

To begin with, ICID successfully completed two online certificate courses – Dam & Network Safety and Micro-Irrigation Systems during the year with excellent feedback from participating professionals all over the world. New courses and offerings are planned considering the success of these two courses.



In 2021, ICID expanded its partnerships both thematically and geographically by signing and renewing Memoranda of Understanding with like-minded organizations such as ICBA, ICARDA, AARDO, and AfDB. Additionally, in collaboration with the World Bank, ICID coordinated the establishment of INSPIRE, a network for professional services for the irrigation sector.

ICID launched a Register of Irrigation and Drainage Schemes that maintains the up-to-date database of projects or schemes that cover more than 5000 ha each. The Register is provided on a user-friendly platform managed by ICID where the interested national committee officials and others can directly upload the technical, design, and management features of such projects along with their intended benefits to the irrigation communities.

As informed earlier, the 72nd ICID International Executive Council Meeting, held in Morocco in November 2021, had to be divided into two parts – the

face-to-face one in Morocco and then online in December 2021 from the Central Office in India due to international travel emergencies announced during the events. ICID IEC elected new Vice-Presidents and appreciated the contributions of the Office Bearers who had completed their terms of 3 years each. The retiring Workbody Chairs were also recognized and thanked for their professional contributions in their respective workbodies throughout their term.

I am fully aware that December is a month of festivals and seasonal celebrations, and in that spirit, I wish you a fruitful arrival of 2022 and all the success in your professional endeavours in the new year. ICID has also planned many new exciting activities for the new year.

Er. Ashwin Pandya
Secretary-General, ICID

New Elected Office Bearers During the Virtual Session of 72nd IEC

Newly Elected Office Bearers (2021-2024) – Vice Presidents



Prof. Dr. Tsugihiko Watanabe, Vice President, ICID (Japan)

Dr. Tsugihiko Watanabe (born in 1953), obtained his Doctorate in Agriculture from Kyoto University, Japan. Dr. Watanabe has research experience of about 45 years related to irrigation management, rural hydrological regime and climate change impacts on basic hydrology and agriculture. His case study areas cover both humid and arid areas, mainly in Japan, Inner-Mongolia of China, California, Kazakhstan, Turkey, and Egypt. Dr. Watanabe started his career as Research Asstt (1984-89) and Associate Professor (1989-1995) of Kyoto University; Associate Professor of Osaka Prefecture University (1995-2001); Associate Professor and Professor of Research Institute for Humanity and

Nature (2001-2003) and a Professor of Graduate School of Global Environmental Studies, Kyoto University from 2013-2019.

Presently, he is Chair of ASRWG, and Member of PCTA, TF-WWF9. He also actively involved and contributed to the ICID Working Group on CLIMATE, DROUGHT, IADWS, PERF and ST-LCB. He also attended several IEC, Congresses and WIFs of ICID and held various positions in professional associations.



Mr. Aziz Fertahi, Vice President, ICID (Morocco)

Er. Aziz Fertahi (born in 1968) has obtained his master's degree in Rural Engineering from IAV Hassan II, Rabat. Presently, he holds four positions in various capacities, viz
1. Director of LABOROUTES; 2. President of ANAFIDE; 3. President

of Regional Branch of the Moroccan General Confederation of Entreprises (CGEM) 4. Vice President, National Association of Buildings and Civil Engineering Laboratories and has 25 years of experience in Rural Infrastructure in irrigated and micro-irrigated zones.

He is very well acquainted with issues and challenges of modernizing irrigated agriculture, agricultural sector and rural areas. He attended various ICID events and support ANAFIDE in carrying out its activities. He is Regional President of CGEM for the Region of Meknès Ifrane, and member of various professional association.

Mr. Ali Reza Salamat, Vice President, ICID, Iran



Er. Alireza Salamat (born in 1968) is M.Sc. in Irrigation and Drainage. Presently, he is Deputy for International Affairs,

Ministry of Energy, Islamic Republic of Iran, is responsible for overseas projects either exporting engineering services and / or exchange up-to-date science and technology finance and investment on water projects from the targeted countries. He also acts as the Deputy Director of UNESCO Regional Centre on Urban Water Management, Tehran and he has served UNESCO for more than 15 years, mainly working in the hydrological cycle. He has authored and edited several papers and publications on integrated water resources management, drought mitigation strategies, climate change / variability and its impacts on urban water systems, groundwater management and water ethics.

Mr. Salamat has been a member of ICID family since 2003 by attending several ICID annual meetings (IEC and ICID Congresses) as the Secretary and Chair of the Young Irrigation Professional, Member of the Permanent Finance Committee as well as the Task Force on World Water Forum 9 (WWF9).

implement International research projects and to attend Advanced Professional Specialization Courses.

He is the member of ICID since 2008 and was elected as Vice President of ITAL-ICID in 2011. He is also a member of the ICID Working Group on Water and Crop and History. He is being appointed by ICID as the Permanent Observer to UN Agencies FAO and IFAD. Since April 2017, he is the representative with in the Global Framework on Water Scarcity (GFWS) now WASAG - an International initiative coordinated and fostered by UN FAO to cope with water scarcity under the threat of climate change. He is also a member of the Interim Steering Committee and Focal Point for Working Group on Sustainable Use of Water Resources of WASAG led by ICID. Dr. Arcieri is also a member of the FAO-WWC driven initiative Water Accounting in Agriculture and Head of the Regional Node for the Mediterranean Area within the International Research Program for Irrigation and Drainage (IRPID) Program of ICID.

National Program on conservation of irrigation water; Irrigation Expansion Program; Public Private Partnership Program in Irrigation; National Program for Development of rangeland.

Mr. BOUARI has made remarkable contributions to the success of ANAFIDE activities related to ICID domain of work and has been a vital nodal point for the development of ANAFIDE missions and its cooperation with ICID over the years.

Retiring Office Bearers (2018-2021) — Vice Presidents Hon.



Dr. Marco Arcieri (Italy)

Dr. Marco Arcieri, Italy Dr. Marco Arcieri is presently the Secretary General of the Italian National Committee on Irrigation and Drainage (ITAL-ICID). In his professional career spanning more than 20 years he has contributed to various studies and research in agricultural water management, land and water resources development, irrigation and drainage, flood prevention, drought monitoring, forecasting and mitigation. With his wide expertise he has visited around 40 countries in order to



Mr. Ahmed EL BOUARI (Morocco)

Mr. Ahmed BOUARI is presently serving as Director in the Directorate of Irrigation and Agricultural Planning (DIAE) at the Ministry of Agriculture, Fisheries, Rural Development and Forests. Prior to that he was the Head of the Development Division / Directorate of Irrigation and Agricultural Land Planning from 2009-2013. During his administrative career, he participated in several internships, trainings programmes and seminars. He steered many projects under his able guidance and was in charge of irrigation and agricultural land planning programs at the national level including:

Mr. Kamran Emami (Iran)



Dr. Kamran Emami, Iran Dr. Kamran Emami holds a Ph.D in Civil Engineering with 28 years of professional experience in water projects pertaining to Water Resources Management, Flood Management, Value Engineering and Water History. He is currently the Head of the Board and Managing Director with the Kurit Kara Consulting Engineers. Prior to that he was a Technical Adviser to Water and Power Development Company (1993-2007) and Senior Advisor in the Technical Office of Power Ministry, Iran (1994-2005). Dr. Emami has a long working association with ICID and served as its Chairman in various Working Groups on Comprehensive approaches to flood management (WG-AFM); History of Irrigation and Drainage and Flood control (WG-HIST) and Task Force on Value Engineering (TF-VE). Born in 1962, Dr. Emami has conducted around 20 researches on water engineering and flood management and penned many books in Persian and English. He has contributed to around 120 technical papers with keynote lectures in various conferences and workshops. In his professional career, he has also participated as the member of scientific committee in many conferences.

Webinar on “Work on the implementation o Water-Saving Technologies for Modern Agriculture and Digitalization of Water Resources Management in the Republic of Uzbekistan” organize by the UzNCID with the Collaboration with ICID on 22 December 2021

The webinar is proceed in a virtual mode by the opening speech presented by Mr.Shavkat Khamraev - Minister of Water Resources, Vice President of the International Commission on Irrigation and Drainage; Eng Ashvin B. Pandya - Secretary General of the International Commission on Irrigation and Drainage & Mr. Kurbanov Shamsiddin - moderator,

Director of the Information-Analytical and Resource Center. The webinar are divided in two session. The first session cover the Work undertaken on the rational management of water resources in Uzbekistan, which is sub-divided into i) Work on the implementation of water-saving technologies for modern agriculture in the Republic of Uzbekistan – Mr.

R.Karshiyev, Deputy Minister of Water Resources; ii) On the implementation of technologies and digitalization in the water sector of the Republic of Uzbekistan – Sh.Haydarov, Head of the Information-Analytical and resource sector; iii) Stabilization of the reclamation situation on the irrigated lands of the southern Aral Sea region based on the

concept of neutral land degradation – Mr. V.Sokolov, Head of the Agency GEF.

The second session cover the story (i) The head of the cluster “Mergantex” and “Karakul Kumush Kalava” in the Karakul district of Bukhara region will share his experience on the issues on the agenda; (ii) The International Committee on irrigation and drainage (ICRC) is pleased to announce the work carried out by the national authorities of

Iran, Israel, Turkey and China on water saving technologies and digitization; & (iii) Question & Answer session.

The sessions review the policy framework & adaptive technology taken by the UzNCID to support the water saving technology in agriculture. It also highlighted the role of artificial intelligence in water resources management of uzbeakistan including digitization, data collection, mapping etc.

Eng. A.B. Pandya represent the ICID, its vision & mission, & how ICID with UzNCID upgrade the agriculture, irrigation & water resources management of uzbekistan to fight against desertification, decline ground water, food security, crop mutation & help them to achieve their sustainable development goals (SDGs) 2030.



Important Announcements

Webinar on 'Updates and Advances to the FAO56 Crop Water Requirements Methods' 15 February 2022, 15:30 - 17:30 Hours Indian Standard Time +5:30 UTC

Edited by Luis Pereira, Paula Paredes, Douglas Hunsaker, Ramón López-Urrea, Nebo Jovanovic FAO56 - Crop Evapotranspiration: Guidelines to Compute Crop Water Requirements – with more than 30,000 citations, proposed to the irrigation and academic world a comprehensive methodology for computing crop water and irrigation requirements.

FAO56 responded to various objectives: to ease the calculation of crop water requirements, to provide information for users aiming optimizing water use and management, to improve crop yields, to gain information usable in collective irrigation systems, and to support measures to control impacts of irrigation on environment and responding to climate



change. Science and technology evolved in the last 20 years after FAO56 was published and related novelties are now part of progress and irrigation practices and management. <https://icid-ciid.org/inner_page/181>

Call for Papers: 24th ICID International Congress on Irrigation and Drainage, 03-10 October Adelaide, South Australia

The Congress Theme: Innovation and Research in Agricultural Water Management to Achieve Sustainable Development Goals The Congress aims to provide a platform for irrigation and drainage professionals and the broad range of other stakeholders to share their knowledge and experience in sustainable

agriculture water management, focusing on irrigation management and its related/integrated aspects. To find out further information and to submit an abstract, please visit Irrigation Australia's conference website <https://www.icid2022.com.au/call-for-papers/how-to-submit-papers/>

For all the information on submitting an extract - you can also download the ICID Call for Papers Flyer on the following link: https://mcusercontent.com/ad3d7801a3707d168c030e520/files/2a975c86-852a-f3bc-5cf7-a2a4ef6483c7/24cong_callforpapers.pdf

Call for Papers: International Workshop on Modernizing Irrigation and Drainage Services, Adelaide, 2022

The main theme of the International Workshop is Modernizing Irrigation and Drainage with a focus on the arrangements for provision of irrigation services. Arrangements for upgrading irrigation and drainage services go beyond rehabilitation of infrastructure to include the institutional and management

arrangements required to enable irrigation supplies responsive to farmer's requirements. The objective of the workshop is to bring together irrigators, system operators and researchers to present and discuss the current state of knowledge and experiences in creating irrigation and drainage services that are

responsive to the changing needs of farmers and the environments in which irrigation and/or drainage takes place.

https://icid-ciid.org/icid_data_web/call-papers_M&R_2022.pdf



Launch of Dam and Network Safety Assurance (DNSA) Course - 3rd Batch

Inviting registrations/ nominations for online certification in dam and network safety assurance- Batch-III - ICID invites you to join the first-ever LMS-based certificate course on dam and network safety assurance. The course covers the entire gamut of establishing a dam and network safety regime and all the techniques involved in assuring the dam and network safety. You can register online here <https://damsafety.co/register> and for more information click <https://damsafety.co/>



11th International Drainage Symposium 30 August - 2 September, Des Moines, Iowa

Solutions to agricultural drainage challenges and opportunities will be the focus of the 11th International Drainage Symposium, held August 30-September 2, 2022 at the Marriott Des Moines Downtown in Des Moines, Iowa, USA. Two days of sessions will highlight challenge of increasing agricultural production on the world's poorly drained soils in a changing climate, with ever-increasing water quality and quantity concerns, will require technical, economic, policy, and social perspectives. The third day of the symposium will feature field tours highlighting some of the innovative drainage work happening in the local area. The symposium will provide an opportunity for the research, agency, industry, and practitioner communities to interact, share experiences, and address emerging issues related to agricultural drainage. For more information please click the link: <https://www.swcs.org/events/conferences/22ids/>



2nd International and 15th National Congress on Agricultural Structures and Irrigation, 12-15 May 2022, Diyarbakir, Turkey

The "International Congress and Workshop on Agricultural Structures and Irrigation" (www.icas2021.org) to be held in Diyarbakir, Turkiye, on 12-15 May 2022. The Congress and Workshop covers especially agricultural irrigation, water management, drought, climate change, irrigation-environment relationship, waste water use, remote sensing in agricultural irrigation and smart systems including all other related issues. This international

event can be attended with or without presentation. The abstract submission deadline is 11 February 2022 for those who want to participate with a paper. In addition, considerable advantages and some facilities will be provided to the students and young colleagues. All details and explanations are on the congress website. Some distinguished national and international scientists in the their fields will participate. For

registration, the application form must be filled and sent to the congress email (congressicas2022@gmail.com). Covid-19 vaccine and detailed up-to-date information on this issue are available on the countries' website (<https://web.shgm.gov.tr/en>). Congress details and all other information are available on the website www.icas2021.org



ICID Initiative for a Global Inventory of Irrigation and Drainage Schemes



Need a Global View

Irrigated agriculture forms the kingpin of the food and water security of the country and the region. Systematic irrigation is practised through irrigation projects of various sizes, which provide the assured source for a sustainable and timely water supply. Thus, an irrigation project forms the atomic unit of irrigation and water resources development. Across the world, irrigation is practised under varying agro-climatic conditions and topography and area appropriate solutions for the same determine the features of individual irrigation projects.

A global view of the irrigation and drainage projects provide great insights into various development approaches followed across the world, their success and their performance. It is observed that the topographic, hydrologic, agronomic and social conditions form a unique combination in which an irrigation project gets planned and implemented. Hence, there is a need to have a global view of the developments which show us the measures adopted and their contexts under a multi-dimensional environment. Attempts are made by

various researchers and practitioners to examine specific issues but examination of a project as a whole in a global context requires a repository of information through which the individual projects of interest can be visualized and approached for lessons.

ICID is the only major international scientific and technical organization that, through its membership network, spans across more than 90% of the irrigated areas of the world. The necessity for having a global view of projects devoted to irrigation and drainage is greatly felt by the member countries and also across the world by various agencies. ICID has, therefore, taken initiative to collect and provide a community knowledge base of irrigation and drainage projects which can work as a common pool resource for understanding the status of development and approaches used for the development and management project under varying conditions.

Setting up a Register of World Irrigation Schemes

Various registers exist in the field of engineering structures and other entities, the most notable from the water resources

angle being the World Register of Dams being maintained by the International Commission on Large Dams (ICOLD). ICID is also maintaining a World Register of Heritage Irrigation Structures and awards recognition to the structures meeting the eligibility criteria.

Most registers examined are about structures and individual components of a system and none recording the features of irrigation and/or drainage project on a worldwide scale. It is, therefore, felt that such a register should be established for irrigation projects and ICID being a key player in the fields of irrigation and drainage is the most suitable agency for the establishment of a Register on "World Irrigation Projects". The authenticity of the projects in the register will be obtained through ICID National Committees

The facility is presently located at www.icidevents.org/WorldIrrPrjs/Default.aspx and is in the development phase. At the appropriate time, once a critical mass of data is available, the same will be migrated to a dedicated domain duly registered.



New Appointments

IRNCID Appoint New Chairman - Mr. Mohammad Javanbakht is appointed as the new Chairman of the Iraq National Committee of Irrigation & Drainage. He is also the deputy of the ministry of energy and managing director of Iran water resources Management Company (IWRM).

Contact: Deputy Energy Minister for Water Affairs, and Managing Director, Iran Water Resources Management Company (IWRM), Chairman, Iranian National Committee on Irrigation and Drainage (IRNCID)

Address: No. 1, Shahrsaz Lane, Kargozar St., Dastgerdi (Zafar) Ave., Tehran, Iran
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News Around the Globe

Southeast Asia's Most (Un) Wanted: Invasive Species and Threats to Agriculture and Aquaculture

Conventionally, we associate Sustainable Development Goals (SDG) 14 and 15 with large scale conservation projects and management strategies. We pay less thought to individual organisms that are causing devastating impacts on agriculture and aquaculture. This is precisely what SDG target 15.8 focuses on: introducing preventative measures to

reduce the impact caused by invasive alien species in both terrestrial and aquatic ecosystems. We present two case studies demonstrating why SDG 15.8 matters, and what can be done to achieve environmental conservation.

Our first case is the apple snail (ampullariidae), an invasive species that

is threatening agriculture, primarily rice patties, in Southeast Asian countries like the Philippines and Thailand. This species is native to temperate regions in Argentina and the northern Amazon basin, but has spread widely throughout Southeast Asia over the last 30 years after human introduction in 1980. [1] It is the primary pest in rice and taro production, damaging crop quality and yield as it feeds on these aquatic plants which then allows bacteria and pathogens to infect the crops. [1, 3] About 1.4 million hectares of rice fields in the Philippines have been infested by the golden apple snail, resulting in significant economic loss for smallholder farmers and communities. [3] This species has rapidly spread across agricultural land and wetlands — creating a serious threat towards achieving SDG 15.8 by threatening life on land and water. Due to apple snails' large consumption of aquatic plant life, there is a possibility that they could "alter the natural balance of a water system." [1] In order to manage overpopulation of invasive species such as the apple snail, prioritizing management through innovative solutions such as government regulation of prevention tactics, financial assistance for farmers experiencing production losses, and enforced community management of alien species' populations is key.

A second invasive species threatening Southeast Asia waterways — waterways that are essential to supporting agriculture and aquaculture practices — is the suckermouth catfish (*hypostomus plecostomus*) and originally hails from South America. It was brought to



Southeast Asia as an ornamental fish for aquariums. However, poor regulations and release of the fish by irresponsible pet owners introduced them into the wild. [4] The catfish poses a unique challenge to aquaculture and agriculture. In the Philippines, their sharp spines create tears in fishing nets. They reproduce quickly by nesting in riverbanks — edging out local species for food. [4] In Vietnam, they are a growing issue in the Mekong Delta where they invade local aquaculture ponds. Unfortunately, they have no economic value as they are generally unpalatable. The species poses a risk to land as well, digging holes in the river and banks thereby causing erosion. [5] The Philippines Department of Environment and Natural Resources (DENR) has taken steps to

combat the impacts of invasive species, but the government lacks resources to effectively enforce regulations on the sources of invasive species like pet stores and ports where these species are smuggled.

The United Nations recognizes the issue of invasive species, noting that although 98 percent of countries have legislation on preventing invasive species, more funding is required from national governments and international financial institutions to implement global legislation that addresses the transboundary nature of the problem. [6] Our two case studies particularly illustrate the threat of invasive species to environmental conservation, as well as the vulnerability of land and marine ecosystems.

Morocco to Convert 1m ha to Conservation Agriculture

On November 12th, the Moroccan Ministry of Agriculture, Marine Fisheries, Rural Development, and Water and Forests announced that up to one million hectares of cereals will be cultivated under Conservation Agriculture by 2030.

Morocco, the only country in the region to practice Conservation Agriculture (CA) at scale, will now become a hub for dryland sustainable agricultural systems, boosted by decades-long joint research on CA between ICARDA and the National Agricultural Research Institute (INRA) of Morocco. Over a long and productive partnership, ICARDA and INRA have investigated crop rotation systems of cereals, legumes, and forage crops under CA at the ICARDA/INRA Marchouch research station near Rabat and across INRA's research stations in Morocco.



They produced clear scientific evidence that conservation agriculture is highly beneficial to the country's agricultural system.

In Morocco, cereal cultivation — often monocropping — is practiced on 4.5 million hectares of land, which is equivalent to 80 percent of the country's arable land

Publication



New FAO Publication: Sustainable management of freshwater resources for food security and nutrition in Small Island Developing States

Small Island Developing States (SIDS) are the diamonds in our endless oceans. Their unique ecosystems, scenic landscapes and much-pictured coastlines form the vast assets of the island inhabitants and are the core value of a flourishing tourism sector.

Yet, the report "Sustainable management of freshwater resources for food security and nutrition in Small Island Developing States" developed by the FAO Land and Water Division, also shows the downside of the SIDS boundedness. The prevailing limited suitable land and water resources and high dependency of imported foods result in a widespread food insecurity and a high risk of micronutrient deficiencies. The obvious fragility of the food systems in SIDS emphasizes the need to improve production, especially of fresh and healthy foods. The contribution of freshwater management to food security and nutrition is pivotal and has become even more relevant during the COVID-19 pandemic as SIDS grapple with blocked transport lines and a tourism sector that has come to a standstill. Indeed, the SIDS are facing a raft of challenges to secure their food and nutrition, and maintain the high quality of their island natural resources and coastal ecosystems.

This report presents a road map where appropriate water governance, legislation, control and enforcement as well as institutional and inter-island collaboration should replace the short term sighted reaping of benefits that degrade the surface and ground waters. The most important assets to manage the water resources and obtain a food secure situation on the islands are the SIDS inhabitants because they understand the value of conservation and appreciate the innovations needed to preserve the quality of their fragile islands.

A Message from Irrigation Australia

COVID-19 disrupted events on a global scale and Irrigation Australia was not immune from the impact of this pandemic. We were very disappointed not to hold the 24th Congress & 71st IEC Meeting, combined with the biennial Irrigation Australia Conference & Exhibition as scheduled in 2020. After our efforts to win the right to host this event and the extensive planning and work undertaken, we were very determined that the event could still be held in a post-pandemic environment. The date and location may have changed but the enthusiasm, commitment and warm hospitality of the organising committee has not.

Accordingly, on behalf of Irrigation Australia and the ICID Australian National Committee (IACID) we extend a warm invitation to you to participate in the 73rd IEC Meeting & 24th ICID Congress combined with the Irrigation Australia National Conference & Exhibition to be held in Adelaide, Australia from 3 October to 10 October 2022.

The Australian irrigation industry is delighted to have the opportunity to host this event and showcase our irrigated agricultural industry to the world. To add value to your participation in the International Congress, we have combined it with our biennial Irrigation Australia Conference and Exhibition, the biggest irrigation event in the southern hemisphere. ICID delegates will be able to attend the local conference sessions and our large international exhibition in addition to the comprehensive ICID program.

The theme for the 24th ICID Congress is 'Innovation and research in agricultural water management to achieve sustainable development goals'. Australia is the driest continent on earth and the efficient use of water

is at the forefront of our objectives and strategies to expand our domestic production of food production and to maintain our reputation as an exporter of high quality foods to a growing world population.

The event will be hosted in Adelaide, which is Australia's 5th largest city and home to a vibrant culture of arts, culture and great food. It is renowned for its fantastic places to visit and close proximity to some of the leading agricultural production in Australia. The famous wine producing region of the Barossa Valley is easily accessible on a day trip from the city and here you can experience some of the finest wines and cellar doors in Australia, and in fact the world. The organising committee will be arranging a selection of interesting and informative study tours and further details on these will be released during 2021. Registrations and an invitation to submit abstracts will re-open in 2021 but you are welcome to register your interest now to ensure you receive communications to keep you updated with what will be an exciting and important event on the international irrigation calendar.

It is a great privilege to be awarded the opportunity to host the International Congress, which is being held in southern hemisphere for the first time since its inception in 1951. We hope that you plan well ahead to attend this event and take this long-awaited opportunity to catch up with old acquaintances, make new friendships and enjoy some 'true blue' Australian hospitality. If you have any questions or require assistance, please do not hesitate to contact us via email at icid2022@irrigation.org.au.

We look forward to seeing you in 2022 in Adelaide.

surface. Year after year, farmers cultivate the same rainfed cereals -primarily wheat and barley- depleting soil nutrients, reducing organic matter, and eroding the land due to frequent tillage.

Adopting CA will reduce soil erosion by half, he explains. "In addition, each hectare cultivated will capture around 0.5 tons of carbon dioxide, in line with the Net-Zero carbon emission Pledge launched at COP26." Agriculture can strongly contribute to solutions to climate change by increasing ecosystems' resilience. "In this regard, conservation agriculture has a massive role to play," Dr. Moussadek explains.

The cooperation between ICARDA and INRA initiated in 2004 with the launch of the Moroccan Collaborative Grants Program (MCGP), has evolved and deepened over time, with conservation agriculture at its core. Its main objectives

are to stabilize harvests and livelihoods for small and medium-sized farmers and to restore severely degraded soils back to health.

Other key actors will amplify and support CA in the new Moroccan Strategy, specifically the CGIAR Research Program on Wheat (CRP WHEAT), the Arab Fund for Economic and Social Development (AFESD), the World Bank, and the CGIAR 'Excellence in Agronomy' initiative.

https://www.icarda.org/media/blog/morocco-convert-1m-ha-conservation-agriculture-how-icardainra-fit?utm_source=European+GDPR+law&utm_campaign=3945e54039-Newsletter+September+2021_COPY_01&utm_medium=email&utm_term=0_200b18e554-3945e54039-1392983969

ICID Forthcoming Events

73rd IEC Meeting and 24th ICID Congress 3-10 October 2022, Adelaide, Australia Theme: Innovation and research in agriculture water management to achieve sustainable development goals Website: <https://www.icid2022.eom.au/>

Geosynthetics Events: Held at ICID Congress & Irrigation Australia Conference

The Geosynthetics Event at the ICID Congress and Irrigation Australia Conference – Adelaide October 2022 - Enhancing the performance of Canals, Reservoirs and Dams with Geosynthetics. The International Geosynthetics Society (IGS) in collaboration with Irrigation Australia (IAL) and the International Commission on Irrigation & Drainage (ICID) have agreed to host a one-day workshop at the ICID 24th Irrigation Congress and Irrigation Australia Conference and Exhibition at the Adelaide Convention Centre on 4 October 2022 on enhancing the performance of canals, reservoirs and dams using geosynthetics

74th IEC Meeting and 4th World Irrigation Forum 16-22 April 2023, Beijing, China, Theme: Modernization of Irrigation Schemes Contact: ncid_office@sina.

75th IEC Meeting and 25th ICID Congress 6-13 November 2023, Vizag, Andhra Pradesh, India. Theme: Tackling Water Scarcity in Agriculture Contact: rishi1964@yahoo.com, yellark@gmail.com

10th International Micro Irrigation Conference 25-27 January 2023, Agadir - Dakhla, Morocco. Theme: Micro Irrigation in the Era of Technology, Innovation and Digital Transformation, Website: <http://anafide.net/>

76th IEC Meeting and 9th Asian Regional Conference 1-7 September 2024, Sydney, Australia. Website: <http://www.irrigationaustralia.com.au/>

77th IEC Meeting and 5th World Irrigation Forum September 2025, Kuala Lumpur, Malaysia. Theme: Challenges and future needs in modernization of irrigation for food security and sustainability; Contact mancidmalaysia@gmail.com

Webinar on "Integrated Water Resources Management in Large River Basins Based on Simulation Modeling and Optimization Methods"

16 February 2022, 15:30 - 17:30 Hours Indian Standard Time (IST)

The water resources management, as for isolated reservoirs and for cascades of integrated reservoirs, is an iterative process of integrated decision-making concerning to complicated problem: how to use and change of water resources and associated territories within a certain geographic region.



The main principles of the management process are: a systematic approach; stakeholder partnership; accounting of the uncertainty (stochasticity) of a number of influencing factors; basin (geographic) approach and reliance on serious scientific research and reliable data.

Based on the fundamental principles, it can be concluded that the methods of water reservoir management are mainly determined by the use of computer technology (mathematical simulation models) to solve practical problems. The basic methods have been used for water resources management, are imitation, optimization and multi-criteria analysis.

All types of optimization models (deterministic or probabilistic, static or dynamic, linear or nonlinear) have a general concept: these models describe situations with many solutions that satisfy all limits, and it is required to find a set of the best solutions.

The selection of the optimization models should be based on the specific type of their application, for example formation of the best modes of operation of reservoirs, taking into account the conflict of interests of water users. At the same time, the quality of optimal water resources management is assessed by statistical and multicriteria analysis methods.

One of the ways to solve problems on integrated water management effectively is implementation and development of the mathematical models and putting them into operation practice.

For more information, < https://icid-ciid.org/inner_page/182 >