

ANNUAL REPORT

2022-23



Agricultural Water Management For Sustainable Rural Development



ICID • CIID

INTERNATIONAL COMMISSION ON IRRIGATION AND DRAINAGE



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(2020-2023)



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Er. Ashwin B. Pandya (India)
(2018-2024)

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(South Africa)



Mr. Kushvinder Vohra
(India)



Foreword

ICID is a widely recognized knowledge-based international organization with global flagship programs in 'Irrigation and Drainage.' The Commission promotes its mission by pooling and sharing knowledge on the topics related to irrigation, drainage, and flood management, and then making it available worldwide; addressing emerging problems and challenges by promoting the evolution of suitable remedial measures; water-saving/conservation in agriculture; and endorsing preservation and improvement of soil and water quality of irrigated lands. ICID provides a platform and brings various stakeholders and experts from diverse disciplines to deliberate on technical, agronomic, socio-economic, environmental, and managerial complexities for the development, management, and operation of irrigation, drainage, and flood management works. The aim is to attain sustainable Agricultural Water Management (AWM) through exchanging experiences, ideas, and good practices and to promote them widely among the member countries and stakeholders.

There are both external and internal challenges faced by the institutions responsible for agricultural water management and their stakeholders involved at different levels, i.e., global, national, regional, or local; and it is critical that their role and functionality and related institutional development processes essential to realize the UN-SDGs and ICID Vision 2030 are clearly articulated. As a Knowledge Hub, ICID, through its technical working groups, generates knowledge by compiling and collating research data and disseminating them to all stakeholders through various channels. In this endeavour, it has established various regional Working Groups (WGs) for bridging the communication process and promoting a stronger network among the countries in the region as well as international institutions for enhancing cooperation and coordination. To achieve the goal of doubling food production in the region, WGs organize conferences on topics of current importance. Presently, three regions have active WGs – Africa, Asia, and Europe. The activities of these WGs and interaction with other regional groupings/gatherings that promote regional cooperation are presented in this report.

ICID celebrates its Foundation Day on 24 June. This year 73rd Foundation Day of ICID on the theme "Role of Modern Irrigation in Global Food Security" celebrated on 24th June 2022 at New Delhi, was graced by ICID President, ICID Central Office, several past and present office Bearers, senior-level officials from Embassies in Delhi; and the representatives of the partner organisations. ICID President welcomed and thanked all distinguished guests, dignitaries, professionals joined to mark the 73rd ICID Foundation Day. The Curtain Raiser Programme marked the official launch of the run-up to the 25th ICID Congress and 75th IEC Meeting the release of official website along with Event Logo and the First Announcement. The final session witness presentations and fruitful discussions on the seminar theme by The World Bank, International Water Management Institute (IWMI), International Solar Alliance (ISA), Electro Steel Castings Limited, etc.

ICID has been organizing its flagship triennial event International Congress on Irrigation and Drainage since 1951. ICID events provide a platform for exchange of knowledge, experiences and networking among participants, and various stakeholders and also setting up the agenda, policy and direction for various ICID activities. The major event during the year was the 24th ICID Congress on the theme "Innovation and Research in Agricultural Water

Management to Achieve Sustainable Development Goals” and the 73rd International Executive Council meeting along with the Annual Workbody meetings from 3-10th October 2022 hosted by the Irrigation Australia’s Committee on Irrigation and Drainage (IACID) at Adelaide, Australia. The mega event was attended by 2000 delegates comprising the policy makers and officials from 64 countries of irrigation and drainage professionals; the broad range of other stakeholders from international organizations and Young Professionals who shared their knowledge and experience in sustainable agriculture water management focusing on irrigation management.

ICID in association with Central Water Commission (CWC) and INCID, organized the Conclave on “Water Security of India” on 1st & 2nd November, 2022 as a Side Event during the 7th India Water Week. The 7th India Water Week was inaugurated by the magnificent presence of the H.E. Hon. President of India, Smt. Droupadi Murmu; Hon. Minister for the Ministry of Jal Shakti, Govt. of India, Mr. Gajendra Singh Shekhawat along with other State Govt. Water Resources Ministers and several other high-level dignitaries of water sector. The Conclave aimed at discussing the water security issues in a comprehensive manner by addressing various associated topics. The event involved fruitful presentations followed by enriching discussions among the participants.

The ICID was also associated during the year to organize many international conferences in different countries. The 10th International Micro Irrigation Conference was organised on 25-27 January 2023 on the theme ‘Micro-irrigation in the Era of Technology Innovation and Digital Transformation’. The three-day conference which aimed to share experiences of using new technologies and best management practices in drip, micro-sprinkler and other localized irrigation systems was witnessed a large group of eminent international and national experts from 16 countries and local farmers, in the field of the latest development in micro irrigation technology, to enhance the crop production and water management for optimal use in agriculture, technical and sociological interventions for sustainable water, food and agriculture.

On the capacity building front, ICID has organized several training programs specifically for Young Professionals. The 5th African Young Water Professionals Forum (Af-YWPF) was successfully organized from 17-18th October 2022 in the hybrid mode under the theme “Smart irrigation water management, to mitigate climate change impacts”. About 135 YPs from 36 countries participated online. Additionally, a number of technical webinars were organized throughout the year, keeping in view the requirement of different professionals working in the AWM sector.

The total number of the African Young Water Professional Forum (AFYWP-Forum) on LinkedIn has reached more than 6300 and more than 1030 members in ICID-Young Professional’s e-Forum (IYPeF). A virtual meeting of Af-YWPF YPs was organized on 5 April 2022 and three coordinators had been selected from each of the 44 African Countries besides a Webinar on Combining Farmer and Science-Based Knowledge Through the Virtual Irrigation Academy (VIA) on 29th June 2022.

I am also delighted to share that ICID is now spreading its wings and testing new horizons in the form of partnerships around the globe that synergize our common quest to improve water productivity in agriculture in a seemingly unpredictable climate change scenario. ICID and ICOLD have agreed to continue to exchange their professional knowledge in each other’s fora and thus contribute to the roundtable discussion and signed a MoU. ICID also signed an MoU with International Association for Agricultural Sustainability (IAAS).

This Annual Report includes the details of various activities that ICID members and partners undertook together over the year 2022-23. ICID periodicals and other knowledge sharing outputs are disseminated regularly at their scheduled times using a wide variety of print and electronic media. We are working assiduously to achieve ICID Vision 2030: water secure world free of poverty and hunger through sustainable rural development.

I extend a cordial invitation to all the water and agriculture professionals, stakeholders, academic & research institutions and international organizations, to be the part of 25th ICID Congress and 74th Executive Committee Meeting being organized in November 2023 at Vizag, Andhra Pradesh, India and make it a grand success.

I look forward to meeting you ICID family and other water and agriculture professionals at Visakhapatnam (Vizag), Andhra Pradesh State in November 2023 and thank you all for your continued support.

With warm regards,



Ashwin B. Pandya
Secretary General, ICID

About ICID

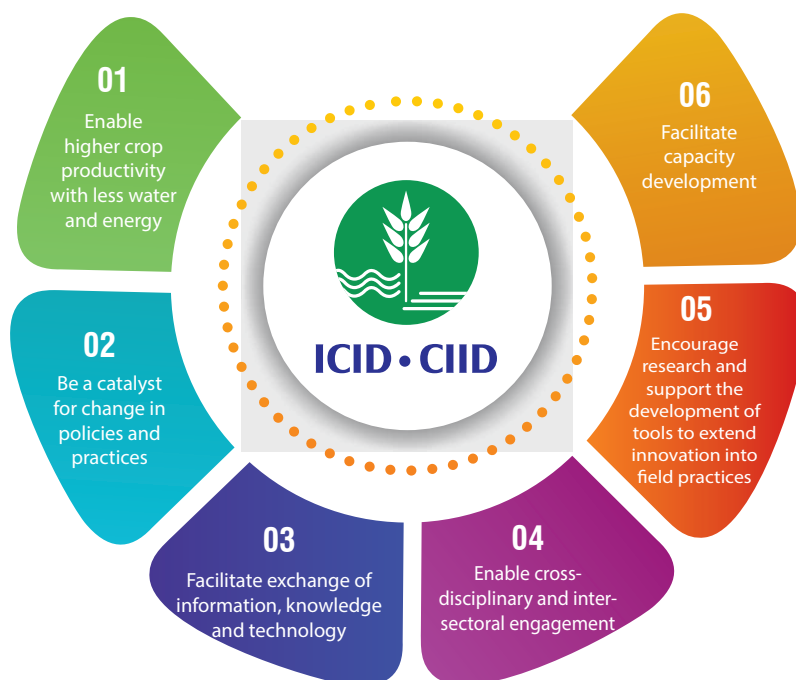
The International Commission on Irrigation and Drainage (ICID), established in 1950 as a leading scientific, technical, not-for-profit organization working internationally in the field of irrigation, drainage and flood management to promote 'sustainable agricultural water management.' ICID strives to promote policies and programs to enhance sustainable development of irrigated agriculture through a comprehensive water management framework. ICID is committed to enhance the worldwide supply of food and fibre for all people.

ICID as a knowledge sharing platform is dedicated towards improving the status of agricultural water management (AWM) practices including rain-fed agriculture, supplemental irrigation, deficit and full irrigation. The other core areas of activity focus on the drainage of agricultural lands and the management of extreme climate induced disasters, such as floods and droughts.



Organizational Goals

In order to fulfill the mission and realize the Vision 2030, ICID has set the following six organizational goals:



We fulfill our mission through generation, exchange, and dissemination of knowledge ...

ICID is a widely recognized knowledge-based international organization with global flagship programs in 'Irrigation and Drainage'. The Commission promotes its mission by pooling and sharing of knowledge on the topics related to irrigation, drainage, and flood management, and then making it available worldwide; addressing emerging problems and challenges by promoting evolution of suitable remedial measures; water saving/conservation in agriculture; encouraging equity including gender equity between users and beneficiaries; and endorsing preservation and improvement of soil and water quality of irrigated lands. ICID provides a platform and brings together various stakeholders and experts from diverse disciplines to deliberate on technical, agronomic, socio-economic, environmental, and managerial complexities for the development, management and operation of irrigation, drainage and flood management works. The aim is to attain sustainable AWM through exchange of experiences, ideas, good practices and promoting them widely among the member countries and stakeholders. As a Knowledge Hub, ICID through its technical working groups generate knowledge by compiling and collating research data and disseminating them to all stakeholders through various channels.

ICID provides a unique platform to the participants related to AWM for the exchange of knowledge and information through triennial International Congress on Irrigation and Drainage through deliberation on certain specific Questions pertaining to irrigation and drainage; and World Irrigation Forum (WIF) which aims to bring together all the stakeholders involved in AWM. The objective of WIF is to exchange latest irrigation and drainage policies, innovations, and technologies, and advocate political commitments for sustainable irrigated agriculture. Regional issues and challenges concerning irrigation, drainage or micro-irrigation are addressed at the Regional Conferences. ICID works in close collaboration with many international and regional organizations having similar objectives such as FAO (Food and Agriculture Organization), IFAD (International Fund for Agricultural Development), IWMI (International Water Management Institute), World Bank, ADB (Asian Development Bank), UN-Water, WMO (World Meteorological Organization), UNDP (United Nations Development Programme), GWP (Global Water Partnership), WWC (World Water Council), ICRISAT (International Crops Research Institute for the Semi-Arid Tropics), ICARDA (International Center for Agricultural Research in the Dry Areas), AWC (Arab Water Council), WFO (World Farmers' Organisation), AARDO (African-Asian Rural Development Organization) to name a few.

We address multi-disciplinary aspects of irrigation and drainage by synergizing all stakeholders

Fully recognizing complexities of sustainable development particularly related to AWM, while preserving the environment and promoting social equity, ICID gradually changed its focus from merely technical issues to include other related disciplines such as environment, socio-economic, capacity building, and sustainable rural development.

The Commission with active support from its members and stakeholders provides an international forum and network (World Irrigation Forum) in which the technical, agronomic, socio-economic, environmental and managerial complexities involved in the development, management and operation of irrigation, drainage and flood management areas are discussed. The questions addressed by various triennial Congresses <<https://icid-ciid.org/event/detail/25>> clearly indicate a progressive shift from deliberating on purely technical questions to global water and food related issues and the sustainability of development.

To achieve this purpose, ICID draws together diverse disciplines and a pool of over 500 eminent professionals/experts involved in the field of irrigation, drainage and flood management from all over the world. These professionals through technical and strategic workbodies address topics of current importance in developing/emerging and developed countries and provide assistance to bring out various publications, reports, manuals, position papers on various specialized topics.

ICID works towards creating a synergy between agriculture and water policies, and increased investment both from the public and private sources for sustainable development of irrigation and drainage. As farmers are at the core of agricultural water use and the principal stakeholders, ICID, therefore, promotes Participatory Irrigation Management (PIM) and Management Transfer (MT) to enhance the performance of irrigation schemes.

Organization Structure and Management

ICID has a membership of about 80 countries spread across the world and promotes its activities through its network of National Committees (NCs), like-minded international organizations, private companies, institutions, and professional individual members. The membership of the Commission primarily comprises of NCs representing their member countries. NCs generally include multi-disciplinary professionals such as planners and policy makers; water managers; irrigation and agriculture engineers; research scientists and educationists working in the related areas. Companies, institutions, and individuals can also participate in ICID activities through their respective NCs or as Direct Members (DM). Presently, ICID membership network covers over 90% of the irrigated area of the world. Direct Membership is also available for countries that are not a member of ICID, provided such members abide by the constitution of ICID.

ICID achieves its mission through voluntary contribution of experts from the NCs, Direct Members and Partner Organizations. An International Executive Council (IEC) supported by the Management Board (MB) governs its activities. The Commission is presently assisted in its strategic, administrative and technical matters by three Administrative Committees, three Permanent Committees, four Regional Working Groups, twenty-one Technical Working Groups and Task Forces.

International Executive Council



The International Executive Council (IEC), the General Body of the network is composed of President, Secretary General, nine Vice Presidents and one representative from each NC and Office Bearers (OB). All are vested with the management of the affairs of the Commission.

The Council meets each year to take up all the matters of policy which may be initiated or sponsored by any member of the NCs, OBs or by the MB and might itself initiate or otherwise advise and lay down any matter of policy. All matters affecting the executive or administrative function and financial liabilities of ICID is placed before the

Council whose decisions are conclusive. IEC is presided over by the President, who is also responsible for the direction of the Central Office. The Secretary General, who is the Chief Executive Officer (CEO), also serves as the Treasurer of the Commission.

National Committees

National Committees (NC) are the building blocks of the Commission and the main vehicle in advancing its mission. Any geographical area independently administered by a sovereign government and having interest in the activities of the Commission is eligible to become a member by establishing a NC. NCs comprise of a wide network of representatives of experts from the government, technical and scientific organizations, non-government institutions, irrigators, companies and individuals with interest in, concerned with, or desirous of promoting and furthering the mission and goals of the Commission.



NCs are generally hosted by the government departments of irrigation, water resources, agriculture or rural development and provide a multi-disciplinary platform within the countries bringing together all the relevant stakeholders.

ICID publication titled 'A Roadmap to ICID Vision 2030' identified number of activities to be undertaken by the network especially NCs under the four categories – (i) Strengthening of the ICID Network and NCs, (ii) Collective Network Knowledge Management, (iii) Organizational changes in the network, and (iv) Enhanced visibility of ICID activities. National Committees, the backbone of the ICID network as they represent various stakeholders engaged in different facets of AWM in their respective countries, serve as the common platform for various AWM stakeholders in implementing sustainable development agenda within their countries, particularly with respect to meeting the goals of poverty alleviation, food security and sustainable water management and other related SDGs in the context of Climate Change.

NCs disseminate the generated knowledge and share them at the ICID platform with the national stakeholders by organizing national activities, annual conferences, workshops, seminars or through publications in their respective countries.

Direct Members

Professionals, individuals and officers of government or of an institution or institutions - government and non-government; and companies, effectively representing interests within the scope of the objects of the Commission can participate in ICID activities through Direct Membership (DM), to further the objects of the Commission in their countries or sovereign areas. For more information, please visit < https://icid-ciid.org/member/direct_member >

Management Board

The Management Board (MB) comprises of the President, immediate Past President (for one year only), Chairpersons of the Permanent Committee on Technical Activities (PCTA), Permanent Finance Committee (PFC), Permanent Committee on Strategy and Organization (PCSO) and the Secretary General. The Management Board (MB) is responsible for the implementation of the decisions made by the Council through the Central Office (CO) and also decides actions in between Council meetings that are necessary to properly steer the functioning of the Commission.

Permanent Committees



Permanent Committee on Strategy and Organization

Permanent Committee on Strategy and Organization (PCSO), as the name suggests, develops the strategy of the Commission and is concerned with increasing the membership and assisting the National Committees to become more active in their respective countries to achieve the goals set for them from time-to-time. The Committee also undertakes issues related to strategic planning for ICID and coordinates the activities of Vice Presidents in their respective areas. Presently, PCSO is chaired by Vice President Hon. Dr. Mochammad Amron (Indonesia) from 2019.



Permanent Committee for Technical Activities

Permanent Committee for Technical Activities (PCTA) guides the technical activities of the Commission. It guides the activities of the technical working groups, selects Questions for Congresses, themes for World Irrigation Forum, Conferences, Special Sessions, Symposia and thereon makes appropriate recommendations for the actions to be taken. Vice President Dr. Tsugihiko Watanabe (Japan) is chairing the PCTA from 2021.



Permanent Finance Committee

Permanent Finance Committee (PFC) guides all the financial matters of the Commission. It reviews the receipts and expenditures of the Commission, advises the Council on budgetary allocations, and recommends the rate of annual subscriptions and other support from the participating countries. It guides the Secretary General on the rudiments to be taken into account while preparing the annual budget. Vice President Marco Arcieri (Italy) has taken over the chairmanship of the Committee since 2020.

Central Office

The Secretariat of ICID, known as the Central Office (CO), is located in New Delhi, India. Secretary General, as the Chief Executive Officer, is responsible for the day-to-day affairs of CO and is assisted by a small dedicated team. A Staff Committee (SC) reviews and formulates the work procedure and the staff structure of CO, keeping with the dynamic requirements, and advises the Secretary General. The Committee comprises of President; Chairman, PFC; Chairman, Indian National Committee on Irrigation and Drainage (INCID) and the Secretary General.

The Central Office facilitates a knowledge sharing platform by hosting the ICID official website (www.icid-ciid.org) to fulfill its mission. CO also facilitates and coordinates annual meetings of various workbodies and IEC by compiling agenda and minutes. It also disseminates knowledge by bringing out in-house periodicals such as e-Bulletin (weekly), News Update (monthly), and ICID News (quarterly) on regular basis both in English and French (ICID official languages). It also houses a library having a wide collection of technical books, reports, proceedings, periodicals and ICID publications.

To reduce the carbon footprint the Central Office is being maintained as a green building with the provision of solar energy generation system commissioned in 2015. Other eco-friendly measures include rainwater harvesting and use of treated wastewater/untreated fresh water for gardening purposes.



ICID Membership Network 2023

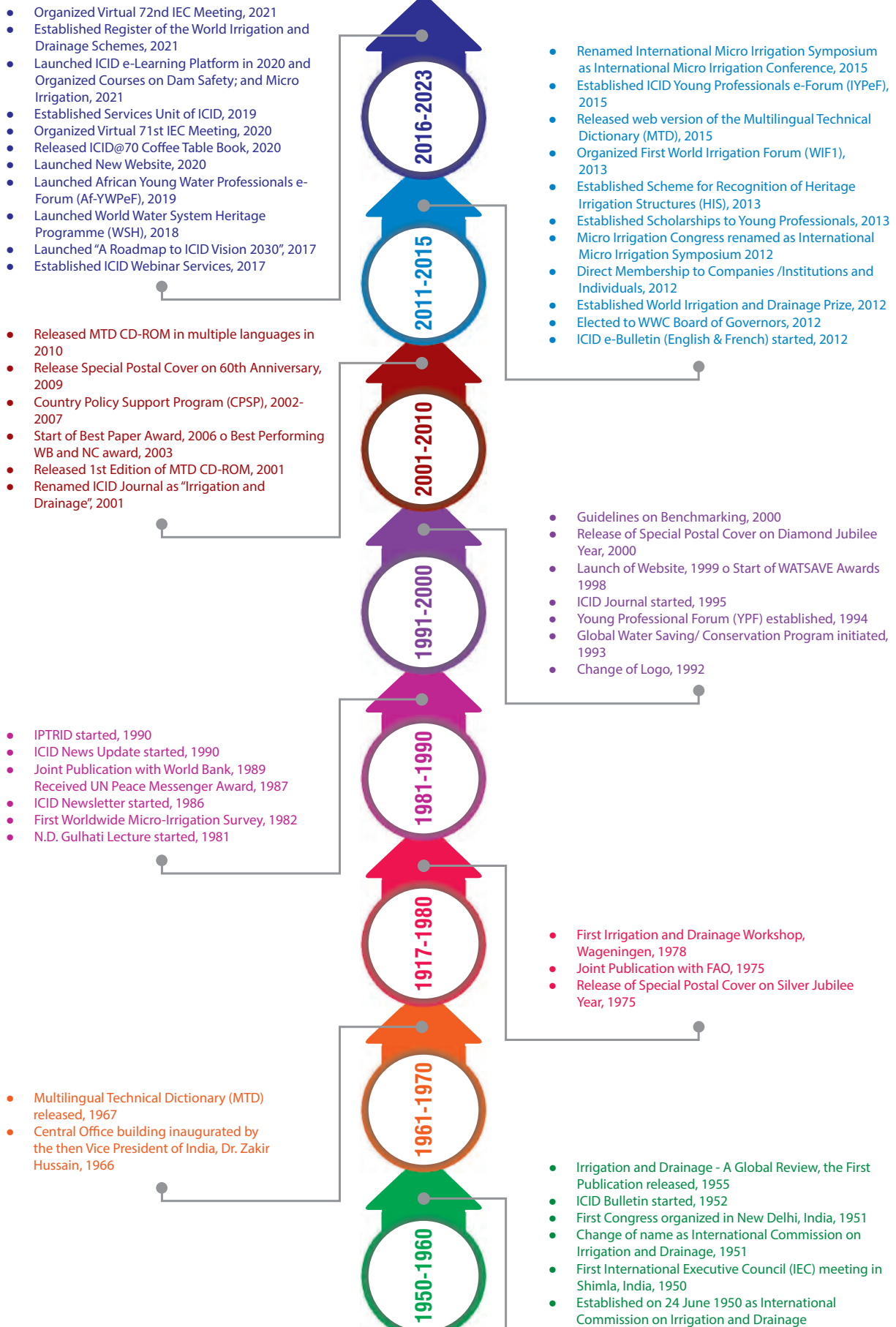
| Sl. No. | National Committees | Acronym | Year of Joining |
|---------|---------------------|-----------|-----------------|
| 1 | Australia | IACID | 1952 |
| 2 | Bangladesh | BANCID | 1973 |
| 3 | Burkina Faso | CNID-B | 2014 |
| 4 | Canada | CANCID | 1956 |
| 5 | China | CNCID | 1983 |
| 6 | Egypt* | ENCID | 1950 |
| 7 | Estonia | ESTICID | 2001 |
| 8 | Finland | FINCID | 2000 |
| 9 | France | AFEID | 1953 |
| 10 | Georgia | GENCID | 2018 |
| 11 | Hungary | HUCID | 1955 |
| 12 | India* | INCID | 1950 |
| 13 | Indonesia* | INACID | 1950 |
| 14 | Iran | IRNCID | 1955 |
| 15 | Iraq | IRQCID | 2006 |
| 16 | Ireland | IRCID | 1978 |
| 17 | Italy* | ITAL-ICID | 1950 |
| 18 | Jamaica | JAM-ICID | 2022 |
| 19 | Japan | JNC-ICID | 1951 |
| 20 | Kazakhstan | KAZCID | 2006 |
| 21 | Malawi | MALCID | 1967 |
| 22 | Malaysia | MANCID | 1958 |
| 23 | Morocco | ANAFIDE | 1959 |
| 24 | Myanmar | MNCID | 1962 |
| 25 | Nepal | NENCID | 1973 |

| Sl. No. | National Committees | Acronym | Year of Joining |
|-----------|--------------------------|-------------|-----------------|
| 26 | The Netherlands* | NETHCID | 1950 |
| 27 | Niger | ANID | 2007 |
| 28 | Nigeria | NINCID | 1970 |
| 29 | Pakistan | PANCID | 1953 |
| 30 | Philippines | PNC-ICID | 1956 |
| 31 | Portugal | PNCID | 1954 |
| 32 | Russia | RUCID | 1955 |
| 33 | Saudi Arabia | SACID | 1977 |
| 34 | South Africa | SANCID | 1993 |
| 35 | South Korea | KCID | 1969 |
| 36 | Spain | CERYD | 2021 |
| 37 | Sri Lanka* | SLNICID | 1950 |
| 38 | Sudan | SNCID | 1964 |
| 39 | Tajikistan | TajNCID | 2014 |
| 40 | Thailand* | THAICID | 1950 |
| 41 | Turkey* | TUCID | 1954 |
| 42 | Ukraine | UACID | 1996 |
| 43 | United Kingdom | IWF/ICID.UK | 1951 |
| 44 | United States of America | USCID | 1951 |
| 45 | Uzbekistan | UzNCID | 1994 |
| 46 | Zambia | ZACID | 1966 |
| 47 | Zimbabwe | ZwCID | 1955 |
| Committee | | | |
| 48 | Chinese Taipei | CTCID | 1969 |

Associate Members: Afghanistan, Algeria, Austria, Brazil*, Bulgaria, Chad, Croatia, Czech Republic, Ethiopia, Fiji, Germany, Greece, Guyana, Israel, Kenya, Kyrgyz Republic, Lithuania, Macedonia, Madagascar, Mali, Mexico, Mozambique, Poland, Romania, Serbia (erstwhile Yugoslavia*), Slovak Republic, Slovenia, Somalia, Switzerland*, Syria, Tanzania, Tunisia, Uruguay, Vietnam.

* Founder Member

MILESTONES IN THE HISTORY OF ICID



Working Together

NATIONAL COMMITTEES /COMMITTEE

National Committees (NCs) largely hosted by the government departments of irrigation, water resources, agriculture or rural development or stakeholders engaged in different facets of Agriculture Water Management (AWM) in their respective countries. NCs represent a wide network of experts from the government, technical and scientific organizations, non-government institutions, irrigators, companies and individuals with interest in, concerned with, or desirous of promoting and achieving the ICID Vision and Mission 2030. NCs provide a multi-disciplinary platform within the countries bringing together all the relevant stakeholders. They serve as the common platform for various AWM stakeholders in implementing sustainable water resources development and management agenda within their countries, particularly for meeting the goals of poverty alleviation, food security and sustainable water management and other related Sustainable Development Goals (SDGs) in the context of climate change.

The ICID believes in collective wisdom and collective efforts to achieve its goals. It goes about fulfilling its mission in a spirit of partnership, co-operation and sharing. In order to promote this spirit of partnership, National Committees are called upon to host IEC meetings, Congresses, World Irrigation Forum, and Regional Conferences in rotation and also organize activities in their respective countries, to implement various action programs of their own or promoted/sponsored by the Commission. The ICID is keen to ensure that all National Committees assume important roles as partners in progress and make valuable contributions to the mission of ICID. Some of the highlights of the NCs during the year 2022-2023 are presented below:

Irrigation Australia's Committee on Irrigation and Drainage (IACID)



IACID has had a successful year with the completion of the 24th International Congress and 73rd IEC Meeting which was held on the 3rd to 10th October 2022 at Adelaide. About 2000 delegates from 64 countries including exhibitors, students and Young Professionals attended the Congress and also visited the Exhibition. It featured presentations, panel discussions, and workshops where industry leaders and experts shared their insights, research findings, and best practices. Delegates gained valuable knowledge and stayed up-to-date with the latest developments and trends in the field of irrigation.

Canadian National Committee, ICID (CANCID)

A webinar was organized by United Nations General Assembly on 26 September 22 for Science Summit at the United Nations General Assembly (UNGA77). The webinar was moderated by Hon. President ICID, Prof. Chandra A. Madramootoo (Canada) and speakers were Ismahane Elouafi, Chief Scientist, Food and Agriculture Organization of the United Nations, Gordon Hickey, Professor and William Dawson Scholar in the Depart, McGill University, Md. Saidul Islam, Associate Professor, School of Social Sciences, Nanyang Technological University, Singapore, Hon. Indar Weir M.P., Ministry of Agriculture and Food Security,

Government of Barbados and Mr. Irfaan Ali, President of the Co-operative Republic of Guyana. The session featured government leaders, policymakers, and experts from some of the Small Island Developing states (SIDS) and addressed issues including climate change, food security, climate-vulnerable economic region, increasing intensity of natural disasters, the mutation in agriculture etc.

Egyptian National Committee on Irrigation and Drainage (ENCID)



Prof. Dr. Mohamed Shaban Mohamed Abusalama took over as Chairman of ENCID.

A webinar was organised by ICID in collaboration with the African Regional Working Group (AFRWG) & Chinese Academy of Sciences on 25 August 22 on the topic 'Advanced Micro irrigation Technology with Precision Water and Salt Management'. The webinar was attended and moderated by VPH Dr. Mohamed Wahba (Egypt) and panellists Prof Yaohu Kang of the Chinese Academy of Science (CAS), Dr. Evan W. Christen of National Australian University and Dr. Faycel Chenini, a Senior Water Expert of Tunisia.

After the success of the four previous African Young Water Professionals' Forums, which were organized under the platform of CWW, International Commission on Irrigation and Drainage and the African Regional Working Group continued the success and organized the 5th AfYWP-Forum in collaboration with Cairo Water Week, during 17-18 October 2022 in Hybrid mode. The forum organized 2 days of training and workshops to cover some important topics related to the themes of CWW and the training needs assessment of young African professionals under the theme "Smart irrigation water management to mitigate climate change impacts." President, ICID Prof. Dr. Ragab Ragab as keynote speaker addressed the session on the topic "The Water-Food-Energy Nexus: How important the nexus is and what are the benefits at Local, Regional, National and Transboundary levels."

French Association for Water, Irrigation and Drainage (AFEID)

During the 24th ICID Congress and 73rd International Executive Council meeting held from 7-10 October 2022 at Australia, Mr. Bruno Grawitz was elected as Vice President of ICID for the term from 2022-2025. VP Bruno Grawitz has taken a lead to organize the 26th ICID Congress and 77th IEC Meeting, October 2026, Marseille, France.

Indian National Committee on Irrigation and Drainage (INCID)

ICID and INCID jointly celebrated their 73rd Foundation Day on 24th June 2022 at New Delhi. As part of the celebrations, ICID and INCID organized a seminar on the topic "Role of Modern Irrigation in Global Food Security". The day-long Foundation Day programme was celebrated into 3 sessions – Inaugural Session, Curtain Raiser Session for ICID 25th Congress and Presentation Session.



Mr. Gajendra Singh Shekhawat, Hon'ble Minister (Jal Shakti), Govt of India, along with a team of Officials from Central Water Commission, INCID & State Government of Andhra Pradesh attended the 24th ICID Congress & 73rd IEC meeting held at Adelaide, Australia. Hon'ble Minister Gajendra Singh Shekhawat delivered the inaugural address in the 24th ICID Congress, highlighting the importance of water management and holistic approach towards management of this precious resource. He also briefed about the various flagship schemes of Govt of India in the water resources sector and highlighted the efforts of Govt. of India to bring various activities related to water under one umbrella under the Ministry of Jal Shakti, Govt of India. He also held meetings with the delegates from other countries (Australia, Uzbekistan, Saudi Arabia etc), Business delegates engaged in the field of irrigation & drainage on the side-lines of the event. He also inaugurated the Exhibition of the ICID Congress where various entrepreneurs and departments had put up their studies, products etc for display. INCID jointly with Govt. of Andhra Pradesh hosted a dinner on 7th October 2022 to promote the 25th Congress of ICID and 74th IEC proposed to be held at Visakhapatnam (Vizag), Andhra Pradesh during November, 2023.

INCID is organizing the 25th International Congress & 74th International Executive Council (IEC) Meeting of ICID at the Radisson Blue Resort, Vishakhapatnam (Vizag), Andhra Pradesh during 1-8th, November, 2023. The event details may be accessed via the event website at <https://icid25congress.in/index.html>. The theme for the 25th ICID Congress is 'Tackling Water Scarcity in Agriculture' and it is expected to address these issues in the form of two questions; Question 64: What alternative





water resources could be tapped for irrigated agriculture? and Question 65: Which on-farm techniques can increase water productivity? As part of the Congress, various other events including the International Exhibition, International Workshops, Special Events, ICID Symposium, National Committee Special Session, Technical Tours, and Cultural Tours etc. will also be organised.

VP Mr. Kushvinder Vohra, Chairman INCID/CWC and Ex-Officio Secretary to the Govt. of India was elected as one of the Vice Presidents of ICID in the 73rd meeting of IEC. During the 73rd IEC, he presented his vision about the ICID and his role as Vice-President of ICID.

November, 2022 as a Side Event during the 7th India Water Week. The Conclave aimed at discussing the water security issues in a comprehensive manner by addressing various associated topics. The event involved fruitful presentations followed by enriching discussions among the participants.

INCID, in association with Central Water Commission (CWC) and ICID, organized the Conclave on “Water Security of India” on 1st & 2nd

National Water Academy (NWA) Pune & INCID jointly developed a Webinar Series, named “WALMI- Meet 2022”, in collaboration with Water & Land Management Institutes (WALMIs) / Irrigation Management Training Institutes (IMTIs) to present their activities in respect of the issues, solutions, constraints etc. The webinar series was held from February 2022 to July, 2022, in One Week – One institute mode, wherein presentations were made by the 14 WALMIs/ IMTIs. This sharing of issues and constraints by the various institutes would pave way for critical restructuring & rejuvenating these institutes.

National Water Academy (NWA) Pune & INCID have joined hands to develop and launch an online Certificate Course on Participatory Irrigation Management (NCCPIM). NCCPIM is aimed to fulfil the long-standing need for PIM literacy among farmers and government field functionaries engaged in implementing PIM through the formation and strengthening of water user associations.

Indonesian National Committee (INACID)



The INACID has been actively involved in various programs and activities at both national and international levels and has made significant contributions during the period 2022-2023. Dr. Ir. Mochammad Amron, M.Sc was selected as Chair of the Permanent Committee on Strategy and Organization (PCSO) for the period 2021-2024.

At the national level, INACID has collaborated with institutions/agencies in organizing seminars such as the webinar held jointly with BAPPENAS and the World Bank with the theme “How water insecurity can impact Indonesia’s Vision 2045” and “Modernizing irrigation and improving its productivity”. INACID also conducted a focussed group discussion (FGD)

on Improving the development and management of irrigation systems and agricultural cultivation to support food security in Klaten Regency and held discussions related to irrigation planning criteria.

At the International level, the INACID has participated in various webinars and events such as the 9th World Water Forum (WWF9) event held on 21-26 March 2022 in Diamniadio (Dakar), Senegal; the Empowerment and Capacity Development of Women in Water Resources Management, apart from being a regular participant in webinars organised by ICID. The INACID registered to become a member of the World Water Council (WWC) and participated in making Indonesia the host of the 10th World Water Forum event to be held in Bali in 2024. INACID has been a visible participant in the 2nd Asia International Water Week (AIWW) event, through its most-visited booth of the event, successfully increasing membership from 1820 to 2048.

INACID organized a webinar on ‘Low Land Development of Indonesia’ which was held on 22 December 2022. The session was attended and moderated by the Mr. Budi Santoso Wignyosukarto (Indonesia), and President Hon. Prof. Em. Dr. Bart Schultz (Netherlands) and panellists VP Ir. Hisham Ghazali (Malaysia), and Mr. Paavan Kumar Reddy (India). ICID was represented by President Prof. Dr. Ragab Ragab and Secretary General Eng. A.B Pandya.

Iranian National Committee on Irrigation and Drainage (IRNCID)

IRNCID organized two technical workshops on the theme “Water crisis and climate change” and “The phenomenon of climate change and its consequences community verified icon” during the year 2022-23. IRNCID representatives visited water projects in Golestan province, focusing on sustainable water use and agricultural productivity.

IRNCID has published various books viz. Agricultural Drainage: Iranian Experiences Vol. 1 and Vol 2, Existing Soil and Water Condition, Drainage Design Criteria; Experiences of Managing Irrigation Systems in Water Shortage Conditions and An Approach

on Concept of Irrigation Efficiency and also translated various publications in Persian Language viz. Water Accounting for Water Governance and Sustainable Development, Stakeholder Participation in Groundwater Management Enabling and nurturing engagement, Improving irrigation management in conditions of scarcity: Myth vs Truth (Source: Review of Environmental Economics and Policy) and Key Water Resources Statistics in Aqua stat - FAO's Global Information System on Water and Agriculture.

IRNCID also published IRNCID News which includes editorials' messages, working groups activities, ICID brief news, irrigation/dams network- introduction, brief technical articles, infographics, innovations stories, the latest publications, webinars, brief water saving projects. Four issues of IRNCID News were compiled and sent to Work Body Members, Organizations, Companies and other subscribers.

Iraqi National Committee on Irrigation and Drainage (IRQCID)



Mr. Hussein Abdulameer Baga President of IRQCID has been actively engaged in multiple platforms across the globe, which includes meetings between countries and delegates, along with conferences and discussions. The President headed the meeting with the British HIS company group to discuss the implementation of drainage water desalination plants with an objective of improving the quality of water of the Euphrates, the meeting with JICA of Japan to discuss the challenges related to irrigation and development of its structures. His participation in meetings hosting discussions between countries included: the meeting between the Iraqi Minister of Water Resources and the Ambassador of the Islamic Republic in Baghdad to discuss water issue between the two countries, the meeting

between the Iraqi Minister of Water Resources Ministry and the Vice of British Ambassador in Baghdad to discuss cooperation between the two countries, the meetings of the Iraqi-Syrian Committee to discuss water issues between the two countries and in the meeting with the Secretariat of Helsinki Agreement. The President also participated in the meetings of the International Ramsar Convention held in Auckland, Switzerland

In the arena of research and conferences, the President participated in the 10th international conference on 'micro irrigation', held in Dakhla, Morocco; in the Iraq 'Thirst Conference' held in Al-Najaf Governorate and in the Third Baghdad International Water Conference. He also participated in the workshop organized by the Office of the Iraqi Prime Minister in Baghdad on environmental adaptation and the ability to face displacement in Iraq.

The IRQCID presented a lecture on the modern methods of field irrigation at the university of Adelaide apart from participating in various conferences during this period, which included: the second Baghdad International Water Conference, the International Conference on Water Resources, the scientific symposium on the ability of environmental systems in Iraq to face climate change and the Second International Scientific Conference on Water under the slogan Water between Scarcity and Sustainability.

IRQCID also participated in the 24th ICID International Congress and 73rd IEC meetings held in Adelaide, Australia and celebrated the World Wetlands Day and the Arab Water Day held by the Iraqi Ministry of Water Resources in Baghdad.

Italian National Committee, ICID (ITAL-ICID)



Dr. Marco Arcieri, Vice President Hon, ICID and Secretary General, ITAL-ICID represented the ICID at the Rome Water Week, a preparatory to the UNWater 2023 Conference of New York as a panellist on the topic "Panel Discussion on concerted water-agriculture actions for the UN 2023 Water Conference". It was a one-day event attended by water experts and representatives from national governments, internal organizations, NGOs, financing institutions, research institutes, the civil and private sectors, the media, etc.

Given the food, and water security concerns globally, VPH Marco Arcieri represented ICID at the UN Water Conference in New York, USA from 22 to 24 March 2023. He attended the side event "Implementing the 2023 Praia Call for Action through the Decade's work streams", organized by FAO on March 22. The side event discussed the implementation of the 2023 Praia Call for Action, which was launched after interested in supporting the cooperation and partnerships, at all levels, to achieve internationally agreed water-related goals and targets, including those belonging to the 2030 Agenda for Sustainable Development, with a special focus on water scarcity.

VPH Arcieri took part in another Side Event, organized by IWHR of China during the UN Water Conference on 23 March. The side event conducted by the IWHR discussed pathways to achieve a balance between environmental protection and economic development, while sustainably making use of water resources, as rural development moves towards common prosperity. VPH Dr. Marco Arcieri, in a side event, gave a keynote speech with a presentation on 'Coastal Agriculture and Environmental Protection in Southern Italy', highlighting the importance of achieving sustainable development results and economic progress.

Japanese National Committee, ICID (JNC-ICID)

The JNC-ICID made a WHIS logo of Japan to develop recognition and understanding of registered irrigation structures. The logo symbolizes the landscape of rural areas in Japan. JNC-ICID hopes that the logo will be utilized to publicize the importance of preserving the irrigation heritage, which serves communities at large.

Mr. Kenji Washino was appointed as the new Secretary General of JNC-ICID. He serves as the Director of the Overseas Land Improvement Cooperation Office in Japan's Ministry of Agriculture, Forestry and Fisheries (MAFF). Mr. Tetsuharu Mori was appointed as the new Deputy Secretary General of JNC-ICID.

The Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan; and the Japanese National Committee (JNCID), organized a special event on the World Heritage Irrigation Structure Summit in Kumamoto on 11 April 2022. The participants included representatives of the management organizations of the 44 ICID Registered WHIS facilities in Japan; officials from MAFF and JNCID. ICID President Prof. Dr. Ragab Ragab participated virtually and delivered a message along with a brief presentation. Dr. Yohei Sato, Former Chairman of the JNCID, delivered the Keynote Speech, which, was followed by a panel discussion. Finally, "Kumamoto Declaration" was adopted. The event was organized as part of the 4th Asia-Pacific Water Summit (4thAPWS) in Kumamoto on 23-24 April 2022. Hon'ble Vice Minister of MAFF introduced ICID's WHIS initiatives in his address



Prof. Dr. Tsugihiko Watanabe, Vice President, ICID & Chairman, Japanese National Committee, ICID (JNC-ICID) was awarded the prestigious Japan Prize of Agricultural Science Prize also known as the Yomiuri Prize of Agricultural Sciences during the ceremony organized as part of the Annual Meeting at the University of Tokyo, from AJASS in 2023. Prof. Dr. Watanabe was selected for this award for his outstanding contribution to the field and achievement of "Studies on Evaluation and Improvement of Agricultural Water Management in the Hydrological Water Cycle and Environment of the Basin". The prize was given in recognition of his research achievements as a team, including the research results on climate change impacts in Turkey, which were highly evaluated and recognized in the ICID community.



In February 2023, JNC-ICID made a special contribution of USD 5,000 for supporting YP training program, which was highly appreciated.

Jamaica National Committee on Irrigation and Drainage (JAM-ICID)



In alignment with the ICID Vision 2023 Roadmap, the National Irrigation Commission Limited (NIC) engaged in the several initiatives that supported food security, water resource management, and climate resilience in Jamaica. In partnership with the Ministry of Agricultural and Fisheries JAM-ICID organised public awareness activities on Grow Smart, Eat Smart National Campaign in January 2022, were executed in schools, universities and communities that highlighted the importance of climate-smart and resilience practices required to strengthen food security, drive resilience, stability and improve efficiencies within the agricultural sector. The Commission participated in the Disaster Preparedness Water Management Crisis Forum organised in June 29, 2022 addressed drought mitigation,

risks and challenges affecting the agricultural sector. National World Food Day was celebrated in November 25, 2022 in the Vere Technical High School under the theme: 'Leave no one behind, better production, better nutrition, a better environment and a better life for all.' An exhibition was also mounted for Eat Jamaica Day at the historic Devon House Grounds under the theme 'Grow Smart, Eat Smart, Eat Jamaican. World Soil Day was celebrated on December 5, 2022 under the theme: 'Soil: Where Food Begins.' The activities highlighted the importance of maintaining healthy ecosystems and human well-being by addressing the growing challenges in soil management, increasing soil awareness and encouraging societies to improve soil health. A National expo was held on March 22, 2023 in the bread basket parish of St. Elizabeth to observe the day under the global theme, 'Accelerating Change: Water Changing Behaviour and Lives.' NIC placed a newspaper supplement highlighting the important role citizens must play to achieve positive results around the use and management of water. The National Irrigation Commission Limited partnered with the On-Farm Water Management Unit of the Rural Development Authority (RADA) organised Customer Engagement Sessions in January 2023 to educate farmers about best practices in water management. These sessions are used to introduce innovations, technology, advance research, and development towards the farmers improving irrigation practices operations to ultimately achieve better results. Women and Youth in Agriculture organised in March 2023. The commission highlighted the important contribution of women and youth in the agricultural sector, as they continue to break barriers to increase agricultural production, productivity and food security.

Malaysian National Committee on Irrigation and Drainage (MANCID)



MANCID organised the Annual 24th Malaysian National Committee on Irrigation and Drainage Conference (MANCO24), which brought together experts, researchers, and students from around the world to discuss the latest advances and trends in water management for agriculture. MANCID hosted presentations during Executive Committee meeting from invited guests from Aerodyne Group who discussed 'Agriculture Towards IR 4.0', discussing the latest developments in agriculture technology.

MANCID sent a delegation of 13 professionals from various backgrounds, including government officials, researchers, academics, and industry practitioners to participate in the 73rd ICID Congress and 24th IEC Meeting

held in October 2022. During the Congress, MANCID also hosted a dinner event at the University of Adelaide to promote WIF4 to be organised in 2025 at Kuala Lumpur.

A webinar was organized by ICID on 14 July 2022 on Innovative Coastal Protection on Mangrove Coast in collaboration with the Working Group on Sustainable Development of Tidal Areas (WG-SDTA), National Water Research Institute, Malaysia, and the Department of Irrigation & Drainage, Malaysia. The webinar was attended and Moderated by Vice President Ir. Hj. Nor Hisham bin Mohd Ghazali and Speakers, Ir. Nor Aslinda Awang of National Water Research Institute Malaysia, Dr. Ir. Lee Hin Lee of National Water Research Institute, Malaysia & Ir. Arman Mokhtar, Department of Irrigation & Drainage Malaysia.

VP Ir. Hisham Ghazali moderated the webinar on 'Low Land Development of Indonesia' organised by ICID with its Indonesian National Committee on Irrigation and Drainage on 22 December 2022.

Association Nationale des Ameliorations Foncieres, de l'Irrigation (ANAFIDE)



Moroccan National Committee of ICID (ANAFIDE) in collaboration with the Council of the Moroccan Community Abroad (CCME), in partnership with ICID and support of the Ministry of Agriculture, Fisheries, Rural Development, Water and Forestry (MAPMDREF) organised the 10th International Micro Irrigation Conference on the theme 'Micro-irrigation in the Era of Technology Innovation and Digital Transformation'.

ANAFIDE has financially supported and released Nigerian National Committee's first-year membership subscription of US\$1730 (US Dollars one thousand seven hundred thirty only).

Nepal National Committee, ICID – NENCID

NENCID has initiated a virtual talk series, held every month to provide a platform for all the irrigation professionals to share their ideas, research and observation in different aspects of irrigation and water resources. It has completed 22 of such talks and plans to continue this activity. Some crucial topics discussed included: Realizing Irrigation Modernization in Nepal: Pathways & Challenges; Irrigation Management – Learnings, Challenges and Opportunities; Responding to Climate Change Impacts in Water and Agriculture; Water Energy Food Ecosystem Nexus: Challenges for Operationalizing Nexus in Nepal; among multiple others.

The NENCID also participated in the 5th Africa Regional Conference (Morocco) and 24th Congress and 73rd IEC Meeting, Adelaide, Australia, 2022.

Nigerian National Committee on Irrigation and Drainage (NINCID)



NINCID had a meeting of the Ministerial Task Team on 2-3 May 2023 at Abuja on the hosting of the 6th ICID- African Regional Conference. The Two days meeting which involved members of the Task Team and NINCID Secretariat was aimed at furthering preparation and arrangement towards the successful hosting of the event.

Pakistan National Committee on Irrigation Drainage (PANCID)

PANCID has participated in the 73rd IEC Meetings and 24th ICID Congress from 3-10 October 2022 at Adelaide, Australia. Multiple research studies/projects related to Irrigation and Drainage Sector have been carried out viz Evaluation of canal lining and seepage control; Stones- As an important engineering material for flood fighting and irrigation schemes; Challenges of Sediments for hill-torrents management- a non-conventional water resource; Evaluation of rainwater quality and its potential for Managed Aquifer Recharge (MAR); Impact of drainage effluents on groundwater quality; Methodology for identification of potential sites for MAR; MAR- An option for sustainable groundwater management (A case study of diverting floodwater into the bed of Old Mailsi Canal and recharge through 144 recharge wells); Transforming old Irrigation Library into e-library – about more than 15000 books being scanned and placed in e-library

South African National Committee on irrigation and Drainage (SANCID)

The new SANCID Executive Board has been formed, comprising: Chairperson – Prof Sylvester Mpandeli (Water Research Commission); Deputy Chairperson: Ms Palo Kgasago (Department of Agriculture, Land Reform and Rural Development); Treasury – Dr Michael van der Laan (Agricultural Research Council) and Secretary – Mr. Lehlogonolo Motsoko (Department of Agriculture, Land Reform and Rural Development).



SANCID in partnership with the Water Research Commission of South Africa hosted the biennial 2023 Symposium promoting active contribution to the stimulation and promotion of research and development of technology in irrigation and drainage fields in South Africa. This was achieved by liaising with the Water Research Commission (WRC)'s key strategic area team focusing on water use in agriculture, and organising the symposium with assistance and sponsorship of the WRC. Under the theme “Research and Innovation Towards Meeting New Challenges and a Thriving Irrigation Sector”, the symposium included plenary, discussion sessions, demonstration workshop and a technical tour in which academics, professionals, practitioners, policymakers, researchers and consultants participated.

The Water Research Commission partnered with the International Water Management Institute (IWMI), SANCID, University of KwaZulu Natal's (UKZN's) Centre for Transformative Agricultural and Food Systems (CTAFS) and held a workshop on designing an academy to provide capacity building on Water for Food in Sub-Saharan Africa.

During the 24th ICID Congress and 73rd International Executive Council meeting held from 7-10 October 2022 at Australia, Dr. Sylvester Mpandeli was elected as Vice President of ICID for the term from 2022-2025.

Sri Lanka National Committee, ICID (SLNICID)



In December 2022, Eng Deepika Thrimahavithana and Eng L.S. Suriyabandara were appointed as the new President and Secretary of SLNICID, respectively.

SLNICID submitted a Country Paper titled “Participatory Irrigation Management - Lessons for the Future from Sri Lanka” for the Symposium on the theme “Integrated Approaches to Irrigation Management in the Future” and nominated a young member of SLNICID, Eng Janaka Priyantha Wickramasuriya, to participate in the 24th Congress and 73rd IEC Meeting.

Tajikistan National Committee on Irrigation and Drainage (TajNCID)



The TajNCID held its 9th meeting on December 9, 2022, with the support of the OSCE Program Office in Dushanbe. The meeting was attended by more than 70 representatives of international organizations, ministries and departments and NGOs. During the meeting, further plans and strategies for the activities of the TajNCID were discussed. In the framework of the meeting, Senior Specialist for Water Resources of the World Bank in Tajikistan Ms. Farzona Mukhitdinova presented the program for the development of the irrigation sector until 2030: the main tasks and the upcoming process.

Mr. Kazuhiro supported TajNICID's plan of holding an international workshop on 'Modernization of irrigation and drainage systems for adaptation of climate change and sustainable development' to be held in 2024.

Turkey National Committee (TUCID)

Dr. Huseyin GUNDOGDU, Vice President Hon., from TUCID represented ICID in a workshop on the 'Climate, Science, Women' organized by the Akdeniz University and The Union of Municipalities of Türkiye under Local Administrations and Women Leaders, Environment and Culture Policies, Academy Meetings. The workshop was held in Antalya province of Türkiye on 21-22 January 2023. More than 50 women leaders-mostly Rectors or Vice Rectors from different universities of Türkiye participated in the activities of the workshop. The VPH Dr. GUNDOGDU delivered a presentation on 'Climate Change and Implications-Water and Food'.

British National Committee, ICID (IWF/ICID.UK)

Several joint activities were organised by ICID and IWF/ICID.UK including webinars, visits and agenda discussions on different platforms. IWF/ICID.UK hold technical meetings twice a year, as well as the annual Gerald Lacey Memorial Lecture. The members also run an occasional 2-day introductory training course on irrigation aimed at young professionals.

The Gerald Lacey lecture 2022 was organised by IWF/ICID.UK on the theme 'Just add water: A history of irrigation management in India' on 16 May, 2022. The lecture was delivered by Mr. IJsbrand de Jong, a lead water resources specialist at the World Bank, and during the lecture it was highlighted that how irrigation in India has changed, and the reasons for these changes.

U.S. National Committee on Irrigation and Drainage (USCID)



USCID has been selected for the 2022 Denver Award in the manufacturing category by the Denver Award Program. The Denver Award Program is an annual awards program honouring the achievements and accomplishments of local businesses throughout the Denver area. Recognition is given to those companies that have shown the ability to use their best practices and implemented programs to generate competitive advantages and long-term value.

Zimbabwe Committee on Irrigation and Drainage (ZwCID)

ZwCID reactivated its membership of ICID in February 2023. Prior to this period, the ZwCID held its meetings (In August 2022 and January 2023) through a representative of the National Committee namely the Irrigation Working Group.

Chinese Taipei Committee (CTCID)



The President, Chinese Taipei Committee (CTCID), Prof. Dr. Ray Shyan Wu, prepared a report and shared the experiences for fighting drought during 2020-21. He also illustrated benefits from bringing together multiple stakeholders, including national and local authorities with farmers, to identify and implement short-, medium- and long-term measures to increase drought resilience and adapt to climate change.

The President and members of CTCID participated in the international workshop and other workbodies activities.

DIRECT MEMBERS

Public as well as private institutions are making significant contributions towards development of nations and the world as a whole. As a result, both the sectors are likely to play important roles in growth and sustainable development. One of the foremost priorities is to encourage and facilitate this convergence in such a way that it leads to shared responsibilities in development challenges. To improve public-private partnerships for sustainable development, the National Committees are encouraged to involve institutions in the field of irrigation, drainage and flood management through exchange of knowledge and experiences, including experts from public and private sectors, particularly in the identification and promotion of best practices. The activities will help in evolving guidelines for best practices, studies and innovative tools that can be used to attain the collective goal of achieving sustainable development.

In this regard, ICID has taken the initiative of offering direct membership to private companies, institutions, and individuals operating in the domain related to irrigation, drainage, and flood management. Professionals, individuals, and officers of government or institution(s) - government, and non-government; and companies, effectively representing interests within the scope of the objects of the Commission can participate in ICID activities through Direct Membership (DM) to further the goal of the Commission in their countries or sovereign areas. For more information, https://icid-ciid.org/member/direct_member Profiles and relevant activities of ICID Direct Members are presented below:



Central Board of Irrigation and Power (CBIP)

Central Board of Irrigation & Power, set up by the Government in 1927, is a premier institution committed to the accelerated development of Water Resources, Power, and Renewable Energy Sectors in the country. It has been rendering dedicated services to professional organizations, engineers, and individuals in the country and abroad for the last 96 years.

Presently over 260 organizations from Central & State Governments, Public Sector Units, and Private Sector are members of CBIP, besides over 3000 general body members at the rank equivalent to Chief Engineer and above. The Board functions as the Indian National Group/Chapter for international organizations like International Commission on Large Dams (ICOLD); International Society for Rock Mechanics (ISRM); International Tunnelling and Underground Space Association (ITA); International Water Resources Association (IWRA); World Water Council (WWC); International Geo-synthetics Society (IGS); International Council on Large Voltage Electric Systems (CIGRE); International Conference for Electricity Distribution (CIRED); Indian National Hydropower Association (INHA). Also, the International Association for Small Hydro (IASH), International Association on Electricity Generation, Transmission & Distribution (Afro-Asian Region) (AARO), and Society of Power Engineers function from the CBIP Office.

CBIP publishes Technical Literature and Journals, including manuals, guidelines, and technical specifications related to the fields of Power, Renewable Energy, and Water Resources sectors. To date, more than 5000 technical publications have been brought out in addition to publishing monthly Water and Energy International Journal, which covers special features on the development and management of the activities in water resources, power, and renewable energy sectors. Indian Chapters of various International Societies having Secretariat in CBIP are also bringing out their half-yearly journals. CBIP is also providing free access to CBIP publications online to about 35000 officers of 260 Member organizations.

Electrosteel Castings Limited (ECL)



The Electrosteel Group has established itself as an international brand that values commitment to excellence. With six decades of experience, Electrosteel Castings has fulfilled its vision of 'Carrying life to people, safe drinking water for all!' Being the country's leading pipeline solutions provider, Electrosteel has been providing clean drinking water to millions - a promise of quality that has led it to achieve international benchmarks and be recognized worldwide as a global leader that

understands the priorities of customers across 110+ countries spread across the Indian subcontinent, South East Asia and the Middle East, Europe, USA, South America and Africa. Its quality system and products are accredited by various national and international agencies of repute.



India Water Foundation (IWF)

India Water Foundation entered into various new partnerships in the year 2022-23 and signed Memorandum of Understanding with National Institute of Hydrology (NIH), School of Planning and Architecture, New Delhi, Wapcos India Ltd., Mahatma Gandhi Institute to Combat Climate Change, Network for Certification and Conservation of Forests (NCCF).

Global Water Partnership, UNEP's International Methane Emissions Observatory (IMEO), World Water Quality Alliance of the UNEP and Observer Organization of the IPBES are the members of India Water Foundation.



India Water Foundation was made the knowledge partner by the Ministry of Jal Shakti, Government of India for organizing the 7th India Water Week from 1st – 5th November 2023. During the IWW, IWF organized a high-level policy dialogue in collaboration with UNEP and supported by Ministry of Jal Shakti, UNESCAP and World Water Council on Accelerating SDG 6 through multi-stakeholder partnerships. The event was chaired by Shri Gajendra Singh Shekhawat, Hon'ble Minister of Jal Shakti and presided over by Shri Kailash Chaudhary, Hon'ble Minister of Agriculture and Farmers Welfare of the Government of India, other participants were from UNEP, UNESCAP, World Water Council, IWMI, FAO, JICA, UN GCNI, IWP, Ramsar Convention, UNEP Nairobi, GASP, World Bank and India Foundation. IWF also organized an official virtual side event of the 2023 UN ECOSOC Partnership Forum supported by UNESCAP on 'Accelerating SDG 6 Achievements through Multi-stakeholder Partnerships' on 31st January 2023. During the UN Water Conference 2023 IWF organized an Official Virtual side event on 'Accelerating SDG 6 Achievements through Cross Sectoral Partnerships' supported by World Water Council on 18th March 2023. The event had participation from High level speakers like, Minister of Jal Shakti, Government of India, UN Under Secretary General and UN ESCAP Executive Secretary, Executive Secretary, CBD, Global Director Water, World Bank Group, UN Resident Coordinator India, GASP and other speakers from IUCN, FAO and JICA.

Dr. Arvind Kumar, President of India Water Foundation, spoke as an expert on 6th Session of the Committee on Environment and Development at ministerial level (CED-7) on 'Protecting Our Planet through Regional Cooperation and Solidarity in Asia and the Pacific' organized in Bangkok from 29 November – 1 December 2022. Dr. Arvind Kumar participated as high level speaker in the 6th South Asian Forum on Sustainable development organized by UN ESCAP SSA office in Islamabad, Pakistan and spoke in three sessions on climate diplomacy, SDG6 progress in SSWA region and Regional Cooperation. Ms. Shweta Tyagi, Chief Functionary of India Water Foundation attended the UN-Water Summit on Groundwater organized at UNESCO Headquarters, Paris. They both also attended the World Water Council Board of Governors Meeting at Paris. Dr. Kumar also attends the UN 2023 Water Conference in New York where he spoke in one of the four special sessions organized by UN and had several bilateral meetings. He travelled to Bangkok to attend the 10th Asia Pacific Forum on Sustainable Development and spoke in the plenary session. He also had a bilateral meeting with the UN Under Secretary General and UNESCAP Executive Secretary Ms. Armida Alsijahbana.

India Water Foundation has brought out multiple publications viz. 'India at 75 and Beyond' authored by Dr, Arvind Kumar- <https://www.amazon.in/dp/B09R24JNKZ>; 'United Nations at 75 and Beyond' authored by Dr. Arvind Kumar-<https://www.amazon.in/United-Nations-Dr-Arvind-Kumar/dp/B091YKS9ZM>; Ecosystem Based Adaptation by Dr. Arvind Kumar Published by Elsevier London- <https://www.elsevier.com/books/ecosystem-based-adaptation/kumar/978-0-12-815025-2> and Report on 'Information collection of water supply and sanitation in urban slums of Delhi' by India Water Foundation for JICA India- <https://www.indiawaterfoundation.org/final-report/>



Institute of Soil Physics and Rural Water Management, Vienna, Austria

The Institute of Soil Physics and Rural Water Management (ISPHW) is part of the University of Natural Resources and Life Sciences Vienna (BOKU). It focuses on the research of the water cycle, where water interacts with soil. The institute aims to optimise the sustainable use of water and soil resources. Drought is an increasing problem for agriculture in Austria; therefore, irrigation becomes more and more meaningful. Efficient methods are implemented like electrification of field irrigation systems and drip irrigation for field crops. Water quality and Water quantity Investigations are topics in practice and research from the institute. Delegations from the Institute did scientific visits to Bulgaria, Mexico, Mongolia, and China in recent years to address several issues on water quality and irrigation management, as well as experiments on soil nutrients. For evapotranspiration and nutrient losses, the use of lysimeters was explained. The institute also covers several bachelor's and master's studies of the university, especially topics related to soil physics and hydraulics in the frame of rural water management, including field trips as part of the curriculum.



WAPCOS, India

WAPCOS Limited is a "MINI RATNA-I" Public Sector Enterprise under the aegis of the Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti. Incorporated on June 26th, 1969 under the Companies Act, 1956; WAPCOS is a technology driven Consultancy and Engineering, Procurement and Construction (EPC) organization with strong home country and global presence in the fields of Water, Power and Infrastructure sectors. WAPCOS has the requisite experience & expertise to undertake Consultancy & EPC projects of any scale and complexity in the sectors of its operations. WAPCOS portfolio of projects is both impressive and diverse in nature. The

quality management systems of WAPCOS comply with the Quality Assurance requirements of ISO 9001:2015 for Consultancy Services in Water Resources, Power and Infrastructure Development Projects and ISO 9001:2015 for Engineering, Procurement & Construction (EPC) Projects related to Residential, Office Buildings, Civil Works, Roads & Highways, Irrigation, Agriculture and Water Projects, Electrical Power Projects for Generation, Substation, Transmission, Distribution Networks, Rural Electrification and Renewable Energy, Industrial, IT, Telecommunications & related projects.

Main Fields of specialization of the Company cover Environment; Urban and Rural Areas development; Watershed Management; Water Supply, Sanitation and Drainage; Irrigation, Drainage and Water Management; Ground Water Exploration and Minor Irrigation; Flood Control and River Morphology; Dams and Reservoir Engineering; Water Bodies & Land Conservation; Agriculture; Non-conventional Sources of Energy; Hydropower; Transmission & Distribution; Rural Electrification; Pumped Storage Projects; Natural Resources Management; Thermal Power; Ports, Harbours and Inland Waterways; Roads and Highway Engineering; Buildings & Townships; Ropeways. The Company provides concept to commissioning services for developmental projects in India and Abroad.

WAPCOS is registered with various International Funding Agencies for participating in the funded projects like World Bank, Asian Development Bank, African Development Bank, Japan Bank for International Cooperation, United Nations Office for Project Services, French Development Agency and German Development Bank, New Development Bank, Asian Infrastructure Investment Bank, European Investment Bank and European Bank for Reconstruction and Development.

Apart from India, WAPCOS has provided engineering consultancy services to various clients since incorporation, in over fifty (50) countries. Company has developed global presence, particularly in South Asia and across Africa, in areas of water, power and infrastructure sectors by undertaking engineering consultancy services for various development projects. Company's wide presence and assignments undertaken overseas demonstrate its global experience and expertise over the years. Presently, company is undertaking ongoing projects in thirty (30) countries such as Bangladesh, Bhutan, Burundi, Botswana, Cambodia, Cuba, Central African Republic, DR Congo, Eswatini, Ethiopia, Fiji Islands, Ghana, Gambia, Indonesia, Liberia, Lao PDR, Mozambique, Myanmar, Mongolia, Nicaragua, Niger, Nepal, Rwanda, Suriname, Senegal, Tanzania, Togo, Uganda and Zimbabwe including India.

WAPCOS operates in all the states of India through more than 100 project offices spanning across almost all Government and Private sectors, with the pride of having involved in almost all the premier Government of India schemes such as Jal Jeevan Mission (JJM), Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Namami Gange-Integrated Ganga Conservation Mission, Smart City, Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), Pradhan Mantri Awas yojana (PMAY), Pradhan Mantri Krishi Sinchayee Yojana, Pradhan Mantri Gram Sadak Yojana. Integrated Power Development Scheme (IPDS), Interlinking of Rivers, Skill India, Swachh Bharat Abhiyan.

WAPCOS is a Corporate Member of ICID. Mr. R.K. Agrawal, Chairman-cum-Managing Director represents WAPCOS on various Working Groups such as Asian Regional Working Group (ASRWG), Working Group on Irrigation and Drainage in the States under Socio-Economic Transformation (WG-IDSST), Working Group on Adaptive Flood Management (WG-AFM) and actively contribute in the growth of ICID.



Jain Irrigation Systems Limited

Jain Irrigation Systems Limited, headquartered at Jalgaon, Maharashtra, India is a diversified agricultural conglomerate with a turnover in excess of US\$ 1.2 Billion. Jain Irrigation Systems Limited have a global presence with 33 manufacturing bases spread over four continents. The products are supplied to 126+ countries with able assistance from 11,000+ dealers and distributors worldwide. With over 5 decades of efforts and presence in the marketplace, Jain Irrigation Systems Limited have reached to over 10 million farmers in making them prosperous.

The Founder Chairman Dr. Bhavarlal Jain set us a mission four decades ago, "Leave this world better than you found it". The vision reflects in all endeavours as Jain Irrigation Systems Limited grow as an organization and progress as a business. Strongly driven by the founder's conviction, Jain Irrigation Systems Limited bring innovations in the field of agriculture, irrigation, food technology and green energy. The agribusiness model is designed on the concept of "Resource to Root" which not only addresses the water, energy and food security, but especially helps the smallholder farmers to improve their incomes substantially. Jain Irrigation Systems Limited have been able to transform the lives of millions of farmers with the micro-irrigation and green energy technologies that save water, electricity, fertilizers and increase the produce twofold or even threefold.

Dr. P. Soman, Chief Agronomist has brought out a publication "Fertigation Scheduling of Field Crops, 2022.

Rivulis Irrigation India Ltd.



Rivulis has a rich history in the irrigation industry with more than 80 years of expertise developing, manufacturing and deploying micro irrigation products and solutions. Starting in Israel, Rivulis has grown over the years to become a global irrigation leader, expanding the drip irrigation and micro irrigation capabilities, market coverage and operational scale through the merger of five leading players: Plastro, T-Systems, Roberts Irrigation, Eurodrip and NaanDanJain (Jain in the USA).

Rivulis has a strong global presence, including 24 manufacturing facilities, 3,000 employees, 3 R&D centers (in Israel, Greece and California) and multiple Design Centers. Rivulis work with over 6,000 partners & 7,000 growers worldwide to provide full turnkey micro irrigations solutions for any, and all, grower needs from the individual grower to large corporate plantations in the agriculture, horticulture, greenhouse and mining industries.

INTERNATIONAL COOPERATION

Between two and three billion people worldwide experience water shortages. These shortages will worsen in the coming decades, especially in cities, if international cooperation in this area is not boosted, warn UNESCO and UN-Water in the latest edition of the UN World Water Development Report. Globally, 2 billion people (26% of the population) do not have safe drinking water and 3.6 billion (46%) lack access to safely managed sanitation, according to the report, published by UNESCO on behalf of UN-Water and released at the UN 2023 Water Conference in New York.

Between two and three billion people experience water shortages for at least one month per year, posing severe risks to livelihoods, notably through food security and access to electricity. The global urban population facing water scarcity is projected to double from 930 million in 2016 to 1.7–2.4 billion people in 2050. The growing incidence of extreme and prolonged droughts is also stressing ecosystems, with dire consequences for both plant and animal species.

Since its inception, ICID has been giving utmost importance to the need to have joint activities and partnerships with sister international organizations in the water and related sectors such on topics of mutual interest like Agricultural Water Management (AWM) through a signed Memorandum of Understandings (MoUs), Letter of Agreements (LoAs), etc. Thus, ICID has collaborative arrangements with African-Asian Rural Development Organization (AARDO), Arab Water Council (AWC), Asian Development Bank (ADB), Daugherty Water for Food Global Institute (DWF), Commonwealth Scientific and Industrial Research Organization (CSIRO), International Center for Biosaline Agriculture (ICBA), International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), International Center for Agricultural Research in the Dry Areas (ICARDA), International Commission on Large Dams (ICOLD), International Water Management Institute (IWMI), International Water Resources Association (IWRA), World Meteorological Organization (WMO), World Water Council (WWC) and World Bank among others.

Besides, ICID has consultative status with several UN bodies like UN Economic and Social Council (UN-ECOSOC), UN-Water, Food and Agriculture Organization (FAO), United Nations Educational, Scientific and Cultural Organization (UNESCO), World Health Organization (WHO), International Fund for Agricultural Development (IFAD), WMO and International Standards Organization (ISO). ICID's major technical partners are FAO, ADB, IWMI, UN-Water, WWC, World Bank, IWRA, DWF, CSIRO, AARDO, IFAD, ICOLD, IsDB, IGS, and ICRISAT, who are actively involved in the organizational and technical aspects of ICID's WIFs, Congresses, Training Programs, International Research Programme for Irrigation and Drainage (IRPID), ICID Services and organizing webinars on topics that are of interest to the water resources community.

In the following paragraphs, a summary of the collaborative activities that have been undertaken by ICID during the financial year 2021-22 with key international and regional partners in fulfilling ICID's vision of 'A water-secure world, free of poverty and hunger through sustainable rural development' is presented.



African-Asian Rural Development Organization (AARDO)

ICID has a standing MoU with AARDO, which is effective till 2025, recognizing that AARDO and ICID share mutual goals of poverty alleviation through food and water security. This MoU is instrumental in supporting each other's interventions to reduce risks due to water-related extremes – floods and droughts, and effective rural development in Asia and Africa, in particular. To achieve these goals, both AARDO and ICID have a mutual interest and commitment to work in the better management of water resources, especially in rural areas, using the latest tools and information.

The 78th & 79th Session of the Liaison Committee of AARDO was held on 31 March 2022 & 28 September 2022 at New Delhi. The 75th Session of the Executive Committee of AARDO was held in New Delhi on 29 November – 01 December 2022. The Executive Committee endorsed fourteen (14) MoUs that AARDO has signed with other organizations/institutions for collaborative activities. It also accepted the offer of the Government of Republic of Zambia to host the 76th Session in its country in the first week of July 2023.

AARDO has been providing fully paid fellowships for specialized and advanced trainings at leading institutes in Africa and Asia. A number of technical/collaborative arrangements have been made with many institutions/centres of excellence in the member countries. The Organization continues to add new training courses/ capacity building programmes on different aspects of rural and agricultural development as and when the demand has been raised by the member countries. During the year a total of 2322 participated in various HRD programmes. Of these, 2174 participants from member and select eligible member countries attended online international training programmes and remaining 92 participants attended through physical mode.

H.E. Dr. Manoj Nardeosingh, Secretary-General, African-Asian Rural Development Organization (AARDO) has participated in the ICID 73rd Foundation Day programme held on 24 June, 2022. H.E. Dr. Manoj Nardeosingh, admired the ICID activities in the domain of food security, irrigation and agriculture. He also covered the economic and social development in African and Asian countries.



Arab Water Council (AWC)

AWC was launched on 14 April 2004 as a regional non-profit organization with activities extended on both regional and international scales. The Headquarters of the Arab Water Council is the Arab Republic of Egypt. AWC is working towards an Arab collective role that raises the level of awareness of existing water resources management challenges, intensifies the current effort to confront them and contributes to the development of the new water culture. There is a significant similarity in the visions of both ICID and AWC, which is conducive to working on a mutually beneficial agenda of better management of water resources.

ICID organises African Young Professionals training programme as part of the Cairo Water Week in partnership with partner organizations, VPH Dr. Wahba managed the programme during the events.



Asian Development Bank (ADB)

The Asian Development Bank is a regional development bank established on 19 December 1966, which is headquartered in the Ortigas Centre located in the city of Mandaluyong, Metro Manila, Philippines. ADB is owned by 68 members - 49 from the region to promote social and economic development in Asia. The Asian Development Bank (ADB) is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. It assists its members and partners by providing loans, technical assistance, grants, and equity investments to promote social and economic development

ADB is a major technical partner of ICID's Congresses and World Irrigation Forums, being part of the International Technical Advisory Committee (ITAC) constituted for overseeing the organizational and technical aspects of Congress and WIF. ADB's Asian Irrigation Forum inspired ICID to conceptualize the World Irrigation Forum, both held triennially with mutual understanding not to overlap each other. ICID has been contributing to Asian Irrigation Forum through the participation of its Office Bearers and Professionals. ADB has also been an important part of ICID's yearly activities, ranging from Webinars, Conferences, Publications and stakeholders' meetings.



Commonwealth Scientific and Industrial Research Organization (CSIRO)

The objective of CSIRO is to improve the livelihoods and economic well-being of people in large and complex river basins in Australia, Asia, the Pacific and South America and provide access to water in highly variable and changing climates, considering the needs of the environment and people. One of the key objectives of CSIRO is to identify key challenges and opportunities for water use, planning and management. As one of the world's largest mission-driven multidisciplinary science and research organisations, CSIRO focusing on the issues that matter the most: for the quality of life, for the economy and for the environment.

During the 73rd International Executive Council meeting and Permanent Committee for Technical Activities (PCTA) on behalf of Virtual Irrigation Academy (VIA), Dr. Richard Stirzaker, CSIRO, Australia made a brief presentation on the topic "The Virtual Irrigation Academy: From Soil Physics to Social Learning" which was appreciated by the members. The presentation was followed by a brief question-answer interactive session. Virtual Irrigation Academy (VIA), also organized Young Professionals' Training Program during 24th ICID Congress and it was successfully managed by CSIRO Agriculture and Food based organization in Canberra, Australia.



Daugherty Water for Food Global Institute (DWFI)

The Daugherty Water for Food Global Institute (DWFI) was founded in 2010, situated at the University of Nebraska works to address the global challenge of achieving food security with less stress on water resources through water management in agricultural, and food systems. ICID and DWFI have been collaborating on issues of common interest, and DWFI is one of the strategic partners of ICID. DWFI served several times in the Jury for selecting the winner of ICID's prestigious World Irrigation and Drainage (WID) Prize and contributed to the successful organization of triennial WIFs, and Congresses of ICID.

ICID and DWFI are partners in the Global Framework on Water Scarcity in Agriculture (WASAG). In addition, ICID, and DWFI join hands during World Water Forums to organize sessions on topics of interest to both the organizations like Food Security, Water-Energy-Food Nexus, etc

Food and Agriculture Organization (FAO)



The Food and Agriculture Organization (FAO) is a specialized agency of the United Nations that leads international efforts to defeat hunger and improve nutrition and food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives. ICID and FAO have been partnering for decades to promote sustainable AWM and achieve food security worldwide. FAO is a technical partner in ICID Congresses and WIFs and is part of ITACs for WIF and Congress. Besides, FAO is a member organization in the Task Force to Guide the Partnership Process (TF-GPP) reconstituted to provide support to the High-Level Advisory Group on "Partnerships for Agriculture Water Management". FAO experts participate in ICID's technical workbodies, including the Advisory

Committee for International Programme for Research in Irrigation and Drainage (AC-IRPID). During the 73rd International Executive Council and Permanent Committee for Technical Activities (PCTA) held at Adelaide, Australia, Ms. Sasha KooOshima became the permanent observer of FAO to the Working Group On Land Drainage (WG-LDRG).



During the Webinar jointly organized by FAO, ICARDA, and ICID on "Advanced Micro Irrigation Technology with Precision Water and Salt Management" Prof. Kang Yaohu served as the keynote speaker and Dr. Ding Kunlun delivered lectures in the Webinar Series on Rainwater Harvesting.

FAO's Land and Water Division organized a Technical Briefing on "Integrated Water Resources Management for Food Security and Climate Resilience" on 26 October 2022 for FAO Permanent Representatives and Missions. This meeting aimed to inform FAO Members about the overall role of water for sustainable development, the overlapping crises on water, food, energy, biodiversity, climate, and health, and the need for integrated management of precious water resources.



President Prof. Dr. Ragab Ragab participated in and represented ICID in a meeting of a Working Cluster on Resilience and Climate Change ahead of the UN-Water Conference. The meeting was organized by the Regional Collaborative Platform (RCP) of the FAO in collaboration with The Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD), Syria and the United Nations Economic and Social Commission for Western Asia, on 11 January 2023.

The Global Framework on Water Scarcity in Agriculture (WASAG), in collaboration with the Government of Cabo Verde and the Food and

Agriculture Organization of the UN (FAO), organized its 2nd International Forum on Water Scarcity in Agriculture on the theme, 'Making Agriculture Resilient to Climate Change: Water Scarcity, an Opportunity for Action and Collaboration', on February 7-10, 2023 at Praia, Cabo Verde.

Global Water Partnership (GWP)



Global Water Partnership (GWP) is a partner organization of ICID since GWP's inception in 1996. GWP is a global action network with over 3,000 partner organisations in 179 countries. The network has 69 accredited Country Water Partnerships and 13 Regional Water

Partnerships. The network includes all the organizations involved in water resources management: developed and developing country government institutions, agencies of the United Nations, bilateral and multilateral development banks, professional associations, research institutions, non-governmental organisations, and the private sector.

GWP mobilises action on the global water crisis through a unique combination of social capital, shared values, credibility within the global water community, bottom-up orientation, and expertise. A network of networks, it ensure the 'voices of water' can influence local, national, regional, and global development priorities. GWP is committed to the role as a neutral convener and respected for focus on inclusiveness and sustainability

GWP is a partner organization of ICID's WIFs and a member of ITAC for WIF4. GWP is a permanent observer in PCSO. Following a coordinated action mechanism with fellow development partners, GWP and ICID encourage regional and country water partnerships to collaborate with ICID's NCs wherever possible, creating a stronger GWP-ICID technical collaboration. It includes potential joint initiatives for floods, droughts, and climate services. GWP agreed to engage with ICID on relevant drought and flood management activities. ICID also collaborates with GWP in the Integrated Drought Management Programme (IDMP), being coordinated by WMO and attends GWP's annual network meetings. The GWP India Strategy 2020-2025 was launched by ICID Secretary-General Er. Ashwin Pandya as the Chair of the panel discussions. GWP collaborates with ICID in the nomination process for Water Change Maker Awards and in the identification of the most deserving Awardees.

A Regional Conference on Integrated Water Management in South Asian Countries was hosted by the Global Water Partnership – Sri Lankan Counterpart and organized on 9 – 10 November, 2022. The South Asian countries which participated in the conference were India, Bhutan, Pakistan & Sri Lanka. The Conference led to a discussion on varied strategies for integrated water management and the key role and progress of the individual countries in this direction.

During the 28th meeting of the African Regional Working Group (AFRWG) of the ICID held in Mexico City, Mexico in October 2017, it was decided to establish the African Young Water Professional Forum (Af-YWPF). The objective of the Af-YWPF is to bring together Africa's future leaders from the private sector, research, and government institutions around the central theme of water conservation for sustainable development. The water professionals would get an opportunity to showcase their knowledge and contribution to sustainable water management in an international setting, discuss what they learned from their experiences, and broaden the mind and thinking of new and experienced water professionals.

Valuing the important partnerships fostered by the International Commission for Irrigation and Drainage (ICID) African Working Group (AFRWG) through the Af-YWPF with the Ministry of Water and Irrigation of Egypt, United Nations Economic and Social Commission for Western Asia (ESCWA), Arab Center for the Study of Arid and Drylands (ACSAD) of the League of Arab States, Global Water Partnership-Mediterranean (GWP-MED)/ GWP Africa Coordination Unit, and the Islamic Development Bank (IsDB), ICID and its partners are working collaboratively in organizing the event.



IHE Delft Institute for Water Education

IHE Delft Institute for Water Education address water and sanitation challenges through education, research and capacity development, at global, national, local and even microscopic scales – the latter in laboratories, with a vision a world free of poverty and injustice in which people manage their water and environmental resources sustainably and equitably. They focus on all water-related fields, including social sciences, engineering and more. Their world-class experts teach and research fields such as climate change adaptation, governance, water diplomacy, desalination, water supply, wetlands and sustainable hydropower.

IHE Delft Institute for Water Education and ICID have been collaborating to derive specialized educational solutions from the IHE Delft experts to address the needs of diverse clients from the professional water arena represented by ICID. ICID- IHE Delft collaboration has significant value to ICID's young irrigation professionals. IHE Delft offers many online training programs to young irrigation professionals and several ICID Office Bearers are faculty members and alumnae of IHE Delft Institute for Water Education



International Association for Agricultural Sustainability (IAAS)

IAAS serve as an international platform for academicians, researchers, industry players and policy makers in the fields of agro-technology, sustainability, food technology, innovation, management and economics to communicate and interact for the advancement of research, instruction, trade promotion, and policy development. The main focuses of IAAS are innovation, sustainability, technology, and investment. They have been campaigning successfully for the past years to work as an international platform for knowledge and techniques transformation in the agricultural industry.

An MoU between the International Commission on Irrigation and Drainage (ICID) and the International Association for Agricultural Sustainability (IAAS) was signed during the 10th International Micro Irrigation Conference in Dakhla, Morocco held on 24 - 25, January 2023. The objective of this MoU was to formalize a non-exclusive framework of cooperation and facilitate collaboration among the parties to promote knowledge sharing, programs and projects that foster cooperation among them, including the possibility of co-financing projects related to capacity development activities, technical support etc. in their common member countries. Under this



agreement, through their joint efforts, the organization decided to provide coordinated and harmonized technical assistance to their common member countries in a cost-effective and efficient manner.



International Commission on Large Dams (ICOLD)

The International Commission on Large Dams (ICOLD) is a non-governmental International Organization headquartered at Paris and established in 1928, which provides a forum for the exchange of knowledge and experiences on various aspects of dam engineering. The organization leads the profession in ensuring that dams are built safely, efficiently, economically and without detrimental effects on the environment. Its original aim was to encourage advances in the planning, design, construction, operation, and maintenance of large dams and their associated civil works, by collecting and disseminating relevant

information and by studying related technical questions. ICOLD has National Committee in 106 countries with approximately 25,000 individual members who are practicing engineers, geologists and scientists from governmental and private organizations, consulting firms, universities, laboratories and construction companies. The science of dam engineering and water management has been and is being advanced through ICOLD activities.

ICID and ICOLD have been jointly taking up many issues in the global water sector for decades. ICOLD's consistent involvement and active participation in the WIFs represent their support and the years-old partnership with ICID.

Every year, ICOLD holds an Annual Meeting and Symposium in a selected country. An important part of the annual ICOLD event is the opportunity for all delegates to observe the meetings and workshops of the Technical Committees and interact with experts from other countries.

As part of the 27th Congress and 90th Annual Meeting of ICOLD held in Marseille, France from 27 May - 3 June 2022, a roundtable meeting was organized on "Dams and reservoirs, the challenges of tomorrow". From ICID, President Prof. Dr. Ragab participated in this important meeting and highlighted the role of dams and reservoirs in meeting the world's food demands.

At this occasion, a Memorandum of Understanding (MoU) was also signed between ICID and the International Commission on Large Dams (ICOLD), to promote knowledge sharing, programs, and projects that foster cooperation between the two organizations, including the possibility of co-financing projects related to capacity development activities, technical support etc. in their common member countries. The MoU was signed by President ICID Prof. Dr. Ragab Ragab and President ICOLD - Dr. Michael Rogers on 30 May 2022.



International Council on Monuments and Sites (ICOMOS)

ICOMOS - the International Council on Monuments and Sites - is an international non-governmental organisation comprising professionals, experts, representatives from local authorities, companies and heritage organisations, and is dedicated to the conservation, protection and enhancement of the architectural and landscape heritage in France and throughout the world. ICOMOS France is the French national committee of ICOMOS. It is the only global non-government organisation of this kind,

which is dedicated to promoting the application of theory, methodology, and scientific techniques to the conservation of the architectural and archaeological heritage.

ICOMOS is a network of experts that benefits from the interdisciplinary exchange of its members, among which are architects, historians, archaeologists, art historians, geographers, anthropologists, engineers and town planners. The members of ICOMOS contribute to improving the preservation of heritage, the standards and the techniques for each type of cultural heritage property: buildings, historic cities, cultural landscapes and archaeological sites.

ICID and ICOMOS have collaborated for many webinars, activities and events in the past. The two organizations worked closely on the cause of rainwater harvesting. ICOMOS actively supports ICID's heritage programs, i.e. World Heritage Irrigation Structures (WHIS).



International Center for Biosaline Agriculture (ICBA)

ICBA is an international, non-profit applied agricultural research center. Since its formation in the United Arab Emirates in 1999, ICBA has established itself as a global center of excellence and a go-to research-for-development partner in different regions. ICBA, with a vision for sustainable livelihoods and food security in marginal environments, is on a mission to work in partnership to deliver agricultural and water scarcity solutions in marginal environments. It is strategically engaged

in promoting sustainable management of natural resources, providing climate change solutions, and enhancing agricultural value chains to advance sustainable food, feed, and biofuel agri-technologies.

ICBA's uniqueness lies in its focus on improving food security and nutrition, enhancing water security and environmental sustainability, and creating jobs and livelihoods in marginal environments, the areas of the world which face the problems of salinity, water scarcity and drought, among others.

ICID and ICBA feel the future potential for mutual growth through cooperation and synergetic activities. ICBA is a partner organization of ICID and a permanent observer in PCTA.



International Crop Research Institute for the Semi-Arid Tropics (ICRISAT)

ICRISAT is an international organization which conducts agricultural research for rural development, headquartered in Patancheru, India with several regional centres and research stations. ICID and ICRISAT have worked together over many years towards the cause of agricultural water management and food security.

ICRISAT is a partner organization of ICID and a permanent observer in PCTA. Professionals from ICID member countries and associate member countries benefit from international training programs organized by ICRISAT.



International Center for Agricultural Research in the Dry Areas (ICARDA)

The International Center for Agricultural Research in the Dry Areas (ICARDA) was established in 1975 as an international organization undertaking research-for-development with the mission to reduce poverty and enhance food, water and nutritional security and environmental health in the face of global challenges including climate change.

ICARDA provide innovative, science-based solutions for communities across the non-tropical dry areas. In partnership with research institutions, NGOs, governments, and the private sector, ICARDA's work advances scientific knowledge, shapes practices, and informs policy. ICARDA has implemented research-for-development programs in 50 countries across the world's dry areas - from Morocco in North Africa to Bangladesh in South Asia.

ICARDA works in severely resource-stressed areas that face serious water scarcity, climate variability, severe environmental degradation, extreme temperatures, and drought. ICARDA implements proven agricultural technologies and climate-smart water irrigation techniques to improve on-farm water use and efficiency for higher water and land productivity. ICARDA's integrated innovations include maximizing in-situ water through conservation interventions, fine-tuning when and how to irrigate to produce "more yield per drop," water-harvesting and water-conservation techniques in rainfed agriculture, and exploring the safe use of treated wastewater to produce more feed, forage, and trees

ICARDA organized a session on "Dryland Agriculture" during the 2nd International Forum on Water Scarcity in Agriculture, held from February 7–10, 2023 at Praia, Cabo Verde. WASAG created a common opportunity for the ICID and its alliance partners, ICARDA, the FAO, Tottori University, and national research institutions from Burkina Faso, Italy, and Tunisia to mark their vision based on its mutually beneficial and strategic importance.



International Fund for Agricultural Development (IFAD)

IFAD is an international financial institution and a specialized agency of the United Nations that works to address poverty and hunger in the rural areas of developing countries, with the mission to transform rural economies and food systems by making them more inclusive, productive, resilient and sustainable. IFAD invest in the millions of people who are most at risk of being left behind: poor, small-scale food producers, women, young people and other vulnerable groups living in rural areas. IFAD is the only specialized global development organisation exclusively focused on and dedicated to transforming agriculture, rural economies and food systems.

IFAD has been a partner in ICID's World Irrigation Forum event since its inception in 2013 and has contributed to the successful organization of WIFs held so far. IFAD and ICID have an arrangement of deputing their representatives to each other's Council meetings as Observers.



International Food Policy Research Institute (IFPRI)

The International Food Policy Research Institute (IFPRI) established in 1975, provides research-based policy solutions to sustainably reduce poverty and end hunger and malnutrition in developing countries. IFPRI currently has more than 500 employees working in over 70 countries and works with a wide range of partners with a vision that the world is free of hunger and malnutrition. It is a research center of CGIAR, the world's largest agricultural innovation network.

ICID has been collaborating with IFPRI on matters of mutual interest either bilaterally or through its NCs. IFPRI has been participating in ICID's WIFs by way of organizing side events related to the theme of the Forum.



International Geosynthetics Society (IGS)

The International Geosynthetics Society (IGS) registered as a non-profit corporation, is a learned society dedicated to the scientific and engineering development of geotextiles, geomembranes, related products, and associated technologies. IGS is a global community with 44 chapters worldwide and 4,000 members including corporate, individual and student members, with a shared passion for what geosynthetics can achieve.

There is a standing MoU between ICID and IGS signed in October 2011 to liaise with each other for improvements in the art and techniques of irrigation, drainage management, geosynthetics and to periodically review and evolve progressive strategies in the outlined areas of cooperation. Based on the MoU, IGS has been partnering in ICID's Congresses and WIFs by way of organizing sessions on topics of interest to both organizations.



International Water Association (IWA)

IWA is a non-profit organization and knowledge hub for the water sector, with over 60 years of experience connecting water professionals worldwide to find solutions to the world's water challenges. IWA members are situated in 140 countries worldwide, forming the largest international network of water professionals working towards a water wise world. Innovative, solutions- and service- oriented, IWA work across a range of areas that contribute to the progression of water management worldwide.

ICID has a standing MoU with IWA, which aims at establishing a wastewater reuse network, particularly for the safe reuse of water in the agriculture sector and urban purposes. The area of cooperation between both the organizations includes (i) Sharing of Latest Technologies in Water Management and Wastewater Treatment, (ii) Holding Workshops and Conferences, (iii) Implementation of Research Projects, (iv) Preparation of Guidelines and Standards; (v) Conducting Training and Educational Courses, (vi) Bringing out joint Publications, and (vii) Establishing Study Tours. The MoU is initially being implemented through NCs of ICID and IWA in Iran.



International Water Management Institute (IWMI)

IWMI is a non-profit, research-for-development (R&D) organization with headquarters in Colombo, Sri Lanka, and also having offices in 14 countries and a global network of scientists operating in more than 30 countries. For over three decades, the research results have led to changes in water management that have contributed to social and economic development. IWMI's Vision reflected in its Strategy 2019-2023, is 'a water-secure world'. IWMI targets water and land management challenges faced by poor communities in developing countries, and through this contributes towards the achievement of the Sustainable Development Goals (SDGs) of reducing poverty and hunger and maintaining a sustainable environment.



ICID and IWMI have been collaborating on issues of common interest and IWMI contributed as one of the major technical partners of ICID in its annual meetings and flagship events -- WIFs and Congresses. IWMI is a Permanent Observer in ICID's PCSO & PCTA, besides contributing to the work of several technical working groups. IWMI is collaborating with ICID in organising sessions during Congresses and WIFs.

As part of its efforts toward expanding horizons, ICID signed a Memorandum of Understanding (MoU) with IWMI on 05 October 2022 during 24th ICID Congress at Adelaide, Australia in October 2022 with the objective to formalize a non-exclusive framework of cooperation and to facilitate collaboration between the two organisations to promote knowledge

sharing, programs and projects that foster cooperation between them, including the possibility of co-financing projects related to capacity development activities, technical support etc. in their common member countries.

In addition, through their joint efforts the Parties may provide coordinated and harmonized technical assistance to their common member countries in a cost-effective and efficient manner. These and any other activities as agreed are in line with the respective internal objectives, functions, policies and procedures of the Parties.

IWMI in collaboration with CGIAR organized a brainstorming meeting on 'Integrated Modelling of Water-Energy Food-Ecosystem Nexus in the Ganges Basin' on Friday, 2 December 2022 in New Delhi. During the event, ICID was represented by Secretary-General and Executive Director.

Further, one more workshop on multi-stakeholder consultation on the Transformative Future for Water Security (TFWS) was held in New Delhi, India. The workshop was organized on 23 November 2022 by IWMI-India in collaboration with ICID, Indian Council of Agriculture Research (ICAR), CGIAR & ITC Pvt. Ltd.



International Water Resources Association (IWRA)

IWRA is a non-profit, non-governmental, international member-based Association established in 1971. It provides a global, knowledge and research-based forum working at the interface of science and policy for the sustainable use and management of the world's water resources.

ICID and IWRA signed an MoU in June 2017, agreeing to collaborate to develop strategies for ensuring water and food security, duly recognizing the importance of water energy-food nexus. The areas of cooperation included (i) Understanding the linkages between water-energy-food nexus and how this approach supplements IWRM approach; (ii) Developing decision-making tools that help recognize the existence of this nexus; (iii) Identifying the critical policy issues that need to be flagged; (iv) Identifying the areas of research to benefit from the existence of the nexus; and (v) Disseminating the benefits of the nexus approach.

IWRA is a permanent observer in ICID's Working Group on Irrigation and Drainage in the States under Socio-Economic Transformation (WG-IDSST).



Islamic Development Bank (IsDB)

The Islamic Development Bank is a multilateral development bank (MDB), working to improve the lives by promoting social and economic development in Member countries and Muslim communities worldwide, delivering impact at scale. IsDB provide the infrastructure to enable people to lead better lives and achieve their full potential. IsDB has been collaborating with ICID in the areas of mutual interest by supporting as a partner organization in the conduct of the Young Professionals training program for the African Young Water Professionals Forum (Af-YWPF).

Currently, both ICID and IsDB are exploring the possibility of entering into a Memorandum of Understanding (MoU) for collaborating in the areas of mutual interest such as integrated water resources management (IWRM), effective environment for sustaining water resources, delivering irrigation advisory services, empowering young professionals to contribute with innovative skills for the development of the water sector through training programs.



McGill
UNIVERSITY

McGill University

McGill University is a public university, founded in 1821, is one of Canada's best-known institutions of higher learning and one of the leading universities in the world. International students from more than 150 countries make up nearly 30% of McGill's student body - the highest proportion of any Canadian research university.

The Department of Bioresource Engineering is part of the Faculty of Agricultural and Environmental Sciences of McGill University. It collaborates with other departments and the Faculty of Engineering in providing courses of instruction for a curriculum in Bioresource Engineering. President Hon. Prof. Chandra Madramootoo is a distinguished James McGill Professor.



World Health Organization (WHO)

WHO is the United Nations agency founded in 1948, that connects nations, partners and people to promote health, keep the world safe and serve the vulnerable – so everyone, everywhere can attain the highest level of health.

The WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) has reported country, regional and global estimates of progress on drinking water, sanitation and hygiene (WASH) since 1990. The JMP maintains an extensive global database and has become the leading source of comparable estimates of progress at national, regional and global levels. The 2017 report was the first of the Sustainable Development Goal period and established baseline estimates for monitoring the new Sustainable Development Goal targets. This was followed by progress reports for WASH in households in 2019 and 2021. The JMP also produces progress reports about WASH in health care facilities and WASH in schools.

The 2021 update estimated that in 2020, 26% of the global population (2.0 billion people) lacked "safely managed drinking water" – meaning water at home, available, and safe. 46% of the global population (3.6 billion people) lacked "safely managed sanitation" – meaning access to a toilet or latrine that leads to treatment or safe disposal of excreta. 29% of the global population (2.3 billion people) did not have access at home to a handwashing facility with soap and water. ICID has consultative status with WHO spanning over decades.



The World Bank (WB)

The World Bank is an international group that works in every major area of development. WB provide a wide array of financial products and technical assistance and help countries share and apply innovative knowledge and solutions to the challenges they face. The

World bank made up of 189 member countries and these members countries represented by Board of Governors, who are the policymakers. The World Bank Group consists of five organizations: The International Bank for Reconstruction and Development (IBRD); The International Development Association (IDA); The International Finance Corporation (IFC); The Multilateral Investment Guarantee Agency (MIGA) and The International Centre for Settlement of Investment Disputes (ICSID).

World Bank is a Permanent Observer in ICID's permanent committees. The increased collaborative activities with the World Bank have resulted into the formation of a Task Force on "International Network of Service Providers for Irrigation Excellence (INSPIRE)" and held a special session during Adelaide on 05 October 2022. WB is collaborating with ICID in Congresses and WIFs as ITAC members and organising technical sessions.

The International Network of Service Providers for Irrigation Excellence (INSPIRE)

INSPIRE is a platform for exchanging knowledge about service delivery among managers of irrigation and drainage (I&D) systems promoted by the World Bank in collaboration with ICID. INSPIRE serves as a technical working body with a worldwide reach and is initially incubated by the International Commission on Irrigation and Drainage (ICID).

As part of the efforts to improve the quality of irrigation services, international organizations working on irrigation are committed to supporting the establishment of INSPIRE. Support provided by INSPIRE's partners will leverage their comparative advantage and include contributions for the exchange of knowledge and global best practices, for capacity strengthening, and for technical assistance.

INSPIRE, in collaboration with the ICID, WMI, FAO, and Global Water Security and Sanitation Partnership, an autonomous wing of the World Bank (WB), organized a webinar on 'Performance Assessment Tools in Irrigation and Drainage' on 16 February 2023.

United Nations (UN)-Water



UN-Water is a 'coordination mechanism' that coordinates the efforts of United Nations entities and international organizations working on water and sanitation issues. ICID, being an UN-Water partner, actively promoted the observation of UN-declared days (World Water Day, World Environment Day and others) and promoted all the NCs to commemorate the events. The UN 2023 Water Conference, which took place from 22-24 March at the United

Nations in New York City, has generated more than 700 commitments aimed at driving transformation towards a water-secure world. UN Water summit was scheduled on Groundwater during 6-8 December 2022 held at UNESCO HQ in Paris, France.

ICID is a partner organization in the UN-Water Decade Programme on Capacity Development (UNWDPC), a multiyear project under UN-Water, with other partners being FAO, WHO, United Nations Environment Programme (UNEP), United Nations University Institute for Water, Environment and Health (UNU-INWEH) and IWMI to promote safe practices in the usage of wastewater in agriculture with a robust policy and institutional framework in developing countries and countries in transition, focusing on multi-disciplinary and trans-ministerial approaches.

UN Decade on Ecosystem Restoration (2021-2030) is another UN activity in which ICID is partnering with various UN agencies. Ecosystem restoration aims to reverse the degradation of ecosystems, such as landscapes, lakes, and oceans to regain their ecological functionality; in other words, to improve the productivity and capacity of ecosystems to meet the needs of society in the present and in the future. The UN Decade on Ecosystem Restoration stresses that ecosystem restoration and conservation contribute to the implementation of the 2030 Agenda for Sustainable Development, as well as other UN-related endeavours, such as the Paris Agreement on climate change.



UNESCO

UNESCO is the United Nations educational, scientific and cultural organisation, which contributes to peace and security by promoting international cooperation in education, science, culture, communication and information. UNESCO's programmes contribute to the achievement of the Sustainable Development Goals defined in the 2030 agenda, adopted by the UN General Assembly in 2015.

As an international network of the water fraternity, ICID co-organizes and hosts many events, activities and conferences with UNESCO. Over the years, the collaborations have been strengthened with the dignitaries attending and participating in each other's events. ICID participated in the Global Conclave on Water Security, a Water Digest magazine event with support from

UNESCO. Water Digest is a premier water magazine that brings the latest technologies and varied opportunities to cope with the escalating water crisis in India and the rest of the world.



World Meteorological Organization (WMO)

World Meteorological Organisation (WMO) is a specialized agency of the United Nations and intergovernmental organization with a membership of 193 Member States and six Member Territories. It originated from the International Meteorological Organization (IMO), the roots planted at the 1873 Vienna International Meteorological Congress. Established by the ratification of the WMO Convention on 23 March 1950, WMO became the specialized agency of the United Nations for meteorology (weather and climate), operational hydrology, and related geophysical sciences a year

later. The Secretariat, headquartered in Geneva, is headed by the Secretary-General. Its supreme body is the World Meteorological Congress. WMO provides world leadership, expertise, and international cooperation in weather, climate, hydrology and water resources, and related environmental issues and thereby contributes to the safety and well-being of people throughout the world and to the economic benefit of all nations.

WMO is one of the partners of ICID in bringing together climate and water communities to manage natural disasters like floods and droughts. ICID has consultative status with WMO, while WMO is represented in ICID's technical bodies that interest WMO such as WG-CLIMATE. ICID has been partnering with WMO in the Integrated Drought Management Programme (IDMP) and acts as a Support Base Partner of the Helpdesk on IDMP. ICID and WMO signed a Memorandum of Understanding in September 2020 for a period of five years, heading into a long-term partnership. Recognizing the importance of improving, developing, and exchanging information and predictions in support of decision-making for water management, food security, climate risk management, and adaptation, ICID and WMO come together to improve international knowledge creation, dissemination and service provision. ICID and WMO share mutual goals of poverty alleviation through food and water security, and for that purpose, they support interventions to reduce risks due to water-related extreme events- floods and droughts and effective climate change adaptation. To achieve these goals, both WMO and ICID have a mutual interest and commitment to work on the better management of floods/droughts and agricultural water using the latest tools, technology, and data.



World Water Council (WWC)

The World Water Council is an international multi-stakeholder organization, created in 1996 and based in Marseille. The World Water Council has 260 member organizations, which come from 52 countries across 5 continents. The World Water Council's mission is to gather the international community to convince decision-makers that water is a political priority for the sustainable and equitable development of the planet.

ICID has been a founder member of WWC and served its Board of Governors (BoG) twice in the past. ICID has been actively involved in all World Water Forums since its inception. WWC is a Permanent Observer to ICID's Permanent Committees on Technical and Organizational Aspects. The World Water Council catalyses collective action during and in between each World Water Forum – the world's largest event on water. Organized every three years with a host country, the Forum provides a unique platform where the water community and key decision makers can collaborate and make long-term progress on global water challenges. The 9th World Water Forum took place in Senegal in 2022, the next one will be held in Indonesia in May 2024.

OTHER PARTNERSHIPS

Besides the organizations mentioned above, ICID has been working in partnership with UNESCO-IHP, International Union for Conservation of Nature (IUCN), International Hydropower Association (IHA), International Water History Association (IWH), International Standards Organization (ISO), Association Scientifique et Technique pour l'Eau et l'Environnement (ASTEE), Network of Asian River Basin Organizations (NARBO), CIHEAM-Bari, Ministry of Agriculture, Forestry and Fisheries (MAFF) Japan, Indian Institute of Technologies, Khuzestan Water and Power Authority, World Historic and Cultural Canal Cities Cooperation Organization (WCCO), China Institute of Water Resources and Hydropower Research (IWHR), Korea Rural Community Corporation (KRC), UNESCO-RCUWM, Hydropower and Dams, European Geosciences Union Assembly, Saudi Water Forum in the areas of mutual interest, particularly emerging issues related to ICID's vision, mission, and goals



Working Groups in Action

On-Farm

Water application techniques related to crops, on-farm irrigation, and use of poor-quality water



Schemes

Dealing with various aspects of irrigation systems such as modernization and revitalization, institutional aspects, irrigation development and management, water saving in agriculture and sustainable drainage



Basin

Basin-wide planning covering various issues such as drought, floods, environment, climate, tidal areas, bio-energy that affect AWM



Knowledge

Includes preserving history of irrigation, capacity development, value engineering, communication and dissemination, publications and conferences



ICID's mission of 'A water-secure world free of poverty and hunger through sustainable rural development' can be better achieved through deliberations of its technical WGs, which are further organized around following four strategic themes of ICID:

The WGs, through their activities, help generate, extract, compile, and synthesize the available knowledge for wider dissemination through ICID channels. Various WGs and TFs have been established to study different aspects of AWM. Experts voluntarily join from a wide range of disciplines like engineering, hydrology, agronomy, environment, sociology, economics, climate change, and so on, working as members, contributing, and sharing experiences across the geographical, climatological, economic, and social spectrum.

The following section briefly describes the activities of various ICID WGs under the four strategy themes (ST) during the year 2022-23:

STRATEGY THEME - ON-FARM

Irrigation is an integral part of agriculture to achieve increased crop production through reliable, precise, and sustainable water application to the crop. The management of on-farm water application is critically important for higher productivity, irrigation efficiency, and, most importantly, sustainability. Both the farmers and the irrigation managers are key players who need to make prudent decisions, which constitute a selection of the right crops based on water availability; selecting the most appropriate irrigation techniques for optimal utilization of scarce water resources matching the local context; reducing wasteful losses such as evaporation; using certified equipment; ensuring a minimum quality for on-field irrigation; recycling, and reusing water including the poor-quality water in case of limited, and so on. To discuss these issues, ICID has constituted three WGs: WG-WATER & CROPS, WGNCWRI, and WG-SON-FARM.

Working Group on Water Food Energy Nexus (WG-WFE_N)

The Working Group on Water Food Energy Nexus (WG-WFE_N) was established in 2020 with the revised mandate to exchange information, knowledge, and experience as well as to network on the Water-Food-Energy Nexus topic to be up-to-date with

new developments, methods, and approaches. This can be the basis for a possible position paper on key issues on the nexus; to prepare an overview document on state of the art in improving water use efficiency and productivity within the nexus; to produce a document on the impact of climate change and possible use of non-conventional less water consuming crops; to prepare an overview document on state of the art on model applications as useful management tools for water, crops, field, and energy management within the nexus; to prepare, and present reports on case studies on recent developments in the countries that are represented in the WG; to organize international workshops, seminars, or symposia on the Nexus topic; and to implement ICID 2030 vision.



The WG organized a virtual meeting on 30 June 2022 wherein 26 members participated. During the virtual meeting, the group selected Vice President Hon. Dr. Yella Reddy (India) and Dr. Mahdi Sarai Tabrizi (Iran) as Vice-Chairman and Secretary. President Dr. Ragab Ragab (UK), who is the Chairman of the WG discussed various activities, like new membership, international workshop, 3-year rolling plan preparation from 2021-2023 based on the scoping document of the WG, contributions from the members of the group publication, updating Multilingual Technical Dictionary (MTD), presentations by WG members etc.

The WG held its 2nd meeting in October 2022 at Adelaide, Australia and reviewed the activities of the group, such as goals/strategies, actions, outcomes/outputs, and milestones, as part of Action Plan of 'Road Map to ICID Vision 2030' and updated the progress.

The WG organized an International Workshop on 04 October 2022 on the theme 'The Water-Energy-Food-Nexus: Implementation and Examples of Application' and sub-themes – (i) Water-Energy-Food-Nexus at the field, regional and country scales, examples of applications; (ii) How the environment and ecosystem services benefit from the Nexus; (iii) Economic analysis of food production within the nexus; (iv) Management practices that promote the Nexus; and (v) Institutional and Governance issues in implementing the Nexus. Total 9 papers were presented by Authors in the international workshop of the WG which can be accessed at https://icid-ciid.org/inner_page/147. The proceeding of the International Workshop of the WG which is available at https://icid-ciid.org/icid_data_web/Workshop_WFEN2022.pdf

The group decided to bring out a 'Technical Report' based on papers contributed by its members in areas such as (i) efficient use of water in crop production, (ii) crop water models, (iii) multi-functional water use in paddy, and (iv) rainwater harvesting and energy crops. National Committees (NCs) of Australia, China, Egypt, India, Indonesia, Philippines and Italy have contributed their papers to the Technical Report of the erstwhile WG 'Water and Crop'.

As part of the Action Plan 2030, the WG is organizing an International Workshop on 'The Water-Energy-Food-Nexus: Implementation and Examples of Application' on 3 November 2023 during the 74th International Executive Council (IEC) meeting and the 25th ICID Congress in Vishakhapatnam (Vizag.), Andhra Pradesh, India. The objective of the workshop is to bring together experts to share information, experience and views on how to apply the principles of water-food-energy nexus in agriculture. The workshop will focus on the following topics: (i) Water-Energy-Food-Nexus at the field, regional and country scales, examples of applications; (ii) How the environment and ecosystem services benefit from the Nexus; (iii) Economic analysis of food production within the nexus; (iv) Management practices that promote the Nexus; and (v) Institutional and Governance issues in implementing the Nexus.

Use of Non-Conventional Water Resources for Irrigation (WG-NCWRI)

Working Group on Use of Non-Conventional Water Resources for Irrigation (WG-NCWRI) was established in 2018 with a mandate to exchange knowledge, experience, and data as well as networking in respect of new developments, methods, and approaches; prepare comprehensive reviews and prospects concerning diffe10

The group is planning for a training course on "Digital application in the use of non-conventional water resources". Dr. Tapas Biswas (Australia), Dr. Ashish Pandey (India), and Dr. Tasuku Kato (Japan) volunteered as Members of the Organizing Committee for the training. The training courses will be held in the middle of November 2023 with the help of the ICID Central Office.

Sustainable On-Farm Irrigation System Development (WG-SON-FARM)

Working Group on Sustainable On-Farm Irrigation System Development (WG-SON-FARM) was established in 2015 to support research, evidence-based documentation, and dissemination of knowledge based on the latest scientifically significant, and societally relevant issues. The WG will make recommendations for the design, installation, management, and maintenance of on-farm irrigation structures, and water distribution system networks.

The 10th International Micro Irrigation Conference was organized from 25-27 January 2023 at Dakhla by the Moroccan National Committee of ICID (ANAFIDE) in collaboration with the Council of the Moroccan Community Abroad (CCME), in partnership with ICID and with support of the Ministry of Agriculture, Fisheries, Rural Development, Water and Forestry (MAPMDREF). The theme of the conference was 'Micro-irrigation in the Era of Technology Innovation and Digital Transformation,' which aimed to share

experiences of using new technologies and best management practices in drip, micro-sprinkler, and other localized irrigation systems. The sub-themes focused on (i) Public Policies and the Promotion of Micro Irrigation: Lessons Learned; (ii) Innovation in Micro-Irrigation Design and Technology to Improve Resilience towards Climate Change; (iii) Micro-Irrigation for Small-Scale Farming, Challenges, Opportunities, and Initiatives; (iv) Micro Irrigation to Promote the Water-Energy-Food Nexus; (v) Digital Transformation for the Management of Micro-Irrigation; and (vi) International Cooperation for the Development of Micro Irrigation. The ICID was represented by President Prof. Dr. Ragab Ragab, Secretary General Er. A.B. Pandya and Executive Director Er. H.K. Varma and the National Committees were represented by the other ICID fraternity members. The event witnessed participation from several countries such as South Africa, Nigeria, Niger, Senegal, Egypt, Mauritania, the United Kingdom, France, Portugal, Italy, Spain, Lithuania, Australia, the United States, India, and Japan.



In March 2023, the working group organized a virtual meeting and discussed the activities of the group and 14 members attended the meeting. The position paper “Sustainable Irrigation and Agricultural Water Use in Japan” by Mr. Taku Mori is in the final stages of completion. The group plans to organize an internal workshop on the adoption of technology and barriers identified by end users during the 74th IEC and 25th ICID Congress in India in November 2023. The updated table of sprinkler and micro areas in descending order is available at https://icid-ciid.org/icid_data_web/sprinklerandmicro.pdf

STRATEGY THEME – SCHEMES

Presently, the irrigation sector is plagued with numerous challenges, including limitations on physical expansion of irrigated areas due to limited availability of water; dwindling land resources; fiscal constraints to expansion; competitive use of water from other sectors; deteriorating irrigation infrastructure due to vicious build-neglect-build cycle leading to poor, and unreliable performance of the projects; weak institutional foundation both at departmental, and farmer levels. If not addressed properly, these issues result in inefficient and sub-optimal use of irrigation projects. Keeping the importance of these inter-related factors, six Working Groups (WGs): WG-M&R, WG-IOA, WG-WATS, WG-IDM, WG-SDRG, and WG-RWH have been formed under this theme to discuss, and develop strategies to address these challenges.

Modernization and Revitalization of Irrigation Schemes (WG-M&R)

Working Group on Modernization and Revitalization of Irrigation Schemes (WG-M&R) was established in 2015 to investigate, analyze, and disseminate information on new developments, and formulate recommendations for planning and preparation for modernization and revitalization of irrigation schemes; interaction between modernization, revitalization, and required operation and maintenance including their cost-sharing, institutional and organizational framework.

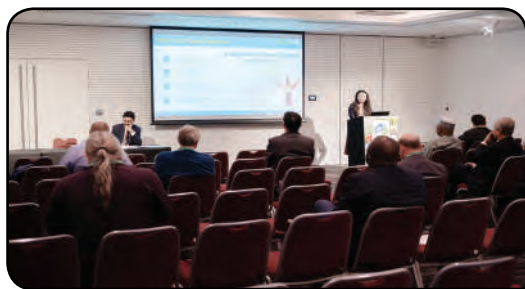
Three virtual meetings were organized in 2022, one as a Working Group and two as a task team. The Guidelines on Modernization and Survey of Norms and Processes for Operation and Maintenance of Irrigation and Drainage Systems is under finalization for publication in 2023. A questionnaire was sent to the NCs in respect of getting information on Norms and Processes for Operation and Maintenance and 23 responses to the questionnaire were received from 21 countries, additionally, 4 responses from China and 3 from Iran were also received.

The International Workshop on “Modernizing Irrigation Services” was held in Adelaide in October 2022 and attracted over 30 abstracts of which 12 papers were presented. About 40 participants attended the workshop. The main theme of the International Workshop was Modernizing Irrigation and Drainage, with a focus on the arrangements for the provision of irrigation services. Arrangements for upgrading irrigation and drainage services go beyond the rehabilitation of infrastructure to include the institutional and management arrangements required to enable irrigation supplies to be responsive to farmers’ requirements. The main objective of the workshop was 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.

The group organized the virtual meeting on 24 January 2023 wherein 17 members attended the meeting. The WG-M&R is organizing an e-discussion on “Crop Water Productivity Performance Outcome of Irrigation System Modernization” from 1-31 May 2023. More information is available on the ICID website at https://icid-ciid.org/inner_page/117

During the 25th ICID Congress, International Symposium on the theme “Pathways and Technologies for Modern Irrigation Services” will be held on 04 November 2023 in Vishakhapatnam (Vizag), India. NCs have been invited to submit a country paper on the theme presenting case studies on the various aspects of integrated and innovative irrigation management within their country.

Institutional and Organizational Aspects of Irrigation/ Drainage System Management (WG-IOA)



ICID established the Working Group on Institutional and Organizational Aspects of Irrigation/ Drainage System Management (WG-IOA) in 2015 to scrutinize a variety of institutional and organizational aspects related to irrigation, drainage development, and management. The focus of this scrutiny is on the mechanism, and working improvement with the organizational arrangement approaches for successful participatory irrigation and drainage management (PIDM) transfer, working mechanism and involvement of the public-private partnership (PPP), mechanism of charging of irrigation and drainage services as well as determination of the level of cost recovery.

The group organized the International Workshop on Public-Private-Partnership (PPPs) in Irrigation and Drainage Operation and Maintenance Toward Sustainable Irrigated Agricultural Water Management on 06 October 2022 in Adelaide, Australia. The workshop was attended by about 25 participants. The workshop materials have significantly met the expectation in accordance with the planned objectives, coming from a different region that would contribute remarkably to the Final Report of Mandate of IOA – Irrigation and Drainage (ID) Management; these particularly related to “PPPs in ID O&M toward sustainable Irrigated Agricultural Water Management (IAWM)”. Six full-length papers were presented during the workshop. It is planned to launch the Final Report of WG-IOA during the 74th IEC meeting of ICID in November 2023 in Visakhapatnam (Vizag), India.

Water Saving in Irrigated Areas (WG-WATS)

The Working Group on Water Saving in Irrigated Areas (WG-WATS) was established in 2015 with the mandate - water accounting and irrigation auditing (and other ancillary uses); irrigation water measuring devices; assessment of water loss in various components of irrigation systems; various methods and techniques used for water saving in irrigation, etc.

During the Adelaide meeting in October 2022, Vice President Engineer Rafat Nael (Iraq) was elected as the new Chair of the Working Group. In May 2022, Vice President Hon. Dr. Mohamed Wahba (Egypt) shared the electronic version of the book titled “Water Saving in Irrigated Agriculture in Egypt” which is available to download on the ICID website at - https://icid-ciid.org/inner_page/119 Similarly, Vice President Engr. Rafat Nael Al-Intaki (Iraq) shared the report titled “Project for Sustainable Irrigation Water Management through Water Users Association in IRAQ” with all members. A position paper on Overview of the Concepts of Irrigation Efficiency from the Iranian National Committee on Irrigation and Drainage is available on the WG website at https://icid-ciid.org/icid_data_web/ConceptsofIrrigationEfficiency_2023.pdf.

The group organized a virtual meeting on 16 February 2023 wherein 9 members attended the meeting. During the virtual meeting, Dr. Mohamed El-Hagarey (Egypt) was accepted as the Secretary of the WG.

WatSave Awards are annual awards that were instituted by ICID in 1997 to recognize and encourage the development of innovative ideas to facilitate robust and result-oriented technologies that could be implemented to save the usage of water for agricultural purposes. The winners of the 2022 WatSave Awards were – (i) Sumith Choy, Varun Ravi, N Srinivas Reddy, and Satya N Jaddu (Australia) – Technology Award; (ii) Li Gendong and Su Xiaofei (China) – Management Award; (iii) Ramtin Nabipour Shiri (Iran) – Young Professional Award; and (iv) Nader Zarei (Iran) – Farmer Award. More information about the WatSave Awards is available at <https://icid-ciid.org/award/watsave/43>.

Irrigation Development and Management (WG-IDM)

Keeping in view the importance of irrigation development, and its management, the Working Group on Irrigation Development and Management (WG-IDM) was established in 2015 to look into the various issues associated with IDM with the broad scope of assessment of water demand; development of water resources including groundwater, and economic scarcity of water; social drivers and resistance to the development of irrigation, and progress in water management.

Dr. Wang-Shen Wei (Chinese Taipei Committee) is developing a program for introducing standards for irrigation systems. Dr. Amgad Elmahdi (Australia) is preparing a draft document “Assess methods and develop guidelines on relevant water balance approach”. Mr. Ahmet Seren (Turkey) shared the draft document “Identify drivers and social resistances within the systems to improve Irrigation management”. Similarly, Dr. Akie Mukai (Japan) submitted the draft report of “Investigating and documenting the social and economic impacts of irrigation systems”. During the Adelaide meeting, two presentations were made viz. (a) “Study of ET₀ by using Conventional and Soft Computing Techniques in the Eastern Gandak Project in Bihar, India - A Case Study” by Prof. L.B. Roy (India); and (b) “Irrigation Development & Management Activities in Turkey” by Mr. Ahmet Seren (Turkey).

The International Symposium on ‘Integrated Approaches to Irrigation Management in the Future’ was held on 06 October 2022 in Adelaide, Australia. Eleven National Committees i.e. Australia, India, Iraq, Iran, Japan, Korea, Sri Lanka, South Africa, Turkey, Uzbekistan, and Zimbabwe shared their country papers.

Land Drainage (WG-LDRG)

The Working Group on Land Drainage (WG-LDRG) was established in 2020 to look into drainage-related aspects. The group plans to bring out the working group's publication besides exchanging information and overview of key books and other publications, collecting and reviewing manuals, guidelines, codes of practice, etc.

During the Adelaide meeting in October 2022, Dr. Willem F. Vlotman, Vice President Hon., ICID was appointed as the new Chair of WG-LDRG. President Hon. Dr. Bart Schultz is working on collecting information on polders around the world. The link to the web page on Polders in the World is: <https://www.batavialand.nl/en/cornelis-lelycentrum/water-management-polders>

The group organized a virtual meeting on 19 January 2023 wherein 18 members participated. During the virtual meeting, Dr. Deepak Khare (India) was accepted as Secretary of the group. The updated database of the drained area is available at https://icid-ciid.org/icid_data_web/World-drained-areas.pdf

The group is organizing an International Workshop on the State of Drainage Worldwide during the 25th ICID Congress and 74th IEC meeting on 02 November 2023 in Vishakhapatnam (Vizag), India. Abstracts/ Papers have been invited from professionals, researchers, experts, farmers, system operators, managers, and policy-makers responsible for the provision of irrigation and drainage services at different scales, including individual farm-level operators through irrigation schemes to provincial, national, and inter-state level water resource systems. The intend of this information-gathering workshop is to find out who is addressing drainage in the world (contractors, government departments, universities, etc.) and present the status of drainage activities in each of the ICID member countries as well as update country information on existing drainage systems. These information papers may eventually be upgraded to full-fledged scientific articles for the I&D Journal of ICID.

The Tajikistan National Commission on Irrigation and Drainage (TajNCID) is organizing the 14th International Drainage Workshop (IDW) in May 2024 in Dushanbe, Republic of Tajikistan. The Organizing Committee of IDW is currently in talks with the Tajikistan Government and a dedicated website for the event is being prepared.

Rain Water Harvesting (WG-RWH)

The Working Group on Rain Water Harvesting (WG-RWH) was established in 2018 with the mandate to promote rainwater harvesting as a natural, local, efficient source of water under the key principles of rainwater harvesting; provide research, and advice from a range of disciplines to inform rainwater harvesting, irrigation, and agricultural practices including water management, land use planning, policy environments, stormwater management, and manufacturing; and provide Rainwater Harvesting Codes of Practice suitable for urban and agricultural use.

During the Adelaide meeting, papers on permaculture as a cross-disciplinary framework and catalyst for change for drainage irrigation and "Vision and Roles" for rainwater harvesting were presented.

STRATEGY THEME – BASIN

The Strategy Theme 'Basin' addresses all basin-level factors and influences such as climate change, environmental issues, irrigation in tidal areas, irrigation in water-stressed regions, flood management, and increased use of water for bioenergy crops. ICID has constituted seven WGs under this strategy namely, WGCLIMATE, WG-SDTA, WG-ENV, WG-MWSCD, WG-IDSST, and WG-AFM. The activities of the WGs are as follows:

Climate Change and Agricultural Water Management (WG-CLIMATE)

To address the issue of climate change in agricultural water management, ICID established the Working Group on Climate Change and Agricultural Water Management (WG-CLIMATE) in 2015. The main mandate of the WG is – (i) To share information about the prediction of global and regional climate change and climate variability; (ii) To explore and analyze the implications of climate change and climate variability for agricultural water management including irrigation, drainage, and flood control; (iii) To promote archiving useful information and case studies on climate change for practical use in improved impact assessment and adaptation development; (iv) To enhance discussion on climate change and water management at national and regional scales among the stakeholders including academician, practitioners, decision-makers, media as well as farmers and water users in a region.

The group is in the process to deliver a document titled "Guide to Innovated Irrigation and Drainage Management under the Changing Climate", which focuses on irrigation and drainage in climate change. The publication focuses on tackling the different challenges resulting from climate change in different regions and has those adaptations as case studies. Dr. Fuqiang Tian, the head of the The group organized the 1st virtual meeting on 17 January 2023 wherein 18 members attended the meeting.

The group is organizing an International Workshop on Innovated Agricultural Water Management under Climate Change during the 25th ICID Congress and 74th IEC meeting on 01 November 2023 in Vishakhapatnam (Vizag), India. Abstracts/papers are invited from professionals, researchers, experts, farmers, system operators, managers, and policy-makers responsible for the provision of irrigation and drainage services at different scales, including individual farm-level operators through irrigation schemes to provincial, national, and inter-state level water resource systems. Based on Sixth Assessment Report, the workshop aims to reduce the adverse impacts of extreme events of climate change by finding smarter water management and adaptation development. About 16 abstracts have been received for the International Workshop.

Sustainable Development of Tidal Areas (WG-SDTA)

ICID re-established the Working Group on Sustainable Development of Tidal Areas (WG-SDTA) in 2017 with a revised mandate: (a) To understand the existing, and potential challenges, and opportunities of tidal areas for present, and future by figuring out underlying issues; (b) To raise awareness of the increasing risk on tidal areas due to global climate change, and stimulate interdisciplinary discussions on impacts, mitigation, and adaptation; (c) To enhance survey, design techniques, and monitoring, management programs for irrigation, and drainage facilities, and to collect information about the tidal area environment around the world; (d) To identify sustainable development, and management options in tidal areas, and find a balance between the conservation, and development of tidal areas with acknowledgment of ecosystem services; (e) To join the international dialogues, and organize international conferences, and short courses to promote interdisciplinary, and participatory land, and water planning, and management in tidal areas; (f) To collaborate with other related working groups actively, and to exchange relevant experiences amongst NCs, and the least developing countries.

The WG organized two virtual meetings on 13 May 2022 and 16 March 2023. During the virtual meetings, Chair discussed various activities, such as new membership, Action Plan 2030 (Road Map to ICID Vision 2030), International Workshop during the 74th IEC & 25th IEC Congress in November 2023, Short Course on 'Tidal Predication and Land Subsidence Prevention and Reclamation' in 2023; Web-based seminars; e-Discussions; updating MTD of the WG; prepare two-page country papers based on the questionnaire of country note - sustainable development of tidal areas from the NCs.

The WG-SDTA held its 5th meeting on 8 October 2023 and reviewed the Action Plan (Road Map to ICID Vision 2030) based on the new mandate by updating the activities on sustainable development of tidal area issues and providing the updated action plan for 2018-2023. The group will bring out a Special Issue with the support of Prof. Hsiao-Wen Wang (Chinese Taipei Committee).



Prof. Wang is conducting the review process for received the papers in consultation with President Hon. Prof. Bart Schultz (The Netherlands) for the Special Issue of the WG. The WG organized an International Workshop on 03 October 2022 on the theme 'Integrated Solution for Irrigation and Drainage Tails and Land Subsidence in Tidal Areas'. The workshop focused on the topics such as – (i) Adaptation measures and strategies to strengthen irrigation, drainage, and flood prevention facilities in tidal areas; (ii) Case studies and knowledge and experiences towards a better understanding of practical issues; and (iii) Institutional management and stakeholders' participation in addressing pressing challenges. More than 50 participants were present during the workshop of the WG. A total of 8 papers were received by authors for the WG workshop.

The WG is organizing an International Workshop titled "Global Challenges of Land Subsidence in Tidal Areas and the Integrated Solutions" on 3 November 2023 during the 74th International Executive Council (IEC) meeting and 25th ICID Congress in Vishakhapatnam (Vizag.), Andhra Pradesh, India. The objective of the workshop is to bring together the practitioners, researchers and scientists, managers, and decision-makers and obtain input from member countries to explore practical problems, discuss the current state of knowledge and experiences, and exchange solving strategies so as to respond to the urgent needs. To better disseminate the efforts addressing the challenges and learn from each other, papers presented at the workshop will be considered to be published in a special issue of ICID's International Journal of Irrigation and Drainage. The workshop will focus on the following topics: (i) Adaptation measures and strategies to strengthen irrigation, drainage, and flood prevention facilities in tidal areas; (ii) Case studies, and knowledge and experiences towards a better understanding of practical issues; and (iii) Institutional management and stakeholders' participation in addressing pressing challenges.

Environment (WG-ENV)

Keeping in view the importance of the environmental aspects in agriculture water management, the Working Group on Environment (WG-ENV) was established in 2015 with the mandate to guide policymakers, planners, designers, and managers in the irrigation and drainage sector on the environmental aspects of irrigation and drainage systems, and to address concerns to the effects on local, regional, and global common goods, such as climate, biodiversity, and human health.

In May 2022, Secretary Dr. Seija Vitanen shared the draft version of the manuscript "Analysis of Ecosystem Services Provided by Irrigated and Controlled Drained Agriculture: A Global Perspective" with the Chair and Vice Chair for their comments. Since Chair, Vice Chair and Secretary could not attend the meeting due to some reasons, the meeting was cancelled due to the low participation of WG members.

Managing Water Scarcity Under Conflicting Demands (WG-MWSCD)



The Working Group on Managing Water Scarcity under Conflicting Demands (MG-MWSCD) was established in 2016 with a mandate to collect information, knowledge, and, where available, case histories on actions taken to manage water systems to accommodate a change in priority of water use due to conflicting demands at National, area or basin, and local level; to review and analyze information to determine any commonality; to prepare and present reports and/or case studies on recent developments in the countries that are represented in the WG; to organize an international workshop on the topic, and to prepare an overview paper on the topic for publication.

The WG-MWSCD organized its first virtual meeting on 5 August 2022 to discuss various activities like Road Map to ICID Vision 2030, International Workshop, tenure of the group upto 2023, finalizing technical report of the WG, updating MTD, publications, webinars, e-discussions etc. The WG held its 6th meeting on 8 October 2022, reviewed the Action Plan (Road Map to ICID Vision 2030) based on the mandate of the WG. The tenure of the working group was extended by one year i.e. upto 2023. The group will finalize the draft indices, guidelines and technical summary report in 2023.

The WG organized an International Workshop titled “Managing on the Regional, State or Local Level, Water Scarcity Resulting from Conflicting Demands” on 03 October 2022 at Adelaide, Australia wherein 7 full length papers (one from Indonesia, four from India, one from Japan, and one from US) were received. Dr. Clarke Ballard (Australia), Vice-Chairman of the WG made a comprehensive summary of the papers for the WG workshop

Irrigation and Drainage in the States under Socio-Economic Transformation (WG-IDSST)

The Working Group on Irrigation and Drainage in the States under Socio-Economic Transformation (WG-IDSST) was established in 2018 with the mandate to develop, and strengthen the network among the countries of transition based on the establishment of monitoring and evaluation of common problems in the States, and bring it to the attention of decision-makers in states; to create a database, and exchange of information about changing situation in Irrigation and Drainage in these States, and to attract global, and national attention to existing trends affecting global, and national food security, and wellbeing of rural population; especially related to climate change and ability to adapt to it; to monitor the ecological situation in the transition states, including problems of the closed basin (Aral Sea, Lake Chad, Lake Victoria, Caspian Sea), rivers deltas, salinization, and waterlogging, land desertification, etc.

WG organized a virtual meeting in May 2022 wherein a presentation were made on “The Role of Agricultural Drainage and the Challenges it Faces in Africa” by Dr. Mohamed Wahba on “Integrated Water Resources Management in Central Asia: Challenges, Experiences, and Achievements” by Dr. Shukhrat Mukhamedjanov from Uzbekistan. During the virtual meeting, Dr. Shukhrat Mukhamedjanov listed in detail the opening of a dedicated WG-IDSST window in CAWater-info. Members of the WG-IDSST agreed to host the CAWater-info website for the exchange of information between countries.

Procuring higher productivity of irrigated lands while using less water and energy is one of the most important issues for areas with high levels of water scarcity. This issue is especially important for countries that are experiencing changes in the economy and politics. Many countries with economic transformation are restructuring water and land management structures in the agricultural and water sectors. For the most part, these countries want to adopt the successful policies and approaches of countries with effective systems and structures in these areas.

During the Adelaide meeting in October 2022, Mr. Momir Vranes (Australia) made an interesting presentation about the Australian water policy in 2008. Similarly, Dr. Katsuyuki Shimizu (Japan) and Dr. Ya-Wen Chiueh (Chinese Taipei Committee) presented interesting experiences from their countries.

Adaptive Flood Management (WG-AFM)

Floods are a common phenomenon globally. While the seasonal floods are useful, in as much as they deliver topsoil, and nutrients to farms (such as in Nile River Valley), the floods of higher magnitudes mostly destroy property, and lives. There are several factors responsible for catastrophic floods among which climate change and rising sea levels, deforestation, occupation of floodplains by people, and exceptional hydro-meteorological phenomena are most common.

Keeping the above points in view, the Working Group on Adaptive Flood Management (WG-AFM) was established in 2018 with a revised mandate to motivate ICID National Committees in various countries to set up their National Working Groups; to provide guidance to compile, publish, update, and/or translate documents on adaptive flood management; to promote the inter-disciplinary exchange of information, knowledge, and experience, as well as to network for a proper understanding of the technological developments in the subject; to organize seminars at ICID Congresses, and meetings to strengthen adaptation to and to cope with floods including community participation with a focus on the impact of floods on agriculture water management;

to prepare a paper on 'Adaptive Flood Management' for publication in Irrigation and Drainage (IRD); to finalize a book on 'Adaptive Flood Management' about coping with uncertainties, and learning to manage dynamic systems more effectively.



The WG held its 4th meeting on 7 October 2022 at Adelaide and reviewed the Action Plan (Road Map to ICID Vision 2030) based on the new mandate by updating the activities on adaptive flood management issues, and developed a fresh action plan for 2018-2023. The group will complete its activities in 2024.

The WG organized an International Workshop on 03 October 2022 on the theme 'Adaptive Flood Risk Management: Opportunities and Challenges' and sub-themes – (i) Adaptive Management Concepts and applications in Water Engineering; (ii) Uncertainties in flood management; (iii) Integration of Structural and Non-structural approaches; (iv) Case studies of adaption

of new environments; (v) Reduction of uncertainties over time via system monitoring; and (vi) Learning while doing in flood projects. Five papers were received for the WG workshop. Dr. R.K. Agrawal (WAPCOS), member of the WG made a presentation on 'Flood Management' during the WG workshop in October 2022 which is available at https://icid-ciid.org/icid_data_web/FloodMgmt_WAPCOS_2022.pdf

The WG will publish a document titled 'Adaptive Flood Risk Management' with country case studies, covering both structural and non-structural aspects of flood management based on the workshop papers and country presentations on floods. -

STRATEGY THEME - KNOWLEDGE

Knowledge is a form of awareness or familiarity. It is often understood as awareness of facts or as practical skills, and may also mean familiarity with objects or situations. Knowledge is crucial for successful and sustainable development initiatives in the AWM domain. Knowledge management is the process by which an organization gathers, organizes, shares and analyzes its knowledge in a way that is easily accessible to all and supports to achieve the mission and vision of the organization. It is equally important that all stakeholders have access to information and knowledge, both traditional and new, that is based on scientific evidence. It is the knowledge that empowers individuals to make sound decisions at all levels of AWM, starting from water policymaking to irrigation infrastructure development and operation to farm-level water application. Knowledge also develops by sharing of learning from historical irrigation systems, new research, and technology development. Accordingly, ICID formed several working groups/task forces under the theme of knowledge, such as EB-JOUR, WG-HIST, WG-CDTE, and TF-VE. Brief activities conducted during the year are as follows:

ICID Journal Editorial Board (EB-JOUR)

The ICID Journal Editorial Board (EB-JOUR) was established in 1994 with the following mandate: to ensure with the (Joint) Editor(s) that the Journal is published as per editorial policies; to select and recommend to IEC, through PCTA, the appointment of (Joint) Editor (s), Associate Editors, and Members; to review, and update editorial policies when required, to conform with the developing ICID objectives; to address, and resolve issues about the Journal; and to review guidelines for authors, manuscript reviewers, and book reviewers, and liaise, and coordinate with ICID work bodies.

Since March 2001, the Journal has been renamed 'IRRIGATION AND DRAINAGE - Managing Water for Sustainable Agriculture - The Journal of the International Commission on Irrigation and Drainage' and is published by M/s. Wiley-Blackwell under the full editorial responsibility of ICID.

The EB-JOUR held its 29th meeting on 8 October 2022 and reviewed the Action Plan (Road Map to ICID Vision 2030) based on the mandate by updating the activities on Editorial Board for 2018-2022. Prof. Tapas Kumar Biswas (Australia) elected as new Associate Editor for the Editorial Board.

History of Irrigation, Drainage and Flood Control (WG-HIST)

The Working Group on History of Irrigation Drainage, and Flood Control (WG-HIST) was established in 2017 with a mandate to motivate ICID National Committees in various countries to set up their National WGs on History; to guide and compile, publish, update, and/or translate documents on the history of irrigation, drainage, and flood management; to prepare a paper on "Historical Water Sustainability" for publication in Irrigation and Drainage; to finalize a book on "Historical Water Sustainability."

As part of the Road Map to ICID Vision 2030, the group is bringing out the publication "Historical Water Sustainability". In total, 17 Chapters were received and edited by Dr. Kamran Emami (Iran) and the ICID Central Office.

ICID identifies, recognizes, and maintains a record of World Heritage Irrigation Structures of archival value that are more than a century old and help understand the evolution of irrigation systems among civilizations across the world. This concept was mooted at the 63rd International Executive Council (IEC) Meeting held in Adelaide, Australia in 2012. The idea is to conserve these heritage structures for posterity on the lines of the world heritage sites recognized by UNESCO. Nineteen heritage structures have been recognized by ICID in the year 2022. So far, over 140 such heritage structures have been recognized and included in the online Register by ICID. For details, please visit <https://icid-ciid.org/award/his/44>

Capacity Development, Training, and Education (WG-CDTE)

The Working Group on Capacity Development, Training and Education (WG-CDTE) was established in 2015 with the mandate to coordinate, and guide the knowledge management activities of ICID, and the capacity development activities of different WGs; to compile the status of training, and educational programs offered in different regions; to compile the educational programmes being offered in irrigation, and drainage in different regions; to Identify the training, and education requirements, and identify gaps in available training programs, explore the feasibility of developing e-Learning programme and prepare guidelines for their development to support education and training programs, and webinars; to explore the scope of use of ICTs in capacity development including distance learning, and implement them where feasible; to oversee the establishment, and functioning of a Technical Support Unit for supporting NCs; and to facilitate the process of balancing education, and training requirements, and provision of training services.

The WG-CDTE organized its first virtual meeting on 30 May 2022 to discuss various activities as part of the Road Map to ICID Vision, new membership, YP training & educational programmes, workshops, webinars, e-learning programmes, e-discussions etc. The WG organized its 7th meeting on 8 October 2022 at Adelaide, Australia and reviewed the status of activities under Action Plan (Road Map to ICID Vision 2030) to help NCs develop their capabilities and overcome any knowledge or skill gap which include young professional training & educational programs, workshops, seminars, conferences, e-discussions and sharing of the information (webinar/web-based activities), dissemination of the knowledge, e-learning material..

In line with the mandate of the WG, the group organized a Webinar on Capacity Building in Agricultural Water Management is in 'Intensive Care Unit' – Can It Be Rejuvenated? on 20 July 2022. The webinar was attended and moderated by Dr. Vijay K. Labhsetwar (India) and panellists were Eng. Russell Rollason (Australia), Eng. Pradeep Purandare (India), Em. Prof. Bart Schultz (The Netherlands) and VPH Dr. Mohamed Abd El Moneim Wahba (Egypt) and Chair, WG-CDTE. A detailed information of the WG webinar which is available at https://icid-ciid.org/inner_page/224



As part of the capacity development programme of YPs, the WG supported the 5th African Young Water Professional's Forum (Af-YWPF) organized (in hybrid mode) from 17-18 October 2022 under the platform of Cairo Water Week (CWW) 2022. The theme of the Forum was 'Smart Irrigation Water Management to Mitigate Climate Change Impacts'. A two-day event physically brought together 20 Young Professionals from 12 African countries - Egypt, Sudan, South Sudan, Libya, Mauritania, Morocco, Tunisia, Algeria, Malawi, Zambia, Madagascar, and Lebanon. About 135 young professionals from 36 countries participated through online platform.

To promote the capacity development programme, ICID in association with the Virtual Irrigation Academy (VIA) organised a Webinar on Combining

Farmer and Science-Based Knowledge on 29 June 2022. Virtual Irrigation Academy also organized an online free course for YPs from 2-30 June 2022.

Working Group on Value Engineering (WG-VE)

Value Engineering (VE) is an internationally practised methodology to achieve the required product, process, services and system at the minimum possible cost by analysing their functions and life cycle costs. Today, VE needs to be applied with greater rigour than ever before to meet the current global business need of sustainable development and growth. VE is an intensive, interdisciplinary problem-solving activity that focuses on improving the value of the functions that are required to accomplish the goal or objective of any product, process, service, project or organization. In other words, the Value Methodology (VM) is a systematic and structured approach that improves products and processes. VM helps achieve a balance between required functions, performance, quality, safety, and scope with the cost and other resources necessary to accomplish those requirements. Keeping this in view the importance of VE, the erstwhile Task Force on Value Engineering (TF-VE) was established in 2012 to promote the application of Value Methodology (Value Engineering, Value Analysis, Value Planning, Value Management, and Value Engineering Change Proposal (VECP)) in irrigation, drainage, and flood management projects to increase benefits, reduce costs, and ensure sustainable irrigated agriculture.

After completion of the tenure of the Task Force on Value Engineering (TF-VE) in 2017, a new Working Group on Value Engineering (WG-VE) have been set up with the following revised mandate : (a) To motivate ICID National Committees in various countries to set

up their National Working Groups on VE; (b) To provide guidance to compile, publish, update and/or translate documents on Value engineering projects (irrigation, drainage, flood management, and river engineering); (c) To promote inter-disciplinary exchange of information, knowledge and experience, as well as networking on the topic; (d) To organize seminars at ICID Congresses and meeting to enhance awareness on importance of Value Engineering; (e) to prepare a paper on “Application of Value Engineering in Irrigation and Flood Projects for publication in Irrigation and Drainage (IRD); (f) To finalize a book on Application of Value Engineering in Irrigation and Flood Projects”; and (g) To encourage member countries to produce papers on Value Engineering case studies; and (h) To promote the planning and the execution of the virtual trainings of the WG for selected engineers from different countries on ‘Value Engineering application for saving in irrigation, drainage and flood projects’.

As a part of the action plan of the WG, the group has planned to organise an internal workshop on ‘Value Engineering for Sustainable Water Projects’ during 74th IEC meeting and 25th ICID Congress at Vishakhapatnam, Andhra Pradesh, India.



ICID COMMITTEES & WORKBODY CHAIRPERSONS



VPH Dr. Marco Arcieri

PERMANENT FINANCE COMMITTEE (PFC), European Regional Working Group (ERWG)



VP Prof. Dr. Tsugihiko Watanabe

PERMANENT COMMITTEE FOR TECHNICAL ACTIVITIES (PCTA), Asian Regional Working Group (ASRWG), TF for Updation and Maintenance of Multilingual Technical Dictionary (TF-MTD)



VPH Dr. Mochammad Amron

PERMANENT COMMITTEE ON STRATEGY AND ORGANIZATION (PCSO)



VPH Dr. Mohamed Abd-El-Moneim Wahba

African Regional Working Group (AFRWG), WG on Capacity Development, Training and Education (WG-CDTE)



President Prof. Dr. Ragab Ragab

Working Group on Water Food Energy Nexus (WG-WFE-N)



VPH Dr. Franklin E. Dimick

Working Group on Managing Water Scarcity under Conflicting Demands (WG- MWSCD)



VPH Dr. Charlotte de Fraiture

Working Group on Environment (WG-ENV)



VPH Ian Makin

WG on Modernization and Revitalisation of Irrigation Schemes (WG-M&R)



VPH Prof. Peter Kovalenko

Working Group on Irrigation & Drainage in the States under Socio-Economic Transformation (WG-IDSST)



VPH Dr. Kamran Emami

Working Group on Adaptive Flood Management (WG-AFM) WG on History of Irrigation, Drainage and Flood Control (WG-HIST) / WG on Value Engineering (WG-VE)



VP Eng. Kushvinder Vohra

Committee on Congresses/ Conferences (C-CONGR)



Dr. Ruey-Chy Kao

Working Group on Sustainable Development of Tidal Areas (WG-SDTA)

ICID COMMITTEES & WORKBODY CHAIRPERSONS



Dr. Wenyong Wu

Working Group on Use of Non-Conventional Water Resources for Irrigation (WG-NCWRI)



VPH Eng. Rafat Nael AbdulGhani Al-Intaki

Working Group on Water Saving in Irrigated Areas (WG-WATS)



Prof. Dr. Li Jiusheng

ICID Journal Editorial Board (EB-JOUR)



Mr. Geoff Harvey

Working Group on Rain Water Harvesting (WG-RWH)



PH. Dr Saeed Nairizi

Task Force to Guide ICID Inputs to World Water Forum 10 (TF-WWF10)



VPH Dr. Hafied A. Gany

Working Group on Institutional and Organizational Aspects of Irrigation/ Drainage System Management (WG-IOA)



Dr. A. K. Randev

Working Group on Sustainable On-Farm Irrigation System Development (WG-SON-FARM)



Ms. Mary Jean M Gabriel

Working Group on Irrigation Development and Management (WG-IDM)



VPH Dr. Willem F. Vlotman

Working Group on Land Drainage (WG-LDRG)



Dr. Ray Shyan Wu

Working Group on Climate Change and Agricultural Water Management (WG-CLIMATE)



Ms. Aya Mohammed Hassan Ali Elkholy

ICID Young Professionals e-Forum (IYPeF)

Activities at Regional Level

Economic and social development is the process by which the economic well-being and quality of life of a nation, region, local community, or an individual are improved according to targeted goals and objectives. To achieve economic and social development, a progressive and sustainable transformation is required in all countries. However, sustainable development is an organizing principle that aims to meet human development goals while also enabling natural systems to provide necessary natural resources and ecosystem services to humans. The desired result is a society where living conditions and resources meet human needs without undermining the planetary integrity and stability of the natural system.

ICID's mission is to facilitate the exchange of knowledge and technology to promote water security, sustainable rural development, and increased crop yields to feed the world. In this endeavour, it has established various regional Working Groups (WGs) for bridging the communication process and promoting a stronger network among the countries in the region as well as international institutions for enhancing cooperation and coordination.

To achieve the goal of doubling food production in the region, WGs organize conferences on topics of current importance. Presently, three regions have active WGs – Africa, Asia, and Europe. The activities of these WGs and interaction with other regional groupings/gatherings that promote regional cooperation are presented in this chapter.

African Regional Working Group (AFRWG)

To address various issues related to agricultural water management specific to Africa, ICID established the African Regional Working Group (AFRWG) in 2000 to promote strong communications, and networking among the African countries as well as regional, and international institutions for enhancing cooperation, and coordination, and to support integrated river basin development, training, and research issues, and information systems for African needs.



The 10th International Micro Irrigation Conference was organized from 25-27 January 2023 at Dakhla by the Moroccan National Committee of ICID (ANAFIDE) in collaboration with the Council of the Moroccan Community Abroad (CCME), in partnership with ICID and with support of the Ministry of Agriculture, Fisheries, Rural Development, Water and Forestry (MAPMDREF). The theme of the conference was 'Micro-irrigation in the Era of Technology Innovation and Digital Transformation,' which aimed to share experiences of using new technologies and best management practices in drip, micro-sprinkler, and other localized irrigation systems. The event witnessed participation from several countries such as South Africa, Nigeria, Niger, Senegal, Egypt, Mauritania, the United Kingdom, France, Portugal, Italy, Spain, Lithuania, Australia, the United States, India, and Japan.

The 5th Best Performing Workbody Award (BPWA) was presented to AFRWG by President Prof. Dr. Ragab Ragab on the occasion of the 73rd IEC Meeting and 24th ICID Congress held in Adelaide, Australia in October 2022. The Award was presented to Vice President Hon. Dr. Eng. Mohamed A. Shehata Wahba (Egypt), Chairman, AFRWG.



The 5th African Young Water Professionals Forum (Af-YWPF) was successfully organized from 17-18 October 2022 in the hybrid mode under the theme 'Smart irrigation water management to mitigate climate change impacts'. Eng. Mohammed Wahba Vice President Hon., ICID, and Chairman of AFRWG coordinated the sessions. The Forum physically brought together 20 Young Professionals from 12 African countries - Egypt, Sudan, South Sudan, Libya, Mauritania, Morocco, Tunisia, Algeria, Malawi, Zambia, Madagascar, and Lebanon. About 135 YPs from 36 countries participated online.

A webinar was organized on 25 August 22 on 'Advanced Micro Irrigation Technology with Precision Water and Salt Management' by the African Regional Working Group (AFRWG) & Chinese Academy of Sciences with ICID support. The webinar was attended and moderated by VPH Dr. Mohamed Wahba and panellists were Prof. Yaohu Kang of the Chinese Academy of Science (CAS), Dr. Evan W. Christen of the National Australian University, and Dr. Faycel Chenini, a Senior Water Expert of Tunisia.

The total number of the African Young Water Professional Forum (AfYWP-Forum) on LinkedIn has reached more than 6300 and more than 1030 members in ICID-Young Professional's e-Forum (IYPeF). So far, 44 African-Countries WhatsApp groups have been established. A virtual meeting of Af-YWPF YPs was organized on 5 April 2022 and three coordinators had been selected from each of the 44 African Countries. A Webinar on Combining Farmer and Science-Based Knowledge Through the Virtual Irrigation Academy (VIA) was organized on 29 Jun 2022. Virtual Irrigation Academy (VIA) also organized an online free course for YPs from 2-30 June 2022.

Nigerian National Committee (NINCID) has shown its interest in organizing the 6th African Regional Conference and sent a formal request to their Government for approval.

ANAFIDE generously supported the first-year membership subscription to Niger National Committee for reactivating its membership for the year 2023. Similarly, Zimbabwe Committee on Irrigation and Drainage (ZwCID) has reactivated its committee and paid the membership subscription for the year 2023.

Asian Regional Working Group (ASRWG)



To achieve the task of doubling the food production in the Asian region, the National Committees from the Asian region have formed the Asian Regional Working Group (ASRWG) in 1996, to focus on numerous relevant topics of current importance.

In 2022, the group organized two virtual meetings and discussed the Country Case Studies (CCS) and proposed to bring out the Technical Report during the 9th Asian Regional Conference in Sydney in September 2024. The provisional title of the Technical Report is "Irrigation and Drainage for Asian Food Security". A Task Team (TT) has been established, chaired by Dr. Vijay K Labhsetwar, Vice Chair of the WG. Ten member countries (Australia,

China, India, Indonesia, Iraq, Japan, Pakistan, Sri Lanka, Malaysia, and Turkey) presented their CCS during the Internal Workshop in the second half of the ASRWG meeting held in Australia in October 2022. To reflect the international perspective in the report, FAO, IWMI, and World Bank have been contacted by the Chair and Vice Chair.

The Asia-Pacific Water Summit (APWS) is the summit-level conference for top government leaders in the region, focusing on water issues and sustainable development, which is organized by the Asia-Pacific Water Forum (APWF) and a host country's government. The 4th APWS under the theme "Water for Sustainable Development: Best practices and the next generation" was organized from 23-24 April 2022 in Kumamoto, Japan. The Japanese National Committee of ICID (JNCID) in cooperation with INWEPF and other related organizations hosted several related meetings at the summit and contributed to its success. The Chair of JNCID and a member of the Organizing Committee participated in the overall planning and management of the 4th APWS.

The 14th International Drainage Workshop (IDW) on the topic "Modernization of irrigation and drainage systems for adaptation to climate change and sustainable development" will be held in May 2024 at Dushanbe in the Republic of Tajikistan.

The 9th Asian Regional Conference (ARC9) will be held on 01-07 September 2024 in Sydney, Australia. ASRWG took the lead and organized a preparatory virtual meeting on 14 March 2023 among representatives from ASRWG, IACID, and ICID. The IACID has principally agreed with the areas of collaboration of – the development of theme and sub-theme of ARC9 and International Workshops, the program of ARC9, review papers, promoting ARC9, organizing YP Training on "Advances, techniques, and modernization of the irrigation systems", and organize a workshop on 'Australian experiences on modernization'.

European regional working group (ERWG)



To promote awareness about relevant water issues at all levels and to pay special attention to environmentally sustainable water management in the European region, ICID established the European Regional Working Group (ERWG) in 1995 with present representation from 16 member countries.

ERWG held its 28th meeting on 7 October 2022 and reviewed the Action Plan of 'Road Map to ICID Vision 2030' and focused on strengthening the membership of ICID within Europe for achieving the three goals: (i) Strategy B1: Supporting Development of Appropriate Policies: Disseminate the policy paper within ICID; (ii) Strategy C3: Promoting Regional Cooperation: Preparation of ICID Europe – brochures; and (iii) Strategy F1: Enhancing Institutional Capacity Development in Member Countries: Sharing online

NC's work programmes, and activities. In line with the mandate of the WG and its action plan, the group is supporting its members to organize knowledge-sharing events such as workshops, seminars, and conferences.

To strengthen the membership in European countries, the group is helping European NC's through (a) connecting with African NCs through African Regional WG; (b) supporting the Young Professionals activities of ICID/ERWG; (c) promoting bilateral connections and cooperation between NCs; (d) exploring expanding activities to cover coastal flood management which is very relevant to NCs in Europe; and (e) making full use of social media platform to reach target audience.

ERWG includes 7 National Water Management Associations (NWMA), 5 European professional organizations (EPO), and 5 European Water Management Institutes (EWMI). ERWG has 5 Focus Groups (i) Focus Group on History (WG-HIST), headed by VPH Laszlo Hayde (Hungary); (ii) Focus Group on Environment (WG-ENV), headed by Mrs. Seija Virtanen (Finland); (iii) Focus Group on Sustainable Drainage (WG-LDRG), by Irena Bondarik (Russia) and headed by representative from AFEID; (iv) Focus Group on Water-Related Risks, headed by Prof. Klaus Röttcher (Germany) and Mr. Olli-Matti Verta (Finland); and (v) Focus Group on Irrigation and Drainage in the States under Socio-economic Transformation (WG-IDSST), headed by VPH Peter Kovalenko (Ukraine).

A Task Force on Legislative Framework on Agricultural Drought Mitigation for European Regional (TF-DMD), with Vice President Hon. Dr. Marco Arcieri (Italy) as Chair, has been established with the mandate to (i) Improve drought risk management; (ii) Consider additional water supply infrastructures; and (iii) Promote water-efficient technologies, and practices.

In order to promote the webinars of the ERWG, the group organized a Webinar on 'Precise Land Reclamation as a Tool of Precision Agriculture' on 16 March 2022 with speakers VPH Dr. Irena Bondarik and Prof. Vitalii V. Shabanov and panellists Mr. Alehandr Soloshenkov and Mr. Oleg A. Strijnikov. A detailed information of the RWG webinar is available at https://icid-ciid.org/inner_page/183

International Research Program for Irrigation and Drainage (IRPID)

Following the cessation of the former International Program for Technology Research in Irrigation and Drainage (IPTRID), ICID, recognizing the imperative nature of research and the transfer of technological advancements within the irrigation and drainage sector, conceived a research program executed through a virtual network of research institutions affiliated with the National Committees of ICID. This program was duly sanctioned during the 61st IEC meeting held in Yogyakarta on 15 October 2010. As a result, two Regional Centers, one situated in Beijing, China, and the other in Tehran, Iran, have been graciously hosted by the Chinese National Committee (CNCID) and the Iranian National Committee (IRNCID) respectively since 2011 under the rechristened program entitled the "International Research Program for Irrigation and Drainage (IRPID)."

IRPID is conceptualized as a program for developing and implementing research agenda in the irrigation and drainage sector to meet the challenges of water security and food security. IRPID's Vision is to "Intensify Irrigation and Drainage Research to Achieve Global Food Security." Its Mission is to enhance research activities in irrigation and drainage science, technology, and management aspects to develop capabilities of member countries to achieve water security, food security, and poverty alleviation while preserving the environment.

IRPID - Iran Reginal Node (IRN)

The International Research Program for Irrigation and Drainage (IRPID) is a program conceptualized for developing and implementing a research agenda in the irrigation and drainage sector to meet the challenges of water security and food security. Based on the Mission and objective considered for IRPID program, IRPID-IRN, according to the action plan considered in the following fields, specifically put practical actions and activities on its agenda from 2016.

- Promote member countries' capability for collaborative projects and implement joint activities.
- Organizing and Supporting capacity development activities through training courses and/or workshops
- Knowledge sharing platform and cooperation network with other national, regional, and international organizations whose interests and activities are related to the Mission of IRPID.
- Established periodical meetings

The main approach of IRPID-IRN is to develop the capacity and empower the member countries to solve the common problems of the member countries in various fields related to irrigation and drainage issues. IRPID- Iran Regional Node (IRPID-IRN) has eight member countries. These countries are located in the MENA region, Central Asia, East Asia, North Eurasia, and South Eastern Europe, including Iran, Iraq, Egypt, Russia, Tajikistan, Georgia, Afghanistan, and South Korea.

Up until now, IRPID-IRN has been actively involved in diverse endeavors. Figure portrays a compilation of the utmost noteworthy undertakings carried out by IRPID-IRN thus far. As depicted in figure, IRPID-IRN has consistently orchestrated assemblies of its Management Board and Advisory Committee. These convocations serve as forums for synergistic deliberation, strategic formulation, and the interchange of invaluable perspectives and proficiency.

IRPID-IRN Main Activities 2016 - 2023: (1) Holding International Workshop on Exploring Collaborative Research for Sustainable Agricultural Water Management (2016); (2) Advisory Committee Meeting November 2016, Thailand; (3) First Management Board Meeting 2016, Iran; (4) Second Management Board Meeting 2017, Iran; (5) Advisory Committee Meeting October 2017, Mexico; (6) Member Countries Meeting (October 2017, Mexico); (7) Advisory Committee Meeting August 2018, Canada; (8) Third Management Board Meeting July 2018, Iran; (9) Protocols Between Russia and Iran, 2017 – 2018; (10) Holding International Training Workshop on Water Accounting Concepts and Tools (2019); (11) Advisory Committee Meeting September 2019, Indonesia; (12) Translate to Persian and Publish a Book: Water accounting for Water Governance and Sustainable Development by FAO (2021); (13) Advisory Committee Meeting October 2022, Australia; and (14) Holding International Webinar on “Empowering and Capacity Development of Women in Water Resources Management (2023)

IRPID Beijing Node

The general objective of IRPID BEIJING NODE is to develop and implement research agenda in the irrigation and drainage sector to meet the challenges of water security and food security for countries of the region. Its mission is to enhance research activities in irrigation and drainage science, technology, and management aspects in order to develop capabilities of countries within the region in order to achieve water security, food security and poverty alleviation while preserving the environment.

Due to COVID-related restrictions on large-scale gatherings and international travel, the activities of IRPID BEIJING NODE were disrupted greatly in 2022 and early 2023. Most of the activities were carried out in the online mode. As the pandemic recedes and conditions for conference organization and international transport gradually return to normalcy, BEIJING NODE has planned more offline activities for the second half of 2023.

During the year 2022-2023 IRPID BEIJING NODE were carried out and participated in multiple activities. Prof. Kang Yaohu served as the keynote speaker of ICID Webinar on Advanced Micro Irrigation Technology with Precision Water and Salt Management (August 2022). Dr. Ding Kunlun gave lectures in the Webinar Series on Rainwater Harvesting jointly organized by FAO, ICARDA and ICID.

And efforts were made to organize Chinese experts to attend the ICID webinars. Relevant announcements were translated into Chinese and circulated among Chinese experts and students. The average attendance is around 30 per event.

BEIJING NODE also assisted the Chinese Ministry of Water Resources and the Japanese Ministry of Agriculture, Forestry and Fishery to organize the routine annual technical exchange on irrigation and drainage in December, 2022. More than 300 representatives from governments, research institutes and irrigation schemes attended the event. Topics covered were agricultural water management policies, information sensing/collecting and decision-making technologies of irrigation schemes, water-measuring technologies and equipment, the protection and modernization of Hetao Irrigation System (WHIS), etc.

On May 31-June 2, 2023, BEIJING NODE, together with the Ministry of Water Resources and IWHR, hosted a training session on “the digital twinning of irrigation schemes” in Lu’an City, Anhui Province. Courses on standards, architecture, and technological requirements for constructing digital twins of irrigation schemes were provided. Other activities include exchanges of good practices and visits to pilot projects.

Numerous workshops were also organized during the period of 2022-23 viz. workshop on WHIS Protection and Utilization (Shigatse, August); workshop on Sustainable Agricultural Water Management (Beijing, September) was organised during the 18th World Water Congress; Water Resources Forum (Yinchuan, September) was organised during the 6th China-Arab States Expo; 2023 Sino-Japanese Exchange on Irrigation and Drainage (Japan, November / December).



Key ICID Events and Participation

ICID events are aimed to provide a platform for the exchange of knowledge and networking among delegates and also setting up the agenda, policy and direction for ICID activities. The platform provides opportunities for sharing experiences among stakeholders and to understand various perspectives of sustainable development. Some of the prominent events and activities of the year are listed below.

24th International Congress on Irrigation and Drainage and 73rd International Executive Council Meeting, 3–10 October 2022

The 24th ICID Congress and 73rd International Executive Council Meeting was organised by ICID with its Australian counterpart, Irrigation Australia's Committee on Irrigation and Drainage (IACID) and Irrigation Australia from 3–10 October 2022, at the Adelaide Convention Centre, Adelaide, Australia. The main theme of the 24th ICID Congress was "Innovation and Research in Agricultural Water Management to Achieve Sustainable Development Goals". The two questions identified and deliberated are Question 62 – What Role Can Information and Communication Technology Play in Travelling the Last Mile? and Question 63 – What Role is Played by Multi-Disciplinary Dialogue to Achieve Sustainable Development Goals? About 2000 delegates from 64 countries and international organizations including policy makers, irrigation & drainage professionals, exhibitors, students and Young Professionals participated in the Congress to share their knowledge and experience in sustainable agriculture water management focusing on irrigation management.



In addition, the following events were also organised on the side-line of 24th ICID Congress. These events included an international symposium, an international seminar organized jointly by FAO and ICID, an international workshop by the World Bank and a special session on the use of wastewater in agriculture. The specific themes of each event are given as follows:



- 11th N.D. Gulhati Memorial lecture for International Cooperation in Irrigation and Drainage, entitled "Putting People at The Heart of What We Do" was delivered by Hon Karlene Maywald, South Australian Water Ambassador and former South Australian Minister for Water Security, and former Chair of the Australian National Water Commission.
- International Symposium on Integrated Approaches to Irrigation Management in Future
- Special Session on Developing the future tools for managing uncertainty in irrigation water supply
- Special Session on Application of Geosynthetics in Irrigation, Drainage and Agriculture (International Geosynthetics Society Program)

- Two training workshops for Young Professionals;
- International workshops by multiple working groups of ICID; and

As a result of intense deliberations, the following outcome in respect of Congress Questions 62 and Question 63, has emerged:

‘Question 62: What Role can Information and Communication Technology Play in Travelling the Last Mile?’

- Information and Communication Technologies (ICT) may already provide (and perhaps, underutilised) pathways to support the uptake of research outputs related to irrigation and drainage, but more can be done to expand the use of these tools.
- Many new technologies and innovative approaches are becoming available to allow users to efficiently and effectively use irrigation water. However, the integration of these new and innovative technologies in both routine irrigation practice and the extension of research output continues to lag behind.
- Opportunity exists to better understand the interests, motivations and impediments to adoption as exhibited by target beneficiaries, and to design with and for each community, pathways to facilitate the adoption of research. It is not about ‘One Size fits All’, ICT allows for better targeting of information and process.
- The performance of methodologies and experimentation in a test framework and its success is validated only if issues of uptake and implementation are addressed.
- Software development in the sector has identified the importance of end-user-based validation in the areas of programming, the functionality of interface and reliability but this identification needs to be carried through to practice.
- Socioeconomic aspects influencing the utilisation of social media are an important aspect of knowledge dissemination under diverse situations but appear inadequately considered and incorporated in the early phases of R&D or project development. (These tools are not an add-in but a fundamental aspect of the research).
- The developmental status of a region/ country may affect the use of social media in the adoption of appropriate resources but mobile phones can be found almost everywhere and direct targeting of end-users may be an option to pursue.
- There is a need to address gender and community issues when integrating new technologies into the irrigation communities
- Water trading has not been explored fully in a worldwide manner, especially where such trading may be a powerful tool for policy implementation rather than primarily as a mercantile scheme in its own right. The role of ICT in water trading paradigms is lacking widespread recognition.
- While there are project-specific experiences on the aspects of water trading, systematic adoption of these experiences in dealing with future uncertainty needs further attention.

Question 63: ‘What Role Is Played by Multi-Disciplinary Dialogue to Achieve Sustainable Development Goals?’

- Multidisciplinary approaches, though recognized at theoretical and policy levels, still lack full-scale application. A greater commitment to multi-disciplinary dialogue needs to be enacted by all involved through a change in mindset and remain under-utilized.
- Irrigated agriculture has the potential and needs to impact across the full spectrum of 17 SDGs.
- The global population is predicted to increase by 2050 and beyond. Current patterns of production and consumption worldwide can involve significant waste of resources and may damage vital natural ecosystems unless multiple objectives are dealt with simultaneously.
- The community has played a critical role in driving actions on the ground and stakeholders who were not familiar with SDGs were able to understand and implement concepts with suitable capacity development.
- The perception of irrigation water as an environmental problem has to be transformed into irrigation water as part of the solution. Otherwise, regulators and political leaders are likely to be influenced by perceptions and therefore impose unwise constraints on irrigated agriculture to the detriment of food production.
- Consultative processes amongst stakeholders viz. farmers, irrigation RD&E departments, water supply utilities, development agencies and local authorities can result in favourable outcomes for the reallocation of water resources under scarcity conditions.
- Multi-disciplinary management interventions work better towards obtaining sustainable management of watersheds and river basin health.
- A range of models spanning from individual on-farm irrigation investments to regional scale mappings is applied for decision support systems.
- There is a critical need for a continued focus on capacity development among stakeholders in the agricultural and water management sectors. However, the need to communicate the values and challenges of agricultural water management beyond immediate stakeholders is also acute.
- The irrigation and drainage professionals must communicate more effectively with broader society to maintain the “social license to operate”. This is relevant for all economies be they developed or developing.
- Essential roles are: enabling an exchange of understanding about the concerns and objectives of different stakeholder groups, providing a venue for capacity development and providing a basis for a shared vision of the future of the sector in the community involved.

At the end of the ceremony, the Australian National Committee provided a vote of thanks to the ICID and all the participants of the 24th ICID Congress.

11th N.D. Gulhati Memorial Lecture for International Commission on Irrigation and Drainage

The N.D. Gulhati memorial lecture, established in the memory of Late President Hon. N.D. Gulhati is held during the triennial ICID Congress. The memorial lecture aims to encourage the exchange of significant global developments relevant to irrigation and drainage engineering, including all allied aspects like the environment, sociology and economics, as well as fostering and enhancing international cooperation to meet the ICID objectives.



11th N.D. Gulhati Lecture for the 24th ICID Congress in Australia was delivered by Hon. Ms. Karlene Maywald, South Australian Water Ambassador and Chair of the Australian Nation Water Commission. Keeping in view the theme of the Congress and the significance of irrigation institutions, Ms. Maywald presented the lecture on 'Putting People at the Heart of What We Do' providing Australian experiences. Aligning with the theme of the Congress, 'Innovation and research in agricultural water management to achieve sustainable development goals', Hon. Ms. Maywald's lecture focused on the role of the stakeholders

in meeting the goals of water security globally and achieving the United Nations Sustainable Development Goals. Full lecture available at https://icid-ciid.org/icid_data_web/ND%20Gulhati%20Lecture%202022.pdf

73rd International Executive Council Meeting

Newly elected Vice Presidents: The Council elected (i) Mr. Bruno Grawitz (France); (ii) Prof. Dr. Sylvester Mpandeli (South Africa); (iii) Mr. Kushvinder Vohra (India) as Vice Presidents of ICID for the term from 2022-2025.

The 24th ICID Congress was followed by 73rd International Executive Council meeting and its re-council meetings held from 7-10 October 2022. Some of the important decisions taken during the meetings are:



- Approved the setting-up of a Task Force to look into overall sustainability of ICID including financial sustainability of ICID on a long-term basis.
- Approved the suggestion of Permanent Finance Committee that Presidents Honoraire of ICID be exempted from the ICID event's registration fees.
- Deferred the inflation-related increase in membership subscription to 2024 taking into account the impact of COVID-19 on income of the National Committees.
- Approved the setting-up of TF-WWF10 to provide ICID inputs to 10th World Water Forum in 2024.
- Approved the setting-up of a Task Force to review the mandates and outcomes of the Working Groups. The Task Force may recommend the new structure and mandates of Working Groups in line with the demands of the sector and in consultation with WG members and Chairs.
- Approved the setting-up of an expert group under Task Team on Transboundary AWM on Aral Sea to support efforts of Uzbekistan to transform Aral Sea region in a zone of ecological innovations and technologies.
- Approved the organization of the 77th IEC and 26th Congress on Irrigation and Drainage, Marseille, France in October 2026

In view of the rescheduled and approval to host the future events, the following events will be held as follows:

- 14th International Drainage Workshop, 1- 3 May 2023, Dushanbe, Tajikistan,
- 25th ICID Congress and 74th IEC Meeting, 1-8 November 2023, Vizag, Andhra Pradesh, India
- First Middle East Regional Conference, 26-28 February 2024, Riyadh, Saudi Arabia
- 75th IEC Meeting and 9th Asian Regional Conference, 1-7 September 2024, Sydney, Australia
- 76th IEC Meeting and 4th World Irrigation Forum, 7-13 September 2025, Kuala Lumpur, Malaysia

73rd ICID Foundation Day Celebrations



ICID celebrated its 73rd Foundation Day on 24th June 2022. As part of the celebrations a seminar on the topic “Role of Modern Irrigation in Global Food Security” was organised. The day-long Foundation Day programme was celebrated into 3 sessions – Inaugural Session, Curtain Raiser Session for ICID 25th Congress and Presentation Session. The Inaugural Session was marked by speeches by dignitaries including President ICID, Secretary General ICID, and Chairman INCID/CWC, which highlighted the background as well as the crucial role played by ICID in promoting sustainable management of water for agriculture during their 7 decades of existence. ICID President, who was connected virtually, spoke about the glorious journey of ICID from its beginning and then expansion over

the decades. Keynote address was delivered by H.E. Dr. Manoj Nardeosingh, Secretary General, AARDO and he admired the ICID activities in the domain of food security, irrigation and agriculture.

The Curtain Raiser Programme marked the official launch of the run-up to the 25th ICID Congress and 75th IEC to be held in Visakhapatnam, Andhra Pradesh during 1-8 Nov, 2023. Mr. Kushvinder Vohra, Member CWC, and Chairman of the Organizing Committee for the 25th ICID Congress apprised the audience about the background, initiatives and the recent developments pertaining to INCID. The official Website of the 25th Congress along with Event Logo and the First Announcement were also released during the session.

The final session saw engaging presentations and fruitful discussion on the seminar theme “Role of Modern Irrigation in Global Food Security” by organizing including World Bank, International Water Management Institute (IWMI), International Solar Alliance (ISA), Electro Steel Castings Limited etc.

10th International Micro Irrigation Conference, 25-27 January 2023



The 10th International Micro Irrigation Conference was organized from 25-27 January 2023 at Dakhla by the Moroccan National Committee of ICID (ANAFIDE) in collaboration with the Council of the Moroccan Community Abroad (CCME), in partnership with ICID and with support of the Ministry of Agriculture, Fisheries, Rural Development, Water and Forestry (MAPMDREF) on the theme ‘Micro-irrigation in the Era of Technology Innovation and Digital Transformation’.

The three-day conference which aimed to share experiences of using new technologies and best management practices in drip, micro-sprinkler, and other localized irrigation systems. The sub-themes focused on (i) Public Policies and the Promotion of Micro Irrigation: Lessons Learned; (ii) Innovation in Micro-Irrigation Design and Technology to Improve Resilience towards Climate Change; (iii) Micro-Irrigation for Small-Scale Farming, Challenges, Opportunities, and Initiatives; (iv) Micro Irrigation to Promote the Water-Energy-Food Nexus; (v) Digital Transformation for the Management of Micro-Irrigation; and (vi) International Cooperation for the Development of Micro Irrigation. The ICID was represented by President Prof. Dr. Ragab Ragab, Secretary General Er. A.B. Pandya and Executive Director Er. H.K. Varma and the National Committees were represented by the other ICID fraternity members. The event witnessed participation from several countries such as South Africa, Nigeria, Niger, Senegal, Egypt, Mauritania, the United Kingdom, France, Portugal, Italy, Spain, Lithuania, Australia, the United States, India, and Japan.



Conclave on Water Security of India, 1-2 November, 2022



ICID, in association with India National Committee-INCID and Central Water Commission (CWC), organized the Conclave on “Water Security of India” on 1 & 2 Nov, 2022 as a Side Event during the 7th India Water Week. The Conclave aimed at discussing the water security issues in a comprehensive manner by addressing various associated topics. Experts from all over the country from various Govt Departments / Agencies, research institutes, academic institutes etc. were invited to participate and present their views on the various aspects of water security. The event involved fruitful presentations followed by enriching discussions among the participants.

Other ICID Events

International Conference on Hydropower & Dams Development for Water and Energy Security – Under Changing Climate, 7-9, April 2022



A two-day International Conference on “Hydropower and Dam Development for Water and Energy Security - Under Changing Climate” was jointly organised from 7 – 9 April, 2022 at Rishikesh, India by THDC, INCOLD (Indian Committee on Large Dams) and CBIP (Central Board of Irrigation and Power), in which ICID served as knowledge partner. During the conference Prof. Dr. Ragab Ragab talked about the ICID’s key interest in Dams and Reservoirs. He covered the core area in the segments of dams and reservoirs through his presentation entitled “Dams, do we need them? Their Pros, Cons, Safety, and Impact-An Introduction to the Main Issues”. Eng Felix Reinders, Hon. ICID President made his presentation on “Water-Energy-Food Nexus: The Importance of Water”. Secretary General made a

presentation on “Climate Change Adaptation and Integrated Water Resources Management (IWRM)” and talked about the 70-years legacy of ICID in the field of sustainable water management in agriculture.

World Heritage Irrigation Structure Summit in Kumamoto, 11 April 2022

A special event on the World Heritage Irrigation Structure Summit is organized by the Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan; and the Japanese National Committee (JNCID) in Kumamoto on 11 April 2022. The participants included representatives of the management organizations of the 44 ICID Registered WHIS facilities in Japan; officials from MAFF and JNCID. ICID President Prof. Dr. Ragab Ragab participated virtually and delivered a message along with a brief presentation. The event was organized as part of the 4th Asia-Pacific Water Summit (4thAPWS) in Kumamoto on 23-24 April 2022. Hon’ble Vice Minister of MAFF introduced ICID’s WHIS initiatives in his address.

Cairo Water Week, 16 - 19, October, 2022

The Cairo Water Week 2022 was held from October 16 to 19 in Egypt on the theme “Water at the Heart of Climate Action”, bringing together political leaders and global actors in the water community. ICID organized its 5th African Young Professional Forum as part of this event in a hybrid mode. President Prof. Dr. Ragab as keynote speaker addressed the session on the topic “The Water-Food-Energy Nexus: How important the nexus is and what are the benefits at Local, Regional, National and Transboundary levels.”

South – Asian regional conference organised, 9 – 10 November, 2022

A Regional Conference on Integrated Water Management in South Asian Countries was hosted by the Global Water Partnership – Sri Lankan Counterpart during 9 – 10 November, 2022. The South Asian countries India, Bhutan, Pakistan & Sri Lanka participated in the conference. During the conference ICID, Secretary General talked about decades of experience of ICID in integrated water management, which covers more than 90% of the irrigated area across the globe. He also highlighted the role of ICID through its vision 2030 which supports its member countries in fulfilling its target in water management, water security and water recharge complementing the Sustainable Development Goals (SDG 6).

Workshop multi-stakeholder consultation on the Transformative Future for Water Security, 23 November 2022



A workshop on multi-stakeholder consultation on the Transformative Future for Water Security (TFWS) was organized by IWMI–India in collaboration with ICID, Indian Council of Agriculture Research (ICAR), CGIAR & ITC Pvt. Ltd held on 23 November, 2022 in New Delhi, India. The ICID was represented by Secretary General and other ICID officials.

Brainstorming session on Integrated Modelling of Water Energy-Food-Ecosystems (WEFE), 2 December 2022

A brainstorming session on the topic ‘Integrated Modelling of Water-Energy Food-Ecosystem Nexus in the Ganges Basin’ organised by IWMI in collaboration with CGIAR, held on 2 December 2022 in New Delhi. ICID was represented by Secretary-General and Executive Director.

A meeting on “Working Cluster on Resilience and Climate Change”, 11 January 2023

A meeting of a Working Cluster was organised on Resilience and Climate Change ahead of the UN-Water Conference on 11 January 2023 by the Regional Collaborative Platform (RCP) of the FAO in collaboration with The Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD), Syria and the United Nations Economic and Social Commission for Western Asia. during the meeting President, Prof. Dr. Ragab talked about regional collaboration in climate change adaptation, especially the adaptation measures in South Asia related to crop immunity from drought, flood control and drought resistance agricultural practices. He also talked about the importance of the statistical figures of a particular area like population growth, water demand, irrigational water figures, agriculture land etc

Conference on “Transformative Futures for Water Security”, February 15–17, 2023



A conference on the theme “Transformative Futures for Water Security” held from February 15–17, 2023 in Cape Town, South Africa organised by International Water Management Institute (IWMI) in collaboration with the Consultative Group on International Agricultural Research (CGIAR); Water Research Commission, Pretoria, South Africa, and the Indian Council of Agriculture and Research (ICAR). During the conference, Secretary-General talked about the importance of an international organization such as ICID in the application of water security, which covers more than 90% of the irrigated area in the world. He also discussed the activities of ICID, including training programs, workshops, courses, and webinars, which play an important role in combating desertification, floods, water crises, drought, etc by various avenues. He also invited the members of different

countries to participate in the forthcoming 74th IEC meeting organized by the Indian National Committee on Irrigation and Drainage (INCID) in Vizag, India, in November 2023.

4th African Regional Conference on Geosynthetics, 20 – 23 February 2023

The 4th African Regional Conference on Geosynthetics (4th GeoAfrica) was organized in collaboration with the International Geosynthetics Society from 20 – 23 February 2023 in Cairo, Egypt. Prof. Dr. Ragab Ragab represented the ICID at the event and delivered a presentation on “Global Needs in the Irrigation Sector”. In his presentation, he covered the core areas of upcoming challenges in the world driven by climate change and also talked about how population growth by 2050 will subsequently impact food demand, water consumption, energy demand, and water supply.

A Water Summit on the theme “Water Security in India: Challenges and Prospects”, February 24, 2023

A water summit on the theme “Water Security in India: Challenges and Prospects” on February 24, 2023, in India, was organised by the Manav Rachna International Institutes of Research and Studies in alliance with the Central Ground Water Board and other associates, including ICID, the National Institute of Hydrology, the Bhabha Atomic Research Centre in Mumbai, and Haryana Water Resources. During the summit, Secretary General, ICID discussed at length the availability of water resources and need to take urgent steps towards better water management. He talked about the macro and micro approaches to water management and mentioned the importance of adequate water storage capacity, interlinking basin transfer of water, interlinking of rivers, and flood management, including structural and non-structural measures.

Memorandum of Understanding (MoUs)

ICID and ICOLD signed MoU during the roundtable discussion that was closed ICOLD Symposium on 30 May 2022 during the 27th ICOLD Congress in Marseille, France organised from 27 May to 03 June 2022. President Prof. Dr. Ragab represented ICID at the roundtable and President Dr. Ragab Ragab Signed MoU between ICID and ICOLD. The objective of this MoU is to formalize a non-exclusive framework of cooperation and to facilitate collaboration between ICID and ICOLD to promote knowledge sharing, programs and projects that foster cooperation between them, including the possibility of co-financing projects related to capacity development activities, technical support etc. in their common member countries. In addition, through the joint efforts the ICID and ICOLD may provide coordination and harmonized technical assistance to their common member countries in a cost-effective and efficient manner.



ICID signed an MoU with International Association for Agricultural Sustainability (IAAS) during the 10th International Micro Irrigation Conference in Dakhla, Morocco held on 24 - 25, January 2023. The objective of this MoU was to formalize a non-exclusive framework of cooperation and facilitate collaboration among the parties to promote knowledge sharing, programs and projects that foster cooperation among them, including the possibility of co-financing projects related to capacity development activities, technical support etc. in their common member countries. This MoU would explore the possibility of cooperation in the areas of activities such as (a) Identification of knowledge sharing, co-financing and technical assistance opportunities between the Parties for programs and projects in their common member countries. (b) Collaborate in each other's

program related to capacity development, education and training in the field of mutual interest. (c) Collaborate in organizing and delivering joint technical seminars, webinars and workshops. (d) Inform and consult each other in cases where either of the Parties proposes to initiate a programme or activity on a subject in which the other Party has or may have a substantial interest, for possible collaboration. (e) Recognize and invite the IAAS as an observer to the meetings of ICID to participate, without a vote, in deliberations of the Executive Council/ International Executive Council, ICID Congress/ World Irrigation Forums and where appropriate, of its working groups, on issues of mutual interest. (f) Coordination between the parties concerning programs and projects in their common member countries to achieve their common development objectives. (g) Subject to the terms agreed upon, the exchange of information between the parties on their shared experiences and expertise in areas such as (i) agriculture water management, (ii) flood and drought management, (iii) capacity development programmes etc.

Rewarding Excellence

With food and water security at the core of its mandate, ICID has constantly been promoting technological innovations for water conservation by individuals and recognizing World Heritage Irrigation Structures. To better document and reward such innovations and structures, ICID has instituted many awards to recognize the innovative work and encourage the researchers for their outstanding contributions, which promotes the judicious use of water in agriculture. All researchers and innovators make use of the ICID platform to share the benefits of their work that addresses the water productivity improvements in the agriculture sector globally. Each year, the best paper in the Irrigation and Drainage journal is also rewarded.

WatSave Award Winners – 2022

WatSave Awards are annual awards that were instituted by ICID in 1997 to recognize and encourage the development of innovative ideas to facilitate robust and result-oriented technologies that could be implemented to save the usage of water for agricultural purposes. The WatSave Awards were presented during the 73rd International Executive Council meeting from 3–10 October 2022, at Adelaide, Australia in four categories— Innovative Management, Technology, Young Professionals and Farmer. Each award consisted of an honorarium of US\$ 2000 and a Citation.

PH Er. Felix B. Reinders (South Africa), as the Chair of the Panel of Judges for WatSave Award 2021, presented his report and recommended to the Council for bestowing the awards in different categories. The research work of the winners awarded during the year is also briefly described below :

Technology Award



It is presented to recognize the best technological applications or projects developed, which have been successful in saving water and/or recovering wastewaters/low-quality waters.

The Technology Award was given to Mr. Sumith Choy, Mr. Varun Ravi, Mr. N Srinivas Reddy and Mr. Satya N Jaddu (Australia) for their work on “Leveraging Canal Automation Technology to Improve Karnataka’s Precious Water Resources”. The project is expected to improve the water efficiency within the NLBC network by up to 20% while delivering an equitable service to farmers and supplying water at consistent flow rates enabling farmers to increase their on-farm crop production and economic productivity.

Innovative Water Management Category



It is presented to recognize non-technological interventions, innovative land and water management practices and policy interventions helping in increase water availability for different uses. It aims to identify new policies/ approaches for water-saving leading to cost effective and beneficial water use.

The Innovative Water Management Category award was given to Mr. Li Gendong and Mr. Su Xiaofei (China) for their work on “Water Rights Trading of Hetao Irrigation Scheme”. The implementation of the project can play a good leading role in China’s water rights management. Especially the large area and large-scale implementation of household management of water rights confirmation, three-dimensional monitoring, and cross-industry trading, which is the first time in China and fills the gap.

Young Professional Award

It is presented to recognize young professionals (below 40 years) contributing to the original research and innovative water-saving techniques, leading towards sustainability

The Young Professional Award was given to Mr. Ramtin Nabipour Shiri (Iran) for his work on “Drip Tape Irrigation of Transplanted Rice in Puddled Paddy Soil”. The research demonstrated that drip tape irrigation of transplanted rice on puddled paddy soil is productive compared to the water intensive conventional flooding of rice while reducing irrigation at least by 51% and also at least 24% compared to AWD irrigation.

Farmer Award



It is presented to farmer or farmer(s) who has successfully developed or implemented water-efficient farming techniques on the farms as well as in the community.

The Farmer Award was given to Mr. Nader Zarei (Iran) for his work on "Cultivation Model Compatible with Arid and Semi-arid Climate of Iran to Increase Water's Economic Productivity". Through his work, it was demonstrated that with the change of cultivation pattern from crops, especially wheat to fig orchards, economic productivity increased dramatically, so this index in figs is 24 times higher than wheat.

Best Paper Award



ICID promotes and encourages professionals and experts working in the domain of agricultural water management to share their experiences, research outcomes and best practices with others through its Journal 'Irrigation and Drainage', which is a prestigious, peer-reviewed publication publishing original papers on scientific, engineering, environmental and socio-economic issues associated with irrigation and drainage. To recognize and incentivize professionals to contribute to the Journal, ICID instituted the 'Best Paper Award' in 2006 for the outstanding paper contributed to the Journal 'Irrigation and Drainage' during the preceding year (January-December).

The Best Paper Award consists of a citation plaque and either US\$ 500 cash or US\$ 800 worth of Wiley books from M/s Wiley Blackwell (UK). The Best Paper Award 2022 was awarded jointly to Jiaxin Wen, Yang Xiao, Peng Song, Bo Sun, Tahir Muhammad, Lianghe Ma, An Waier Aosiman and Yunkai Li for their outstanding paper titled 'Bacillus amyloliquefaciens application to prevent biofilms in reclaimed water micro irrigation systems' published in Volume 70 Issue 1, Pages: 4-15 of Irrigation and Drainage - the Journal of ICID 2021 <https://onlinelibrary.wiley.com/doi/epdf/10.1002/ird.2527>.. The Award was presented during the 73rd International Executive Council meeting from 3–10 October 2022, at, Australia. The papers of the Best Paper Awards can be accessed at: https://icidciid.org/award/best_paper_award/58

Best Performing Workbody Award – 5th Edition (BPWA-5)



BPWA is presented at every Congress from 2005 to recognize 'Excellence in Performance by Workbodies'. The Award carries Citation/ Certificate/Plaque to Chairman and all members.

The 5th Best Performing Workbody Award (BPWA) was presented to the African Regional Working Group (AFRWG) by President Prof. Dr. Ragab Ragab on the occasion of the 73rd IEC Meeting and 24th ICID Congress held in Adelaide, Australia, October 2022. The performance of a workbody is adjudged based upon a set of criteria and its contribution towards the mandate and mission of ICID. The Award was presented to Vice President Hon. Dr. Eng. Mohamed A. Shehata Wahba (Egypt), Chairman, AFRWG.

Recognition of World Heritage Irrigation Structures (WHIS)

World Heritage Irrigation Structures (WHIS) recognizes structures (dams, weirs, and other man-made works) which are more than 100 years old and hold an archival value from the irrigation and drainage perspective. WHIS helps trace the history of and understanding the evolution of irrigation in civilizations across the world, and in preserving these historical structures. A feature of WHIS listing is that, unlike some world heritage honours, ICID recognizes these as structures not only deserve to be preserved but also need to be rehabilitated and maintained to continue to serve communities at large.

Keeping in mind, the importance of preservation of our heritage in agriculture and irrigation sector, International Executive Council (IEC) Meeting during its 63rd meeting held in Adelaide, Australia in 2012, approved the idea for recognition of the Heritage Irrigation Structures (HIS) later renamed as World Heritage Irrigation Structures (WHIS) and accordingly the scheme was initiated by ICID.

The Chair of the Panel of Judges, VP Dr. Mochammad Amron, Chairman, PCSO presented to the Council, the report on the historical irrigation and drainage structures identified to be recognized as World Heritage Irrigation Structures (WHIS). Accordingly, the Council accorded its approval to nineteen irrigation structures, the recognition as "World Heritage Irrigation Structures". The Heritage Irrigation Structures, included in the ICID Register of World Heritage Structures, were presented a "Plaque," citing the salient features of the WHIS during the 73rd International Executive Council meeting from 3–10 October 2022, at Adelaide, Australia.

These irrigation structures are: **Australia (1):** Dethridge Outlets/Wheels; **China (4):** Chongyi Shangbao Terraces, Songgu Irrigation Scheme, Tongjiyan Irrigation Scheme and Xinghua Duotian Irrigation and Drainage System; **India (4):** Baitarani Irrigation Projects, Lower Anicut, Rushikulya Irrigation System and Sir Arthur Cotton Barrage; **Iraq (2):** Al-Adhem Dam and White Bridge; **Japan (3):** Kanuki Irrigation Canal, Teradani Irrigation System and Yukawa Irrigation Canal; **Republic of Korea (1):** Uiseong Small Reservoir Irrigation System; and **Sri Lanka (4):** Kala Wewa, Maduru Oya Ancient Dam and the Sluice, Padaviya Tank and Thekkam Anicut.

Knowledge Management and Dissemination



Successful Knowledge Management (KM) requires a combination of technological tools, organizational support, and a cultural shift towards knowledge sharing and collaboration. It is an ongoing process that requires dedication, regular evaluation, and continuous improvement to maximize the value and impact of knowledge within an organization.

To manage the knowledge process within the ICID network, ICID set up KM division in 2017 based on the recommendations emerging from consultations of the ICID Working Groups on the Knowledge theme and also from various ICID partners. ICID also reviews the existing KM processes in water management organizations throughout the world

and suggests future strategies to be adopted by ICID members, partners, and other stakeholders, keeping in view the resources available under the existing institutional framework. ICID is engaged in developing a distribution network for the knowledge base on agricultural water management. It is also working to develop an interactive Knowledge Portal for improved flow within and outside the ICID network.

Considering the dominance of climate change in recent years, on the one hand, and the various innovative measures being implemented to counter the negative impacts on the other hand, ICID understands the growing relevance of newer terms in the agriculture and water sector and recommends embracing these newer keywords. Accordingly, ICID has assisted TF-MTD in expanding the list of keywords and technical terms used in the MTD based on a statistical analysis of the frequency of appearance of the technical keywords and phrases in ICID proceedings, reports, transactions, and other thematic publications over the last 5 years. The ongoing thematic issues in AWM involve new keywords which are being captured in this analysis.

ICID periodicals such as weekly e-Bulletin, monthly ICID News Update, and quarterly ICID News were timely published throughout the year along with non-periodical technical publications such as research synthesis papers, concept notes, proceedings of certain events, and books. During 2022-23, ICID has intensively focused on the compilation of two major publications of ICID, namely, Water Saving Awards (2009-2020) and World Heritage Irrigation Structures (since the scheme's inception). These books are expected to be released during the upcoming major ICID international events.

Several technical articles were published in the Irrigation and Drainage Journal on behalf of ICID as well as in the ICID News during 2022-23.

Dissemination of Knowledge

Dissemination is an interactive process of communicating knowledge to target audiences so that it may be used to facilitate desired change. The challenge is to improve the accessibility to knowledge assets by users. This means ensuring the physical availability of the knowledge asset to a large proportion of the target audience and making the product comprehensible to those who receive it. Disseminating knowledge assets would be an important contribution to the implementation of the new holistic, and collaborative approach on which the 2030 Agenda for UN Sustainable Development is based. Indeed, knowledge can break down silos and be the most natural integrative factor system-wide and for all the stakeholders in the implementation of the 2030 Agenda. Thus, the dissemination of information, knowledge and sharing of successful experiences in AWM forms an important activity of ICID.

The Commission prioritizes and facilitates the exchange of information among its members and various stakeholders, which is achieved through an amalgam of communication tools/technologies like the Internet, publications (digital and print format), and social media. ICID, through its various technical Working Groups, helps extract, compile and synthesize this knowledge. The Central Office is assigned the responsibility of facilitating, packaging, and sharing this knowledge across a wide spectrum of users by making optimal utilization of the information technology. The effort is to appropriately synthesize the interaction between technology, techniques, and people to apply the knowledge so generated effectively.

To help the members stay updated with the latest data, information, and key developments, ICID has taken the initiative to upgrade ICT facilities to meet the growing requirements. An updated, info-rich ICID website and flagship publication 'Irrigation and Drainage' Journal are among the main tools in implementing the dissemination strategy. The dissemination is further facilitated by periodicals, including weekly ICID e-Bulletin, monthly ICID News Update, and quarterly ICID News. Besides, ICID also brings out special publications and reports which document the outcome of the activities of work bodies. National Committees also bring out publications both in print/online format of their specific interest, besides newsletters and journals in their local languages. As part of the new initiative, all the publications in digital format are now freely accessible/ downloadable for registered ICID members through the 'Members Login' section on the ICID website https://icid-ciid.org/auth/member_login/

ICID Secretary General's Technical Contribution

During the year, there was active participation in various technical activities taking place in the country and its neighbourhood. Secretary General developed and commissioned a dedicated web portal for managing technical papers and contributions for ICID events. The portal has been generalized and can also be used by other interested NCs for managing technical papers at their own events with minimal modifications. ICID in collaboration with other similar Indian organisations convened a conclave on water security with special focus on India and is taking forward in India for generating awareness of the topic to various stakeholders. Advice was rendered to Indian national organisation for evaluating inter basin water transfer proposals and working out the demand and supply scenario in respect of various inputs/ support from neighbouring basin. The processes developed will be useful elsewhere in the world also. Collaboration with IWMI in their programme on Transforming Futures for Water Security is in active progress and contributions towards opinions and suggestions have been made to make the programme move forward. Central office also has close collaboration with India Water Partnership a unit of Global Water Partnership in promoting Integrated Water Resources Management principles in India and its neighbourhood. Secretary General has been nominated as Regional Council member for South Asia.

Additional knowledge services that are being offered by ICID are mentioned below:

ICID Website



The info-rich ICID website is a doorway to a wide range of information on irrigation, drainage, and flood management and serves as a vital mechanism of communication with NCs, and partner organizations. During the year, the website has gone through many upgrades, which include the Expansion of ICID Register of World Heritage Irrigation Structures (WHIS); Irrigation and Drainage - Products and Services Directory; new Tools/ Models; Digital collection of ICID publications/ reports/ transactions; ICID Young Professional's e-Forum (IYPeF); African Young Water Professionals e-Forum (Af-YWPeF); ICID Vision 2030; Live recordings of ICID Webinars; Recordings of the virtual presentations; and information on important ICID events. The new website launched as part of the ICID's 70th Anniversary

Celebration has gone through many new changes and additions to serve the growing information and knowledge needs of the ICID members. The newly introduced features, including the "Members Profile" section, Online Multilingual Technical Dictionary on Irrigation and Drainage, and Products and Services, are well received and appreciated. The website is updated regularly and frequently in consultation with the members and partner organizations.

All ICID publications are made available in e-Publication (ePub) format for ICID registered members. Members registered on the ICID website can download an electronic version of ICID publications free of cost through the 'Members' Only' section provided as part of the Members Profile Dashboard.

During the recent IEC meetings, work body members were requested to undertake the important topics and sub-topics related to irrigation and drainage and further develop them as per their expertise and domain for enriching the "Basic Information" section. Now this section is re-energized with a search integration with the ICID Multilingual Technical Dictionary terms, publications, etc. The updated version can be accessed from <https://icid-ciid.org/Knowledge/basic_term/1/Irrigation>.

The 'Tools and Models' section provides links to open source tools available in the irrigation and drainage sectors, such as Web-based DSS - Design of Micro Irrigation Systems (DOMIS); IrriSEARCH - A tool that aims to bring together all AWM research activities from various NCs on a single forum to help others learn from their experiences; Basin Wide Holistic Integrated Water Management (BHIWA) Model; PODIUM - The Policy Dialogue Model; Multilingual Technical Dictionary (MTD); Water Evaluation, and Planning (WEAP) Model; SALTMED Model live introduction by the ICID President Dr. Ragab Ragab. The section is constantly strengthened through voluntary contributions by experts from various WGs.

Integrated Library Management System (ILMS)

Established in 2001, the Text Delivery Services (TDS) has been further improved by expanding its scope to a virtual technical library by adding an ICID technical library catalogue for online searching. While the old TDS database included only Books and Articles for online searching, additional data items such as CD-ROMs, Journals, Maps, and Video/DVDs are now a part of this database. In addition, all digitized ICID publications and documents from the year 1950 onwards are now available in e-format. The digital collections are now being made available for download through 'Members' Only' section provided as part of the "Members Profile" on the ICID website. To develop a dedicated 'One-Stop Knowledge Catalogue' on irrigation, and drainage, selected NCs (Bangladesh, China, Egypt, India, Iran, Italy, Korea, Pakistan, South Africa, Sri Lanka, Turkey, and Zimbabwe) were requested in 'Phase-1' to join the initiative in data building. Some NCs have shown their interest in joining this network, and others are expected to follow suit.

Irrigation & Drainage Products and Services Directory

The online directory lists all the products and services offered by consultants, manufacturing companies, dealers, and other professional institutions dealing in irrigation, drainage, and flood management and helps various stakeholders in locating required business/product information.

The information is presently listed in the following categories, and sub-categories: (a) Consultancy Services (1. Individuals/ Experts/ Freelancers; 2. Organizations); (b) Companies/ Manufacturers/Dealers (1. Company/ Implementing Agency; 2. Dealer/ Distributor/ Contractor; 3. Manufacturer; 4. Publisher; 5. Software developers/ vendors); (c) Institutions (1. Academic Institutions; 2. Farmers' Associations; 3. Funding Agencies; 4. Government/ Non-Governmental Organizations (NGO)/Not-for-Profit Organizations; 5. Research Institutions; 6. Training Institutions), and (d) Others.

NCs, Direct Members, and other stakeholders are making use of this service. NCs and YPs are further encouraged to promote this service and encourage consultants, manufacturers, companies, organizations, and software companies to join and take advantage of the services. A new user-friendly version of the directory was launched as part of the new ICID website development to align with the new technology.

ICID Social Media



Social media makes human interaction much more convenient and faster than real-life human interaction. It makes globalization a reality. Never before were human beings connected as in today's world. Social media has made communication a lot easier than ever before. Now, with a touch of a button, people can communicate with anybody anywhere in the world through various social media sites such as Facebook, Twitter, LinkedIn, and so on.

Organizations worldwide are beginning to understand the importance of social media, which provides an opportunity for an exchange of ideas between members, partners, and other stakeholders. As part of the social

media initiative, ICID established a LinkedIn page <www.linkedin.com/in/icidonline>, which has a direct membership of more than 10000 AWM professionals from around the world. Also, the ICID LinkedIn page is part of around 50 international Groups involved in AWM activities, which has a huge membership. ICID also established separate Groups for WG-ENV, WG-CDTE, WG-M&R, ICID Young Professional's e-Forum - IYPeF <<https://www.linkedin.com/groups/6990321>> which has a membership of 1050 plus, and African Young Water Professionals e-Forum <<https://www.linkedin.com/groups/12143964/>> with 8900 members; as part of the professional network which is open for enriching, and interactive discussions in the public domain.

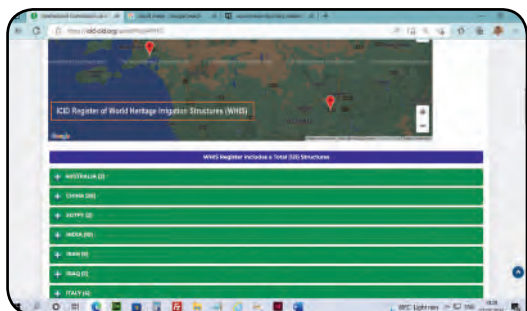
ICID's YouTube channel <<http://www.youtube.com/icidonline>> is growing fast from the contributions received from members and partners. The channel starts with a welcome message from President Prof. Dr. Ragab Ragab in both English and Arabic; ICID video; Recordings of the virtual participation; Glimpses of the 24th ICID Congress and 73rd IEC meeting, Adelaide, Australia, 2022; World Heritage Irrigation Structures recognized at the 73rd IEC Meeting, Participation and presentations of Office Bearers, Collection on irrigation technologies; ICID Foundation Day Celebrations, and Webinar recordings.

ICID's 'Facebook' page <<http://www.facebook.com/icidat>> has grown steadily for informal communication between members with common interests, thereby promoting their activities. All the latest developments relating to events, seminars, and conferences are widely circulated through this medium. All NCs are invited to make good use of these new platforms.

Setting up of Dedicated Portals for Contribution Management of Flagship ICID Events

For flagship events of ICID, the activities include collecting, reviewing, and communicating with professionals worldwide. Specific workflow processes of ICID events have been captured in a set of dedicated web portals specifically catering to Congress, the World Irrigation Forum and other events that may require such services. The portal processed about 430 abstracts and 150 papers from a uses base of 565 for the forthcoming 25th ICID Congress. It is active for the upcoming World Irrigation Forum as well. The facilities are being provided to National Committees for managing their in-house events.

ICID Register of World Heritage Irrigation Structures (WHIS)



'ICID Register of World Heritage Irrigation Structures (WHIS) includes both old operational irrigation structures as well as those having archival value. A Panel of Judges is set up every year to select historical irrigation/ drainage structures as received from various National Committees (NCs) to give recognition to the historical irrigation structures on the lines of World Heritage Sites (as recognized by UNESCO). A milestone from an administrative perspective has been earmarked as 15 July every year, specifically to enable the International Jury to process them before the next IEC meeting held generally between September-November for inclusion in the 'ICID Register of World Heritage Irrigation Structures.' NCs can nominate a maximum of 4 structures, using separate nomination forms for each structure. Associated Members and non-member countries

can also nominate their structures through the neighbouring active NCs or by submitting their nominations directly to the Central Office. So far, over 140 such world heritage structures have been recognized by ICID. For further information on nomination forms, visit <<https://icid-ciid.org/award/his/44>>.

Publications

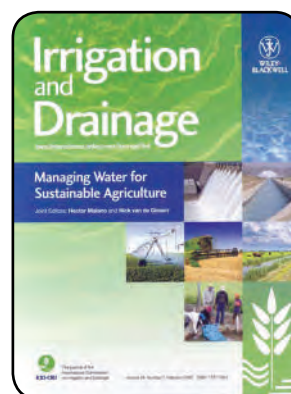
The effective management of knowledge has been described as a critical ingredient for an organization seeking to ensure sustainable strategic competitive advantage. One of the important objectives of the Commission is to facilitate the exchange of information among its members and various stakeholders. This objective is achieved through a mix of communication tools/ technologies like the Internet, publications (digital and print format), and social media. Dissemination of information, knowledge and sharing of successful experiences in agriculture water management forms an important activity.

Dissemination of current information and technical knowledge related to irrigation and drainage among professionals across the world remains the core mission of ICID. This is achieved through various publications and the Irrigation and Drainage Journal.

Irrigation and Drainage Journal

'Irrigation and Drainage' is not only the official international journal but also the flagship publication of ICID. It is a prestigious, peer-reviewed specialized publication that publishes technical papers on all scientific, engineering, environmental, and socio-economic issues associated with irrigation, drainage, and flood management. The journal is an authoritative publication that doubles up as a rich resource of reference to professionals, engineers, researchers, university professors, and students of irrigation, drainage, and agriculture disciplines. Since 2002, 'Irrigation and Drainage' has entered the ISSN series (ISSN 15310353) and appears in the categories 'Water Resources' and 'Agronomy'. ICID Journal is guided by an International Editorial Board (EB-JOUR) established in 1994 which is currently chaired by Prof. Jiusheng Li (China). Five issues of the Journal are published every year, along with few extra 'Special Issues' focusing on the current topics of significance almost every year.

During the 24th ICID Congress & 73rd IEC Meeting in Adelaide, 2022 the Best Paper Award 2022 was awarded on the topic "Bacillus Amyloliquefaciens Application to Prevent Biofilms in Reclaimed Water Micro Irrigation Systems", by Jiaxin Wen, Yang Xiao, Peng Song, Bo Sun, Tahir Muhammad, Lianghe Ma, An Waier Aosiman, and Yunkai Li, published under Volume 70, Issue 1, which can be accessed at: <<https://onlinelibrary.wiley.com/journal/15310361>>. In addition, Published A Special Issue on the topic "Achieving Climate Resilience through Improved Irrigation Water Management from Farm to Basin Scale", (Volume 71, Issue S1), in October 2022 which can be accessed at <https://onlinelibrary.wiley.com/toc/15310361/2022/71/S1>.



- In addition, ICID published articles (two-page write-ups) quarterly in the publication of 'Irrigation and Drainage Journal (2022-23)' as listed below:
- 'Investment in Irrigation' (Volume 71, Issue 3) published in July 2022
- 'River basin management in the context of integrated water resources management' (Volume 71, Issue 4) published in October 2022
- 'Water governance-Role for assuring water security' (Volume 71, Issue 5) published in December 2022
- 'Focusing on Agricultural Water Management to Ensuring Water Security' (Volume 72, Issue 1) published in February 2023
- 'River Basin Development for Water and Food Security' (Volume 72, Issue 2) published in April 2023

The impact factor of the Irrigation and Drainage Journal 2021 was increased to 1.424 as compared to last year i.e. 1.328 in 2020. To expand the accessibility (Online only) to ICID Journal on Irrigation and Drainage, M/s. Wiley has created a category of 'Individual members of the National Committees' for providing free copies of IRD to all individual members of the National Committees (NCs). The journal can be subscribed to by contacting Ms. Elena Rodriguez, Society Services Representative of M/s. Wiley-Blackwell, E-mail: <erodriguez@wiley.com>.

To extend the benefits to the developing and least developing countries, M/s. Wiley provides free access to the IRD publications. Under the Research4Life programme, local not-for-profit institutions of select countries may register for access to Irrigation and Drainage for free under AGORA, and OARE. The Journal is accessible online at more than 12,000 institutions worldwide, of which about 7500 are in developing countries. ICID Journal can be accessed through Wiley's Online Library <[http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1531-0361](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1531-0361)> for all issues published since 2001..

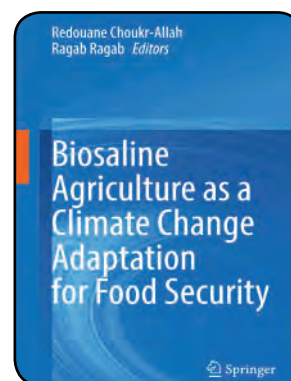
The new volumes are FREE via Wiley online library for all ICID Office Bearers, Work Body Members, and Subscribers through their membership registration number.

New ICID Publication

Biosaline Agriculture as a Climate Change Adaptation for Food Security (Editors: Redouane Choukr-Allah, and Ragab Ragab)

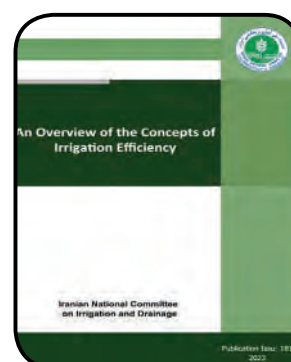
The publication highlights the increased demand for freshwater supplies in arid regions threatens the future sustained availability of fresh water for irrigation and crop production. Currently, the quantity of water in these regions is very limited and most of

the time is saline. The current climate change predictions indicate that many arid and semi-arid regions presently irrigated will face increasing temperatures and decreasing rainfall, further aggravating the water scarcity in these regions. The need to increase food production in these regions can only be achieved by either increasing the productivity of irrigated lands and/or by increasing the area under irrigation. In addition, alternative water supplies such as saline/brackish water as well as more efficient use of existing water supplies are essential to avoid food crises in regions such as the Middle East, North Africa, and to sustain food production. However, numerous risks face the use of saline/brackish water if not properly managed, such as the increase in soil salinity and yield reductions. On the other hand, saline/brackish water could be looked at as an opportunity for irrigation, whether used directly or being desalinated or mixed with treated wastewater. This book will include information on the relationship between climate change, salt-affected habitats, and salinization processes. The book can be viewed or downloaded at: < https://icid-ciid.org/icid_data_web/BiosalineAgricultureBook_2023.pdf >.



Iranian National Committee on Irrigation and Drainage and Working Group on Development and Management of Irrigation System had published a publication on “An Overview of the Concepts of Irrigation Efficiency”, Compiled and Edited by Masoud Eghbali, et. al.

The publication emphasizes the shortage of freshwater resources in many areas of the world has created constraints for comprehensive and sustainable development. The increasing population, development of agriculture, and industry in some parts of the world, especially in Middle East countries, were not in proportion to renewable water. Hence unsustainable development by harvesting more than the annual volume of renewable water from water sources has caused the most damage to the Environment and water resources. In case that in many arid and semi-arid countries of the world, including Iran, there is a growing demand for water resources beyond renewable water; saving water consumption and, more importantly, increasing agricultural productivity is the most common approach in these countries. Therefore, various equipment and tools have been used to increase irrigation efficiency in agricultural fields, realize water-saving programs in the agricultural sector, and increase water productivity. The same can be downloaded or accessed at: https://icid-ciid.org/icid_data_web/ConceptsofIrrigationEfficiency_2023.pdf



Publication on Water-Saving in Agriculture - A Roadmap to ICID Vision 2030, An ePublication, March 2022



The National Committees of ICID launched in principle the WATSAVE Initiative in late 1993 and started giving awards since 1998. The ICID network has responded magnificently and rapidly transformed into a unified global force to meet the challenges of water scarcity and climate change impact against increasing demand for food. Through WatSave program, each year ICID member National Committees and related groups report billion cubic meters (BCMs) of water saved in their regions that became available for either increasing irrigated area or for other uses such as industry, tourism, leisure and domestic.

Technologies are generally local and scale-specific, and their transfer to new areas requires the right scaling. Technology adoption by farming communities has several other issues that also need holistic planning, such as technology financing options, enabling government policies, capacity building and proper consideration of the socio-economic conditions of farmers, particularly the smallholders.

Technological innovations backed by the right management practices can significantly increase the amount of water saved or the number of beneficiaries in a particular context or setting. However, certain management interventions may only apply to large-scale irrigation schemes or require system changes. Resource requirements widely range from an accurate estimation of water needed for a crop field to enhancing institutional and human capacities. The publication compiled and edited from the papers received for WatSave Awards. The same can be downloaded or accessed at: https://icid-ciid.org/icid_data_web/Watsave_eBook2022_comp.pdf

ICID Initiative for a Global Inventory of Irrigation and Drainage Schemes- Online Register



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 the 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 of the project under varying conditions.

Most registers examined are about structures and individual components of a system, and none record the features of irrigation and/or drainage project on a

worldwide scale. National Committees and other irrigation management organizations across the world are invited to contribute to the Online Register wholeheartedly.

The facility is available <<https://wip.icidevents.org/>> and it contains video and extensive help for potential contributors.

ICID News Periodicals

To cover current events and news related to National Committees and office bearers to disseminate information about ICID's flagship activities, various periodicals like e-Bulletin, News Update, and ICID News are released throughout the year. ICID News focuses on technical articles of relevance authored by ICID community members.

Weekly e-Bulletin

The latest developments around the world in the domain of agriculture, climate change, drainage, droughts, floods, food security, irrigation, and water resources management are circulated weekly via e-Bulletin. The latest news items are hyperlinked so that the reader may access the detailed story by clicking on the link. Additionally, it also includes information on upcoming events, the latest publications, webinars, editorials, and opinions, and employment opportunities for the ICID fraternity. More than fifty issues of ICID e-Bulletins have been compiled and sent to NCs, Office Bearers, Work body Members, International Organizations, and other subscribers. NCs, on their part, are further circulating the e-bulletin to their members in their respective countries. Past issues of e-Bulletin can be accessed from https://icid-ciid.org/member/e_bulletin.



Monthly News Update

ICID publishes the monthly round-up of important news and events in the 'News Update' to offer an insight into the latest developments and various decisions taken by IEC. The issue provides an updated overview of activities that ICID periodically carries out, including international events/conferences/workshops/seminars; new collaborations and engagements; News from National Committees, Direct Members, International Partners, and major upcoming events from around the world. Past issues of the News Update can be viewed at <https://icid-ciid.org/member/news_update>.



Quarterly ICID News

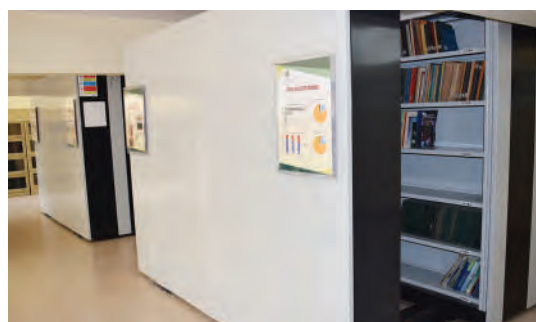
Published quarterly, ICID News includes brief technical articles from eminent professionals on current topics related to AWM. The aim is to disseminate the technical write-ups to non-technical stakeholders. Older issues of ICID News can be accessed at <<https://icid-ciid.org/member/news>>.



Technical Library

The Technical Library of the ICID Central Office comprises a large collection of technical books, reports, proceedings, and periodicals, besides ICID's publications. All ICID publications, including technical books, reports, proceedings, and workshops, are digitized and available on request.

The library receives around 25 periodicals on a complimentary basis and has more than 32,000 technical reference documents such as development, operation, maintenance, and rehabilitation of irrigation works; flood and drought management; climate change, to name a few. To expand the scope of the library catalogue, NCs can join the online catalogue service by contributing digitally their locally available literature to develop the Integrated Library Management System (ILMS), which is an attempt to serve as 'One-Stop Knowledge Catalogue' for all Irrigation and Drainage related literature to the ICID community, and all irrigation professionals.



Furthermore, the library, with the help of a new online library software on the ICID website <<https://icid-ciid.org/openbiblio/opac/>> has more than 12000 entries under "Articles Section"; and 55 entries in the CD-ROMs/DVD section. The service would be beneficial for all ICID members and NCs as this would provide easy access to all ICID publications.

Capacity Development Activities

To increase water-use efficiencies and water productivity across various stakeholders, especially in the agriculture sector, the adoption of newer and latest technologies and techniques play a significant role. However, the lack of human and other capacities is constraining the sustainable development of irrigated agriculture, and many countries are facing a shortage of qualified technical persons in Agricultural Water Management (AWM). Therefore, it is necessary to provide support and avenues for the capacity development of professionals, particularly young professionals, to assure better utilization of water (and other) resources. Keeping in view the larger benefit of the water fraternity, ICID has initiated several new initiatives and programs to support knowledge dissemination and capacity development of professionals in the AWM sector.

ICID Services

The great challenge for the coming decades will be to increase food production with less water, particularly in countries with limited water and land resources. The effective and sustainable use of water for agriculture has become a global priority of vital importance, requiring urgent and immediate solutions in view of intensifying competition. The consensus among policy-makers in the developing world is that lack of capacity is constraining the development of irrigated agriculture. Although this concern is not new, it is now receiving much attention in the irrigation, and drainage world, where it is becoming an issue in its own right due to the increasing complexities of development, multi-disciplinary nature of sustainable solutions, close linkages between water-food-energy, rapid changes in the irrigation, and drainage sector, the need to bring together various stakeholders who might not necessarily be experts. The importance of Capacity Development for attaining sustainable development in irrigation, drainage, and flood management sectors is now fully realised and understood.

In order to provide technical services to NCs and other stakeholders, ICID's Annual Council meeting, vide Resolution IEC-1/70, had approved the establishment of Service Unit (SU) within ICID. The Service Unit will help in fulfilling the ICID Vision 2030 for a 'water-secure world free of poverty and hunger through sustainable rural development' to help member countries move towards a sustainable world through professional assistance in the areas of need. Service Unit will support the organizational goals of Capacity Development of the NCs by (i) Enhancing Institutional Capacity, (ii) Supporting Capacity Development, (iii) Technical Training of Professionals, and (iv) Providing Technical Support to NCs. The Service Unit will support strengthening and empowering NCs by providing them with specific services at a reasonable cost.

- The Mission of the ICID Service Unit is: "To be the first people to be called upon to tackle challenges in agriculture water management". The main objectives of the Service Unit are:
- Sharing best practices from around the world,
- Providing direct contribution to the issues faced by NCs,
- Providing practical solutions to the challenges related to agricultural water management, including floods, droughts, and
- Facilitating capacity development and training

As the main aim of the ICID Service Unit is to support NCs and will be run in partnership with them, NCs are envisaged to play a pivotal role in its work. The Service Unit will work in the niche area of capacity development, training, and provision of advisory services on request. The spectrum of products, and services, to be provided by the Service Unit, attuned to the strengths of ICID, are classified into the following three broad categories:

a. Institution building

- Institutional capacity development includes Stakeholders' interaction and participation.
- Providing information on advanced techniques adopted in the water sector Capacity development and management.
- Capacity Development Activities

b. Training

- Organization of training and workshops
- Certification of professionals
- Organizing study tours and technical exchange programs

c. Advisory

- Policy inputs
- Preparation of status and study reports
- Support for preparation of project proposals
- Program and project evaluation reports, including third-party evaluation of projects and programs
- Rendering expert advises in the fields of water resource planning, design, and implementation

During the year, service unit facilitated visit of delegation from Nigeria to Morocco with the support of the Morocco NC (ANAFIDE) and is facilitating visit of delegation from Nigeria to Italy and Spain with the support of Italy NC (ITAL-ICID) and Spain NC (CERYD).

ICID Young Professionals e-Forum (IYPeF)

At the 65th International Executive Council (IEC) held at Gwangju, Korea, in September 2014, the Council approved establishing an ICID Young Professional's e-Forum (IYPeF) on the ICID platform with open membership to engage all the Young Professionals interested in Agricultural Water Management (AWM) issues. The e-Forum was established as a dedicated Group (<https://www.linkedin.com/groups/6990321>), now consisting of more than 1000 members, to encourage and promote a high standard of professional/expert development amongst the young professionals and to network with the national and international youth having an interest in water-related subjects or the activities, relevant to ICID objectives.

To act as a virtual meeting place, IYPeF provides a platform for Young Professionals to participate in ICID annual events. IYPeF provides opportunities for budding professionals to interact with the best professionals in the irrigation and drainage sector, participate in e-discussions, organize webinars, present papers, avail the latest information, and join various technical working groups of ICID.

Based on the extended term of Ms. Aya Mohammed Hassan Ali Elkholy (Egypt) and Dr. (Ms.) Heidi Salo (Finland) continued as 'Coordinator' and 'Joint Coordinator' of the IYPeF from 31st August 2022 to December 2022. To encourage and intensify the active participation of Young Professionals in ICID activities in the domain of irrigation, drainage and flood management, IYPeF is organizing a series of e-discussions and webinars as per their mandate. More activities of IYPeF can be accessed at https://icid-ciid.org/icid_data_web/iypef_concept_note2022.pdf

Training Programmes for Young Professionals

5th African Young Professional Forum, October 2022, Cairo, Egypt

The African Young Water Professionals Forum (Af-YWPF) has become an important platform on the African continent for the capacity development of future leaders in water-related sectors. The objective of the Af-YWPF is to bring together Africa's future leaders from the private sector, research, and government institutions around the central theme of water conservation for sustainable development. Through this Forum, the water professionals get an opportunity to showcase their knowledge and contribution to sustainable water management in an international setting, discuss what they learned from their experiences, and broaden the mind and thinking of new and experienced water professionals.

The Af-YWPF was established as a dedicated Group on the LinkedIn platform aimed at building the capacity of young professionals and creating a new generation capable of facing future water challenges, mainstreaming youths towards the abundant lucrative opportunities in irrigation agriculture. The forum, having more than 6300 members, exists as an e-Forum (Af-YWPeF) and more than 1030 members in ICID-Young Professional's on LinkedIn (<https://www.linkedin.com/groups/12143964>). The forum promotes participation in the training programs, workshops and conferences, including networking among its members to facilitate knowledge sharing.

As part of the training programme, the 5th African Young Professional's Forum (Af-YWPF) was organised (in hybrid mode) from 17-18 October 2022 under the platform of Cairo Water Week (CWW) 2022. The theme of the Forum was 'Smart irrigation water management to mitigate climate change impacts'. Eng. Mohammed Wahba (Egypt), Vice President Hon., ICID and Chairman of AFRWG & WG-CDTE coordinated the sessions. The two-day closed event physically brought together 20 Young Professionals from 12 African countries -Egypt, Sudan, South Sudan, Libya, Mauritania, Morocco, Tunisia, Algeria, Malawi, Zambia, Madagascar, and Lebanon. About 135 young professionals (YPs) from 36 countries participated online. The Forum was supported by the Ministry of Water Resources and Irrigation of Egypt (MWRI), the United Nations Economic and Social Commission for Western Asia (ESCWA), the Arab Center for the Study of Arid and Drylands (ACSAD) of the League of Arab States, Global Water Partnership Mediterranean (GWP-MED)/ GWP Africa Coordination Unit, International Center for Agricultural Research in the Dry Areas (ICARDA), the Food and Agriculture Organization (FAO) and the International Commission on Irrigation and Drainage (ICID).

Online Training Course on Virtual Irrigation Academy (VIA), October 2022

In order to promote the activities of Capacity Development Training Programme, ICID in association with the Virtual Irrigation Academy (VIA) organised webinars on the topic 'Combining farmer and science-based knowledge through Virtual Irrigation Academy' on 02 June 2022 and 30 June 2022. VIA and ICID jointly organised one-day training funded by Australian Centre for International Agricultural Research (ACIAR) on 9th October 2022 during 24th Congress and 73rd IEC meetings at Adelaide, Australia where 8 YPs sponsored by ICID along with 15 local YPs from Australia joined the training programme.

VPH Dr. Mohamed Wahba (Egypt), Chairman of AFRWG & WG-CDTE introduced and explained the training program works and Dr. Richard Stirzaker (CSIRO and VIA) made presentation on the Virtual Irrigation Academy and online training course.

During the training course videos and presentations related to journey of experiential learning and the progress of different crops and tracking the changes in soil water, nitrate and salt were made. The course was made up of seven modules. The presentations covered concepts around the different ways that scientists and farmers created knowledge, and how they moved from monitoring and learning to social change.

Webinars

ICID adopted its vision for 2030 as “A water-secure world free of poverty and hunger through sustainable rural development”, and its mission as “facilitate prudent AWM by encouraging interdisciplinary approaches to irrigation and drainage management” in line with the UN Sustainable Development Goals Agenda 2030. The vision of ICID is proposed to be achieved by generating new knowledge, compiling and collating information, sharing experiences, and good practices, disseminating the new knowledge to and capacity development of the relevant stakeholders. Several approaches and tools are available to undertake capacity development and sharing of knowledge which includes conducting training programs, developing e-Learning modules, and organizing webinars (or web-based seminars). The webinars are customized, keeping in view the requirement of different professionals working in the AWM sector.

Following are the webinars organized during 2022-23 :

| S.No | Topic | Presenters | Organizations |
|------|--|---|--|
| 1 | Webinar on Impacts of Climate Change on Surface and Groundwater Resources | Keynote Speaker: Prof. Dr. Ragab Ragab, President ICID; Moderator: Mr. Ziad Khayat (ESCWA); Speakers: Dr. Marlene Tomaszewicz (ESCWA); Dr. Abdelkader Larabi (LIMEN); Dr. Ihab Jnad (ACSAD); and Dr. Muath Abu Sadah (HEC); Opening Remarks: Dr. Mohamed A. Shehata Wahba, VPH, ICID and Chairman - AFRWG | Arab Centre for Climate Change Policies, Climate Change and Natural Resources Sustainability Cluster, (ESCWA), Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR), The Arab Centre for the Studies of Arid Zones and Dry Lands (ACSAD) |
| 2 | Webinar on Innovative Coastal Protection on Mangrove Coast | Ms. Ir. Nor Aslinda Awang, Dr. Ir. Lee Hin Lee, and Ir. Arman Mokhtar | Organized by Working Group on Sustainable Development of Tidal Areas (WG-SDTA) and National Water Research Institute Malaysia, and Department of Irrigation & Drainage Malaysia |
| 3 | Webinar on Capacity Building in Agricultural Water Management is in 'Intensive Care Unit' – Can It Be Rejuvenated? | Moderator: Prof. Dr. Vijay K Labhsetwar; Panelists: 1. Mr. Russel Rollason (Australia); 2. Eng. Pradeep Purandare (India); 3. PH Prof. Em. dr. ir. Bart Schultz Bart Schultz (The Netherlands); 4. VPH Dr. Mohamed Abd El Moneim Wahba | Organized by Working Group on Capacity Development, Training and Education (WG-CDTE), ICE WaRM, WALMI, and IHE |
| 4 | Webinar on Advanced Micro irrigation Technology with Precision Water and Salt Management | Moderator: VPH Dr. Mohamed Wahba, Panelists: Prof. Yaohu Kang; Dr Evan W. Christen; and Dr. Faycel Chenini | Chinese Academy of Sciences, AFRWG and ICID |
| 5 | Webinar on Low Land Development in Indonesia | Speakers: Budi Santoso Wignyosukarto (Indonesia), and President Hon. Prof. Em. Dr. Bart Schultz (Netherlands); Panelists: VP Ir. Hisham Ghazali (Malaysia), and Mr. Paavan Kumar Reddy (India) | Department of Civil and Environmental Engineering, Faculty of Engineering, Universitas Gadjah Mada (UGM), Yogyakarta, Indonesia |
| 6 | Webinar on Performance Assessment Tools in Irrigation and Drainage | Participants : Mr. IJsbrand H. de Jong, Senior Water Resources Specialist (World Bank); Dr. David Ginting, Investment Operations Specialist – Water (Asian Infrastructure Investment Bank, AIIB); Mr. Nizar Zaied, Islamic Development Bank (IsDB); Dr. Alok Sikka, IWMI (India); Mr. Maher Salman, Technical Adviser FAO; and Dr. Karthikeyan Matheswaran, Researcher – Water Productivity (IWMI). | INSPIRE, IWMI, FAO, and Global Water Security and Sanitation Partnership, an autonomous wing of the World Bank (WB) |
| 7 | Webinar on Advanced Micro irrigation Technology with Precision Water and Salt Management | Moderator: VPH Dr. Mohamed Wahba and Panelists Prof. Yaohu Kang of the Chinese Academy of Science (CAS), Dr. Evan W. Christen of National Australian University and Dr. Faycel Chenini, a Senior Water Expert of Tunisia. | Chinese Academy of Sciences, AFRWG and ICID |



Financial Management

The prudent, visionary and intelligent financial management of an international professional network of voluntary experts is vital to achieving its mission and its goals as it provides the necessary trust among its members. It helps mobilize financial resources and builds the confidence of patrons in a challenging environment that has become increasingly important. Therefore, ICID has put in place a transparent financial system with sufficient checks and balances.

Key resources of ICID include membership from its member countries, direct members, and special contributions by host national committees that organize ICID events. Currently, the ICID network is spread over 80 countries in Africa, America, Asia and Oceania and Europe, covering more than 95% of the world's irrigated area. The Commission also receives special membership from the NC and various international organizations to support specific activities to further ICID's objectives.

The Secretary General (SG) of the ICID, in accordance with its constitution, acts as the Treasurer and Financial Controller of the Commission under the overall aegis of the International Executive Council (IEC), which is supported by the Permanent Finance Committee (PFC), and is responsible for the financial management of the Commission, including receipts, due diligence, and management of all funds. The SG prepares the annual budget for the consideration of the IEC and is responsible for the proper execution of the budget approved by the Council. He is also responsible for the compliance of all legal, financial and administrative necessary compliances under the provision of relevant statutes of the Government of India (GOI) on behalf of the Commission.

The PFC provides necessary oversight in all financial matters and reviews income and expenditure and advises the Council. It makes recommendations on the participating NC's annual membership and other financial assistance. The PFC also recommends from time to time the ways and means of improving the financial resources of the Commission to meet the financial needs of the IEC.

As per the provisions of the Societies Registration Act, 1860, following the Indian Accounting and Assurance Standards (ICAI), a Statutory Audit means a regular audit of the financial accounts of the Commission by a qualified Chartered Accountant, appointed by the IEC. The audit is completed on an annual basis taking care of the Foreign Exchange Management Act, 1999 (FEMA); direct tax laws (Income Tax Act, 1961) and indirect taxes (Goods and Services Tax Act, 2017) and the other relevant law of the land.

Duly audited consolidated financial statement which includes Balance Sheet, Income and Expenditure Account and Receipt and Payment Account for the Financial Year starting from 1 April 2022 to 31 March 2023 are presented on page 68.

BALANCE SHEET AS ON 31ST MARCH 2023

| ASSET | | 2022-23 (Amount in INR) | 2021-22 (Amount in INR) | LIABILITIES | | 2022-23 (Amount in INR) | 2021-22 (Amount in INR) |
|-------|------------------------------|----------------------------|----------------------------|-------------|--|----------------------------|----------------------------|
| 1 | Property & Equipment | 78,79,771 | 94,89,010 | 1 | Gulhati Memorial Lecture Fund | 4,53,559 | 4,30,235 |
| 2 | Receivables | 2,63,64,916 | 3,41,54,335 | 2 | General Fund | 1,87,03,358 | 6,29,64,320 |
| 3 | Bank Balances & Cash in Hand | 4,07,63,784 | 6,61,04,740 | 3 | Gratuity Fund | 1,16,31,292 | 1,17,84,849 |
| | | | | 4 | Leave Encashment Fund | 85,90,295 | 90,99,308 |
| | | | | 5 | Corpus Fund-WID Prizes | 31,58,284 | 29,92,489 |
| | | | | 6 | Support to African (AFYPE)-YP Training | 4,91,167 | 10,74,232 |
| | | | | 7 | Security Deposit | 1,40,07,404 | 40,07,404 |
| | | | | 8 | Unrealized Subscription | 1,40,81,345 | 1,39,31,869 |
| | | | | 9 | Sundry Creditor, Payables & Provisions | 38,61,921 | 29,93,110 |
| | | | | 10 | Duties & Taxes Payable | 29,846 | 4,70,269 |
| | Total Assets | 7,50,08,471 | 10,97,48,085 | | Total Liabilities | 7,50,08,471 | 10,97,48,085 |

INCOME AND EXPENDITURE ACCOUNT FROM 01 APRIL 2022 TO 31 MARCH 2023

| INCOME | | 2022-23 (Amount in INR) | 2021-22 (Amount in INR) | EXPENDITURE | | 2022-23 (Amount in INR) | 2021-22 (Amount in INR) |
|--------|--|----------------------------|----------------------------|-------------|---|----------------------------|----------------------------|
| 1 | Membership & Subscriptions | 1,89,12,720 | 2,01,15,276 | 1 | Compensation for Secretary General | 49,37,100 | 46,34,100 |
| 2 | Sale of Publication | 12,13,832 | 12,12,913 | 2 | Salaries & Allowances | 3,19,80,495 | 3,08,37,758 |
| 3 | Special Contribution to the Budget | 47,40,235 | — | 3 | Superannuation Relief to Retd. Employees | 46,46,815 | 46,49,290 |
| 4 | Interest on Fixed Deposits | 24,80,141 | 41,55,770 | 4 | Service & Maintenance | 68,57,555 | 64,81,005 |
| 5 | Other Incomes | 15,80,616 | 12,85,866 | 5 | Taxes and Utilities | 65,35,745 | 27,50,424 |
| 6 | Rent and Provision of Services on Let Out Property | — | 1,05,80,306 | 6 | Rehabilitation or Refurbishing and Maintenance of ICID Center Office Building | 1,72,955 | 13,63,345 |
| 7 | Special Subscriptions | 4,12,700 | 3,79,013 | 7 | Publication, Knowledge Management and Dissemination | 43,09,194 | 47,07,398 |
| | | | | 8 | Conference Expenditure | 12,59,818 | 2,50,191 |
| | | | | 9 | Cooperation with Other Organization | — | 22,183 |
| | | | | 10 | Travel Expenditure | 6,67,263 | 16,56,137 |
| | | | | 11 | Depreciation on Fixed Assets | 10,89,711 | 12,89,820 |
| | | | | 12 | Workshop, Training and Studies | 7,13,293 | 9,37,883 |
| | | | | 13 | Other Expenditure | 1,10,93,831 | 23,13,561 |
| | | | | 14 | Excess of Income / Expenditure over Expenditure/Income | (4,49,23,532) | (2,41,63,951) |
| | Total Incomes | 2,93,40,244 | 3,77,29,144 | | Total Expenditures | 2,93,40,244 | 3,77,29,144 |

RECEIPT AND PAYMENT ACCOUNT FROM 01 APRIL 2022 TO 31 MARCH 2023

| RECEIPTS | | 2022-23 (Amount in INR) | 2021-22 (Amount in INR) | PAYMENTS | | 2022-23 (Amount in INR) | 2021-22 (Amount in INR) |
|----------|--|----------------------------|----------------------------|----------|--|----------------------------|----------------------------|
| 1 | Cash & Bank (Balance Brought Forward) | 6,61,04,740 | 10,68,23,971 | 1 | Compensation package for Secretary General | 49,37,100 | 46,34,100 |
| 2 | Membership Subscriptions | 1,76,62,914 | 1,54,18,323 | 2 | Salaries and Allowances | 3,24,66,933 | 2,89,49,860 |
| 3 | Sale of Publications | 12,14,147 | 12,13,652 | 3 | Superannuation Relief to Retired Employees | 46,46,815 | 46,49,290 |
| 4 | Special Contribution to the Budget | 47,40,235 | — | 4 | Services & Maintenances | 59,10,488 | 61,04,434 |
| 5 | Interest on Fixed Deposits | 19,29,257 | 42,13,545 | 5 | Taxes and Utilities | 66,05,255 | 39,90,194 |
| 6 | Special Subscription | 4,12,700 | 3,79,013 | 6 | Rehabilitation or Refurbishing and Maintenance of ICID CO Building | 1,72,955 | 13,63,345 |
| 7 | Other Receipts | 1,09,80,786 | 6,93,627 | 7 | Publications, Knowledge Management and Disseminations | 47,62,752 | 44,50,511 |
| 8 | Rent and Provision of Services on Let Out Property | — | 95,22,274 | 8 | Conference Expenditure | 12,59,818 | 2,50,191 |
| 9 | Income Tax Refund | 10,97,466 | 4,18,654 | 9 | Travel Expenditure | 6,67,263 | 16,56,137 |
| | | | | 10 | Workshops, Trainings and Studies | 7,58,599 | 10,03,621 |
| | | | | 11 | Purchase of Fixed Assets | 4,05,398 | 10,37,092 |
| | | | | 12 | Other Payments | 7,85,085 | 1,44,89,544 |
| | | | | 13 | Cash & Banks (Balance Carry Forward) | 4,07,63,784 | 6,61,04,740 |
| | Total Receipts | 10,41,42,245 | 13,86,83,059 | | Total Payments | 10,41,42,245 | 13,86,83,059 |

Annexures

Acknowledgements

Country-wise Membership in Workbodies

About 400 professionals from 40 countries contribute to various Committees, Working Groups, and Task Forces directly. Also represented by 15 international organizations in the above workbodies. We thank all our members, who work voluntarily by devoting their valuable time in promoting the mission of ICID.

| Country | MEMBERSHIP IN WORKBODY | Country | MEMBERSHIP IN WORKBODY |
|--------------|---|--|--|
| Australia | Mr. Clarke Ballard (Vice-Chair, WG-MWSCD) | | Dr. Zhang Guohua, Young Professional (WG-SON-FARM) |
| | Dr. Tapas Kumar Biswas (WG-NCWRI & EB-JOUR) | | Mr. Gao Lihui (PFC & WG-VE) |
| | Ms. Chris Delphin (C-CONGR) | | Dr. Wenyong Wu (Chair, WG-NCWRI) (Secretary, EB-JOUR) |
| | Ms. Kathleen Heuvel, Young Professional-(WG-RWH) | | Dr. Li Jiusheng (Chairman, EB-JOUR) |
| | Dr. Evan Christen (WG-HIST & WG-CDTE) | | Dr. Ding Kunlun (WG-IOA), TF-MTD, C-CONGR, WG-RWH |
| | Mr. Carl Walters (Vice-Chair, WG-SON-FARM), WG-ENV & WG-WEF_N | | Dr. Gwo-Hsing Yu (ASRWG) |
| | Mr Geoff Harvey (Chair, WG-RWH) | | Ms. Li Rouxi - Young Professional (ASRWG) (PCTA), WG-CDTE |
| | Mr. Jeff Camkin (WG-CDTE) | | Engr. Duan Cheng (WG-AFM) |
| | Mr Michael Smit (WG-RWH) | | Dr. Zhong-Kai Feng, Young Professional (WG-AFM) |
| | Dr. Amgad Elmahdi (WG-IDM) | | Dr. Hi Lu (WG-AFM & WG-WEF_N) |
| | Ir. Felipe Dantas (WG-WATS, WG-WFE_N) | | Dr. Jing Liu (WG-MWSCD) |
| | Dr. Evan Wilfred Christen (WG-LDRG) | | Ms. Haofang Yan, Young Professional (WG-MWSCD) |
| | Mr. Momir Vranes (WG-IDSST, C-CONGR), ASRWG | | Mr. Yu Yingduo, Young Professional (WG-MWSCD) |
| | Dr. Biju George (EB-JOUR) | | Prof. Jiesheng Huang (WG-CDTE) |
| | Dr. W.F. Vlotman, Chair, WG-LDRG | | Dr. Wang Zhen (EB-JOUR) |
| | Mr. John William O' Connor (WG-WFE_N) | | Prof. Feng Qian (WG-ENV) |
| Bangladesh | Mr. Mohammad Samiul Ahsan Talucder - Direct Member (WG-ENV) | | Dr. Zha Yuanyuan - Young Professional (WG-ENV) |
| | Md. Mahmudur Rahman (PFC) | | Dr. Yang Shihong - Young Professional (WG-ENV) |
| | Dr. Robin Kumar Biswas (ASRWG) | | Mr. Dang Ping (ASRWG) |
| | Dr. Nazmun Nahar Karim (ASRWG) | | Engr. Wang Yijia (WG-VE) |
| Burkina Faso | Mrs. Salamata Karambiri MIWENDE (AFRWG) | | Prof. (Ms.) Chen Jing (WG-HIST) |
| | Mr. Jean Bernard Dambre (AFRWG) | | Mr.Gao Lihui - Young Professional (WG-HIST) |
| Canada | Dr. Warren Helgason (WG-RWH) | | Dr. Dai Xiaoping - Young Professional (WG-HIST) |
| | Dr. Brent Paterson (EB-JOUR) | | Dr. Jiabin Wu (WG-CLIMATE) |
| | Ms. Leila Eamen (WG-MWSCD) | | Dr. Xu Lei (WG-CLIMATE) |
| | Dr. Amani Alfarra (WG-CLIMATE & WG-WFE_N) | | Ms. Linlin Fan – Young Professional (WG-CLIMATE) |
| China | Ms. Wang Shaoli (WG-LDRG) | | Dr. Guan Guanghua (WG-SON-FARM) |
| | Mr. Wang Li (WG-HIST) | | Prof. Luo Yufeng (WG-SON-FARM) |
| | Engr. Zhu Haldong (WG-AFM) | | Prof. Yao Bin (WG-SON-FARM) |
| | Prof. Zhang Zhanyu (WG-SDTA) | | Prof. Qi Xuebin (WG-NCWRI & WG-WATS) |
| | Dr. Fuqiang Tian (Vice Chair, WG-CLIMATE), WG-ENV | Dr. Niannian Yuan (WG-IOA) | |
| | Dr. Wu Jingwei (WG-IDM) | Dr. Wu Di (WG-M&R) | |
| | Dr. Dong Bin (Vice-Chairman of WG-M&R) | Dr. Li Yalong (WG-M&R) | |
| | | Dr. Shi Yuan - Young Professional (WG-M&R) | |
| | Prof. Wu Jingwei (WG-LDRG) | | |
| | Dr. Tao Yuan - Young Professional (WG-LDRG) | | |

| Country | MEMBERSHIP IN WORKBODY | Country | MEMBERSHIP IN WORKBODY |
|---|--|--|---|
| | Dr. Luo Wenbing - Young Professional (WG-LDRG) | | Mr. Olli-Matti Verta (Secretary, ERWG), WG-AFM |
| | Prof. Huang Jiasheng (WG-IDM) | | Mr. Mika Turunen (WG-CLIMATE) |
| | Prof. (Ms.) Chen Jing (WG-IDM) | | Mr. Olle Haggblom (WG-LDRG) |
| | Dr. (Ms.) Liu Jing - Young Professional (WG-IDM) | | Dr. (Ms.) Heidi Salo, Joint Coordinator, IYPEf |
| | Prof. Gu Tao (WG-WATS) | France | Mr. B. Vincent, (Chairman, WG-LDRG) EB-JOUR |
| | Dr. Yujiang Xiong (WG-WATS) | Dr. Sami Bouarfa (ERWG) | Dr. Marcel Kuper (EB-JOUR) |
| | Dr. Junzeng Xu (WG-WFE_N) | Dr. Severine Tomas (EB-JOUR) | Mr. Francois Brelle (WG-VE) |
| | Dr. Yao Jianfeng (WG-HIST) | Mr. Bruno Grawitz (PCSO & C-CONGR) | |
| | Engr. LIU Zhitong (WG-SDTA) | Hungary | Mr. Tama Toth (WG-AFM) |
| | Engr. Zhang Zhaoyang (WG-VE) | Dr. Laszlo Hayde (ERWG, WG-HIST & EB-JOUR) | |
| | Ir. Liu Xueying (WG-CDTE) | India | Mr. S.M. Belsare (WG-IOA) |
| | Engr. LIU Dongzhe (WG-WFE_N) | Dr. A.K. Randev (Chairman, WG-SON-FARM), WG-RWH | Dr. Vijay K. Labhsetwar (Vice Chair - ASRWG & WG-CDTE), WG-SDTA & EB JOUR |
| | Egypt | Dr. Hesham Mostafa Mohammed Ali (WG-MWSCD & PCSO) | Prof LB Roy - Direct Member (WG-SON-FARM, WG-IDM, WG-LDRG) |
| | Dr. Mohamed Shaban M. Abu Salama (WG-NCWRI) | Dr. RC. Jain (WG-RWH), WG-NCWRI & WG-LDRG | Dr. Gurbachan Singh (WG-LDRG) |
| | Dr. Hussein Abdel Halim El Gammal (WG-NCWRI) | Dr. P. Soman -Direct Member, JISL (WG-WATS & WG-WFE_N) | Dr. MS. Sudhakar - Direct Member, JISL (WG-SON-FARM) |
| | Prof. Dr. Zeinab Hussien Behairy (WG-WFE_N) | Mr. Abijit Joshi - Direct Member (WG-SON-FARM & WG-WATS) | Mr. Amrendra Kumar Singh (C-CONGR) |
| | Eng. El Sayed El Yamani Ali Sarkees (WG-IDM) | Mr. Rishi Srivastava (C-CONGR) | Mr. Atin Kumar Tyagi - Direct Member (WG-CLIMATE) |
| Prof. Dr. Tarek Ahmed El-Samman (WG-M&R) | Mr. Sher Singh (WG-SON-FARM) | Mr. Rajni Kant Agarwal (WG-AFM, WG-IDSST, ASRWG) | |
| Eng. Mohamed Saleh El-Basyony (WG-LDRG) | Mr. Paavan Kumar Reddy (WG-SDTA), Young professional | Mr. Kamal Kumar Jangid (WG-WATS) | |
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| CIGR | WG-WFE_N |
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| SARIA | AFRWG |
| WMO | WG-CLIMATE |
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Facts and Figures

1. World Irrigated Area – Developed Countries

| No. | Country | Total Cultivated Area (Arable land + Perm. crops) (Mha) | Irrigated Area (Mha) | % irrigated area | Source | Year |
|-----|----------------------|---|----------------------|------------------|---------|-------------|
| 1 | Australia | 47.307 | 2.15 | 4.545 | ICID-NC | 2022 |
| 2 | Austria | 1.411 | 0.119 | 8.434 | FAO | 2013 |
| 3 | Bahmas | 0.012 | 0.001 | 8.333 | FAO | 2012 |
| 4 | Bahrain | 0.0046 | 0.004 | 86.957 | FAO | 2000 |
| 5 | Barbados | 0.008 | 0.005 | 62.5 | FAO | 2016 |
| 6 | Belgium | 0.872 | 0.019 | 2.179 | FAO | 2013 |
| 7 | Canada | 50.656 | 1.053 | 2.079 | ICID-NC | 2017 |
| 8 | Chile | 1.727 | 1.109 | 64.215 | FAO | 2007 |
| 9 | Croatia | 0.944 | 0.025 | 2.648 | FAO | 2013 |
| 10 | Cyprus | 0.1063 | 0.055 | 51.74 | ICID-NC | 2005 |
| 11 | Czech Republic | 2.54 | 0.034 | 1.339 | FAO | 2013 |
| 12 | Denmark | 2.436 | 0.439 | 18.021 | ICID-NC | 2013 |
| 13 | Estonia | 0.6543 | 0.003 | 0.459 | ICID-NC | 2017 |
| 14 | Finland | 2.3 | 0.008 | 0.348 | ICID-NC | 2020 |
| 15 | France | 19.328 | 2.6 | 13.452 | ICID-NC | 2017 |
| 16 | Georgia | 0.1098 | 0.052 | 47.359 | ICID-NC | 2020 |
| 17 | Germany | 11.963 | 0.639 | 5.341 | FAO | 2010 |
| 18 | Greece | 3.725 | 1.517 | 40.725 | ICID-NC | 2013 |
| 19 | Hungary | 4.50 | 0.184 | 4.089 | FAO | 2014 |
| 20 | Ireland | 1.059 | 0.1 | 9.443 | ICID-NC | 2010 |
| 21 | Israel | 0.397 | 0.225 | 56.675 | ICID-NC | 2004 |
| 22 | Italy | 9.121 | 2.42 | 26.532 | ICID-NC | 2013 |
| 23 | Japan | 4.349 | 2.862 | 65.808 | ICID-NC | 2022 |
| 24 | Korea, Rep. of | 1.620796 | 1.0183 | 62.827 | ICID-NC | 2020 |
| 25 | Kuwait | 0.014 | 0.01 | 71.429 | FAO | 2006 |
| 26 | Latvia | 1.215 | 0.001 | 0.082 | ICID-NC | 2013 |
| 27 | Lithuania | 2.178 | 0.004 | 0.184 | FAO | 2012 |
| 28 | Malta | 0.0103 | 0.004 | 38.835 | FAO | 2013 |
| 29 | Netherlands | 1.066 | 0.499 | 46.811 | FAO | 2013 |
| 30 | New Zealand | 0.645 | 0.721 | 111.783 | FAO | 2012 |
| 31 | Norway | 0.808 | 0.088 | 10.891 | FAO | 2013 |
| 32 | Oman | 0.085 | 0.058 | 68.235 | FAO | 2004 |
| 33 | Poland | 11.199 | 0.075 | 0.670 | ICID-NC | 2013 |
| 34 | Portugal | 1.738 | 0.58 | 33.372 | FAO | 2007 |
| 35 | Puerto Rico | 0.111 | 0.022 | 19.82 | FAO | 2005 |
| 36 | Qatar | 0.017 | 0.012 | 70.588 | FAO | 2001 |
| 37 | Saudi Arabia | 3.619 | 1.62 | 44.764 | FAO | 2004 |
| 38 | Slovakia | 1.413 | 0.099 | 7.006 | ICID-NC | 2013 |
| 39 | Slovenia | 0.237 | 0.007 | 2.954 | ICID-NC | 2011 |
| 40 | Spain | 16.902 | 3.877 | 22.938 | ICID-NC | 2022 |
| 41 | Sweden | 2.58 | 0.155 | 6.008 | FAO | 2013 |
| 42 | Switzerland | 0.423 | 0.061 | 14.421 | FAO | 2010 |
| 43 | UK | 6.279 | 0.15 | 2.389 | ICID-NC | 2022 |
| 44 | United Arab Emirates | 0.083 | 0.092 | 110.843 | FAO | 2010 |
| 45 | Uruguay | 2.45 | 0.238 | 9.714 | FAO | 2011 |
| 46 | USA | 129.516 | 23.48 | 18.129 | USDA | 2017 & 2013 |

| Emerging/ Developing Countries | | | | | | |
|--------------------------------|------------------------|---|----------------------|------------------|---------|------|
| No. | Country | Total Cultivated Area (arable land + Perm. crops) (Mha) | Irrigated Area (Mha) | % irrigated area | Source | Year |
| 1 | Albania | 0.70 | 0.353 | 50.43 | FAO | 2015 |
| 2 | Algeria | 8.40 | 1.23 | 14.64 | FAO | 2012 |
| 3 | Angola | 5.10 | 0.085 | 1.67 | FAO | 2005 |
| 4 | Argentina | 40.20 | 2.357 | 5.86 | FAO | 2011 |
| 5 | Azerbaijan | 2.20 | 1.44 | 65.45 | FAO | 2017 |
| 6 | Bangladesh | 8.50 | 5.217 | 61.38 | ICID-NC | 2017 |
| 7 | Belarus | 5.70 | 0.03 | 0.53 | FAO | 2011 |
| 8 | Belize | 0.10 | 0.003 | 3.0 | FAO | 2005 |
| 9 | Benin | 3.20 | 0.023 | 0.72 | FAO | 2008 |
| 10 | Bhutan | 0.10 | 0.031 | 31.0 | FAO | 2010 |
| 11 | Bolivia | 4.60 | 0.297 | 6.46 | FAO | 2011 |
| 12 | Bosnia and Herzegovina | 1.10 | 0.003 | 0.27 | FAO | 2000 |
| 13 | Botswana | 0.20 | 0.001 | 0.5 | FAO | 2002 |
| 14 | Brazil | 86.60 | 5.797 | 6.69 | ICID-NC | 2013 |
| 15 | Bulgaria | 3.60 | 0.115 | 3.19 | FAO | 2013 |
| 16 | Cambodia | 3.90 | 0.353 | 9.05 | FAO | 2006 |
| 17 | Cameroon | 7.70 | 0.025 | 0.32 | FAO | 2000 |
| 18 | China | 122.50 | 65.87 | 53.77 | ICID-NC | 2017 |
| 19 | Chinese Taipei | 0.80 | 0.37 | 46.25 | ICID-NC | 2020 |
| 20 | Colombia | 3.50 | 1.087 | 31.06 | ICID-NC | 2011 |
| 21 | Congo, Rep. | 0.60 | 0.002 | 0.33 | FAO | 1993 |
| 22 | Costa Rica | 0.50 | 0.101 | 20.20 | FAO | 2013 |
| 23 | Cuba | 3.40 | 0.557 | 16.38 | FAO | 2012 |
| 24 | Djibouti | 0.00 | 0.001 | 50.0 | FAO | 1999 |
| 25 | Dominican Republic | 0.02 | 0.0002 | 1.0 | FAO | 2009 |
| 26 | Ecuador | 2.40 | 1.5 | 62.50 | FAO | 2010 |
| 27 | Egypt | 3.70 | 3.65 | 98.65 | ICID-NC | 2017 |
| 28 | El Salvador | 0.90 | 0.045 | 5.0 | FAO | 2012 |
| 29 | Fiji Island | 0.25 | 0.004 | 1.6 | FAO | 2003 |
| 30 | Gabon | 0.40 | 0.004 | 1.0 | FAO | 1987 |
| 31 | Georgia | 0.40 | 0.432 | 108.0 | FAO | 2007 |
| 32 | Ghana | 7.40 | 0.03 | 0.41 | FAO | 2000 |
| 33 | Guatemala | 2.00 | 0.337 | 16.85 | FAO | 2012 |
| 34 | Guyana | 0.40 | 0.143 | 35.75 | FAO | 2012 |
| 35 | Honduras | 1.43 | 0.089 | 6.22 | FAO | 2009 |
| 36 | India | 169.46 | 70.4 | 41.54 | FAO | 2013 |
| 37 | Indonesia | 46.00 | 6.722 | 14.61 | FAO | 2005 |
| 38 | Iran | 13.90 | 8.46 | 60.86 | ICID-NC | 2019 |
| 39 | Iraq | 7.00 | 2.37 | 33.86 | ICID-NC | 2022 |
| 40 | Jamaica | 0.09 | 0.025 | 27.78 | ICID-NC | 2022 |
| 41 | Jordan | 0.32 | 0.103 | 31.79 | FAO | 2004 |
| 42 | Kazakhstan | 29.53 | 1.2 | 4.06 | ICID-NC | 2013 |
| 43 | Kenya | 6.30 | 0.15 | 2.38 | FAO | 2010 |
| 44 | Kyrgyzstan | 1.30 | 1.02 | 78.46 | FAO | 2012 |
| 45 | Lao People DR | 1.60 | 0.31 | 19.38 | FAO | 2005 |

World Irrigated Area – Developed Countries

| | | | | | | |
|----|---------------------|--------|--------|-------|---------|------|
| 46 | Lebanon | 0.20 | 0.104 | 52.0 | FAO | 1998 |
| 47 | Libya | 2.00 | 0.4 | 20.0 | FAO | 2008 |
| 48 | Macedonia | 0.50 | 0.128 | 25.6 | FAO | 2004 |
| 49 | Malaysia | 7.60 | 0.272 | 3.58 | ICID-NC | 2020 |
| 50 | Mauritania | 0.40 | 0.045 | 11.25 | FAO | 2004 |
| 51 | Mauritius | 0.07 | 0.021 | 30.0 | FAO | 2002 |
| 52 | Mexico | 25.10 | 6.4 | 25.5 | FAO | 2009 |
| 53 | Moldova Republic | 2.10 | 0.228 | 10.86 | FAO | 2014 |
| 54 | Mongolia | 0.50 | 0.084 | 16.80 | FAO | 1993 |
| 55 | Morocco | 8.70 | 1.6 | 18.39 | ICID-NC | 2020 |
| 56 | Myanmar | 12.40 | 2.11 | 17.02 | FAO | 2004 |
| 57 | Namibia | 0.80 | 0.007 | 0.88 | FAO | 2002 |
| 58 | Nicaragua | 1.70 | 0.199 | 11.71 | FAO | 2011 |
| 59 | Nigeria | 31.40 | 0.235 | 0.75 | ICID-NC | 2022 |
| 60 | Pakistan | 30.93 | 22.74 | 73.52 | ICID-NC | 2022 |
| 61 | Panama | 0.70 | 0.032 | 4.57 | FAO | 2009 |
| 62 | Paraguay | 4.80 | 0.136 | 2.83 | FAO | 2012 |
| 63 | Peru | 4.80 | 2.58 | 53.75 | FAO | 2012 |
| 64 | Philippines | 8.26 | 1.54 | 18.64 | ICID-NC | 2022 |
| 65 | Romania | 9.00 | 0.23 | 2.56 | FAO | 2013 |
| 66 | Russia | 124.70 | 4.5 | 3.61 | ICID-NC | 2012 |
| 67 | Serbia, Republic of | 2.70 | 0.091 | 3.37 | FAO | 2011 |
| 68 | South Africa | 12.90 | 1.6 | 12.40 | ICID-NC | 2017 |
| 69 | Sri Lanka | 2.10 | 0.698 | 33.24 | ICID-NC | 2022 |
| 70 | St. Vincent | 0.01 | 0.0004 | 5.00 | FAO | 2003 |
| 71 | Suriname | 0.07 | 0.057 | 81.43 | FAO | 2011 |
| 72 | Switzerland | 0.40 | 0.061 | 15.25 | FAO | 2010 |
| 73 | Syria | 5.70 | 1.341 | 23.53 | FAO | 2010 |
| 74 | Tajikistan | 0.90 | 0.804 | 89.33 | ICID-NC | 2013 |
| 75 | Thailand | 23.88 | 5.56 | 23.28 | ICID-NC | 2020 |
| 76 | Trinidad and Tobago | 0.04 | 0.007 | 17.50 | FAO | 2004 |
| 77 | Tunisia | 5.20 | 0.486 | 9.35 | FAO | 2016 |
| 78 | Turkey | 23.90 | 6.65 | 27.82 | ICID-NC | 2020 |
| 79 | Turkmenistan | 2.00 | 1.869 | 93.45 | ICID-NC | 2013 |
| 80 | Ukraine | 33.40 | 0.61 | 1.83 | ICID-NC | 2021 |
| 81 | Uzbekistan | 4.80 | 4.312 | 89.83 | ICID-NC | 2016 |
| 82 | Venezuela | 3.40 | 1.055 | 31.03 | FAO | 2008 |
| 83 | Vietnam | 11.50 | 4.585 | 39.87 | FAO | 2005 |
| 84 | Yemen | 1.50 | 0.68 | 45.33 | FAO | 2004 |
| 85 | Zambia | 3.80 | 0.182 | 4.79 | ICID-NC | 2022 |

| Least Developed Countries | | | | | | |
|---------------------------|-------------------|---|----------------------|------------------|---------|------|
| No. | Country | Total Cultivated Area (Arable land + Perm. crops) (Mha) | Irrigated Area (Mha) | % irrigated area | Source | Year |
| 1 | Afghanistan | 7.9 | 3.208 | 40.61 | FAO | 2002 |
| 2 | Burkina Faso | 6.1 | 0.04 | 0.66 | ICID-NC | 2015 |
| 3 | Burundi | 1.6 | 0.023 | 1.44 | ICID-NC | 2011 |
| 4 | Chad | 4.9 | 0.03 | 0.61 | FAO | 2002 |
| 5 | Congo, Dem Rep of | 0.6 | 0.002 | 0.33 | FAO | 1993 |
| 6 | Eritrea | 0.6 | 0.021 | 3.50 | FAO | 1993 |
| 7 | Ethiopia | 16.2 | 0.858 | 5.30 | FAO | 2015 |
| 8 | Gambia | 0.4 | 0.005 | 1.25 | ICID-NC | 2011 |
| 9 | Guinea-bissau | 0.6 | 0.022 | 4.00 | FAO | 1996 |
| 10 | Haiti | 1.3 | 0.097 | 7.46 | FAO | 2009 |
| 11 | Korea, DP Rep. | 2.5 | 1.46 | 58.40 | FAO | 1995 |
| 12 | Lesotho | 0.3 | 0.002 | 0.67 | FAO | 1999 |
| 13 | Liberia | 0.7 | 0.002 | 0.29 | FAO | 1987 |
| 14 | Madagascar | 4.1 | 0.904 | 22.05 | FAO | 2013 |
| 15 | Malawi | 3.9 | 0.073 | 1.87 | FAO | 2006 |
| 16 | Mali | 6.5 | 0.371 | 5.71 | FAO | 2011 |
| 17 | Mozambique | 5.9 | 0.118 | 2.00 | FAO | 2010 |
| 18 | Nepal | 2.6 | 1.53 | 58.85 | ICID-NC | 2022 |
| 19 | Niger | 16.9 | 0.099 | 0.59 | FAO | 2011 |
| 20 | Rwanda | 1.4 | 0.009 | 0.64 | FAO | 2007 |
| 21 | Senegal | 3.2 | 0.119 | 3.72 | FAO | 2002 |
| 22 | Sierra Leone | 1.7 | 0.029 | 1.71 | FAO | 1992 |
| 23 | Somalia | 1.1 | 0.2 | 18.18 | ICID-NC | 2017 |
| 24 | Sudan | 20.0 | NA | NA | ICID-NC | 2017 |
| 25 | Tanzania | 15.7 | 0.184 | 1.17 | FAO | 2014 |
| 26 | Togo | 2.8 | 0.007 | 0.25 | FAO | 1996 |
| 27 | Uganda | 9.1 | 0.011 | 0.12 | FAO | 2012 |
| 28 | Zimbabwe | 4.1 | 0.193 | 4.71 | ICID-NC | 2022 |

2. World Drained Area — Developed Countries

| No. | Country | Total Drained Area (Mha) | Year | Source |
|-----|----------------------|--------------------------|------|----------|
| 1 | Australia | 2.17 | 2017 | ICID-NC |
| 2 | Austria | 0.2 | 1997 | ICID |
| 3 | Belgium | 0.07 | 1996 | ICID |
| 4 | Canada | 9.46 | 2017 | ICID-NC |
| 5 | Chile | 0.035 | 2006 | ICID |
| 6 | Croatia | 0.76 | 1990 | CEMAGREF |
| 7 | Cyprus | 0.02 | 2000 | ICID |
| 8 | Czech Re- public | 1.07 | 2011 | ICID |
| 9 | Denmark | 1.77 | 2012 | ICID |
| 10 | Estonia | 0.64 | 2017 | ICID-NC |
| 11 | Finland | 2 | 2019 | ICID-NC |
| 12 | France | 3 | 2017 | ICID-NC |
| 13 | Germany | 4.9 | 1993 | ICID |
| 14 | Greece | 0.52 | 2002 | ICID |
| 15 | Hungary | 2.3 | 2003 | ICID-NC |
| 16 | Ireland | 0.254 | 2010 | ICID-NC |
| 17 | Israel | 0.1 | 1987 | ICID |
| 18 | Italy | 5.3 | 2005 | ICID-NC |
| 19 | Japan | 3.057 | 2022 | ICID-NC |
| 20 | Korea, Repub- lic of | 1.15 | 2016 | ICID-NC |
| 21 | Latvia | 1.58 | 1995 | ICID |
| 22 | Lithuania | 2.58 | 2011 | ICID |
| 23 | Netherlands | 3 | 2010 | ICID-NC |
| 24 | Norway | 0.61 | 2012 | ICID |
| 25 | Poland | 4.21 | 1999 | ICID |
| 26 | Portugal | 0.04 | 2002 | CEMAGREF |
| 27 | Puerto Rico | 0.02 | 2000 | ICID |
| 28 | Saudi Arabia | 0.04 | 1992 | CEMAGREF |
| 29 | Slovakia | 0.6 | 1997 | ICID |
| 30 | Slovenia | 0.08 | 2007 | ICID-NC |
| 31 | Spain | 0.3 | 2022 | ICID-NC |
| 32 | Sweden | 1.1 | 1996 | ICID |
| 33 | Switzerland | 0.16 | 2002 | CEMAGREF |
| 34 | UK | 1.2 | 2017 | ICID-NC |
| 35 | USA | 47.5 | 2017 | ICID-NC |

| Emerging/ Developing Countries | | | | |
|--------------------------------|----------------|----------------------------|------|---------|
| No. | Country | Total Dri-ained Area (Mha) | Year | Source |
| 1 | Albania | 0.28 | 1999 | ICID |
| 2 | Algeria | 0.06 | 1999 | ICID |
| 3 | Argentina | 0.13 | 2002 | ICID |
| 4 | Azerbaijan | 0.61 | 2013 | ICID |
| 5 | Bangla- desh | 1.5 | 2017 | ICID-NC |
| 6 | Belarus | 3 | 1993 | ICID |
| 7 | Bolivia | 0.02 | 2000 | ICID |
| 8 | Brazil | 1.08 | 2013 | ICID-NC |
| 9 | Bulgaria | 0.08 | 2000 | ICID |
| 10 | China | 21.14 | 2017 | ICID-NC |
| 11 | Chinese Taipei | 0.37 | 2020 | ICID-NC |

| | | | | |
|----|-----------------|------|------|----------|
| 12 | Colombia | 0.23 | 1989 | ICID |
| 13 | Costa Rica | 0.04 | 1999 | ICID |
| 14 | Cuba | 0.33 | 1997 | ICID |
| 15 | Dominican Rep. | 0.03 | 2000 | ICID |
| 16 | Ecuador | 0.05 | 1998 | ICID |
| 17 | Egypt | 3.36 | 2017 | ICID-NC |
| 18 | El Salvador | 0.01 | 1997 | ICID |
| 19 | Fiji Island | 0.01 | 2000 | CEMAGREF |
| 20 | Georgia | 0.16 | 1996 | ICID |
| 21 | Guyana | 0.15 | 1991 | ICID |
| 22 | Honduras | 0.06 | 1991 | ICID |
| 23 | India | 5.8 | 1991 | CEMAGREF |
| 24 | Indonesia | 3.35 | 1990 | CEMAGREF |
| 25 | Iran | 0.39 | 2019 | ICID-NC |
| 26 | Iraq | 1.37 | 2020 | ICID-NC |
| 27 | Jamaica | 0.01 | 2023 | ICID-NC |
| 28 | Jordan | 0.01 | 2008 | ICID |
| 29 | Kazakhstan | 0.45 | 2013 | ICID-NC |
| 30 | Kenya | 0.03 | 2003 | ICID |
| 31 | Kyrgystan | 0.2 | 2013 | ICID |
| 32 | Lebanon | 0.01 | 2001 | ICID |
| 33 | Libya | 0.01 | 2000 | ICID |
| 34 | Malaysia | 0.03 | 2020 | ICID-NC |
| 35 | Mexico | 5.2 | 1997 | CEMAGREF |
| 36 | Mongolia | 1.5 | 2000 | ICID |
| 37 | Morocco | 0.2 | 2020 | ICID-NC |
| 38 | Myanmar | 0.19 | 1994 | CEMAGREF |
| 39 | Pakistan | 7.86 | 2015 | ICID-NC |
| 40 | Paraguay | 0.01 | 2000 | ICID |
| 41 | Peru | 0.08 | 2000 | ICID |
| 42 | Phillipines | 2.72 | 2008 | ICID-NC |
| 43 | Romania | 1.83 | 2008 | ICID-NC |
| 44 | Russia | 4.78 | 2007 | ICID-NC |
| 45 | Serbia, Rep. of | 0.4 | 2000 | ICID |
| 46 | South Africa | 0.06 | 2017 | ICID |
| 47 | Sri Lanka | 0.03 | 2022 | ICID-NC |
| 48 | Suriname | 0.05 | 1998 | ICID |
| 49 | Syria | 0.27 | 1993 | ICID |
| 50 | Tajikistan | 0.33 | 2013 | ICID-NC |
| 51 | Thailand | 0.16 | 1997 | CEMAGREF |
| 52 | Tunisia | 0.2 | 2000 | ICID |
| 53 | Turkey | 3.44 | 2018 | ICID-NC |
| 54 | Turkmenistan | 1.1 | 2013 | ICID |
| 55 | Ukraine | 3.33 | 2020 | ICID-NC |
| 56 | Uzbekistan | 3.3 | 2014 | ICID-NC |
| 57 | Venezuela | 0.31 | 2002 | ICID |
| 58 | Vietnam | 1 | 1994 | ICID |
| 59 | Yemen | 1.5 | 2000 | ICID |

| Least Developed Countries | | | | |
|---------------------------|----------|--------------------------|------|---------|
| Sl. No. | Country | Total Drained Area (Mha) | Year | Source |
| 1 | Zimbabwe | 0.025 | 2022 | ICID-NC |

3. Sprinkler and Micro Irrigated area

Arranged in descending order of the total sprinkler and micro irrigated area

| No. | Country | Total irrigated area (Mha) | Sprinkler irrigation (ha) | Micro Irrigation (ha) | Total Spr + MI (ha) | % of total irrigated area | Year of Rporting |
|-----|----------------|----------------------------|---------------------------|-----------------------|---------------------|---------------------------|------------------|
| 1 | USA | 23.48 | 1,41,21,157 | 19,78,879 | 1,61,00,036 | 68.57 | 2017&2013 |
| 2 | India | 70.40 | 35,90,000 | 1,23,00,000 | 1,58,90,000 | 22.57 | 2023 |
| 3 | China | 65.87 | 37,30,000 | 52,70,000 | 90,00,000 | 13.66 | 2017 |
| 4 | Brazil | 5.80 | 38,57,104 | 6,21,346 | 44,78,450 | 77.25 | 2013 |
| 5 | Spain | 3.88 | 8,97,174 | 21,16,591 | 30,13,765 | 77.73 | 2022 |
| 6 | Turkey | 6.65 | 14,30,000 | 11,20,000 | 25,50,000 | 38.35 | 2020 |
| 7 | Russia | 4.5 | 25,00,000 | 47,000 | 25,47,000 | 56.60 | 2012 |
| 8 | Iran | 8.46 | 10,02,309 | 10,15,577 | 20,17,886 | 23.85 | 2019 |
| 9 | France | 2.6 | 13,79,800 | 1,03,300 | 14,83,100 | 57.04 | 2017 |
| 10 | Italy | 2.42 | 9,58,535 | 4,22,534 | 13,81,069 | 57.07 | 2013 |
| 11 | South Africa | 1.67 | 9,20,059 | 3,65,342 | 12,85,401 | 76.97 | 2017 |
| 12 | Australia | 2.15 | 8,20,000 | 2,17,000 | 10,37,000 | 48.23 | 2022 |
| 13 | Saudi Arabia | 1.62 | 7,16,000 | 1,98,000 | 9,14,000 | 56.42 | 2004* |
| 14 | Morocco | 1.6 | 90,000 | 6,00,000 | 6,90,000 | 43.13 | 2020 |
| 15 | Canada | 1.053 | 6,83,029 | 6,034 | 6,89,063 | 65.44 | 2017 |
| 16 | Ukraine | 0.61 | 5,40,500 | 69,500 | 6,10,000 | 100.00 | 2021 |
| 17 | Azerbaijan | 1.44 | 6,07,000 | 100.0 | 6,07,100 | 42.25 | 2017* |
| 18 | Mexico | 6.2 | 4,00,000 | 2,00,000 | 6,00,000 | 9.68 | 1999 |
| 19 | Egypt | 3.65 | 4,50,000 | 1,04,000 | 5,54,000 | 15.18 | 2017 |
| 20 | Germany | 0.639 | 5,00,000 | 5,000 | 5,05,000 | 79.03 | 2006* |
| 21 | Romania | 0.23 | 4,48,000 | 4,000 | 4,52,000 | 196.52 | 2013* |
| 22 | Slovak Rep. | 0.313 | 3,10,000 | 2,650 | 3,12,650 | 99.89 | 2000 |
| 23 | Syria | 1.341 | 1,87,100 | 62,000 | 2,49,100 | 18.58 | 2010* |
| 24 | Israel | 0.225 | 60,000 | 1,70,000 | 2,30,000 | 102.22 | 2000* |
| 25 | Hungary | 0.22 | 1,85,000 | 7,000 | 1,92,000 | 87.27 | 2008 |
| 26 | Moldova | 0.228 | 1,45,000 | 15,000 | 1,60,000 | 70.18 | 2012 |
| 27 | Korea, Rep. of | 1.018 | 71,000 | 80,599 | 1,51,599 | 14.89 | 2020 |
| 28 | Iraq | 2.379 | 70,866 | 77,188 | 1,48,054 | 6.22 | 2022 |
| 29 | Zimbabwe | 0.193 | 90,000 | 25,000 | 1,15,000 | 59.59 | 2022 |
| 30 | UK | 0.15 | 1,05,000 | 6,000 | 1,11,000 | 74.00 | 2017 |
| 31 | Chile | 1.11 | 57,400 | 23,000 | 80,400 | 7.25 | 2007* |
| 32 | Portugal | 0.58 | 40,000 | 25,000 | 65,000 | 11.21 | 1999* |
| 33 | Malawi | 0.073 | 43,190 | 5,450 | 48,640 | 66.63 | 2000* |
| 34 | Chinese Taipei | 0.37 | 12,631 | 13,148 | 25,779 | 6.97 | 2020 |
| 35 | Bulgaria | 0.588 | 21,000 | 3,000 | 24,000 | 4.08 | 2008 |
| 36 | Czech Rep. | 0.153 | 11,000 | 5,000 | 16,000 | 10.46 | 2011 |

Sprinkler and Micro Irrigated area

Arranged in descending order of the total sprinkler and micro irrigated area

| | | | | | | | |
|----|--------------|-------|--------|-------|--------|--------|-------|
| 37 | Poland | 0.1 | 5,000 | 8,000 | 13,000 | 13.00 | 2008 |
| 38 | Philippines | 1.54 | 4,500 | 6,635 | 11,135 | 0.72 | 2006* |
| 39 | Finland | 0.008 | 7,000 | 1,000 | 8,000 | 100.00 | 2020 |
| 40 | Uzbekistan | 4.312 | 5,000 | 2,000 | 7,000 | 0.16 | 2017 |
| 41 | Malaysia | 0.272 | 2,000 | 5,000 | 7,000 | 2.57 | 2020 |
| 42 | Macedonia | 0.055 | 5,000 | 1,000 | 6,000 | 10.91 | 2008 |
| 43 | Burkina Faso | 0.04 | 4,500 | 280 | 4,780 | 11.95 | 2015 |
| 44 | Estonia | 0.003 | 100 | 500 | 600 | 20.00 | 2017 |
| 45 | Sudan | 1.89 | 42,000 | - | - | 0.00 | 2012 |
| 46 | Nepal | 1.53 | - | - | - | 0.00 | 2022 |
| 47 | Georgia | 0.052 | - | - | - | 0 | 2020 |
| 48 | Japan | 2.893 | - | - | - | 0 | 2020 |

* Source FOA

Developed Countries

| No. | Country | Total irrigated area (Mha) | Sprinkler irrigation (ha) | Micro Irrigation (ha) | Total Spr + MI (ha) | % of total irrigated area | Year of reporting |
|-----|----------------|----------------------------|---------------------------|-----------------------|---------------------|---------------------------|-------------------|
| 1 | USA | 23.48 | 1,41,21,157 | 19,78,879 | 1,61,00,036 | 68.57 | 2017&2013 |
| 2 | Spain | 3.88 | 8,97,174 | 21,16,591 | 30,13,765 | 77.73 | 2022 |
| 3 | France | 2.6 | 13,79,800 | 1,03,300 | 14,83,100 | 57.04 | 2017 |
| 4 | Italy | 2.42 | 9,58,535 | 4,22,534 | 13,81,069 | 57.07 | 2013 |
| 5 | Australia | 2.15 | 8,20,000 | 2,17,000 | 10,37,000 | 48.23 | 2022 |
| 6 | Saudi Arabia | 1.62 | 7,16,000 | 1,98,000 | 9,14,000 | 56.42 | 2004* |
| 7 | Canada | 1.053 | 6,83,029 | 6,034 | 6,89,063 | 65.44 | 2017 |
| 8 | Germany | 0.639 | 5,00,000 | 5,000 | 5,05,000 | 79.03 | 2006* |
| 9 | Slovak Rep. | 0.313 | 3,10,000 | 2,650 | 3,12,650 | 99.89 | 2000 |
| 10 | Israel | 0.225 | 60,000 | 1,70,000 | 2,30,000 | 102.22 | 2000* |
| 11 | Hungary | 0.22 | 1,85,000 | 7,000 | 1,92,000 | 87.27 | 2008 |
| 12 | Korea, Rep. of | 1.018 | 71,000 | 80,599 | 1,51,599 | 14.89 | 2020 |
| 13 | UK | 0.15 | 1,05,000 | 6,000 | 1,11,000 | 74.00 | 2017 |
| 14 | Chile | 1.11 | 57,400 | 23,000 | 80,400 | 7.25 | 2007* |
| 15 | Portugal | 0.58 | 40,000 | 25,000 | 65,000 | 11.21 | 1999* |
| 16 | Czech Rep. | 0.153 | 11,000 | 5,000 | 16,000 | 10.46 | 2011 |
| 17 | Poland | 0.1 | 5,000 | 8,000 | 13,000 | 13.00 | 2008 |
| 18 | Finland | 0.008 | 7,000 | 1,000 | 8,000 | 100.00 | 2020 |
| 19 | Estonia | 0.003 | 100 | 500 | 600 | 20.00 | 2017 |
| 20 | Georgia | 0.052 | - | - | - | 0 | 2020 |
| 21 | Japan | 2.893 | - | - | - | 0 | 2020 |

* Source FOA

Emerging/Developing Countries

| No. | Country | Total irrigated area (Mha) | Sprinkler irrigation (ha) | Micro Irrigation (ha) | Total Spr + MI (ha) | % of total irrigated area | Year of reporting |
|-----|----------------|----------------------------|---------------------------|-----------------------|---------------------|---------------------------|-------------------|
| 1 | India | 70.40 | 35,90,000 | 1,23,00,000 | 1,58,90,000 | 22.57 | 2023 |
| 2 | China | 65.87 | 37,30,000 | 52,70,000 | 90,00,000 | 13.66 | 2017 |
| 3 | Brazil | 5.80 | 38,57,104 | 6,21,346 | 44,78,450 | 77.25 | 2013 |
| 4 | Turkey | 6.65 | 14,30,000 | 11,20,000 | 25,50,000 | 38.35 | 2020 |
| 5 | Russia | 4.5 | 25,00,000 | 47,000 | 25,47,000 | 56.60 | 2012 |
| 6 | Iran | 8.46 | 10,02,309 | 10,15,577 | 20,17,886 | 23.85 | 2019 |
| 7 | South Africa | 1.67 | 9,20,059 | 3,65,342 | 12,85,401 | 76.97 | 2017 |
| 8 | Morocco | 1.6 | 90,000 | 6,00,000 | 6,90,000 | 43.13 | 2020 |
| 9 | Ukraine | 0.61 | 5,40,500 | 69,500 | 6,10,000 | 100.00 | 2021 |
| 10 | Azerbaijan | 1.44 | 6,07,000 | 100.0 | 6,07,100 | 42.25 | 2017* |
| 11 | Mexico | 6.2 | 4,00,000 | 2,00,000 | 6,00,000 | 9.68 | 1999 |
| 12 | Egypt | 3.65 | 4,50,000 | 1,04,000 | 5,54,000 | 15.18 | 2017 |
| 13 | Romania | 0.23 | 4,48,000 | 4,000 | 4,52,000 | 196.52 | 2013* |
| 14 | Syria | 1.341 | 1,87,100 | 62,000 | 2,49,100 | 18.58 | 2010* |
| 15 | Moldova | 0.228 | 1,45,000 | 15,000 | 1,60,000 | 70.18 | 2012 |
| 16 | Iraq | 2.379 | 70,866 | 77,188 | 1,48,054 | 6.22 | 2022 |
| 17 | Chinese Taipei | 0.37 | 12,631 | 13,148 | 25,779 | 6.97 | 2020 |
| 18 | Bulgaria | 0.588 | 21,000 | 3,000 | 24,000 | 4.08 | 2008 |
| 19 | Philippines | 1.54 | 4,500 | 6,635 | 11,135 | 0.72 | 2006* |
| 20 | Uzbekistan | 4.312 | 5,000 | 2,000 | 7,000 | 0.16 | 2017 |
| 21 | Malaysia | 0.272 | 2,000 | 5,000 | 7,000 | 2.57 | 2020 |
| 22 | Macedonia | 0.055 | 5,000 | 1,000 | 6,000 | 10.91 | 2008 |
| 23 | Sudan | 1.89 | 42,000 | - | - | 0.00 | 2012 |

* Source FOA

Least Developed Countries

| No. | Country | Total irrigated area (Mha) | Sprinkler irrigation (ha) | Micro Irrigation (ha) | Total sprinkler +MI (ha) | % of total irrigated area | Year of reporting |
|-----|--------------|----------------------------|---------------------------|-----------------------|--------------------------|---------------------------|-------------------|
| 1 | Malawi | 0.073 | 43,190 | 5,450 | 48,640 | 66.63 | 2000* |
| 2 | Nepal | 1.53 | - | - | - | 0 | 2022 |
| 3 | Burkina Faso | 0.04 | 4,500 | 280 | 4,780 | 11.95 | 2015 |
| 4 | Zimbabwe | 0.193 | 90,000 | 25,000 | 1,15,000 | 59.59 | 2022 |

* Source FOA

Country Category

| S.No. | Country | Total Irrigated Area (Mha) | Sprinkler Irrigation (ha) | Micro Irrigation (ha) | Total Sprinkler + MI (ha) | % of total irrigated area | % Sprinkler | % Micro Irrigation | % Total Sprinkler + MI |
|-------|--------------------------------|----------------------------|---------------------------|-----------------------|---------------------------|---------------------------|-------------|--------------------|------------------------|
| 1 | Developed Countries | 44.663 | 2,09,27,195 | 53,76,087 | 2,63,03,282 | 58.89 | 50.89 | 19.69 | 38.44 |
| 2 | Emerging/ Developing Countries | 190.05 | 2,00,60,069 | 2,19,01,836 | 4,19,61,905 | 22.08 | 48.78 | 80.20 | 61.32 |
| 3 | Least Developed Countries | 1.836 | 1,37,690 | 30,730 | 1,68,420 | 9.17 | 0.33 | 0.11 | 0.25 |





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