

Annual Report 2013-14



INTERNATIONAL COOPERATION IN AGRICULTURE WATER MANAGEMENT



ICID•CIID

INTERNATIONAL COMMISSION ON IRRIGATION AND DRAINAGE



Annual Report 2013-14

OUTLINE

Who we are:

The International Commission on Irrigation and Drainage (ICID) is a technical and voluntary not-for-profit non-governmental international organization (NGO), dedicated, inter alia, to enhance the world-wide supply of food and fibre for all people by improving water and land management, and the productivity of irrigated and drained lands.

About this report

This Annual Report for the financial year 2013-14 provides a glimpse of the activities undertaken by ICID as a network along with its partners.

Find out more about the activities of ICID

at www.icid.org

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Acknowledgement

ICID is grateful to the members whose financial and in kind contributions help implement our mission and programmes. For financial information, please see page 70. ICID wishes to thank all those who have contributed to this Annual Report.

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Photo: AFEID

ABBREVIATIONS

ABID	Brazilian National Committee, ICID	FAO-RAP	FAO Regional Office for Asia and the Pacific
ADB	Asian Development Bank	FCRA	Foreign Contribution Regulation Act
AFEID	Association Française pour l'Etude des Irrigations et du Drainage (French National Committee on Irrigation and Drainage)	FIJICID	Fiji National Committee on Irrigation and Drainage
AFGICID	Afghanistan National Committee of ICID	FINCID	Finnish National Committee on Irrigation and Drainage
AFRWG	African Regional Working Group	GB	Governing Board
AGORA	Access to Global Online Research in Agriculture	GECID	German National Committee of ICID
AIF	Asian Irrigation Forum	GFCS	Global Framework for Climate Services
AMID	Association Malienne des Irrigations et du Drainage (Malian Committee of Irrigation and Drainage)	GIS	Geographic Information Services
AMRWG	American Regional Working Group	GL	Gigalitre
ANAFIDE	Association Nationale des Améliorations Foncières de l'Irrigation, du Drainage et de l'Environnement (Moroccan National Committee on Irrigation and Drainage)	GMID	Goulburn Murray Irrigation District
ANID	Association Nigérienne pour l'Irrigation et le Drainage (Niger National Committee on Irrigation and Drainage)	GRCID	Greek National Committee, ICID
ARTF-CC	Asian Regional Task Force on Climate Change and Irrigation	GUCID	Guyana National Committee, ICID
ASRWG	Asian Regional Working Group	GWP	Global Water Partnership
ATID	L'Association Tchadienne pour l'Irrigation et le Drainage (Chad National Committee on Irrigation and Drainage)	HIS	Heritage Irrigation Structure
AUNCID	Austrian National Committee on Irrigation and Drainage	Hon.	Honoraire
AWC	Arab Water Council	HUCID	Hungarian National Committee of ICID
AWD	Alternate Wetting and Drying	IACID	Irrigation Australia's Committee on Irrigation & Drainage
BANCID	Bangladesh National Committee on Irrigation and Drainage	IAL	Irrigation Australia Ltd
BCM	Billion Cubic Meters	IARI	Indian Agricultural Research Institute
CBIP	Central Board of Irrigation and Power	ICARDA	International Center for Agricultural Research in the Dry Area
C-CONGR	Committee on Congresses/Conferences	ICID	International Commission on Irrigation and Drainage
CEE-GWP	Central and Eastern Europe Global Water Partnership	ICOLD	International Commission on Large Dams
CEE-GWP	Central and Eastern Europe Global Water Partnership	ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
CEGIS	Center for Environmental and Geographic Information Services	IDMP	Integrated Drought Management Program
CERYD	Comité Español de Riegos y Drenajes (Spanish National Committee on Irrigation and Drainage)	IDW	International Drainage Workshop
CH-AGRAM	Swiss National Commission on Agro-Systems and Land Improvement	IEC	International Executive Council
CHICID	Comité Nacional Chileno de Riego y Drenaje (Chilean National Committee on Irrigation and Drainage)	IFAD	International Fund for Agricultural Development
CI	Controlled irrigation	IFDM	Integrated On-Farm Drainage Management
CNCID	Chinese National Committee on Irrigation and Drainage	IFPRI	International Food Policy Research Institute
CNRID	Romanian National Committee on Irrigation and Drainage	IGS	International Geosynthetics Society
CO	Central Office	IHA	International Hydropower Association
C-PR&P	Committee on Public Relations and Publications	IMIS	International Micro Irrigation Symposia
CPSP	Country Policy Support Program	INACID	Indonesian National Committee on Irrigation and Drainage
CRCID	Croatian Committee on Irrigation and Drainage	INCGEM	Indian National Committee on Construction Materials and Structures
CTCID	ICID-Chinese Taipei Committee	INCH	Indian National Committee on Hydraulics
CWC	Central Water Commission	INCID	Indian National Committee on Irrigation and Drainage
CYCID	Cyprus National Committee on Irrigation and Drainage	INCOH	Indian National Committee on Hydrology
CZNC-ICID	Czech Committee of the International Commission on Irrigation and Drainage	INCSW	Indian National Committee on Surface Water
DM	Direct membership	INWEPF	International Network for Water and Ecosystem in Paddy Fields
DSI	General Directorate of State Hydraulic Works (Turkey)	IRCID	Irish National Committee on Irrigation and Drainage
EB-JOUR	ICID Journal Editorial Board	IRNCID	Iranian National Committee on Irrigation and Drainage
EECCA	Eastern Europe, Caucasus and Central Asia	IRQCID	Iraqi National Committee on Irrigation and Drainage
EEPCO	Ethiopian Electric Power Corporation	IRRI	International Rice Research Institute
ENCID	Egyptian National Committee on Irrigation and Drainage	ISCID	Israeli National Committee on Irrigation and Drainage
EPADP	Egyptian Public Authority on Drainage Projects	ISO	International Organization for Standardization
ERWG	European Regional Working Group	ISW	In-stream wetland treatment
ESTICID	ICID National Committee of Estonia	ITAC	International Technical Advisory Committee
ETCID	Ethiopian Committee on Irrigation and Drainage	ITAL-ICID	Comitato Nazionale Italiano, ICID (Italian National Committee of ICID)
EWDTRA	European Work Team on Drainage	ITP	IWMI-Tata Water Policy Program
EWT-SIM	European Work Team on Sustainable Irrigation Management	IWALC	International Water-related Associations' Liaison Committee
EWTSIM	The European Work Team on Sustainable Irrigation Management	IWF	India Water Foundation, India
EWT-WRRA	European Work Team on Water Related Risk Analysis	IWF/ICID.UK	The Irrigation and Water Forum – British National Committee of the International Commission on Irrigation and Drainage
FAO	Food and Agricultural Organization	IWMI	International Water Management Institute
		IWRA	International Water Resources Association
		IWRM	Integrated Water Resources Management
		IWW	India Water Week
		JNC-ICID	Japanese National Committee on Irrigation and Drainage
		KAZCID	National Committee of Kazakhstan on Irrigation and Drainage
		KCID	Korean National Committee on Irrigation and Drainage

KYRCID	Kyrgyz National Committee on Irrigation and Drainage	TANCID	Tanzania National Committee on Irrigation and Drainage
LCA	Life Cycle Approaches	TCC	Total Channel Control
LCBC	Lake Chad Basin Commission	TF-BIO-ENERGY	Task Force on Water for Bio-Energy and Food
LDCs	Least Developed Countries	TF	Task Force
LID	Land Improvement Districts	TF-FIN	Task Force on Financing Water for Agriculture
LTCE	Long Term Cap Equivalent	TF-SEDIMENTATION	Task Force on Sedimentation of Reservoirs
LTCID	Lithuanian National Committee on Irrigation and Drainage	TF-VE	Task Force on Value Engineering
MAGRAMA	Ministry of Agriculture, Food and Environment, Spain	TF-WWF7	Task Force to Guide ICID Inputs to World Water Forum 7
MAKCID	Comite Nationale d'Irrigation et de Drainage de Macédoine (Macedonian National Committee on Irrigation and Drainage)	THAICID	Thai National Committee on Irrigation and Drainage
MANCID	Malaysian National Committee on Irrigation and Drainage	TKI	The Kaiteki Institute, Inc., Japan
MASSCOTE	Mapping System and Services for Canal Operation Techniques	TUCID	Turkish National Committee on Irrigation and Drainage
MASSMUS	Mapping Systems and Services for Multiple Uses	UACID	Ukraine National Committee on Irrigation and Drainage
MB	Management Board	UEA	University of East Anglia
MDBA	Murray-Darling Basin Authority	UEMOA	West African Economic and Monetary Union
MDG	Millennium Development Goals	UIP	User Interface Platform
MNCID	Myanmar National Committee on Irrigation and Drainage	UN	United Nations
MoU	Memorandum of Understanding	UNCSD	United Nations Conference on Sustainable Development
MoWR	Ministry of Water Resources	UNDP	United Nations Development Programme
MT	Management Transfer	UNESCO	United Nations Educational, Scientific and Cultural Organization
MUS	Multiple Use water Services	UNESCO-IHE	UNESCO-IHE Institute for Water Education
MWR	Ministry of Water Resources	UNU-INWEH	United Nations University Institute on Water, Environment and Health
MXCID	Mexican National Committee on Irrigation and Drainage	UNW-DPC	UN-Water Decade Programme on Capacity Development
NAWQAM	National Water Quality and Availability Management Project	URUCID	Uruguay National Committee on Irrigation and Drainage
NC	National Committees/Committee	USCID	United States Committee on Irrigation and Drainage
NDC-WWC	New Delhi Center of the World Water Council	UzNCID	Uzbekistan National Committee on Irrigation and Drainage
NENCID	Nepal National Committee on Irrigation and Drainage	VP	Vice President
NETHCID	Netherlands National ICID Committee	VPH	Vice President Honoraire
NGO	Non-Governmental Organization	WAPCOS	WAPCOS Ltd., India
NINCID	Nigerian National Committee on Irrigation and Drainage	WATSAVE	Water Saving
NVIRP	Northern Victoria Irrigation Renewal Project	WB	Workbody
O&M	Operation and Management	WFO	World Farmers Organization
OARE	Online Access to Research in the Environment	WG	Working Group
PANCID	Pakistan National Committee on Irrigation and Drainage	WG-CAFM	Working Group on Comprehensive Approaches to Flood Management
PAWEES	International Society of Paddy and Water Environment Engineers	WG-CLIMATE	Working Group on Global Climate Change and Agricultural Water Management
PCSO	Permanent Committee on Strategy and Organization	WG-CROP	Working Group on Water and Crops
PCTA	Permanent Committee for Technical Activities	WG-DRG	Working Group on Drainage
PFC	Permanent Finance Committee	WG-DROUGHT	Working Group on Water Management in Water Stressed Regions
PH	President Honoraire	WG-ENV	Working Group on Environment
PIM	Participatory Irrigation Management	WG-HIST	Working Group on History of Irrigation, Drainage and Flood Control
PNC-ICID	Philippine National Committee on Irrigation and Drainage	WG-IDSST	Working Group on Irrigation and Drainage in the States under Socio-Economic Transformation
PNCID	Portuguese National Committee on Irrigation and Drainage	WG-MDGs	Working Group on Millennium Development Goals
PWP	Pakistan Water Partnership	WG-MIS	Working Group on Modernization of Irrigation Services
QNFSF	Qatar National Food Security Programme	WG-ON-FARM	Working Group on On-Farm Irrigation Systems
RAID	Regional Association for Irrigation and Drainage	WG-POVERTY	Working Group on Role of Irrigation in Poverty Alleviation and Livelihoods
RID	Royal Irrigation Department	WG-PQW	Working Group on Use of Poor Quality Water for Irrigation
RUCID	National Committee of the Russian Federation on Irrigation and Drainage	WG-SDTA	Working Group on Sustainable Development of Tidal Areas
SADC	Southern African Development Community	WG-TRUE	Working Group on Technology and Research Uptake and Exchange
SANCID	South African National Committee on Irrigation and Drainage	WG-WATS	Working Group on Water Saving for Agriculture
SARIA	Southern African Regional Irrigation Association	WG-YPF	Working Group on Young Irrigation Professionals Forum
SARIA	The Southern African Regional Irrigation Association	WID	World Irrigation and Drainage
SC	Staff Committee	WIF	World Irrigation Forum
SCADA	Supervisory Control and Data Acquisition	WMO	World Meteorological Organization
SDGs	Sustainable Development Goals	WUAs	Water User Associations
SG	Secretary General	WUGs	Water User Groups
SGH	Secretary General Honoraire	WWAP	World Water Assessment Programme
SIC-ICWC	Scientific Information Center of Interstate Coordination Water Commission of Central Asia	WWC	World Water Council
SINCID	Slovenian National Committee on Irrigation and Drainage	WWD	World Water Day
SIWI	Stockholm International Water Institute	WWF	World Wide Fund for Nature
SLNICID	Sri Lanka National Committee, ICID	WWF-7	7th World Water Forum
SOHAM-Nepal	Society of Hydrologists and Meteorologists	YUGCID	Yugoslav Association on Irrigation and Drainage (Erstwhile)
SOMIS	Service Oriented Management of Irrigation Systems	ZACID	Zambian National Committee on Irrigation and Drainage
SSD	Sub Surface Drainage	ZwCID	Zimbabwe National Committee on Irrigation and Drainage
SU/Yapi	Su-Yapi Engineering and Consultancy Inc., Turkey		
SWWW	Stockholm World Water Week		
SYCID	Syrian National Committee on Irrigation and Drainage		

FOREWORD



Climate change, growing population, rapid urbanization, increasing standards of living, and consequent cumulative food requirements are putting ever-increasing pressure on freshwater resources. Considering that water cooperation benefits economic, social and environmental relations and is crucial to ensure its sustainable and equitable distribution in order to maintain peaceful relations within and among communities. The year 2013 was declared by the UN General Assembly as the 'International Year for Water Cooperation' to highlight successful examples of water cooperation and explore key issues, including transboundary water management and technical and financial cooperation.

Experts from various disciplines and decision-makers from different sectors have to cooperate and mainstream awareness on water management among all stakeholders. At the community level users cooperate through water users' association (WUA); at the transboundary level joint management institutions distribute and protect shared resources; and at the international level institutions like ICID bring together various stakeholders from irrigation and drainage sector to promote the sustainable management of water for agriculture worldwide.

Irrigation water systems, at the local as well as national levels, are multifaceted endeavours that require interaction of various users, sectors, and institutions. Inclusive and participatory governance of water and cooperation with different user groups can help to overcome inequity in access to water, enhance water security and overcome water scarcity and thus contribute to poverty eradication. Sustainable use and efficient management of the irrigation systems requires understanding and cooperation among multiple actors. The complexity rises to another degree in case internationally shared river basins lack formal mechanism for cooperation and collaborations. The financial year 2013-14, under report, saw different ICID activities pushing its mission further through enhanced cooperation.

The cooperation mechanisms used by ICID network of experts from member National Committees and partner organizations range from simple exchange of information through its annual meetings where practitioners, researchers and planners from both developed and developing countries participate, to collating latest research and innovations through its Journal on Irrigation and Drainage, developing guidance material and their dissemination through various channels including ICID website. It supports knowledge sharing concerning all aspects of agriculture water management including collation of irrigation statistics; data and information exchange; and sharing of management strategies, best practices and knowledge. Efforts were made to support the initiative to formally recognize and encourage multi-use of irrigation systems.

Declaration of the youth participants of the launching of the 2013 'International Year of Water Cooperation' expressed their concern about the insufficient knowledge and capacities at various levels to tackle issues arising from global changes including climate change, frequent natural disasters, desertification and rapid depletion of potable water resources. They expressed the need to stimulate solidarity and cooperation among different actors, including leaders and youth to achieve a lasting impact to overcome these water challenges.

Taking cue from this call and in consonance with its own mission, ICID has taken a few new initiatives to enhance cooperation in the field of agriculture water management. The year under report saw the successful organization of First World Irrigation Forum (WIF1) that provided a platform to all stakeholders working on the intersection of agriculture and water sectors in order for them to put across their perspective. After successful recognition of proven water saving technologies over the years through its WatSave Awards instituted in 1996, ICID launched the World Irrigation and Drainage Prize to recognize life time contribution of individuals and institutions to the field of irrigation and drainage. At the same time the initiative to attract

Young Professionals to the not so attractive career in agricultural water management was taken one step further by floating a scholarship for Young Professionals enabling their participation in the international events organized by ICID. At the same time the communication and dissemination strategy at ICID is utilising latest tools provided by the information technology for ease of access for IT savvy youth.

A couple of other initiatives are also in the offing. With a view to draw best lessons from the indigenous knowledge and historical projects and systems, during the year ICID has proposed a scheme to World Water Council (WWC) to recognize the contribution of communities in managing various water management systems, particularly the irrigation systems. ICID has already started the process of designating historical irrigation structures as "Heritage Irrigation Structures (HIS)".

During the year many experts from member countries and partner organizations and direct members, working on a voluntary basis, shared their knowledge and expertise to fulfil the mandate of ICID. I would like to acknowledge their contributions without which the activities and initiatives taken would not have been possible. Although the complete list of such contributions is provided in the acknowledgment section of this report, I would like to particularly mention three: Mr. Akif OZKALDI, President of the Turkish National Committee of ICID (TUCID), Dr. Hüseyin GÜNDOĞDU, Vice President from Turkey and President Hon. Prof. Dr. Bart Schultz, whose untiring efforts saw the successful organization of the First World Irrigation Forum (WIF1). President Gao Zhanyi, through his dynamic leadership, envisioned and guided these activities.

On behalf of the staff at ICID Central Office in New Delhi, I take this opportunity to re-assure all our members, partners and patrons of our continued commitment to facilitate them in all their cooperative efforts for fulfilling the mission of ICID and contributing towards equitable and sustainable food and water security. As always, we look forward to your feedbacks not only on this Annual Report but also in all our efforts to serve you.



Avinash C. Tyagi
SECRETARY GENERAL

ABOUT ICID

A. What We Are?

- **We are serving the world community for over six decades**

International Commission on Irrigation and Drainage (ICID) is a leading scientific, technical, and professional international not-for-profit organization in the fields of irrigation, drainage, and flood management. The Commission was established on 24 June 1950 with New Delhi, India as its Secretariat. The

objective of the Commission is to enhance the world-wide supply of food and fibre for all people by improving water and land management, and the productivity of irrigated and drained lands through the appropriate management of water, environment and the application of irrigation, drainage and flood management techniques.



- **Our Mission is 'managing water for sustainable agriculture'**

The mission of ICID is to stimulate and promote the development and application of the arts, sciences and techniques of engineering, agriculture, economics, ecological and social sciences in managing water and land resources for irrigation, drainage and flood management for achieving sustainable irrigated agriculture.

ICID addresses all the issues related to entire spectrum of agricultural water management practices ranging from rainfed agriculture to supplemental irrigation, land drainage, deficit irrigation to full irrigation, etc.

- **Our membership network is spread across the world**

ICID promotes its objective through a network of National Committees, like-minded international organizations, private companies, and individual members. Presently, ICID membership network is spread over 100 countries across the regions of Africa, Americas, Asia, Oceania, and Europe, covering over 90% of the irrigated area of the world (sheet 1 - page 8 and sheet -2 page 15).

The membership of the Commission primarily comprises of National Committees representing the member countries (sheet 1 and 2). The National Committees in turn have their own membership of individuals, institutions and private companies from their countries. Direct membership for institutions, companies and individuals is also available where the constitution of a National Committee does not have provision for the participation for individuals and private institutions / companies. The Direct membership can also accommodate participation from associate member / non-member countries, provided such members abide by the constitution of ICID.

- **We stand for a world without hunger**

In 1950, when ICID was established, the world population was about 2.5 billion and the irrigated area was about 94 million ha. While the world population has tripled since then, the food production has kept pace with the demand, thanks to the first green revolution and subsequent focus on development of the irrigated agriculture. ICID can surely take pride, albeit modestly, in supporting this endeavour. Presently, irrigation covers about 300 million ha (20% of the world's arable land) and produces 40% of stable crop output which contributed to the resilience of global agriculture production system under increasing variability of climate. Drainage of rainfed lands enhances the



ICID MEMBERSHIP NETWORK 2014



productivity of land and crops. Presently, some 130 million ha of rainfed farmland has drainage provisions which contribute about 15% of the crop output. In irrigated areas, drainage system is provided in about 60 million ha with a view to maintain its sustainability.

ICID believes that food security at various levels: global, national, local and household, starts with assured agriculture production. With the world entering a period of growing water scarcity, some estimates indicate that by 2030, global demand for water could outstrip supply by over 40%, if the water is used at the present trend and practice. Given the challenge of raising the global food production by about 70% by 2050 without significantly expanding agricultural / irrigated land, ICID is committed to enhance the world wide supply of food and fibre for all people in a sustainable manner. ICID believes that assured and increased food production comes mainly from irrigated agriculture, especially in semi-arid and arid areas. ICID, as the premier international organization, therefore strives to promote programs to enhance sustainable development of irrigated agriculture.

■ **We fulfil our mission through generation, exchange and dissemination of knowledge**

ICID is a widely recognized international organization with a 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 making it available worldwide; addressing emerging problems and challenges by promoting evolution of suitable remedial measures; promoting water savings / conservation in agriculture; promoting equity including gender equity between users and beneficiaries; and promoting preservation and improvement of soil and water quality of irrigated lands; etc.

The Commission accomplishes its mission by exchange of information amongst its National Committees, member institutions, private companies and individual members by holding periodical meetings, sponsoring of conferences, symposia, workshops, and exhibits, organizing studies; trainings, study tours and experiments; publication of journals, conference proceedings, reports, guidelines for best practices, books, documents; publishing newsletters, bulletins, periodicals, pamphlets, posters, teaching and extension aids and literature for informing the world community at large about the developments associated with irrigation, drainage and flood management; cooperating with other national, regional and International Organizations, whose interests and activities are related to the mission of ICID, and taking measures as may be considered necessary within its field of activities.

ICID provides a unique platform for the exchange of knowledge and information related to agricultural water management. ICID organizes triennially World Irrigation and Drainage Congresses to deliberate on certain specific questions relating to irrigation and drainage. At every Congress an eminent professional is invited to deliver N.D. Gulhati Memorial Lecture. Regional issues and challenges concerning irrigation, drainage or micro-irrigation are addressed at the Regional Conferences. International Drainage Workshops, and International Micro irrigation Symposia are also organized on periodic basis. The meetings of all ICID workbodies are held annually preceding to the International Executive Council (IEC) meeting. All these events provide an excellent platform to the participants for networking with peers and information exchange.

ICID works in close collaboration with many international and regional organizations having similar objectives such as, FAO, IFAD, IWMI, World Bank, ADB, UN-Water, WMO, UNDP, GWP, WWC, ICRIASAT, ICARDA, AWC, etc. ICID in the past has been involved in the global discussions leading to Agenda 21, World Water Vision, and recently concluded Rio+20 events.

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

ICID is profoundly concerned with the sustainable development of irrigation and drainage while preserving the environment and is working towards social equity. As such the Commission is not merely a technical organization but the one concerned with global development issues. It recognises the close nexus between water, food, land and energy.

MILESTONES IN THE HISTORY OF ICID

2011-2014

- ◆ Organized First World Irrigation Forum (WIF1), 2013
- ◆ Established Scheme for Recognition of Heritage Irrigation Structures (HIS), 2013
- ◆ Established Scholarships to Young Professionals, 2013
- ◆ Micro Irrigation Congress renamed as International Micro Irrigation Symposium 2012
- ◆ Direct Membership to Companies /Institutions and Individuals, 2012
- ◆ Established World Irrigation and Drainage Prize, 2012
- ◆ Elected to WWC Board of Governors, 2012
- ◆ ICID e-Bulletin (English & French) started, 2012

2001-2010

- ◆ Released MTD CD-ROM in multiple languages in 2010
- ◆ Release Special Postal Cover on 60th Anniversary, 2009
- ◆ Country Policy Support Program (CPSP), 2002-2007
- ◆ Start of Best Paper Award, 2006
- ◆ Best Performing WB and NC award, 2003
- ◆ Released 1st Edition of MTD CD-ROM, 2001
- ◆ Renamed ICID Journal as "Irrigation and Drainage", 2001

1991-2000

- ◆ International Micro Irrigation Congress taken over by ICID, 2000
- ◆ Guidelines on Benchmarking, 2000
- ◆ Release of Special Postal cover on Diamond Jubilee Year, 2000
- ◆ Launch of Website, 1999
- ◆ Start of WATSAVE Awards 1998
- ◆ ICID Journal started, 1995
- ◆ Young Professional Forum (YPF) established, 1994
- ◆ Global Water Saving/ Conservation Program initiated, 1993
- ◆ Change of Logo, 1992

1981-1990

- ◆ IPTRID started, 1990
- ◆ ICID News Update started, 1990
- ◆ Joint Publication with World Bank, 1989
- ◆ Received UN Peace Messenger Award, 1987
- ◆ ICID Newsletter started, 1986
- ◆ First Worldwide Micro-Irrigation Survey, 1982
- ◆ N.D. Gulhati Lecture started, 1981

1971-1980

- ◆ First Irrigation and Drainage Workshop, Wageningen, 1978
- ◆ Joint Publication with FAO, 1975
- ◆ Release of Special Postal cover on Silver Jubilee Year, 1975

1961-1970

- ◆ Multilingual Technical Dictionary (MTD) released, 1967
- ◆ Central Office building inaugurated by the then Vice President of India, Dr. Zakir Hussain, 1966

1950-1960

- ◆ Irrigation and Drainage - A Global Review, the First Publication released, 1955
- ◆ ICID Bulletin started, 1952
- ◆ First Congress organized in New Delhi, India, 1951
- ◆ Change of name as International Commission on Irrigation and Drainage, 1951
- ◆ First International Executive Council (IEC) meeting in Shimla, India, 1950
- ◆ Established on 24 June 1950 as International Commission on Irrigation and Canals, with 11 founding member countries

The Commission, with active support from its member countries, provides an international forum and network in which the technical, agronomic, socio-economic, environmental and managerial complexities involved in the development, management and operation of irrigation, drainage and flood management works are discussed.

Recognizing that irrigation and drainage is not just an engineering activity, ICID also covers agronomic, social, financial, and environmental aspects. The questions addressed by various triennial Congresses clearly indicate a progressive shift from deliberating on purely technical questions to global water and food issues and the sustainability of irrigation.

For the purpose, ICID draws together the diverse disciplines and a pool of over 200 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, least developed and developed countries.

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

ICID organised the First World Irrigation Forum (WIF1) in Mardin, Turkey from 29 September to 3 October 2013 with the objective to exchange latest irrigation and drainage policies, innovations and technologies, and advocate political commitments for sustainable irrigated agriculture.

B. Organization Structure and Management

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

The International Executive Council (IEC) composed of one representative from each National Committee and the Office Bearers (President, Secretary General, and nine Vice Presidents) is vested with the management of the affairs of the ICID (sheet 3 - page 16).

The Council meets each year and considers all matters of policy which may be initiated or sponsored by any member National Committee or Office Bearers or by the Management Board and may 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 come up before the Council whose decisions are conclusive. IEC is presided over by the President, who is also responsible for the direction to the Central Office. Secretary General, who is also the Commission's Treasurer, is responsible for the conduct of overall administrative and financial business of ICID.

■ National Committees (NCs)

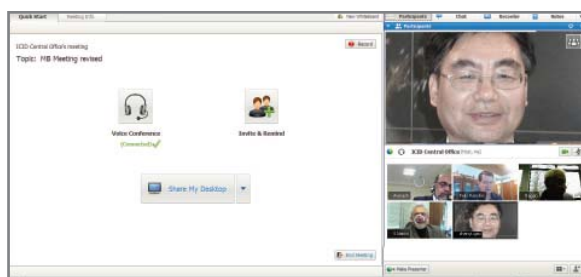
The National Committees are the building blocks of ICID and the main vehicle in advancing the Commission's mission. Any geographical area independently administered by a sovereign government and having interest in the activities of the Commission is eligible to become a member by establishing a National Committee. It is composed of representatives of officers of the government, technical and scientific organizations, government and non-government institutions, irrigators, companies and individuals with interests concerned with, or desirous of promoting and furthering the mission and objectives of the Commission. The National Committees are increasingly becoming multi-disciplinary



in nature and are being broad-based. They collaborate with other organizations having related aims within the countries.

National Committees host the IEC meetings, Congresses, World Irrigation Forum, and Regional Conferences by rotation, and also organize activities in their respective countries to implement various action programs of their own or promoted / sponsored by the Commission.

■ Management Board (MB)



The Management Board (MB) comprises 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 such actions in between Council meetings as are necessary to properly effect the working of the Commission.

■ Permanent Committee on Strategy and Organization (PCSO)

PCSO, as the name suggests, develops the strategy of the Committee and is concerned with increasing the membership and assisting the National Committees to become more active in their own countries to achieve the goals set for them from time-to-time. The Committee also undertakes issues related to strategic planning for ICID and also coordinates the activities of Vice Presidents in their respective areas. Presently, PCSO is chaired by Vice President Hon. Dr. Ragab Ragab (UK) since 2010.

■ Permanent Committee for Technical Activities (PCTA)



PCTA is concerned with all the technical activities of the Commission including bringing out publications. It is responsible for guiding the activities of the technical workbodies, for the selection of Questions/ Themes for Congresses, Conferences, Special Sessions, Symposia, etc., in finalization of the technical conclusions thereof and for making appropriate recommendations for actions there on. Vice President Hon. Felix B. Reinders (South Africa) is chairing the PCTA since 2010.

■ Permanent Finance Committee (PFC)

PFC deals with the financial matters of the Commission. It reviews the receipts and expenditures, advises the Council on budgetary allocations, recommendations on the annual subscriptions and other support of the participating countries. It may give its opinion to the President and the Secretary General on the elements to be taken into account while preparing the budget. Vice President Hon. Dr. Saeed Nairizi (Iran) is chairing the Committee since 2006.

■ Central Office (CO)

Since the establishment of ICID in 1950, its Secretariat known as the 'Central Office (CO)' is located in New Delhi, India. Government of India facilitated the establishment of the CO by making available the land for its building on perpetual lease to the Commission. The day-to-day affairs of CO are managed by the Secretary General assisted by professionals and support staff. A Staff Committee (SC) reviews and formulates the work procedures and the staff structure of CO, in keeping with the dynamic requirements, and advice the Secretary General on the functioning of CO.

The Central Office facilitates a knowledge sharing platform by hosting the website (<http://www.icid.org>) to fulfil its mission. CO also facilitates and coordinates annual meetings of various workbodies and Executive Council by compiling agenda and minutes, disseminating knowledge by bringing out in-house periodicals like weekly e-Bulletin, monthly News Update, and quarterly ICID News on

regular basis in English and French (ICID official languages). It also supports Chair of the Editorial Board in publication of ICID Journal 'Irrigation and Drainage'. The CO coordinates and assists the host National Committees in the organization of the key ICID events like Congress, World Irrigation Forum, and Regional Conferences. CO brings out various technical publications from time-to-time and coordinates various ICID Awards. The Central Office also houses a modest library having collection of technical books, reports, proceedings, periodicals and ICID publications.



ICID NETWORK COUNTRIES

MEMBERS			
Sl. No.	National Committee	Acronym	Year of joining
1.	Australia	IACID	1952
2.	Austria	AUNCID	1954
3.	Bangladesh	BANCID	1973
4.	Brazil*	ABID	1970
5.	Canada	CANCID	1956
6.	Chad	ATID	2012
7.	China	CNCID	1963
8.	Croatia	CRCID	1993
9.	Czech Republic	CZNC-ICID	1997
10	Egypt*	ENCID	1950
11	Estonia	ESTICID	2001
12	Ethiopia	ETCID	1976
13	Fiji	FIJICID	2010
14	Finland	FINCID	2000
15	France	AFEID	1953
16.	Germany	GECID	1957
17.	Hungary	HUCID	1955
18.	India*	INCSW	1950
19.	Indonesia*	INACID	1950
20.	Iran	IRNCID	1955
21.	Iraq	IRQCID	2006
22.	Ireland	IRCID	1978
23.	Italy*	ITAL-ICID	1950
24.	Japan	JNC-ICID	1951
25.	Kazakhstan	KAZCID	2006
26.	Korea, Rep. of	KCID	1970
27.	Malawi	MALCID	1967
28.	Malaysia	MANCID	1958
29.	Mali	AMID	2005
30.	Mexico	MXCID	1951
31.	Morocco	ANAFIDE	1959
32.	Nepal	NENCID	1973
33.	The Netherlands*	NETHCID	1950
34.	Niger	ANID	2007
35.	Nigeria	NINCID	1970
36.	Pakistan	PANCID	1953
37.	Philippines	PNC-ICID	1956
38.	Portugal	PNCID	1954
39.	Romania	CNRID	1992
40.	Russia	RUCID	1955
41.	Saudi Arabia	SACID	1977
42.	Slovenia	SINCID	1992
43.	South Africa	SANCID	1993
44.	Spain	CERYD	1955
45.	Sri Lanka*	SLNICID	1950
46.	Switzerland*	CH-AGRAM	1951
47.	Tanzania	TANCID	2011
48.	Thailand*	THAICID	1950
49.	Turkey*	TUCID	1954
50.	United Kingdom	IWF-ICID.UK	1951
51.	Ukraine	UACID	1996

52.	United States of America	USCID	1951
53.	Uzbekistan	UzNCID	1994
54.	Zambia	ZACID	1966
55.	Zimbabwe	ZICID	1955
COMMITTEE			
56.	Chinese Taipei Committee	CTCID	1969
ASSOCIATE MEMBERS			
57.	Afghanistan	AFGCID	2008 (2014)
58.	Algeria*	CNAID	1965 (1999)
59.	Angola	ANGCID	1975 (1994)
60.	Argentina	ARCID	1975 (2004)
61.	Belgium	BELCID	1988 (1997)
62.	Bulgaria	BNCID	1960 (2006)
63.	Colombia	INAT	1966 (2003)
64.	Dominican Republic	DOMCID	1961 (1986)
65.	Ecuador	EDORCID	1959 (1985)
66.	Ghana	GHANCID	1958 (1963)
67.	Greece	GRCID	1957 (2012)
68.	Guyana	GUCID	1957* (2012)
69.	Honduras	HOCID	1979 (1999)
70.	Israel	ISCID	1950 (2012)
71.	Ivory Coast	IVCID	1969 (1982)
72.	Jordan	JORCID	1978 (2003)
73.	Kenya	KENCID	1977 (2003)
74.	Kyrgyz Republic	KYRCID	2004 (2010)
75.	Lebanon	LEBCID	1964 (1976)
76.	Libya	LICID	1988 (2000)
77.	Lithuania	LNCID	1994 (2014)
78.	Macedonia	MAKCID	1995 (2010)
79.	Madagascar	MADCID	1983 (1986)
80.	Mozambique	MOCID	1978 (2006)
81.	Myanmar	MINCID	1962* (2012)
82.	Panama	PANACID	1980 (1990)
83.	Peru	PERU-ICID	1965 (1973)
84.	Poland	POCID	1967 (2006)
85.	Senegal	SENCID	1966 (1992)
86.	Serbia (erstwhile Yugoslavia*)	YUGCID	2002 (2012)
87.	Slovak Republic	SKNC-ICID	1996 (2006)
88.	Sudan	SUCID	1964 (2003)
89.	Surinam	SURCID	1956 (1985)
90.	Syria	SYCID	1962 (2014)
91.	Tajikistan	TAJCID	1997 (2003)
92.	Tunisia	TUNCID	1960 (1963)
93.	Uganda	UGCID	1963 (1983)
94.	Uruguay	URUCID	2007 (2012)
95.	Venezuela	VENCID	1963 (1982)
96.	Vietnam	VICID	1960 (2003)

* Founder Member

1 Year in parenthesis is the NC becoming inactive

ICID OFFICE BEARERS

PRESIDENT



Dr. Gao Zhanyi (China)
(2011-2014)

SECRETARY GENERAL



Er. Avinash C. Tyagi
(2012-2014)

VICE PRESIDENTS

(2011-14)



Prof. Tai Cheol, Kim
Republic of Korea



Engr. Adama Sangare
Mali



Dr. Gerhard Backeberg
South Africa

VICE PRESIDENTS

(2012-15)



Engr. Laurie C. Tollefson
Canada



Dr. Huseyin GUNDOGDU
Turkey



Engr. Francois Brelle
France

VICE PRESIDENTS

(2013-16)



Dr. Ir. Basuki Hadimoeljono
(Indonesia)



Mr. Kadhim Mohsin Ahmed
(Iraq)



Er.A.B.Pandya
(India)

National Committees are the backbone of the Commission and act as the main vehicle for taking forward the ICID mission among the stakeholders in their respective countries. They represent various stakeholders from within the respective countries engaged in different facets of agriculture water management. Ideally, they include experts from water resources, irrigation, agriculture, rural development, environment, flood management sectors. In majority of cases the National Committees (NCs) are housed within one of the related government departments dealing with the above subjects and include representatives from research institutions, universities, private sector companies, and in some cases farmers' groups.

NCs adopt their own structure and constitution. A large number of them have their own internal working groups depending on the specific issues to be addressed by the country, organize annual national level conferences, workshops, technical meetings, participate in the meetings of the international organizations and also develop technical cooperation through Memorandum of Understanding.

During the year 2013 Nigeria rejoined ICID network, while Afghanistan, Lithuania and Syria have become associate members. Presently, ICID has a country membership network of about 97 countries worldwide with 56 full members and 41 associate members (sheet 1 - page 8, sheet 2 page 15). The following is a brief report of some of the activities as reported by some of the National Committees.

■ Australian National Committee (IACID)

Mr. Ian Moorhous and Mr. Duane Findley have taken over as new Chairman and Chief Executive Officer (CEO) of Irrigation Australia Limited (IAL) (incorporating Irrigation Australia's Committee on Irrigation and Drainage, IACID). Irrigation Australia's 2013 Regional Conference titled "Sharing irrigation knowledge for better outcomes" was successfully held on 28-30 May 2013 at Griffith, NSW Australia, which is the centre of one of Australia's oldest and most productive irrigation regions – the Murrumbidgee Irrigation Area. Presentations, workshops, technical sessions on topics such as design software, activities and function of the Irrigation Australia Committee on Irrigation and Drainage and mobility solutions were held during the Conference.



Mr. Kim Russell (IACID-Australia) of Southern Farming Systems, who was in India on a study tour to collect data from Gujarat, Madhya Pradesh, Maharashtra, and Rajasthan with a view to explore the feasibility of exporting Tomato production from KAGOME Farms in Australia, visited ICID Central Office on 20 January 2014. Secretary General Avinash C. Tyagi welcomed Mr. Russell and briefed him on the ongoing activities of ICID. Mr. Russell also made a presentation on irrigation scenario in Australia.

■ Bangladesh National Committee (BANCID)

On the occasion of the World Water Day 2014, a Seminar on "Water and Energy" was organized on 22 March 2014 at Dhaka. The event was observed under the guidance of Ministry of Water Resources in association with Bangladesh Water Development Board (BWDB), Center for Environmental and Geographic Information Services (CEGIS), Institute of Water Modelling (IWM) and Bangladesh Water Partnership (BWP). Honourable State Minister, Ministry of Water Resources graced the occasion as Chief Guest. Dr. Zafar Ahmed Khan, Secretary, Ministry of Water Resources attended the seminar as Special Guest. The seminar was chaired by Mr. Md. Shahidur Rahman, Director General,

Bangladesh Water Development Board (BWDB) and Chairman, BANCID. A special supplement covering the seminar was widely published in national newspapers.

■ Canadian National Committee (CANCID)

VP Laurie Tollefson, member CANCID was specially invited by the organizers of the 'India Water Week (IWW)' held from 08-12 April 2013 at New Delhi, India with the main theme as "Efficient Water Management: Challenges and Opportunities" to present an in-depth analysis on the subject. Vice President Tollefson chaired a session on "Research and Innovation for Increasing Water Use Efficiency". ICID was actively involved in the IWW-2013 under the leadership of VP Tollefson.

The CANCID Lifetime Achievement Award was given to Mr. Brent Paterson (Canada), a very distinguished and long serving member of the CANCID. President Hon. Prof. Dr. Chandra Madramootoo and VP Laurie Tollefson presented the award in Saskatoon, Canada.



■ Chinese National Committee (CNCID)

The Ministry of Water Resources (MWR), People's Republic of China, has been significantly investing and promoting various water saving technologies and measures in irrigated agriculture. As part of research and international cooperation, an International Advanced Workshop and Training on Irrigation and Drainage, was held from 21-26 September 2012 at Beijing. MWR has also established the new IPTRID Secretariat at Beijing for coordination of intensification of research and technology transfer programme in Irrigation and Drainage.

Ministry of Water Resources (MWR) granted US\$ 105,000 to ICID and signed a Letter of Agreement (LoA) for supporting 10 to 12 participants from Africa, Asian, and Latin American region, particularly, from least developed countries for attending the advanced workshop and granting cash prize for First World Irrigation and Drainage Prize, 2013; support participation of young irrigation professionals from developing and least developed nations in various ICID events; support to carry out the works related to heritage irrigation and/or drainage structure.

A Chinese delegation comprising six professionals from the Ministry of Water Resources (MoWR) and Chinese National Committee (CNCID) visited India during 12-14 December 2013. The purpose of the visit was to understand water resources development and management activities in India, to see soil and water conservation practices at field level, and to explore the possibility of initiating scientific exchange programme in agricultural water management between China and India. The delegates also visited the demonstration farm of the Water Technology Centre (WTC) of the Indian Agricultural Research Institute (IARI), where Dr. T.B.S. Rajput, Principal Scientist explained the various water saving/ conservation methods which were being used for increasing the crop yields.

The delegates visited the Central Office on 12 December 2013 where Secretary General Avinash C. Tyagi briefed them on the historical progression of the Commission since its establishment in 1950. He also apprised delegates about the recent initiatives taken up by ICID like knowledge management, e-Learning, WebEx, use of social media, and about forthcoming ICID events. Secretary General also made a brief presentation about India's water resources development and state of agricultural production.

Mr. Zhao Leshi, Mr. Luo Xiangsheng of MoWR, and Dr. Ding Kunlun of CNCID assured that CNCID will continue extending support and cooperation to ICID in coming years also. Secretary General Tyagi thanked CNCID and especially President Dr. Gao Zhanyi for the extra support provided in promoting ICID activities.



■ French National Committee (AFEID)



On behalf of AFEID, VP François BRELLE, signed a convention with the French Agency for Development - a public development finance institution working with developing countries to foster rural development - to set up the COSTEA-Scientific and Technical Committee for Water in Agriculture on 18 June 2013. Through this project, AFEID is strengthening its relationship with experts in irrigation throughout the world, by organizing events and activities whose aims is to bring together the experts from all types of Irrigation for the efficient planning of irrigation projects. More attention will be laid on this aspect during the 26th European Regional Conference (ERC) which will be held in Montpellier in October 2015. AFEID together with KCID is also actively involved in the preparation of the WWF7 which will be held in Korea in

April 2015. AFEID delegation also paid a visit to Morocco (ANAFIDE) in February 2014 to start the joint preparation of the seminar on "Water savings in irrigation schemes: Feedback of Experiences in Morocco and worldwide" which is scheduled to be held from 20-22nd October 2014.

■ Indonesian National Committee (INACID)



VPH Dr. A. Hafied A. Gany (Indonesia) visited ICID Central Office on 24 January 2014 accompanied by Mrs. Wawiti, a young irrigation professional. Secretary General Avinash Tyagi welcomed them and discussed various issues related to ICID. VPH Gany delivered a keynote address on 'Participatory Irrigation Management: Challenges in Indonesia' at the Brainstorming Session organized by Central Board of Irrigation and Power (CBIP) and was chaired by VP Er. A.B. Pandya, Chairman of the Indian National Committee (INCSW). Mr. Y.D. Sharma, Secretary of Indian Network on Participatory Irrigation Management (Indian PIM) and other experts his presentation on overview of PIM in India. Speakers emphasized that political and administrative will is a must for success of PIM and that the presence of a very large number of Water Users Associations and farmers with small land holdings, makes the task still more difficult.



Newly elected Vice President Dr. Ir. Basuki Hadimoeljono, Director General, Spatial Planning and Development, Ministry of Public Works, Indonesia, accompanied by a delegation of Indonesian National Committee of ICID (INACID) comprising Ir. Iwan Nursyirwan, Vice President Hon., INACID and Mr. Syaiful Mahdi, Member, Board of Advisory, INACID, visited the Central Office on 02 January 2014. Secretary General apprised the delegates about the recent initiatives taken up by ICID and also about the forthcoming events of ICID.

The Secretary General also invited cooperation of INACID for establishing e-Learning courses by providing technical inputs in the preparation of course contents using Indonesian knowledge base.

As part of the bilateral co-operation a technical delegation of INACID, consisting of 8 persons, visited China during 22 June to 1 July 2013. A Memorandum of Understanding (MoU) between the Chinese National Committee on Irrigation and Drainage (CNCID) and the Indonesian National Committee on Irrigation and Drainage (INACID) was signed on 24 June 2013, on the occasion of ICID Foundation Day. The MoU aims at strengthening cooperation and the exchange of experts between the CNCID and the INACID. The MOU will promote mutual understanding in the area of irrigation and drainage, enhance communications and cooperation between the two sides and exchanged experiences, challenges and future plans in irrigation and drainage. The delegation visited the large scale irrigation districts of the Shijin Irrigation in North China and the Dongfeng Irrigation District in South China and had discussions with the irrigation district management staff on the rehabilitation and modernization programs and achievements of the irrigation districts and other related issues. They also met Water Users Associations (WUAs) staff members for understanding

their roles, responsibilities and O&M mechanism adopted by them. The INACID delegation also visited the three Gorge Dam project and were impressed by its splendor and its huge comprehensive benefits of flood control, power generation and navigation. During the visit, INACID delegation also met the President Dr. Gao Zhanyi and briefed about the visit. President Gao expressed that the ICID will always encourage bilateral cooperation and mutual technical visits for better understanding of problems and strengthening ICID activities.

■ Iranian National Committee (IRNCID)

As part of efforts at multilateral cooperation between Iranian National Committee on Irrigation and Drainage (IRNCID) and German National Committee of ICID (GECID), German Ostfalia University, Agricultural Sciences and Natural Resources University in Sari City (ASNRUS) organized scientific visits to Ma-zandran and Khuzestan provinces in Iran during 22-28 February 2014. More than 11 Professors, students and some IRNCID members attended the program which included a seminar on 'Survey on Water Resources Management in Iran and Germany at ASNRUS. Participants visited the Farahabad Historical Dam, Alborz Dam Downstream Irrigation Systems, several levee sluices, equipment and maintenance of paddy fields and Rajaei Dam Project in Mazandran Province. The participants also visited Karkheh Dam, Dez Dam, Dez Irrigation System, Shushtar Historical Complex, Susa and Karun River in Khuzestan Province.



A Memorandum of Understanding (MoU) was also signed between IRNCID and Turkish National Committee (TUCID) during the 64th IEC Meeting held at Mardin in October 2013.

IRNCID organized its 9th 'Drainage and Environment Challenges' meeting on 18 December 2013 in Tehran. During the meeting issues on 'Integrated On-Farm Drainage Management (IFDM)' were discussed. More than 35 professionals from universities, research institutes, and consulting firms,

INTEGRATED ON-FARM DRAINAGE MANAGEMENT (IFDM)

Following were the Outcomes of the meeting on the above subject organized by IRNCID as part of its 9th Drainage and Environmental Challenges meeting:

- ◆ IFDM can be regarded as a way, among others, of managing the quality and volume of agricultural drainage water;
- ◆ IFDM, as well as, other methods of reducing the volume of drainage water and controlling its quality cannot be successfully implemented unless the Environmental Protection Agency and other concerned organizations adapt conservative regulations and look after its implementation;
- ◆ A tangible merit shall be considered for the environment in irrigation and drainage feasibility studies;
- ◆ The priority shall be given to large scale projects since small-holders may not be able to implement the plan in compensation for environmental protection;
- ◆ Cropping pattern shall gradually be changed in favor of crop diversity and inclusion of more salt resistant crops. This could probably encourage farmers to re-use drainage water;
- ◆ The priority shall be given to controlling the volume and quality of drainage water from the beginning by maintaining higher efficiencies, keeping drainage rates as low as possible and implementation of shallower drains and/or controlled drainage; and
- ◆ Thinking on financial incentives for farmers willing to implement IFDM is highly recommended



department of environment protection, Ministry of Agriculture, Water Boards and freelance experts actively participated in the meeting. As an outcome of the meeting, it was decided to include: certain viewpoints on feasibility and applicable methods suitable on the various conditions of Iran drainage projects were resulted to be used for further research projects on drainage and environment.

The IRAN-IRPID organized a 5-day educational workshop for nine Iraqi engineers from various departments of Ministry of Water Resources on 'Application of RS & GIS on irrigation' during 28 October to 01 November 2013 at Tehran, Iran. The workshop covered topics such as

- (i) An introduction to RS & GIS and their application in irrigation,
- (ii) ILWIS software, (iii) Application of GIS i.e. Physiographic studies; land use classification and mapping; Biomass and LAI estimation; and Soil moisture estimation and mapping. The workshop concluded with a field visit to Ghazvin irrigation network, and Magsal agricultural complex where field measurement of several parameters for calibration of images were carried out. All participants expressed their full satisfaction with high quality of the workshop, and wished to have more workshops on other subjects relevant to irrigation.

Towards information dissemination, IRNCID translated the publication "The Irrigation Sector 'Shift from Construction to Modernization: What is required for Success?'" for its wider dissemination among Iranian experts. They also compiled a "Summary and Analysis of Questionnaires on Problems and Obstacles of Water Distributions and Monitoring Structures of Irrigation Systems"; and issued four other publications and Newsletters No. 89 to 92.

■ Japanese National Committee (JNC-ICID)

JNC-ICID held two annual meetings, one on 12th September 2013 and another on 16th January 2014 where the action plan toward the forthcoming ICID events were discussed. Each member also shared the roles and strategies played by them in each of the ICID Working Groups. In addition, JNC-ICID incorporated changes in the Constitution to accommodate "Direct Membership" so that many people with various backgrounds can participate in and contribute to ICID activities.

JNC-ICID also hosted a Side Event titled "The current situation and the future of PIM" using experience of operation and management by Land Improvement Districts (LID) during WIF1 on 30th September 2013. The Side Event was attended by around 70 participants including staff of LID and water user groups from five countries (Egypt, Korea, Thailand, Turkey and Japan). Each country's experience in adoption of PIM was reported. The discussions about PIM was followed by the release of the workshop's statement.

The 8th Japan Young Professional Forum Workshop on 'Future vision for agricultural engineering-Introduction of project and research domestically and overseas' and 6th Mentorship Seminar about Irrigation and Drainage was organized by Japanese Association of ICID on 18 December 2013 at Tokyo, Japan with the objective to (1) provide a platform for exchanging information with multiple occupations of young irrigation and drainage professionals, (2) encourage and promote a high standard of professional development, and (3) learn from the past and back to basics by

mentorship. More than 20 participants attended the workshop where the opening address was delivered by VPH Shinsuke Ota, President of Japanese Association of ICID.



During the workshop, Dr. Hiroaki Somura gave a presentation about his experiences in USA as a visiting researcher and explained the differences of organization and budget system between Japan and USA. Mr. Junya Onishi presented the JIRCAS's research activities on the subject of "Salt accumulation due to agriculture in Uzbekistan. Mr. Akihiro Fukuda introduced the Water management in Technical Cooperation Project for Crop Diversification in Himachal Pradesh being executed by his company in India. While delivering the mentorship lecture, VPH Dr.

Shigetaka Taniyama brought out the need to “Think about world food and water resources through ICID activities” and also mentioned about the history of Japanese activities and contribution in ICID. He also, discussed about the popularization and comprehension of multiple function of paddy, and agricultural trading in future.

■ **Malian National Committee (AMID)**

An International Conference and Exhibition on the theme “Water Storage and Hydropower Development for Africa” titled “Africa 2013” was organized by Aqua-Media International, in cooperation with International Commission on Large Dams (ICOLD) and Ethiopian Electric Power Corporation (EPCO), in partnership with ICID at African Union Congress Centre, Addis, Ethiopia from 16 to 18 April 2013. During the conference importance of water storage in meeting the various demands for water, particularly due to increased variability was emphasized. It was highlighted that while various kinds of water storage mechanisms such as soil moisture, groundwater, ponds and tanks may meet the needs of agriculture water management, hydropower development requires medium to large storage structures to increase potential energy stored in water.

VP Adama Sangare, and President of Malian National Committee of ICID (AMID) participated in the “Africa 2013” and made a presentation on “Irrigation and Food Security Challenges in Africa” during Opening Plenary Session of the Conference. The session on “Multipurpose water storage facilities” with focus on irrigation and food security was of particular interest to ICID.

■ **Nepal National Committee (NENCID)**

The International Conference titled ‘Climate Change, Water Resources and Disasters in Mountainous Regions: Building Resilience to Climate Change’ was successfully held from 27-29 November 2013 at Kathmandu, Nepal. The Conference was organized by the Society of Hydrologists and Meteorologists, Nepal (SOHAM-Nepal), in association with Department of Irrigation, Nepal, IWMI and other similar organizations. More than 270 participants from 24 countries, including representatives from international organizations attended and actively contributed to the Conference. Participants unanimously adopted “The Kathmandu Declaration 2013” as a conclusion at the Conference.

During the Conference a special session was held by Nepal National Committee of ICID (NENCID)/ Department of Irrigation, Nepal, for the presentation of current activities of a joint project ‘Adaptation to Global Changes on Agricultural Practices (AGloCAP)’. The participating institutions were UNESCO-IHE, The Netherlands; AIT, Thailand; and Department of Irrigation / NENCID, Nepal,). Six papers based on research studies about climate change in Koshi basin, Indrawati basin of Nepal, Yellow River basin of China and Maize cultivation in Sikkim were presented during the session. The session was chaired by Er. Uttam Raj Timilsina, the Deputy Director General of the Department of Irrigation and Member Secretary of NENCID. Mr. Shiva Kumar Sharma appointed as the new Director General of Department of Irrigation, Nepal and also the Chairman of Nepal National Committee of ICID (NENCID).

■ **Niger National Committee (ANID)**

Mr. Moussa Amoudu, Chair of ANID and Chair of the Regional Association for Irrigation and Drainage in West and Central Africa (ARID) represented ICID at the High Level Forum “Beating the Odds, Building Resilience in the Sahel: Water in the 21st Century” held from 30-31 October 2013 at Dakar, Senegal. The Forum was organized by The World Bank in collaboration with the Government of Senegal and the Comité Permanent Inter-Etats du Lutte Contre la Sécheresse dans le Sahel (CILSS). More than 100 participants, representatives from six countries of the Sahel (Burkina Faso, Mali, Mauritania, Niger, Senegal and Chad), donors, NGOs and associations, producer organizations participated in the Forum. The Forum released a statement which encourages all the stakeholders to double the irrigated areas in the Sahel from 400,000 ha to 1 million ha by 2020. The Inter-State Committee, fighting against drought in the Sahel (CILSS), will continue to implement actions listed in the statement with support from some other organizations such as ARID, AgWA, ECOWAS and the West African Economic and Monetary Union (UEMOA).

■ Pakistan National Committee (PANCID)

Importance of water for agriculture and food security of the nation was emphasized by Mr. Sikander Hayat, Federal Minister of Food Security during the Pakistan Water Summit 2014. The Minister stressed the need for enhancement of water productivity per unit of water and land. The Pakistan Water Summit was organized as a part of celebrations of World Water Day on 20th March 2014, at Islamabad by the Planning Commission in collaboration with Ministry of Water and Power, Asian Development Bank (ADB), Pakistan Water Partnership (PWP), LEAD Pakistan and other partners convened the 'Pakistan Water Summit'. The inaugural session was chaired by Prof. Ahsan, Federal Minister for Planning, Development and Reforms, Government of Pakistan and attended by Mr. Sikandar Hayat Bosan, Federal Minister for Food Security and Agriculture; Mr. Riaz Pirzada, Federal Minister for Interprovincial Coordination; Mr. Syed Tariq Fatemi, Special Assistant to the Prime Minister; Mr. Hasan Nawaz Tarar, Federal Secretary, Planning and Development; Dr. Arun B. Shrestha, ICIMOD, Nepal; Dr. Stephen Davies, IFPRI, Pakistan; Dr. Donnath Walton, ADB; and Mr. Sardar Muhammad Tariq, Executive Director/CEO, PWP.



In his welcome speech Mr. Hasan Nawaz Tarar addressed water issues which need immediate attention to meet rising water requirement of Pakistan. Mr. Syed Tariq Fatemi emphasized on the judicious use of water for national betterment and improvement in the livelihood of the poor and highlighted the policies and actions intended to be implemented in water sector. Prof. Ahsan Iqbal, Federal Minister in his inaugural address said that the United Nations, realizing and appreciating fully the challenges of water in the 21st Century declared in 1993 the 22nd of March as a World Water Day to create awareness about water which is going to offer mayhem challenges as the demand for water grows and new controversies take birth under competing demands and enhance claims on transboundaries water rights. The issues related to

water availability, groundwater, impact of climate on water availability, Pakistan's dependence on single basin, productivity, water/sediment/salt system of the Indus Basin, O&M operations were thoroughly discussed.

■ Spanish National Committee (CERYD)

The CERYD, together with the Spanish Association on Irrigation and Drainage (AERYD) organized the 31st Spanish National Congress on Irrigation and Drainage successfully at the University Miguel Hernandez (UMH), Spain from 18-20 June 2013. The opening ceremony was chaired by HE Prof. Fernando Villar, Vice-Chancellor of University Miguel Hernandez (UMH) and Mr. José Alberto Comos, Director General of Water, Government of Valencia delivered the inaugural lecture on "Irrigation in Valencia: Modernization, Efficiency, and Sustainability". In all 61 technical papers were presented under four categories : (i) Hydrology, crops water requirements, climatology, effects of climate change; (ii) Drainage, salinity, irrigation water and water resources quality, environmental impacts; (iii) Irrigation engineering, modernization, water and energy saving, etc.; and (iv) Irrigation economy, management, farming inputs saving, sustainability, water laws, etc.

During the Congress, a Roundtable was held on the theme "Comprehensive analysis of Irrigation in the lower Segura Basin", including lectures delivered on (a) History of irrigation of the area since Arab times; (b) Water availability to guarantee irrigation and urban supply; (c) Structures' modernization plan, and (d) Irrigation as the main driving force in the whole development of the area. High concerns were expressed during the Special Conference and Session in respect of the problems caused by absence of specific regulations for the safety of irrigation ponds. Currently, the same legislation is still being used either for dams and ponds, which hinders and makes more expensive the construction of such storage structures for irrigation. At the end of the 31st Congress, participants visited the huge Torrevieja (Alicante) treatment and sea water desalination plant (Europe's first and world's 2nd largest in capacity). The participants also visited the irrigation structures and storage ponds of St. Isidro Irrigators Community and the Hidroten Factory of irrigation equipment.

■ Sri Lanka National Committee (SLNICID)

The Sri Lankan National Committee, ICID (SLNICID), like every year, through island wide activities, commemorated the World Water Day on 22nd March 2014 on the theme "Water and Energy".

In conjunction with Ministry of Irrigation and Water Resources Management, a Technical Session was held to share the knowledge, brainstorm the thoughts, and make awareness of World Water Day in the context of "Water and Energy Nexus". Current trends and Ministry's approach, sustainable water resources management, responsibility of the Water Resources Management Ministry over "Water & Energy", water and energy in past, present, future and climate change and its effects to the water sector were some of the topics discussed.

Awareness programs for school children commemorating the World Water Day were also held in several regions of the country. In addition, in some places art competition on the importance of saving water was held among the school children. Cleaning and caring campaigns of dam bunds and irrigation canals were held in several irrigation schemes. In some regions, drinking water quality testing programs were also organized.



■ Tanzania National Committee (TANCID)

Tanzania National Committee for Irrigation and Drainage (TANCID) has brought out a very informative and innovative 'News Update' in August 2013 which has been circulated widely. Other member countries are encouraged to bring out similar News Updates or Newsletters for exchange of information on irrigation and drainage.

■ Turkish National Committee (TUCID)

The Turkish National Committee successfully hosted the First World Irrigation Forum from 29 September – 1 October 2013 in the historical city of Mardin. The Forum was a grand success and participants appreciated the technical outcomes. Once again, on behalf of the entire ICID community, we record our appreciation to the entire team of TUCID and their partners. The Summary Report of the First World Irrigation Forum was compiled by Central Office with the active support of TUCID. As per the request of Secretary General, Mr. Akif OZKALDI, President, Turkish National Committee, ICID (TUCID) was kind enough to facilitate the services of VP Dr. Hüseyin GÜNDOĞDU to the Central Office from 19-26 January 2014 to finalize the report. During his stay, VP Dr. Hüseyin also met newly elected VP Pandya and VPH Dr. A. Hafied A. Gany (Indonesia) and interacted on various issues relating to strengthening of ICID activities and apprised him about the recent developments after the First World Irrigation Forum. VP Hüseyin also met Mr. Kim Russell (Australia) and had an opportunity to interact with him on the ongoing project study at various places in India. He was also invited by Dr. Gurbachan Singh, Chairman and Members of the Agricultural Scientists Recruitment Board (ASRB) to visit the Water Technology Center (WTC) museum. VP Hüseyin was also participated in the Brainstorming Session on Participatory Irrigation Management, organized by Central Board of Irrigation & Power (CBIP).



Dr. Hüseyin GÜNDOĞDU, Vice President, ICID represented ICID in the International Conference on Water Cooperation held from 20-21 August 2013 at Dushanbe, Tajikistan together with Turkish delegation. The main objective of the conference was to contribute to the improvement

of water cooperation, particularly at the trans-boundary level, advocating successful policies and best practices, wider public participation, encouragement of policy-makers to promote water cooperation at all levels. The opening ceremony was attended by President and Prime Minister of the Republic of Tajikistan; Prime Ministers of Thailand, Kyrgyz Republic, Mozambique, and Burkina Faso; representatives of UN and other organizations; and President of the World Water Council (WWC).

Taking advantage of the bilateral negotiations between HE Mr. Rahmat Bobokalonov, Minister of Melioration and Water Resources of Republic of Tajikistan and HE Turkish Minister Dr. Nurettin Akman, Vice President Dr. GÜNDOĞDU promoted First World Irrigation Forum (WIF1). Dr. Akman delivered a speech on Turkish Water Cooperation activities and highlighted the role of WIF1 in strengthening the linkages between countries. He invited all participants to join the WIF1 in Mardin, Turkey. VP GÜNDOĞDU discussed the issue of membership of Tajikistan in ICID with HE Mr. Bobokalonov and encouraged reactivating Tajikistan membership in the ICID, who responded positively.

■ **British National Committee (IWF-ICID.UK)**



The British National Committee of the International Commission on Irrigation and Drainage (ICID.UK) has changed its name to 'The Irrigation and Water Forum – British National Committee of the International Commission on Irrigation and Drainage (IWF-ICID.UK)'. The decision was the culmination of an intense and fruitful debate lasting about 18 months amongst the members. The reasoning was to create a more easily recognised organisation to attract new members. It was also decided to have a new logo (which refers to ICID) and new website (<http://iwaterforum.org.uk/>). Closely associated with these decisions are new Twitter and LinkedIn accounts and Facebook pages. The Irrigation and Water Forum held a number of successful and well attended technical meetings in the last 12 months.



In May 2013 the prestigious Gerald Lacey Lecture, was held which was also supported by the Institution of Civil Engineers (ICE). Prof. Charlotte De Fraiture (Unesco-IHE) gave an excellent talk on "Food security in Sub-Saharan Africa examined through the lens of smallholder irrigation". A live video and presentation can be seen from <http://vimeo.com/icegroup/review/67792701/4b7eb5e75fas>.

In November 2013, a day-long conference on "Water and the Green Economy", with an array of delegates taking part, was organized. Eleven presentations covering projects from all over the world, were made by representatives from many different organizations. The day's proceedings began with two keynote presentations from Jean-Paul Penrose (DFID) and VPH Mohamed Ait Kadi (Chair, GWP Technical Committee).

In February 2014, a half-day meeting was held which gave prominence to the topic of "Canal Irrigation Reform." This topic, perhaps more than most, in recent years reflected the very core of what the IWF-ICID.UK does best; to highlight the very great contribution that canal irrigation makes to global food security while also highlighting the water management challenges that the sector faces. Keynote was made by Dr. Hervé Plusquellec a globally renowned specialist on the topic followed by four excellent presentations including one from FAO (Robina Wahaj) and two from IWF-ICID.UK members (Martin Donaldson and Adrian Laycock).



DIRECT MEMBERS

Up to last year, only National Committees were entitled to the membership of the Commission and professionals nominated by the National Committees were accepted as members. With a view to broadbase the ICID invites private companies, institutions and individuals involved in activities related to irrigation, drainage, and flood management and provides membership as individuals, companies and institutions from the countries which are not the members of ICID or of those countries whose National Committees' constitution does not have provision for their participation. ICID, has thus opened its doors for 'Direct Membership'.

Presently, ICID direct members are: Companies (1) WAPCOS Limited, India; (2) SU/YAPI Engineering and Consulting Inc., Turkey; Institutions-(1) India Water Foundation (IWF), India; (2) The KAITEKI Institute, Inc. (TKI), Japan; and Individual-Er. M. Gopalakrishnan (India). This section provides information on the institutions and companies.

■ WAPCOS Limited, India



WAPCOS Limited, a Public Sector Enterprise under the aegis of the Union Ministry of Water Resources, Government of India, has been providing consultancy services in various facets of Water Resources, Power and Infrastructure Sectors in India and abroad. WAPCOS has successfully completed/on-going consultancy assignments in more than 50 countries and is currently engaged in providing consultancy services in Afghanistan, Bangladesh, Bhutan, Cambodia, Central African Republic, Chad, Dr. Congo, Ethiopia, Kenya, Laos, Mali, Mozambique, Myanmar, Nepal, Nigeria, Rwanda, Senegal, Sierra Leone, Tanzania, Uganda, Yemen and Zimbabwe. WAPCOS is registered with various international funding agencies for participating in the funded projects.

WAPCOS was represented by Ms. Pooja Kapoor, Head Business Development, at the First World Irrigation Forum held at Mardin, Turkey. At the 64th IEC meeting, WAPCOS's nomination of Ms. Pooja Kapoor was accepted for WG-YPF.

In the month of February 2014 Lake Chad Basin Commission (LCBC) delegation comprising seven professionals led by Hon'ble Arba Hama Diallo (Member of Parliament, Burkina Faso); Mr. Md Danasabe Bila, GIS Expert from Tchad; and Mr. Omar Salem, Libya visited WAPCOS to assign the task of preparing a Strategy Paper on 'Integrated Water Resources Development and Management in Lake Chad Basin'. WAPCOS used this opportunity to bring the delegates to ICID Central Office to discuss about the ongoing efforts in the LCB region. Among the LCB countries, Niger, Nigeria and Tchad are already members of ICID and others need to follow suit to reap the benefits of ICID membership and revive ST-LCBC. Mr. Omar Salem, the Libyan delegate informed that he would work towards getting Libya back into ICID's fold.

■ SU/YAPI Engineering and Consulting Inc., Turkey



"Su-Yapı Engineering and Consulting Inc." (Su-Yapı), founded in 1964, is an independent engineering and consulting firm from Turkey. With growing business and portfolio, Su-Yapı has gone through many organizational changes. Su-Yapı has provided engineering and consulting services for more than 500 projects, including those, which are financed by international financing institutions and carried out in association with local or overseas engineering and consulting companies.

Su-Yapı, with its highly competent and qualified administrative and technical staff, with a strength of more than 300 comprising engineers from every discipline, architects, economists, business managers, sociologists and technicians, serves its basic objective of meeting the requirements of the clients in the highest quality, at the lowest cost and in the shortest time.

Su-Yapı has vast experience in water resources planning and feasibility studies. Services of the

Company include investigating the underground and surface water resources, on catchment basin, planning and designing the investments for medium and long-term energy supply, agricultural irrigation, urban water supply and flood protection. Renewable surface water resources in power production is a major field of activity of Su-Yapi since its establishment and Su-Yapi has accomplished engineering and consulting services for more than 220 dams and HEPPs all over Turkey.

■ **India Water Foundation (IWF), India**



India Water Foundation (IWF) is a non-profit civil society, having its headquarters at New Delhi (India). It is engaged in generating heightened awareness public awareness about water and environment related issues in Asia-Pacific region, regarding the vital role water and environment play in human lives, their impact on health, economic growth, livelihoods of the people.



IWF participated/presented in over 22 seminars/conferences during 2013-14 that evoked enthusiastic response towards reaching consensus on the need for adopting water energy food nexus approach for sustainable agriculture. Another significant outcome has been the growing interest among the countries of Himalaya region to explore the prospects of regional linkages and networking in water and agriculture sectors, especially in the mountainous regions.

The period under review IWF established close rapport with UN-ESCAP-SSWA, SACEP (Sri Lanka), SAARC Agriculture Centre (Dhaka), SANSaC (Kathmandu, Nepal) for exploring prospects for expanding connectivity, networking and resilience to climate change in bordering areas of Himalayan region of South Asia. At the macro level, endeavors made by IWF during this period have seen partial success in promoting inter and intra- regional synergy in water sector, managing trans-boundary water resources in a cooperative mode and urgency for adhering to nexus approach mechanism for sustainable water management and agriculture.

As part of the ongoing process, the IWF is working for PAPP Activities under JICA-Assisted Ganga Action Plan Project at Varanasi under NGRBA and IWF launched various awareness-generation and capacity-building programmes for the people in water sector. Since February 2014, the IWF has become 'Industry-Outreach-Partner' with IUKAN to enable exchange of knowledge and engagement of all stakeholders in water distribution and waste water management.

■ **The KAITEKI Institute, Inc. (TKI), Japan**

The KAITEKI Institute, Inc. is a global research institute focused on meeting 21st century challenges in energy, the environment, and healthcare. "Kaiteki," which traditionally means "comfort" or "ease" in Japanese, was chosen for the Institute's name to represent the global quality of life that will be made possible through sustainable technologies and through breakthrough scientific advances in human healthcare. The institute will not only fund the highest quality of scientific and engineering research around the world—it will also identify and articulate future societal trends, needs, and challenges, which will be used to set subsequent research targets.



KAITEKI will propose solutions based on promising research results as new technology platforms within the research arms or businesses of the Mitsubishi Chemical Holdings Group. The Institute will help make society healthier, more comfortable, and more affluent by supporting long-term R&D and business strategy for the Group, while taking advantage of a global scientific and information network. Research and investigation into the needs of future society, development of business concepts that will serve those needs, and operation and management of contact research for key technologies supporting the businesses.

WORKING GROUPS IN ACTION

Agriculture being the largest user of freshwater it is essential to be used wisely for achieving “more crop per drop”, in the face of increased competition for water resource and pressure for enhanced environmental needs. There has been renewed interest in improving performance of large-scale surface irrigation schemes through modernization of infrastructure, services and participatory management. ICID through its large pool of experts in its core areas of irrigation, drainage, and flood management covering wide range of disciplines like engineering, hydrology, agronomy, environment, sociology, economics representing all regions of the world continue its endeavor to develop and share new knowledge and best practices in handling the challenges and seize opportunities provided by new technologies. These experts contributing voluntarily through various national committees, working groups, work teams, and task forces and sharing experiences across geographical, climatological, economic and social spectrum, in preparing technical reports, status papers, manuals etc.

Each Working Group or Workbody, where members are nominated by National Committees and the Direct Members, has a specific mandate and tenure and is led by a Chairperson assisted by a Vice-Chair and a Secretary. The following sections describe briefly the activities of various workbodies during the year 2013-14 (which have been grouped under the sub-heads):

Irrigation for Poverty Alleviation and Socio-Economic Transformation

Adequate availability of rain water and reliable and equitable access to irrigation supplies is essential for agriculture, which besides providing food also opens up avenues for rural livelihood contributing to rural poverty alleviation, availability of essential commodities, environmental services and social goods. These services greatly facilitate socio-economic transformation of rural society. It has been observed that adequate investment in irrigation and drainage, particularly in the developing and least developed countries helps in not only ensuring food security, but is also a critical input for achieving poverty alleviation. Therefore, increasing and improving investments in this sector needs to be prioritized.



Photo: AFEID

The Working Group on Role of Irrigation in Poverty Alleviation and Livelihoods (WG-POVERTY) was established in 2008. The mandate of the group is to- synthesize specific knowledge and experience from the irrigation sector, designed for pro-poor actions in a wider understanding of irrigation along the whole rainfed-irrigated continuum, looking for solutions that work within a clearly defined socio-economic context; emphasize multiple-use (MUS) of irrigation systems as a specific approach to alleviate poverty; prepare guidelines supported by case studies on how to enhance the poverty alleviation and livelihood improvement impacts of new and existing projects; and the effect of urbanization on smallholders in peri-urban areas.

The Working Group is in the process of preparing a position paper on the “Role of Irrigation in Poverty Alleviation and Enhancement of Livelihood”. During the Mardin meeting Chairman PH Peter Lee presented the outline of the draft “Position Paper” with the target audience primarily being the irrigation and drainage professionals. The paper should encourage irrigation and drainage professionals to seek more opportunities to serve the poor, as well as its traditional beneficiaries. Irrigation professionals need to understand the needs of the poor, their vulnerabilities and the best ways to help them. The paper addresses the issues related to the multiple use of irrigation system infrastructure (including the provision of ecosystem services) that provide benefits sometimes in unexpected ways. More is needed to be done to make professionals responsive to these opportunities.

Caring for Environment: Ensuring Sustainable Irrigation

The enormous variety of plants, animals and micro-organisms on this earth, including human beings are an integral part of the environment which is essential for the livelihood of human beings and sustenance of all other forms of life. It is further recognized that all types of social, cultural and technological activities carried out by human beings also have a profound influence on various components of the environment.

Excessive application of irrigation water to crops and poor operation and maintenance of irrigation systems lead to waterlogging and salinization of agricultural lands. Of the estimated 300 million ha of irrigated land globally, about 34 million hectares are adversely affected by salinity, and an additional 60–80 million hectares are affected to some extent by waterlogging and related salinity intrusion. In such areas, not only crop yields are reduced but also the land productivity drastically declines and eventually the land may require to be abandoned from agriculture production. Waterlogged and saline lands can be reclaimed using network of surface and subsurface drainage systems by recovering excess water from subsurface so as to maintain an adequate balance of air-water ratio in the root zone of a soil. Corrugated and perforated plastic pipes are most commonly used as subsurface drainage systems. Bio-drainage is also used in some countries for land reclamation. Drainage systems are required not only in irrigated areas but also in rainfed areas of humid and sub-humid countries.

To address these issues, the **Working Group on Drainage (WG-DRG)** has been functional for over 30 years and has been engaged in promoting drainage technology and management measures for sustainable agricultural production through a balanced integration of environmental, economic, and socio-cultural aspects. The WG-DRG has completed its tenure and submitted its final “report” at the Mardin meeting in October 2013 and also brought out a DVD whose contents are given in the box.



Photo: www.agric.wa.gov.au

AGRICULTURE DRAINAGE DIGEST

The DVD brought out by the WG-DRG contains all the works carried out by the WG over the years solely or jointly with other organizations/institutions. Contents of the DVD are as follows:

- i. Glossary of Drainage Terms from ICID – Multilingual Technical Dictionary;
- ii. World Drained Area Data compiled by ICID;
- iii. Proceedings of all eleven International Drainage Workshops organized by ICID (1978 to 2012);
- iv. Five ICID publications on drainage;
- v. Four Special Workshops Transactions;
- vi. ICID Journal Special issue on Drainage, Vol.56, December 2007;
- vii. Four Publications by Member Countries;
- viii. Six ILRI Publications;
- ix. Six FAO Publications; and
- x. Three World Bank Publications



During Mardin meeting the 64th IEC meeting approved the proposal of the VP Dr. Gerhard Backeberg, Chair of Task Team on Classification of Thematic Areas to establish a WG on “Water Management in Irrigation”.

In developed countries, industrialized farming systems have resulted in widespread soil and water contamination from runoff containing pesticide and fertilizer, leading to eutrophication of water bodies affecting quality and quantity of water available for other uses. Due to increasing scarcity of freshwater, poor quality water comprising wastewater from domestic uses, saline drain water from agricultural areas, sea water, etc. form an important substitute. In water scarce countries treatment and reuse of poor quality waters for irrigation is an important strategy for achieving water security. Globally, the amount of wastewater discharged to water bodies is approximately 2 million cubic meters a day and is rising with population growth. About 80% of this amount is discharged without treatment creating serious health and environmental risks. Use of fully or partially treated wastewater for irrigating certain crops provides an opportunity. This however, requires stringent management and monitoring practices, so as to safe guard human health and environment. The **Working Group on Use of Poor Quality Water for Irrigation (WG-PQW)** since its establishment in 1995 has been promoting the safe use of poor quality water for agriculture, its multiple use, and address the institutional and legal aspects with regards to its use. At Mardin the WG considered a variety of publications as its output such as technical papers for peer reviewed journal, technical notes, non-technical notes and manual for SALTMED model software. The WG is planning a workshop during the 66th IEC Meeting in 2015 on "Use of poor quality water". The latest version of the SALTMED 2013 model is now available for download from the WG website <<http://www.wg-pqw.icdonline.org>>.



The **Working Group on Environment (WG-ENV)** established in 2008 has worked towards fulfilling the mandate of the WG by presenting a brief overview of a draft document titled 'The potential contribution of Life Cycle Assessment (LCA) to analyzing the environmental impacts and the sustainability of irrigation and drainage systems'. Significant progress has been made since Adelaide (2012) meetings by the WG on the focus areas: Life Cycle Assessment to determine the environmental impacts of irrigation and drainage, as well as irrigation return flows and ecological flows. The documents on environmental flow assessment - prevalent and practised in Europe - were exchanged among the members of the WG. It was noted that in Europe the term 'ecological flow' was now favoured over 'environmental flow' since the term 'environment'

means different things to different people, and that the term 'ecological' better captures other parameters such as the quality of the water. In 2014, a guideline document on ecological flow in Europe would be released. The WG members shared the various practices of estimating the ecological flow requirement in different countries: e.g., as the 10 year average of the lowest flow in Korea; in Australia, river flow pulses were also considered important as a result of which the ecological flow rate is not a single value but differs between seasons. The WG also shared the water management practices in the Murray-Darling Basin of south-east Australia, including water trading policies, salinity management and methods used to secure water for the environment from current users.

The **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 cost and ensure sustainable irrigated agriculture. Given the uphill task, the group reflected on the history and benefits of value engineering effort in USA for 5800 highway projects which had resulted in a total of 6% savings based on initial project cost. The percentage of the potential savings would be definitely higher in developing countries due to several reasons. The irrigation, drainage and flood management projects are often associated with huge costs and could significantly benefit from the value engineering process. Some form of cost management, which seeks to optimize the project value is normally present in development projects, but these are generally intuitive or qualitative. The challenge for ICD community is to migrate from the intuitive to a more structured or systematic approach, which is what value engineering offers. The TF-VE will be organizing an Internal Workshop on "Value Engineering Applications in Irrigation and Flood Projects" during the next meeting of TF, scheduled to be held in September 2014, Korea.

Adapting to Climate Change

Climate change is posing a threat to water and food security. Agriculture productivity relies on health of soils, adequate availability of good quality of water, and the delicate balance of gases such as carbon dioxide and methane in the atmosphere. Farming is thus most vulnerable to the effects of climate change. Climate change is projected to cause major shifts in precipitation and its seasonal patterns, and to have a significant impact on physical water scarcity. Smallholder agriculture is especially vulnerable to the impacts. Drought and floods are becoming frequent events in some or other part of the world threatening the supply of water for agriculture.



The Working Group on Global Climate Change and Agricultural Water Management (WG-CLIMATE) established in 2005 stimulates discussions and raises awareness of water related global climate change issues, particularly in irrigation and drainage. While a lot of work is being done around the world on understanding and describing the impacts of climate change on various facets of water resources management, its implication for irrigation, drainage and flood management have not been adequately explored. An International Workshop on 'Management of Water, Crops and Soils under Climate Change' was jointly organized by WG-CROP and WG-CLIMATE at Mardin.

A Memorandum of Understanding (MoU) between WMO and ICID was signed in July 2013 to enhance WMO's ability to appropriately make use of outreach, capabilities and expertise of ICID in the areas of flood/ drought /irrigation management by the worldwide irrigation and drainage community. The MoU will be implemented generally through exchange of information; coordination of joint projects, joint research tasks, experiments and trials, provision of technical support services, advice, consultation, joint applications for project funding, etc. The MoU provides a vehicle for implementing the specific activities which may be proposed in the future. WMO organized a side event on "Climate services to optimize irrigation use and improve farmer management in agriculture" at Mardin, 2013. The objective of the event was to set out a mechanism to build links between the climate service providers in the region as well as countries and irrigation managers.

The **Working Group on Water Management in Water Stressed Regions (WG-DROUGHT)**, mandated to capture field experiences of the implementation of drought risk management strategies for coping with water scarcity, looks at the approaches and strategies for incorporating economic justification for allocation of water for agricultural production, competing with all other uses, and re-defining, as necessary, the conventional irrigation efficiency concept. The Group is addressing these issues under three separate themes titled (1) drought management strategies in water stressed / scarce regions, (2) coping with water scarcity, and (3) rainfall harvesting and management for sustainable agriculture. Eighteen papers (both oral and posters) were discussed during the international workshop titled 'Developing Management Strategies for Coping with Drought and Water Scarcity' organized by the group at Mardin, Turkey during the First World Irrigation Forum (WIF1). In addition, the Integrated Drought Management Program (IDMP) which is implemented by WMO in collaboration with GWP in cooperation with other international organizations was introduced.



The **Working Group on Comprehensive Approaches to Flood Management (WG-CAFM)**, mandated to study the social, political and economic aspects of flood mitigation measures, aims at making flood management ecologically sound and encourage people's participation in flood disaster preparedness. In view of the new emerging issues like climate change, sea level rise, increasing number of flash floods; adaptation strategy of living in flood prone areas is also addressed with a view to set up holistic, integrated and adaptive flood management



schemes. At the WG meeting held in Mardin, Turkey, country presentations from Germany, USA, and Turkey on 'Floods 2013 in Germany', on 'Impact of Hurricane Sandy on New York' and 'Upper Midwest Floods 2013 in USA and "Flood Situation and Flood Management in Turkey' respectively, were exchanged. The group is working on a document titled 'Adaptive Flood Risk Management' based on workshop papers and country presentations on floods. Mr. Giacomo Teruggi (WMO representative) introduced the Associated Programme on Flood Management that supports countries in the integrated management of floods, within the overall framework of Integrated Water Resources Management which also reflects on the concept (adopted by the EU) of flood risk management.



The **Working Group on Sustainable Development of Tidal Areas (WG-SDTA)** is mandated to identify sustainable management options of lowland watersheds, as well as sustainable development and management of water and land resources in tidal areas; to raise awareness of the increasing risk to tidal areas due to global climate change, stimulate discussion on impacts and mitigation, and find a balance between the preservation and development of tidal areas; to enhance survey, design techniques and monitoring and management programs for the irrigation and drainage facilities, and apply to collect information about the tidal area environment around the world; to review the progression of natural wetland conservation and constructed wetland development in tidal areas; and to exchange relevant experiences amongst NCs and support

the developing and least developed countries. Towards fulfilling the objectives the WG organized an internal workshop titled 'Environmental Impacts and Sustainable Management of Tidal Areas' in Mardin, Turkey. The sub-themes of the workshop were : (a) Impacts of climate change on tidal areas: Risk assessment; Adaptive management with consideration of climate change: (b) Flood/Ecosystem management; monitoring, forecasting, impacts, mitigation, strategies and vulnerability assessment; and (c) Stakeholder involvement and integrated management. Nine papers were presented from Korea, Netherlands, Bangladesh, Malaysia, Taiwan, Japan and Indonesia. The WG has published a Special Issue of ICID Journal titled "Sustainable Water and Land Management in Tidal Areas" (Volume 62, Issue Supplement S1) in October 2013. This Issue contained 12 peer reviewed papers submitted by experts from Chinese Taipei, Korea, Japan, Indonesia, and The Netherlands. The Working Group will be organizing an International Workshop during the 22nd ICID Congress and 65th IEC at Gwangju, Korea. The main theme of the workshop is 'Sustainable Management of Tidal Areas in the Era of Climate Change' with six sub-themes. The WG also plans to organize a short course on SDTA in 2015.

Improving Water Use Efficiency



It is generally acknowledged that irrigated agriculture is the main engine of growth in most developing economies, and can have positive impacts far beyond the economy of crop production. However, irrigation is now coming under increasing scrutiny as availability of freshwater resources is shrinking and competition among different water use sectors intensifies. The major challenge facing irrigated agriculture today is to produce more food using less water has even been more vital than ever before. Irrigation is the biggest user of freshwater and its share is as high as 90% in some developing countries. Improving water use efficiency in irrigation is considered as one of the demand management measures in coping water scarcity. There are technological, management and institutional opportunities to improve irrigation water use efficiency

both at the stage of delivery from the source to farm gate and at the farm level. Greater water use efficiency would imply using less water to achieve the same or more goods and services, as more crop per drop is one of the tenets of ICID. Irrigation water from its source is conveyed up to a farm and subsequently applied to crops through various irrigation methods like surface (basins, furrows, and border strips), sprinkler, and micro irrigation. Improperly planned, designed and laid / installed farm irrigation system leads to undue water losses such as deep percolation, runoff, evaporation, non-uniform water application, and wind drift affecting the performance of the system. Today, a

vast range of on-farm technologies such as sprinkler and micro irrigation are available to fit all types of soil, crops, climates and farm sizes which can achieve as high as 95% application efficiency leading to significant water saving.

The **Working Group on On-Farm Irrigation Systems (WG-ON-FARM)**, established in 1998 with a mandate to promote on-farm irrigation and sustainable efficient approaches for irrigation, has brought out guidelines/ manuals on planning, design and evaluation of micro and sprinkler irrigation systems. The WG has been compiling the area covered under sprinkler and micro irrigation in member countries. As per the last updated data, about 43.3 million ha land is irrigated using various types of sprinkler systems, while 10.8 million ha are covered by micro irrigation, worldwide. The data shows significant increase in sprinkler irrigated area over the last year. The group discussed about the compilation of worldwide data on irrigation efficiencies and emphasized that it would be interesting to compare the irrigation efficiency levels achieved among countries, and that there was a need to standardize the efficiency measuring methodology, internationally. WG has proposed to publish an article on “Improvement of the On-Farm Irrigation Systems using Simple Water Control, Measuring and Application Devices” and a paper on “Micro irrigation for smallholder farmers and greenhouses”. A book on “Soil and Water Management in Surface Irrigation Systems” is also under preparation.



The **Working Group on Water Saving for Agriculture (WG-WATS)**, established in 1994 is mandated to recognize proven water saving innovations, and to identify and promote successful water conservation. Realizing that the technology and management would play an important role in improving ‘Water Use Efficiency’, in increasing water productivity, and in solving the future water scarcity problems, the WG’s aim was to recognize proven water saving innovations, and to identify and promote successful water conservation. WG-WATS also coordinated annual “Water Saving Awards” for outstanding contributions to water savings in agriculture worldwide. The WG concluded its activities in the Mardin meeting held in October 2013. The WG has conducted numerous workshops and brought out a number of publications during its tenure:



- ◆ 1995: Watsave Activities: Some Lessons and Experiences
- ◆ 1997: The Watsave Scenario
- ◆ 2001: CD-ROM Version of ICID Watsave Activities
- ◆ 2008: Water Saving in Agriculture

Crop-Food-Water and Energy Nexus

Given the declining water availability, impact of climate change on crop yields, and increasing trend for biofuel production, issues related with water for food and fuel crops needs to be thoroughly studied. The **Working Group on Water and Crops (WG-CROP)** promotes the efficient use of water in crop production, investigate the use of energy crops for biofuel production, study best techniques for rainfall harvesting, promote the multi-functionality of water use in paddy rice cultivation, investigates the adaptation of agriculture to climate, and promotes low input agriculture. The WG is preparing a document based on the work being carried out on – efficient use of water in crop production, crop water models, multifunctional water use in paddy, rainfall harvesting and energy crops. Papers titled ‘Multifunctional use of water in paddy’ and ‘Precision Irrigation’ were discussed during the WG meeting. ‘SALTMED Model 2013’ which is a very useful tool helps in agriculture resources management as well as in predicting the impact of future climate change on food production and on the environment has been developed as a generic model that can be used for a variety of irrigation systems, soil types, soil stratifications,



crops and trees, water application strategies (deficit irrigation, partial root drying etc), different nitrogen applications (fertigation, chemical or organic or crop residues incorporated in the soil) and different water qualities (fresh, wastewater, or saline, brackish, drainage water), drainage systems and presence of shallow groundwater is now available on the website for free downloaded.

The WG-CROP and WG-CLIMATE jointly organized an International Workshop on 'Management of Water, Crops and Soils under Climate Change' in Mardin, Turkey, during the First World Irrigation Forum (WIF1). Seventeen contributions, both oral and posters, were presented. The workshop recognized the impact of climate change on water resources, food and feed production. The change in rainfall and increase in temperature are leading to rivers and reservoirs running dry, plus high evapo-transpiration rate subsequently increasing irrigation requirements and water demand for agriculture. Risk and vulnerability assessments and analysis for probability of occurrence of extreme events are needed to better manage water supply and demand. The presented papers covered a wide range of climate change impacts and offered solutions to counter the impact through adaptation and mitigation measures. The WG covered topics such as new water management techniques (e.g. SRI for Paddy Rice), new drought tolerant crops (e.g. Bambara groundnut), reducing greenhouse gases (NH₄, N₂O) through lowering the groundwater table, and reservoir management. Adaptation to climate change measures suggested during the workshop included, better prediction and early warning, adoption of proactive rather reactive approach, reducing water losses in the irrigation network, using high efficient irrigation systems, using drought tolerant varieties, using poor quality water, recycling water for multiple use, improving land management and methods of cultivation (e.g. dry rice), and optimizing water demand and raising farmers awareness of the climate change impact and supplying them with simple guidelines on how to cope with changing climate.



Bio-energy production and use have both positive and negative environmental and socio-economic consequences, including those pertaining to water, which is already a scarce resource in many parts of the world. It will come under further stress due to growing competitive demand on water for food production. The expansion and intensification of bio-energy production could add to existing pressures on land and water management. Therefore, water resources management and adequate policies and strategies are needed to help ensure sustainability and balance different types of use in the short and longer term. The **Task Force on Water for Bio-Energy and Food (TF-BIO-ENERGY)** is evolving "ICID's position on "Water for Bio-Energy and Food" taking into consideration the possible conflict between food production and bio-

fuel crops, use of water to produce bio-fuel crops and the non-food crops, and the use of marginal water/soils, recycled water for the production of bio-fuels. The position paper will present the collective views of the ICID community on bio-energy production and its impacts on food security. The TF also looks into the technical requirements to ensure viable production of bio-fuel crops without government financial support and use of agricultural waste for the production of bio-fuel crops. TF is currently considering contributions from Nepal, India, South Africa, China and Canada for its position paper. VP Laurie Tollefson (Canada), Chairman of the TF is likely to present his final report during the next meeting of the task force in September 2014 in Korea, towards completion of the mandate.

Extending Lessons from Past into Future

Future sustainability can be gained by studying the success of the historical structures and systems including the causes of the known failures in the past. Response to the present-day problems could be improved by better understanding of the past. To assess whether a new irrigation and drainage system, or any other new engineering installation, will be sustainable, we need to predict the future and how the operating conditions will change over time. The objective behind establishing the **Working Group on History of Irrigation, Drainage, and Flood Control (WG-HIST)** has therefore been to provide guidance to National Committees to compile, publish, update and/ or translate documents on history of irrigation and drainage, and flood management incorporating relevant agricultural, political, socio-economic, climatic, geographical aspects. As an important activity of the WG, an International Workshop on 'Water Wisdom and Sustainability' was held in Mardin

as part of WIF1, where 150 participants attended the workshop and numerous papers were presented. The WG will be using these papers as source material for publishing a WG document on 'Historical Water Sustainability'. The WG will be organizing another internal History Seminar on "Historical Water Sustainability: Lessons to Learn" during the 2014 Annual Meetings in Korea. Italian National Committee (ITAL-ICID) has brought out an excellent publication on "Land Reclamation, Irrigation and Flood Protection in Italy over the centuries". The Group considered the draft paper on "Recognition of Historical Irrigation and Drainage Structures" presented by the TF headed by VP Ragab Ragab and made suggestions for establishing a scheme to identify Heritage Irrigation Structures.



It is necessary to groom future water professionals to understand and address the complex issues of water resources development and management of the 21st century. Irrigation and drainage sector has been experiencing a decline in infusion of Young Professionals in most of the countries around the world for a variety of reasons. This does not bode well for the future of the sector as well as water security and food security, which largely depend on the efficient agricultural water management. ICID, since the last two decades has been encouraging young irrigation and drainage professionals by establishing a **Working Group on Young Professionals Forum (WG-YPF)**. This international platform provides an opportunity to young engineers and scientists from world over to share and exchange their views on the topics of irrigation, drainage, flood management, climate change, etc. To encourage involvement of YPs in the activities of ICID the WG-YPF at its meeting held in Mardin, Turkey recommended sponsoring ten young professionals every year to participate in the ICID events viz. World Irrigation Forum/ Congress, commencing from the Korea Congress in 2014. The recommendation of the group, was endorsed by 64th International Executive Council (IEC). Young Professionals (below the age of 40 years), working in the irrigation sector can apply for the above benefits through their respective NCs and partner international organizations.



'Young Professional Mentorship Program' was presented by the Secretary General, which received tremendous response from the participants. Secretary General briefly explained the role of young professionals and how the professionals from non-member countries could directly be involved in the activities of ICID. The Japanese Association of ICID took a cue and organized the 8th Japan Young Professional Forum (YPF) on 'Future vision for agricultural engineering' and 6th Mentorship Seminar on 'Irrigation and Drainage' on 18 December 2013 at Tokyo, Japan.

Classification of Workbodies under Various Strategy Themes

As per the decision of the 63rd International Executive Council (IEC) meeting held in Adelaide, Australia on 28 June 2012 a Task Team was constituted to review the classification of various working groups. The Task team broadly endorsed the current classification of Strategy Themes as the classification is comprehensive and systemic and adequately incorporates the focus of technical activities undertaken by ICID member countries and participating representatives of the Work Bodies as well as observers during annual meetings.. However, it suggested changing the name of the Strategy Theme "Systems" to the Strategy Theme "Schemes". The four strategy themes therefore are "Knowledge", "Basin", "Schemes" and "On-farm" as approved by IEC. The allocation of Work Bodies or Working Groups and Task Forces per Thematic Areas/Strategy Themes is given at page 49.

ICID WORKBODY CHAIRPERSONS



Dr. Ragab Ragab
United Kingdom
 Permanent Committee on
 Strategy and Organization
 (PCSO), and Working Group on
 Water and Crops (WG-CROP)



Mr. Felix B. Reinders
South Africa
 Permanent Committee for
 Technical Activities (PCTA),
 and WG on On-Farm Irrigation
 Systems (WG-ON-FARM)



Dr. Saeed Nairizi
Iran
 Permanent Finance Committee
 (PFC)



Dr. Sylvester Mpandeli
South Africa
 African Regional Working Group
 (AFRWG)



Dr. Karim Shiati
Iran
 Asian Regional Working Group
 (ASRWG)



Prof. Dr. Kim, Tai-Cheol
South Korea
 Committee on Congresses/
 Conferences (C-CONGR)



Dr. Laszlo G. Hayde
Hungary
 European Regional Working
 Group (ERWG)



Mr. Yaser Barghri
Iran
 Working Group on Young
 Irrigation Professionals Forum
 (WG-YPF)



Prof. Peter Kovalenko
Ukraine
 Working Group on Irrigation and
 Drainage in the States under
 Socio-Economic Transformation
 (WG-IDSST)



Dr. Ruey-Chy Kao
Chinese Taipei
 Working Group on Sustainable
 Development of Tidal Areas
 (WG-SDTA)



Dr. Sylvain-Roger Perret
France
 Working Group on Environment
 (WG-ENV)



VPH Franklin E. Dimick
USA
 Working Group on Water
 Management in Water Stressed
 Regions (WG-DROUGHT)

ICID WORKBODY CHAIRPERSONS



Dr. Kamran Emami

Iran

WG on History of Irrigation, Drainage & Flood Control (WG-HIST), WG on Comprehensive Approaches to Flood Management (WG-CAFM) & TF on Value Engineering (TF-VE)



Dr. Willem F. Vlotman

Australia

Working Group on Drainage (WG-DRG)



Dr. Mark Svendsen

USA

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



Dr. Gerhard R. Backeberg

South Africa

Task Force on Financing Water for Agriculture (TF-FIN)



Dr. M.H. Amer

Egypt

WG on Water Saving for Agriculture (WG-WATS)



Dr. (Mrs.) Samia El-Guindy

Egypt

Working Group on Use of Poor Quality Water for Irrigation (WG-PQW)



Mr. Peter S Lee

United Kingdom

Working Group on Role of Irrigation in Poverty Alleviation and Livelihoods (WG-POVERTY)



VPH Larry D. Stephens

USA

Committee on Public Relations and Publications (C-PR&P)



Mr. Laurie C. Tollefson

Canada

Task Force on Water for Bio-Energy and Food (TF- BIO-ENERGY)



Prof. Dr. Bart Schultz

The Netherlands

ICID Journal Editorial Board (EB-JOUR)



Mr. Shinsuke Ota

Japan

Task Force to Guide ICID Inputs to World Water Forum-7 (TF-WWF7)

ACTIVITIES AT REGIONAL LEVEL

In addition to the national experts collaborating together through the platform of Working Groups, they also come together under the umbrella of various Regional Working Groups where they address technical issues particularly relevant to the region in question. Presently, three regions have active working groups viz., Africa, Asia, and Europe. The activities of these WGs and interaction with other regional groupings/gatherings where NC experts from irrigation and drainage sector interact are presented in this chapter.

■ African Regional Working Group (AFRWG)

National Committees from 11 countries from Africa are presently active members and 13 countries are associate members of the ICID, while 13 countries are associate members. ICID is working on various options for re-activating the membership in the region. Many delegates from different countries across the African continent viz., South Africa, Nigeria, Malawi, Burkina Faso, Ghana, Niger, Mali, Chad, Ethiopia, Gambia and Benin attended the AFRWG meeting in Mardin, Turkey. There were also representatives from organizations such as AGWA (based in Ethiopia) and GWP. Various options available to the NCs to revive their membership were discussed at the meeting: viz., (1) to pay the full amount in arrears; (2) to pay the annual amount required as membership fee, in case of being classified as a Least Developed Country (LDC); and (3) to rejoin as a new/ fresh member, in that case losing the former status and that this option could only be exercised once.



The Southern African Regional Irrigation Association (SARIA) held its annual workshop and steering committee meeting from 25-27 February 2014 at Pretoria, South Africa. The main theme of the workshop was 'Extension for irrigation water management'. Dr. Conrad Zawe (Zimbabwe) and Mr. Winston Sataya (Malawi) were elected as Chairman and Vice-Chairman of SARIA during the Steering Committee meeting. The representatives from Angola, Botswana, Democratic Republic of Congo (DRC), Lesotho, Madagascar, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe participated in the meeting. Currently, SARIA has five active ICID national committees (Malawi, South Africa, Tanzania, Zambia and Zimbabwe) and hopefully Madagascar will join the network soon. Vice

President Dr. G.R. Backeberg actively contributed and participated in the meeting and briefed the participants about the ICID activities. The second workshop on capacity building in a series of four workshops was held here on the topic 'Extension for irrigation water management'. As a major challenge for all SARIA members, it was agreed that the training resource material would be used as a basis for organizing further courses in the respective member countries. Southern Africa has developed a strategy for Capacity Building Program and other sub-regions are being encouraged to develop similar programs at their level.



Lake Chad Basin Commission (LCBC) delegation comprising seven professionals visited the ICID Central Office on 27 February 2014. At the outset, Dr. Vijay K. Labhsetwar, Director, ICID welcomed the delegates and briefed them on ICID, its role in irrigation, drainage and flood management through its numerous work bodies and global membership. The LCBC delegation was led by Hon'ble Arba Hama Diallo (Member of Parliament, Burkina Faso). The delegation explained the current situation of the basin countries and informed that they had recently assigned the task of preparation of Strategy paper on 'Integrated Water Resources Development and Management in Lake Chad Basin' to M/s WAPCOS Limited an ICID Direct Member.

■ Asian Regional Working Group (ASRWG)

Presently NCs from 20 countries in the Asian region are members and NCs from 9 countries are associate members of ICID. VP Chaiwat Prechawit, VP Dr. Hüseyin GÜNDOĞDU, and VP Prof. Kim contacted the Associate Member Countries in the Asian region to strengthen the ICID membership network. VP Kim contacted Mongolia and North Korea while VP GÜNDOĞDU contacted Tajikistan and also interacted with the HE Mr. Rahmat Bobokalonov, Minister of Melioration and Water Resources of Republic of Tajikistan.

The 2nd Asia-Pacific Water Summit (2nd APWS) on the theme “Water Security and Water-related Disaster Challenges” was held from 16-20 May 2013 at Chiang Mai, Thailand. VP Prof. Kim actively participated and contributed to the summit. With the WWF-7 scheduled to take place in the region, ASRWG is making efforts to contribute towards the process and the Chair of the ASRWG VPH Dr. Karim Shiati was incorporated as one of the members of TF-WWF7.

■ European Regional Working Group (ERWG)

Of the total of 50 countries in Europe, 19 are members and 8 countries are associate members of ICID. ERWG continues to cooperate with Central and Eastern Europe Global Water Partnership (CEE-GWP) and World Wide Fund of Nature (WWF) and share invitations for conferences organized by ICID, like European Regional Conferences and International Drainage Workshops. The ERWG members continued the dialogue on ‘Implementation of the European Water Framework Directive’ (WFD) and its implementation through tools of the Common Agriculture Policy (2007-2013).

The ERWG works through its numerous work teams; namely, Work Team on ‘Water Related Risk Analysis’ (EWTWRRRA), Work Team on ‘Sustainable Irrigation Management’ (EWTSIM), and Work Team on ‘Drainage’ (WTDRA). Prof. Klaus Roettcher (Germany) would be the Chairman of the Working Group on Decentralized Flood Protection in the DWA, ‘German Association for Water Management and Waste Water and Waste’. To facilitate exchange of information and knowledge between European work teams and other ICID working groups, focus groups and focus persons have been identified as below: (a) Focus Group on History; focus person VPH Laszlo Hayde, (b) Focus Group on Poverty Alleviation; focus person PH Peter S. Lee, (c) Focus Group on Environment; focus person Mr. Osmo Purhonen, (d) Focus Group on Drainage; focus person Dr. Irina Bondarik, (e) Focus Group on Water Related Risks; focus persons Prof. Klaus Roettcher and Mr. Olli-Matti Verta, (f) Focus Group on Project Partnership and Financing; focus person Ir. Leon Winjnker.

The European Work Team on ‘Sustainable Irrigation Management’ (EWTSIM) focused on “Irrigation sector reforms in Central and Eastern European countries” and is currently working on what course of action could be taken to make larger world community to appreciate the issues that Central and Eastern European countries are facing in the irrigation sector today. The European Work Team on ‘Drainage’ (WTDRA) normally cooperates with WG-DRG for hosting the international workshops in Europe focusing on European problems and approaches. The ERWG routinely organizes regional workshops and conferences. It is involved in the 12th International Drainage Workshop (IDW) in cooperation with the host National Committee of the Russian Federation on Irrigation and Drainage (RuCID). The 26th European Regional Conference (ERC) will be hosted by the French National Committee (AFEID) in October 2015 at Montpellier, France. The proposed sub-themes for 26th ERC are – (a) Innovations for smallholders in irrigation; (b) Wastewater use in agriculture; and (c) Governance of surface water and groundwater.

The 12th ICID International Drainage Workshop (12th IDW) will be hosted by the ICID’s Russian National Committee on Irrigation and Drainage (RuCID) in Saint-Petersburg (Pushkin), Russia from 23-26 June 2014. The main theme of the Workshop is ‘Drainage on Wetland Agricultural Areas’ and has seven sub-topics i.e. (a) New equipment and modern technology drainage construction in wetlands; (b) Efficiency of the use of reclaimed land and socio-economic aspects of the use of reclaimed land; (c) Drainage design and methods of calculating; (d) Advanced training of specialists: constructors and engineers in the field of drainage systems management and operation; (e) An integrated approach to the management of drainage and environmental protection; (f) Using reclaimed land for agricultural purposes; and (g) History of the drainage system development.

In order to encourage the young professionals to participate in ICID activities, RuCID created a milestone by fully waiving off the registration fee of ten young professionals from developing countries to facilitate their participation in the 12th IDW.

■ **High Level Forum appeals to double the irrigated areas in the Sahel**

Mr. Moussa Amoudu, Chair of Niger National Committee of ICID and Chair of ARID represented ICID at the High Level Forum entitled “Beating the Odds, Building Resilience in the Sahel: Water in the 21st Century” held on 30-31 October 2013 at Dakar, Senegal. The Forum was organized by The World Bank in collaboration with the Government of Senegal and the CILSS (Comité permanent inter-Etats du Lutte contre la Sécheresse dans le Sahel). More than 100 participants, representatives from six countries of the Sahel (Burkina Faso, Mali, Mauritania, Niger, Senegal and Chad), donors, NGOs and Associations, producer organizations also participated in the Forum. The Forum released a statement which encourages all the stakeholders to double the irrigated areas in the Sahel from 400,000 ha to 1 million ha by 2020.

■ **Budapest Water Summit, Budapest, Hungary**



Budapest Water Summit was organized with the objective to take stock of the various developments in and outside the UN system in the preparation of water-related goals under the Rio+20 agenda. It was envisaged as a policy forum to facilitate consensus building amongst stakeholders concerning the role of water and sanitation in future global development policy, including the identification of Sustainable Development Goals (SDGs). The summit was hosted by Govt. of Hungary from 8-11 October 2013 at Budapest. The Budapest Water Summit covered these issues by combining policy, scientific, financial-economic as well as governmental approaches and inputs. The main policy discussions of the Summit were held in parallel events, including a Science Forum, Civil Forum, Youth Forum, a Business Leaders Meeting and a Philanthropy Roundtable. Secretary General Avinash Tyagi participated in the High Level Panel Discussion on “The Water-Food-Energy Nexus” and laid emphasis on the capacity building needs to appreciate and take advantage of the nexus between food, water and energy in order to work towards sustainable development.

■ **World Congress of IAHR on Global water Security**



The 35th World Congress of the International Association for Hydro-Environment Engineering and Research (IAHR) was held from 9-13 September 2013 at Chengdu City, China with the theme of “Global Water Security”. Dr. Gao Zhanyi, President, ICID was invited to the mega conference who made his presentation on “Improving Water Management for Food Security and Multiple Purposes” during the Congress. After presentations and discussions a ‘Joint Declaration’ was signed by the delegates, in the presence of Gretchen Kalonji, Assistant DG for Natural Sciences, UNESCO. Representatives from seven International Water Organizations and United Nations and UNESCO attended the Forum, including Roger Falconer, IAHR President; Prof. Gordon Young, IAHS President; Tomás Sancho, President, World Council of Civil Engineers (WCCE); Dr. Jia Jinsheng, ICOLD Past President; Jun Xia, IWRA Past President; Prof. Zhaoyin Wang, WASER Vice President, and Gretchen Kalonji, Assistant DG for Natural Sciences, UNESCO and Olivia Castillo from United Nations.



■ **Kick-off meeting of the WWF7**

More than 200 representatives from the world water community participated in the Kick-off meeting of WWF7 held on 14-15 May 2013 at Daegu-Gyeongbuk, Republic of Korea. This two-day event was

inaugurated by World Water Council President Ben Braga together with distinguished guests the Minister of Land, Infrastructure and Transport of the Republic of Korea; Mayor of Daegu; Chair of National Committee for the 7th World Water Forum and the Governor of Gyeongbuk Province. Earlier, on 13 May, Mr. Hongwon Chung, Prime Minister of the Republic of Korea welcomed all the visiting dignitaries in a reception ceremony. Mr. Yong Jiao, Chinese Vice-Minister of Water Resources and representative of the Mayor of Marseille, Martine Vassal were also present. The ICID contingent was led by President Dr. Gao Zhanyi (China) at the kick-off meeting. Other members were Vice President Prof. Tai-Cheol Kim (Korea), Vice President Dr. Hüseyin GÜNDOĞDU (Turkey), Vice President Hon. Prof. Victor Dukhovny (Uzbekistan) and Vice President Hon. Shinsuke Ota (Japan), Chairman of Task Force for ICID input to WWF7 besides several Chairmen of National Committees of ICID.



■ High level policy dialogue on water food and environmental security, New Delhi, India

IWMI organized a high level policy dialogue on water food and environmental security “Global Challenges and Local Solutions” on 3 May 2013 in New Delhi, India. This dialogue, held between the policy planners, secretaries and senior officers of Government of India, the members of the Board of the International Water Management Institute (IWMI) and the members of the Steering Committee of the CGIAR Research Program on Water, Land and Ecosystems focused on the issues related to water sector as a whole vis-a-vis the global developments and the changes taking place elsewhere in the world.

Prof. Johan Rockstrom, Head of Stockholm Resilience Center summarized the dilemma that the world is confronted with limiting natural resources. He pointed out that the research clearly indicates that there are a number of tipping points of which the development process has to be aware of and account for. He emphasized that sustainability should not be the goal but the entry point in any development process. Dr. Donald Blackmore, former CEO of the Murray Darling Basin Commission stressed the need to focus on the basin approach to development and how different models were being followed. Prof. Mihir Shah, Members Planning Commission and Rajesh Kumar, Chairman, Central Water Commission and Chair of INCSW took part in the discussions. Secretary General Avinash C. Tyagi who participated in the dialogue took the opportunity to meet Vice President Hon. Dr. Alain Vidal (France), Prof. Charolette de Freiture, Chair NENCID and Dr. Seduto Pasquale and discussed issues of interest.

■ 2nd APWS on “Water Security and Water-related Disaster Challenges”, Chiang Mai, Thailand

The 2nd Asia-Pacific Water Summit (2nd APWS) on the theme “Water Security and Water-related Disaster Challenges” was held from 16-20 May 2013 at the International Convention and Exhibition Centre in Chiang Mai, Thailand. The four-day summit and related events concluded in the presence of 9 Heads of State and Government and 18 Ministerial level representatives. More than 1000 delegates from 40 countries attended the Conference. On behalf of ICID, President Dr. Gao Zhanyi (China) attended the Summit as a Panelist in the Workshop on ‘Achieving Economic, Food and Water Security in the Asia Pacific: Key Challenges and Key Actions’ on 18 May 2013 and ‘Focus Area Session on Economic, Food and Water Security’ on 19 May 2013, jointly organized by FAO and ESCAP. The objectives of workshops were to identify the key challenges and elements of a supportive framework for action to concurrently eliminate hunger in our life times and achieve economic and water security within an inclusive green growth strategy and develop key messages on economic, food and water security (EFWS). During 2nd APWS, the Organizing Committee of the WWF7 also organized the 7th WWF – Kickoff event on 17 May 2013. As member of Board of Governors of WWC, President Gao delivered a welcome speech in august presence of Prof. Ben Braga, President of WWC.



■ 4th Global Forum of Leaders for Agricultural Science and Technology

President Dr. Gao Zhanyi was invited to the 4th Global Forum of Leaders for Agricultural Science and Technology (GLAST-2013) and to participate in a panel discussion. The Forum was held on 5-6 June 2013 in Beijing, China and was hosted by Chinese Academy of Agricultural Science. The purpose of the Forum was to share the experiences on international cooperation of agricultural research and management. It was also the occasion to celebrate the 30th Anniversary of China – Consultative Group on International Agricultural Research (CGIAR) Cooperation. Dr. Jonathan Wadsworth, Executive Secretary of CGIAR Fund Council, Dr. Frank Rijsberman, Chief Executive Officer of CGIAR Consortium Office, Dr. Carlos Perez del Castillo, CGIAR Consortium Board Chair and Director Generals/BOT Chairs from 13 CGIAR centers, as well as many senior CGIAR administrators attended the event. A Joint Declaration between Consultative Group on International Agricultural Research and Chinese Academy of Agricultural Sciences was prepared and circulated.

■ India Water Week, New Delhi, India



Increasing pressure on water from different sectors, decreasing per capita water availability and increasing variability due to climate change makes it obligatory on the agriculture sector to manage its water use more efficiently. Research and innovation in the increasing water use efficiency plays a crucial role in such an effort. Vice President Laurie C Tollefson chaired a session on “Research and Innovation for Increasing Water Use Efficiency” at the India Water Week on 11 April 2013 in New Delhi. Chairing the session, VP Laurie Tollefson, member CANSID, who was on invitation from the organizers of the ‘India Water Week’ (IWW) from 08-12 April 2013 at New Delhi, India with “Efficient Water Management: Challenges and Opportunities” as its theme, presented an in-depth analysis on the subject. ICID was actively involved in

the IWW-2013 with, Secretary General Avinash. C Tyagi and SGH Gopalakrishnan involved as members of Technical Organizing Committee. SGH Gopalakrishnan chaired the session titled ‘Hydropower Generation – Impact on Environment’, while SG Avinash C. Tyagi chaired the Panel Discussion on ‘Technological Advances and Improvement in Water Use Efficiency’ and spearheading a Brain storming session on “Increasing Water Use Efficiency – Case for Setting Aside Gains for Environmental Flow”.

■ AFRICA 2013, Addis, Ethiopia

Importance of water storages in meeting the various demands for water, particularly due to increased variability, is beyond question. While various kinds of water storage mechanisms such as soil moisture, groundwater, ponds and tanks can meet the needs of agriculture water management to some extent hydropower development requires medium to large storage structures to increase potential energy stored in water and harness it. An International Conference and Exhibition on the theme “Water Storage and Hydropower Development to Africa” titled Africa 2013 was organized by Aqua-Media International, in cooperation with International Commission on Large Dams (ICOLD) and Ethiopian Electric Power Corporation (EEPCO), in partnership with ICID at African Union Congress Centre, Addis, Ethiopia from 16 to 18 April 2013. Dr. Adama Sangare (Mali), Vice President, ICID and President of Malian National Committee of ICID (AMID) participated in the Africa 2013 and made a presentation on “Irrigation and Food Security Challenges in Africa” during opening plenary session of the conference.

■ 7th International Workshop on ‘Using 21st Century Technology to Better Manage Irrigation Water Supplies’, Arizona, USA

President Dr. Gao Zhanyi (China) delivered a keynote speech upon invitation from the U.S. National Committee on Irrigation and Drainage (USCID) in the 7th International Workshop on ‘Using 21st Century Technology to Better Manage Irrigation Water Supplies’ held during 16-19 April 2013 at Phoenix, Arizona, USA. In his keynote on ‘Water Management for Food Security and Multiple Purposes’, he highlighted the huge need to modernize and rehabilitate the existing irrigation

schemes. The age old traditional problems of irrigation infrastructures exist in many developing and the least developed countries. These problems lead to poor performance and low water use efficiency and water productivity in many irrigation schemes. The workshop covered a wide range of technologies, from drip irrigation to remote sensing technology, from water use efficiency to water productivity at farm and field level. The technology and knowledge was discussed and shared for improvement of water management for achieving food security and sustainability.



KEY ICID EVENTS

Two major ICID events were held in 2013 viz., The First World Irrigation Forum (WIF1) and 64th International Executive Council (IEC) meeting along with the annual work body meetings in September and October in Mardin, Turkey. These events provided a platform for exchange of knowledge and networking among technical partners, participants and also setting up of the agenda, policy issues and direction to ICID activities. The following is a brief report of these two events.



About 750 participants from 61 countries and 12 International Organizations attended the First World Irrigation Forum (WIF1) held during 29 September – 1 October 2013 in Mardin, Turkey. WIF1 was organized by ICID in cooperation with leading international partners such as ADB, AWC, FAO, GWP, ICARDA, ICRISAT, IFPRI, IWMI, UNESCO-IHE, WB and WMO and hosted by Turkish National Committee of ICID (TUCID). The main theme of the WIF1 was “Irrigation and Drainage in a Changing World: Challenges and Opportunities for global Food Security” with following sub-themes:

- (1) Policy, Science and Society Interactions;
- (2) Challenges and Developments in Financing Irrigation and Drainage Sector; and
- (3) Integrated Water Management Approaches for Sustainable Food Production.

Within the context of the main theme, more than 186 papers, short communications and posters were presented and discussed. In addition to the thematic sessions there were three workshops two Roundtables: two Panel discussions: 23 Side events; and an Exhibition.

■ Inaugural Ceremony



Participants to the Forum were welcomed by Mr. Akif OZKALDI, Director General of DSI and President of TUCID and Dr. Ahmet Cengiz, the Governor of Mardin. Inaugural addresses were delivered by Dr. Gao Zhanyi, President, ICID, Prof. Dr. Dogan Altinbilek, Vice President, WWC; and HE Mr. Hamit BAKIRCI, Minister of Turkish Republic of Northern Cyprus. HE Prof. Dr. Veysel EROGLU, Turkish Minister of Forestry and Water Affairs inaugurated the Forum.

■ Plenary Sessions



The First Plenary Session to set the scene was presided over by President Gao Zhanyi where representatives of various stakeholders were invited to share their perspective on the theme. Secretary General Avinash C Tyagi representing the irrigation managers laid down the theme and the program for the Forum. Farmers' perspective was presented by Mr. Abdel Waheb (Egypt) and Ms. Zahida Detho (Pakistan) sponsored by IFAD. Mr. Jeremy Bird, Director General, IWMI representing research organizations, Dr. Bruce Stewart, WMO, representing international scientific community, Dr. H. Irfan Aker, Dolsar Engineering representing industry presented the respective perspectives.

■ Parallel Sessions



Following the inaugural function, parallel plenary sessions were held for each sub-theme. Each sub-theme was opened with a plenary session in which a keynote and thematic background papers were presented. For the sub-theme “Policy, Science and Society Interactions” Prof. Roberto Lenton delivered the keynote entitled “Irrigation in the 21st Century: Reflections on Science, Policy and Society” while VP Laurie C. Tollefson (CANCID) presented the background paper on “Policy, science and Society interaction”. Dr. Uma Lele (GWP) delivered her keynote on “Financing for Irrigation and Drainage” at the preliminary session of sub-theme “Challenges and Developments in Financing Irrigation and Drainage Sector”. VP François Brelle and Etienne Dressayre (AFEID) prepared the background paper on “Financing Irrigation”.



While for sub-theme “Integrated Water Management Approaches for Sustainable Food Production” Dr. Olcay Ünver prepared the keynote speech on “Integrated Water Management Approaches for Sustainable Food Production”, which was delivered by Dr. Thierry Façon. The background paper prepared by Prof. Charlotte de Fraiture (UNESCO-IHE), Dr. Aynur Fayrap, Dr. Olcay Ünver and VPH Dr. Ragab Ragab was presented by Prof. Charlotte. Under each sub-theme, Presentations of outcome of main theme and sub-themes were made in the Plenary Session, which was concluded by a panel discussion to arrive at final conclusions and outcomes.

■ Round Tables, Panel Discussions and Workshops

A roundtable on “Policy issues in irrigation and drainage” was chaired by Mr. Jeremy Bird, Director General, IWMI which throw light on policies and practices at international, national and local levels that will help achieve water security, food security, energy security and environmental sustainability.



Two panel discussions were organized: (1) 'Farmers' perspective on irrigation and drainage', chaired by Mr. Rudolph Cleveringa (IFAD). It was pointed out that farm workers are voiceless as it is landowners who take all the decisions within or outside the WUAs. Farmers conclude that they would like empowerment of (near) landless farm workers and sharecroppers. Farmers want to be included in the decision-making process as full citizens with rights and obligations; (2) 'Sustainability of innovations in irrigation and drainage: Industry perspective' was chaired by President Hon. Peter



S. Lee. The overall conclusion was that that irrigation and drainage community has a pivotal role in ensuring the sustainability of a great industry but we need to get more industry players into ICID to do this more effectively.

Three international workshops, namely (1) Water Wisdom and Sustainability, (2) Developing Management Strategies for Coping with Drought and Water Scarcity, and (3) Management of Water, Crops and Soils under Climate Change were also held.

■ Side events and Exhibition



"Side Events" on a variety of related topics presented a spectrum of views and formed one of the successful segments of the WIF1. In all 23 side events were held, which basically covered the wide canvas of irrigation, drainage and flood management. Side events showcased Turkish institutions covering subjects from water civilization, to piped irrigation, to water powered pumps, to ground water, to GAP - regional development project. The JNC-ICID gave the future vision of participatory irrigation management. IWMI focused on remote sensing and GIS tools. FAO promoted investment in agriculture water management in Africa. IFAD focused on intergenerational

knowledge transfer in the agricultural water management and brought together youth from African countries engaged in irrigation management. WMO and GWP presented different perspectives and the globally coordinated activities related to Integrated Drought Management. The exhibition covering around 210 sq m area was inaugurated by HE Prof. Dr. Veysel Eroğlu, Minister of Forestry and Water Affairs, Turkey in the presence of other dignitaries. More than 20 companies participated in the exhibition. IWMI also participated in the exhibition by opening a stall.

■ Closing ceremony

The First World Irrigation Forum was closed on 01 October 2013 during a thematic wrap-up session after presenting the First World Irrigation Forum Statement as presented at page 48. Mr. Akif Ozkaldi, DG, DSI and the Governor Mr. Ahmet Cengiz of Mardin profusely thanked ICID for giving opportunity to TUCID and Turkey to host the very First World Irrigation Forum of ICID. In turn, the President Dr. Gao Zhanyi and Secretary General Er Avinash Tyagi thanked and expressed their sincere gratitude to Mr. Akif Ozkaldi, VP Dr. Hüseyin GÜNDOĞDU and all the committee members of all the Organizing Committees for their untiring efforts in making the ICID's First World Irrigation Forum, a successful event. A Summary Report on the First World Irrigation Forum can be downloaded from http://www.icid.org/wif1_sumreport.pdf

Preamble

The main theme 'Irrigation and drainage in a changing world: Challenges and opportunities for global food security' recognizes that for sustainable agricultural water management an in-depth understanding of the implications of population growth, changing demographics due to urbanisation, and more frequent extremes due to climate change on agricultural water management is required to ensure growth in Global Food Production matches demand. Agricultural water management, especially irrigation, will contribute to sustainable intensification of cultivable lands, within the resilience of ecosystems, and where applicable with rehabilitation of degraded ecosystems. To meet these aspirations under the increasing food demands in the 21st Century requires review, adaptation and modernisation of policies, technologies and management practices under the constraints of finite natural resources - both land and water - and competition among sectors.

Within the context of the Main theme, more than 186 papers, short communications and posters were presented and discussed under three Sub-themes: (1) Policy, Science and Society Interactions; (2) Challenges and Developments in Financing Irrigation and Drainage Sector; (3) Integrated Water Management Approaches for Sustainable Food Production. In addition to the thematic sessions there were: (i) three workshops: Water Wisdom and Sustainability, Developing Management Strategies for Coping with Drought and Water Scarcity, and Management of Water, Crops and Soils under Climate Change; (ii) two Round tables: Policy, Stakeholders; (iii) two Panel discussions: Farmers, Industry; (iv) 23 Side events; and (v) an Exhibition.

Statement

As a result of the presentations and discussions at the World Irrigation Forum, the following statements were agreed:

- (i) Development of civilization over the past 5,000 years is closely adjoined with water management problems that have shaped societies and their structures. In the course of the centuries, systems and methods worked out under the various conditions have conclusively demonstrated their pertinent sustainability. Today, the knowledge and structural remains of these methods are not only interesting archaeologically, ecologically and historically, but can also help to solve current problems. The Mardin area shows us an impressive proof of this.
- (ii) As water is becoming an increasingly valuable and vulnerable resource, it needs to be acknowledged that generally water will need to be managed in a better way. This may require revision of water related policies at all levels. Regional water scarcities and environmental requirements need to be considered in developing such policies. Therefore, effective cooperation among the various stakeholders: government authorities, research institutions, managers of irrigation systems, civil societies, local communities, NGO's, businesses etc. needs to be promoted. This will speed up the development and implementation of effective and sustainable water solutions. Water can be an element of cooperation between riparian countries and needs to be treated as such.
- (iii) Irrigation water delivery is a service to users. High quality and reliable service is a condition for adoption of advanced farm practices by the farmers. Irrigation and drainage face many challenges, but also provide the foundation to maintain global food security. Modernization and improvement of irrigation is occurring worldwide at varying rates and degrees. Much is being accomplished through innovation and technical advances. However, technology alone will not resolve the issues of water and food security. Informed policies, financial management, reorientation of institutions, awareness of local communities and transparent governance require innovation and advances to respond to challenges.
- (iv) Government institutions have central roles to facilitate interaction among the stakeholders in the sector and in providing the framework for agricultural water management activities. They need to assess the

needs and roles of different actors, especially of the new generation professionals. If necessary, adjust legislation accordingly and arrange to collect relevant data.

- (v) In the planning and design of water management systems adequate attention needs to be given to how water management activities can most effectively be integrated with farming practices, recognizing the multiple uses to which such infrastructure is put and the broad spectrum of services that agricultural water management systems support. This recognition may also provide new opportunities for financing agricultural water management.
- (vi) The agricultural sector is the principal water user. Therefore, use of equipment and techniques that enable effective use of water in agriculture need to be among the primary targets for ensuring food security of an increasing worlds' population. As presented in the short communications, side events and in the exhibition it is not only innovative modern technologies, but also proven traditional technologies that will play an important role in obtaining optimal benefit of the limited water resources. Information on these options needs to be made publicly available through effective extension services. Capacity building components at various levels need to be included in agricultural water management programmes.
- (vii) Financial institutions need to give priority to countries/stakeholders which need agricultural water management schemes, and to support national and regional development with suitable financing mechanisms. A range of financing models have already been developed and tested for the agricultural water management sector. Some of these models have proven to be successful whereas failures have occurred in other cases. It is recommended that suitable models will be selected, further tested and evaluated for different local conditions.
- (viii) The concept of sustainability cost as described in the position paper of ICID on Irrigation and Drainage Services: Some principles and Issues towards sustainability (Tardieu, 2005) deserves wider application in practice.
- (ix) The impact climate change may have on water resources, food and feed production is widely recognised. The change in rainfall patterns and increase in temperature may decrease river flows and reservoir storage, increase evapotranspiration and subsequently increasing water demand for agriculture. Risk analysis and vulnerability assessments on the occurrence of extreme events are needed to enable better management of water demand and supply. Adaptation to climate change by proactive approaches, including better prediction and early warning, reduction of water losses, application of highly efficient irrigation systems, cultivation of drought tolerant varieties, (re)use of low quality and waste water, improved land management and methods of cultivation, appropriate policies for water supply and demand management during extreme events, and concerted efforts to raise farmers awareness of the climate change impacts and the provision of guidelines for farmers on how to cope with changing climate conditions.
- (x) It is important that the Forum results are also made available to farmers, who are the managers of water in the lower distribution system and on-farm.

We hope that by the time of the Second World Irrigation Forum it can be reported that water management for global food production has been such that there is sufficient food for the expected World Population of almost 7.5 billion at affordable prices and that a significant reduction of undernourished people has been achieved.

The participants thank the Government of Turkey and the Turkish National ICID Committee (TUCID) for their initiative and hospitality, as well as the sponsors for their contribution in hosting this highly important First World Irrigation Forum.

Mardin, Turkey

Tuesday, 1st October 2013

64th International Executive Council (IEC)

The First World Irrigation Forum (WIF1) was followed by 64th International Executive Council (IEC) Meeting and its pre-Council meetings held from 01-05 October 2013. It was the occasion for all the ICID workbody members and Office Bearers to come together and discuss the agenda and attempt to bring out the valuable ICID publications to bridge the knowledge gap that exists between lab and farm. During the period, 23 Workbody and 4 Task Force meetings were held. Some of the important decisions taken during the meetings are:

Changes in Country Membership: Nigeria and Malawi have re-joined ICID network.



Admitting direct members: Five institutions/individuals were admitted as direct members: (i) India Water Foundation (IWF); (ii) WAPCOS Limited, India; (iii) SU/YAPI Engineering and Consulting Inc., Turkey; (iv) Er M. Gopalakrishnan; (v) The KAITEKI Institute, Inc., Japan.

New Vice Presidents: Vice Presidents Dr. Ragab Ragab (United Kingdom); Engr. Husnain Ahmed (Pakistan); and Engr. Chaiwat Prechawit (Thailand) completed their three year tenure (2010 – 2013) at Mardin meeting. Three new Vice Presidents: Dr. Ir. Basuki Hadimoeljono (Indonesia); Mr. Kadhim Mohsin Ahmed (Iraq); and Er. A.B. Pandya (India) were elected for the next three year tenure (2013-2016).

Changes in Workbodies: The revised distribution of working groups under various strategy themes are given in the Box.

Outline for establishment of new Working Groups by Theme Leader 'Schemes' proposed by VP Backeberg was approved by the International Executive Council (IEC) in its 64th meeting in Mardin. This will involve establishment of 5 new Working Groups. The new Working Groups will be in the areas of irrigation development, participatory irrigation management, irrigation revitalization, water loss/saving, and drainage, with a new mandate and work plan, and not a continuation of previous Working Group activities. 'Scoping Document' to initiate the formation of these WGs are being prepared through a core group of experts and will be presented to the 65th IEC meeting to be held in September 2014 at Korea.

- ◆ Two chairs were newly nominated (i) Dr. Sylvester Mpandeli (South Africa), AFRWG and (ii) Dr. Kamran Emami (Iran) TF-VE respectively in the Mardin meetings;
- ◆ Closure of TF-FIN, WG-DRG, and WG-WATS. WG-WATS is recommended to reformulate a new mandate to address the two newly proposed Working Groups for Irrigation Water Loss Control;
- ◆ Extended the tenure of WG-POVERTY, WG-DROUGHT and TF-BIO-ENERGY by one year i.e., up to 2014;
- ◆ A Sub-Committee under PCTA was constituted to deliberate upon the Themes, Topics and Workplans of the various future ICID events including Congresses and World Irrigation Forums;
- ◆ A Task Team was established to review the procedure for proposing and adjudication of WatSave Awards;
- ◆ A Task Team to work out details for establishing WID Prize Trust Fund was setup; and
- ◆ The amendments to the ICID Constitution and the By-laws were adopted.

DISTRIBUTION OF WORKING GROUPS

A STRATEGY THEME KNOWLEDGE

- ◆ Committee on Public Relations and Publications (C-PR&P)
- ◆ ICID Journal Editorial Board (EB-JOUR)
- ◆ Working Group on History of Irrigation, Drainage and Flood Control (WG-HIST)
- ◆ Task Force to guide ICID inputs to World Water Forum 7 (TF-WWF7)
- ◆ Task Force on Value Engineering (TF-VE)

B STRATEGY THEME BASIN

- ◆ Working Group on Comprehensive Approaches to Flood Management (WG-CAFM)
- ◆ Working Group on Global Climate Change and Agricultural Water Management (WG-CLIMATE)
- ◆ Working Group on Water Management in Drought Stress Regions (WG-DROUGHT)
- ◆ Working Group on Environment (WG-ENV)
- ◆ Working Group on Sustainable Development of Tidal Areas (WG-SDTA)
- ◆ Working Group on Water for Bio-Energy and Food (WG-BIO-ENERGY)

C STRATEGY THEME SCHEMES

- ◆ Working Group on Drainage (WG-DRG)
- ◆ Working Group on Water Saving for Agriculture (WG-WATS)
- ◆ Working Group on Role of Irrigation in Poverty Alleviation and Livelihoods (WG-POVERTY)
- ◆ Task Force on Financing Water for Agriculture (TF-FIN)

D STRATEGY THEME ON-FARM

- ◆ Working Group on Water and Crops (WG-CROP)
- ◆ Working Group on On-Farm Irrigation Systems (WG-ON-FARM)
- ◆ Working Group on Use of Poor Quality Water for Irrigation (WG-PQW)

WORKING TOGETHER WITH PARTNERS

Promoting water cooperation implies an interdisciplinary approach bringing in cultural, educational and scientific factors, as well as social, political, legal, institutional and economic dimensions. United Nations General Assembly declared 2013 as the United Nations International Year of Water Cooperation. It is based on the hypothesis that when water resources are cooperatively shared and managed, peace, prosperity and sustainable development are more likely to be achieved. Success of water management interventions requires effective cooperation between multiple actors at the local to international scale.

Recognizing this, ICID works closely with various water related international organizations in fulfilling its mission. Enhancing cooperation in irrigation and drainage activities essentially forms one of the objectives of ICID. Over the years ICID has been collaborating with ADB, AWC, FAO, GWP, ICARDA, ICOLD, ICRISAT, IFAD, IFPRI, IWMI, UN-Water, WMO, World Bank, and WWC effectively and successfully. In order to further enhance this cooperation, ICID has initiated World Irrigation Forums and thus, the year 2013 witnessed a much enhanced and wider collaboration with many global organizations and partners adding new facets to the existing collaborations. The following paragraphs provide a summary of activities carried out by ICID in collaboration with these and other organizations.

■ UN-Water

ICID is one of the partner organizations of the UN-Water and has been contributing effectively to all UN-Water activities and meetings. ICID is one of the few organizations who have joined forces to promote the safe use of wastewater in agriculture in developing countries and countries in transition. As a result, a couple of workshops on 'Capacity Development Project on Safe Wastewater Use in Agriculture' have been organized and Secretary General Avinash C. Tyagi is a resource person to these workshops.

ICID contributed to the 'International Conference on Water Cooperation' jointly organized by UN and its institutions and Government of Republic of Tajikistan, during 20-21 August 2013 at Dushanbe, Tajikistan. The main objective of the conference was to contribute to the improvement of water cooperation, particularly at the trans-boundary level, through advocating successful policies and best practices, wider public participation, encouragement of policy-makers to promote water cooperation at all levels to contribute to the achievement of internationally agreed goals on water. Vice President Dr. Hüseyin GÜNDOĞDU represented President Dr. Gao Zhanyi at the conference.

The Budapest Water Summit was organized by the UN system and hosted by Government of Hungary from 8-11 October 2013 with the objective to take stock of the various developments towards the preparation of water-related goals under the Rio+20 agenda. The event had five main streams: (1) Striving for universal access to water and sanitation; (2) Integrated water resources management for the 21st century; (3) Good water governance; (4) Green economy for blue water; and (5) Financing of water related development goals, covered these issues by combining policy, scientific, financial-economic as well as governmental approaches and inputs. Secretary General Avinash Tyagi as one of the panelists at the High Level Panel Discussion on "The Water-Food-Energy Nexus", laid emphasis on the capacity building needs to appreciate and take advantage of the nexus between food, water and energy in order to work towards sustainable development.

A number of UN-Water members and partners actively partnered with ICID and worked towards the success of ICID's noteworthy initiative in the irrigation sector, the First World Irrigation Forum in Mardin, Turkey in September-October 2013. UN-Water is a mechanism of the United Nations, endorsed in 2003 for the follow-up process of the 2002 World Summit on Sustainable Development. Its purpose is to support states in their water-related efforts and reach the Millennium Development Goals (MDGs).



■ Food and Agriculture Organization (FAO)

ICID and FAO work towards the common objective of promoting sustainable agricultural water management and achieving food security worldwide. ICID and FAO therefore, have a robust



partnership since decades which has been further reinforced through successive World Water Fora. FAO is a permanent observer to ICID annual International Executive Council meetings and FAO experts act as Observer on many ICID technical workbodies.

ICID has a special consultative status with FAO and the Commission is participating in various on-going

FAO programs, through its National Committees in the countries in which FAO's programs are continuing or are to be developed. ICID also assists FAO in updating and authenticating water statistics collected from these countries and provide any additional information as may be needed.

During the 2nd Asia-Pacific Water Summit held on 16-20 May 2013 on the theme "Water Security and Water-related Disaster Challenges" at Chiang Mai, Thailand, President Dr. Gao Zhanyi represented ICID at the Summit as a Panelist in the Workshops on 'Achieving Economic, Food and Water Security in the Asia Pacific: Key Challenges and Key Actions' and 'Focus Area session on Economic, Food and Water Security' held on 18 and 19 May 2013 respectively which were jointly organized by FAO and ESCAP.



FAO was one of the technical partner organizations and close collaborator for successful organization of ICID's WIF1 at Mardin and spearheaded a Side Event on "Working together to promote Investment in Agricultural Water Management in Africa (AgWA)" on 30 September 2013. The other events supported by FAO during Mardin WIF were: (1) a Panel Discussion on "Multiple-use water services, a way to sustainability

whatever the scale water is managed and served" and (2) Seminar on "Promoting Sustainable Water Resource Management in the Mesopotamia" which enriched the technical contents.

Dr. Marco Arcieri, Secretary General, ITAL-ICID held discussions with Dr. Olcay Ünver, Deputy-Director of Land and Water Division and Miss Robina Wahaj, Irrigation Technical Officer of FAO on 18 February 2014 on development of future cooperation between ITAL-ICID and CIHEAM and ICID and FAO.

■ International Fund for Agricultural Development (IFAD)

ICID and IFAD granted each other the status of permanent observer in 2007 in their annual Council meetings. Collaboration between the two organizations has mainly focused on rural poverty alleviation and livelihood enhancement through improved agricultural water management. IFAD was one of the partner organizations of ICID at WIF1 and its delegation led by Dr. Rudolph Cleveringa organized a Panel Discussion on "Challenges and opportunities for global food security: Inter-generational knowledge transfer in the agricultural water management sector". IFAD also sponsored a number of farmers and young professionals to the Forum.



Vice President Dr. Hüseyin GÜNDOĞDU and Dr. Secretary General, ITAL-ICID attended the 37th Session of Governing Council of IFAD convened on 19- 20 February 2014 at Rome, Italy, on behalf of ICID. The theme of the Session was "Investing in smallholder family farmers for the future we want". And the deliberations were about how best to create an optimal environment for private sector investments in family farms, benefitting both sides.



■ World Meteorological Organization (WMO)



ICID has a consultative status with WMO while WMO is represented on ICID's related technical Working Groups. As WIF partner organization, WMO team led by Dr. Bruce Stewart organized a Panel Discussion on "Climate Services to optimize irrigation use and improve farmer management in agriculture".



A Memorandum of Understanding (MoU) was signed between ICID and WMO to take the cooperation between two organizations to newer heights in the areas of mutual interest (signed by WMO Secretary General and ICID President in July 2013 for a five-year period).

ICID is working with WMO in bringing together climate and water communities to manage the extreme events, floods and droughts, starting with South Asia. Under this Agreement, ICID and WMO jointly plan to organize a 'Climate Services User Forum for the Water Sector in South Asia' in conjunction with the Fifth Session of South Asian Climate Outlook Forum (SASCOF-5) on 23-25 April 2014 at Pune, India, which aims to provide a platform to enhance interactions between the water managers and the climate community within the South Asian countries with the objective of making best of the climate services and information provided by SASCOF and others available in the region. The participants, identified by ICID and WMO for sponsorship, are from the NCs of Afghanistan, Bangladesh, India, Maldives, Nepal, Pakistan, and Sri Lanka, and provided an incentive to member NCs of ICID in replenishing their knowledge base and share with other countries in the region.

■ UNESCO-IHE Institute for Water Education, Delft, The Netherlands



UNESCO-IHE and ICID have been collaborating with each other through specialized educational solutions from the UNESCO-IHE experts to respond to the needs of diverse clients from the professional water arena represented by ICID. The Institute being the largest and only international institution specializing in management of irrigation, drainage, and floods, ICID-UNESCO-IHE collaboration has significant value to ICID's young irrigation professionals. Prof. Charlotte de Fraiture acts as the liaison between the two organizations. Secretary General Avinash C. Tyagi who sits on the Governing Board of UNESCO-IHE attended the 13th Session of the Board held on 20-23 November 2013 at UNESCO-IHE, Delft, the Netherlands. The topic on "Establishment of UNESCO-IHE Graduate School on Water and Development" where ICID has a special interest was also introduced during the meeting. UNESCO-IHE was one of the partner organizations of ICID in the organization of its first WIF in 2013.

■ World Water Council (WWC)

ICID, being a founder member of WWC, has been actively involved in World Water Fora organized by WWC since its beginning and is currently an elected member of its Board of Governors (BoG). Besides, ICID family members present in the BoG of WWC include Mr. Kazumi Yamaoka representing JNCID, Japan and Mr. Akif Özkaldi, Chair of TUCID and Mr. Yaser Barghi (Iran), Chair, ICID WG-YPF, a special invitee as one of the three Young Professional observers at the BoG. WWC has extended full support to World Irrigation Forum and actively participated in ICID annual events held in Mardin, including WIF1 where Vice President Dr. Dogan Altinbilek chaired a number of sessions and delivered an inspiring address during the inaugural ceremony.



President Dr. Gao Zhanyi attended the 49th Board of Governors (BoG) meeting of WWC and the Kick-off meeting of the 7th World Water Forum (WWF7) held at Daegu in South Korea from 11-15 May 2013. Other ICID representatives present during kick-off meeting were Vice President Prof. Tai-Cheol Kim (Korea), Vice President Dr. Hüseyin GÜNDOĞDU (Turkey), Vice President Hon. Prof. Victor

Dukhovny (Uzbekistan) and Vice President Hon. Shinsuke Ota, Chairman of Task Force for ICID input to WWF7 (TF-WWF7) besides Chairmen of National Committees of ICID.

The Golden Jubilee meeting of BoG of World Water Council was held on 7-8 October 2013 in Budapest, where ICID was represented by Secretary General Avinash Tyagi. It provided an opportunity to align World Irrigation Forum and the World Water Forum. The Regional and Science and Technology processes leading up to WWF7 will provide the opportunity to mainstream the outcomes of WIF into WWF7 deliberations. President Gao Zhanyi and Secretary General Avinash Tyagi attended the 51st BoG meeting of WWC held on 25-26 February 2014 at Gyeongju, Republic of Korea. One of the items considered at BoG was ICID's proposal on "World Water System Heritage (WWaSH)" Program. SG Avinash Tyagi is actively contributing to the Regional Process Commission for 7th WWF. He attended their meetings at Budapest in October 2013 and later at Gyeongju in February 2014 and also contributed through web conference. World Water Council is desirous of extending its presence in India and developing a robust and lasting relationship with the Indian water community. Secretary General Avinash C. Tyagi has extended ICID's full support for organizing a mission for President Braga during next India Water Week.

■ International Water Management Institute (IWMI)



ICID and IWMI have been collaborating on issues of mutual interest and IWMI was one of the major partners in the ICID's Country Policy Support Program (CPSP) funded by the Government of the Netherlands. Both the organizations participate in each other's key events. IWMI has been represented in various technical workbodies of ICID as a permanent observer.



President Gao Zhanyi presented a paper on "Water Governance Reforms in China" at the conclusion of the celebration of 10 years of IWMI-Tata Water Policy Program (ITP) held on 28-30 November 2013 at Anand, Gujarat State of India. President Gao had a brief discussion with the new top management team of IWMI on that occasion.

On the occasion of IWMI's 53rd Board of Governors meeting in New Delhi on 4-5 May 2013, a high level policy dialogue on water food and environmental security "Global Challenges and Local Solutions" was organized on 3rd May 2013 in which ICID participated constructively through Mr. Rajesh Kumar, the then Chair of INCSW, Secretary General Avinash C. Tyagi, Vice President Hon. Dr. Alain Vidal (France) and Prof. Charlotte de Fraiture, Chair NETHCID.

IWMI has actively supported ICID's first WIF in Mardin in 2013 as one of its technical partners and close collaborators. IWMI delegation was led by Director General Mr. Jeremy Bird who delivered the Keynote address on "Game Changers for Irrigated Agriculture – Do the Right Incentives Exist?" and Deputy Director General Dr. Peter McCornick, who chaired the Side Event on "Use of Remote Sensing and GIS Tools in the Irrigation Commands to assist planning and management" organized by IWMI. A "Roundtable: Policy Issues in Irrigation and Drainage" was also chaired by Director General Mr. Jeremy Bird during WIF1. During his visit to Colombo in March 2014, Secretary General Avinash C. Tyagi paid a courtesy visit to IWMI Headquarters to meet Mr. Jeremy Bird and discussed various topics related to ICID and WIF1.

■ The World Bank



The World Bank has been promoting irrigation and drainage as one of the key aspects in the livelihood of people living in the rural areas of the developing and emerging countries across the world. The World Bank partnered with ICID for Mardin WIF and Mr. Jacob Burke was their representative in WIF's International Technical Advisory Committee (ITAC).

Mr. Moussa Amadou, Chair of Niger National Committee of ICID and Chair of l'Association Régionale pour l'Irrigation et le Drainage en Afrique de l'Ouest et du Centre (ARID) represented ICID at the High Level Forum entitled "Beating the Odds, Building Resilience in the Sahel: Water in the 21st Century" held on 30-31 October 2013 at Dakar, Senegal, the Forum was organized by The World Bank in collaboration with the Government of Senegal and the CILSS (Comité permanent inter-Etats du Lutte contre la Sécheresse dans le Sahel). The Forum released a statement which encourages all the stakeholders to double the irrigated areas in the Sahel from 400,000 ha to 1 million ha by 2020. The Interstate Committee, fighting against drought in the Sahel (CILSS), will continue to implement actions listed in the statement with support from some others organizations such as ARID, AgWA, ECOWAS and the West African Economic and Monetary Organization (UEMOA).

■ Asian Development Bank (ADB)



ADB was one of the technical partner organizations of ICID's first World Irrigation Forum and a close collaborator of ICID. Mr. Ian Makin, Senior Water Management Specialist was one of the members of the International Technical Advisory Committee (ITAC) of WIF1 and Chair of Sub-theme: Challenges and Developments in Financing Irrigation and Drainage Sector. Dr. Christopher Wensley, Lead Professional (WR) Southeast Asia Department along with Mr. Ian Makin also contributed in the paper review process of WIF1.



Mr. Makin visited ICID Central Office on 31 May 2013 and held discussions with Er. Avinash C. Tyagi, Secretary General on matters of mutual interest and future collaborative initiatives between the two institutions. Mr. Makin explained his efforts to get ADB joining ICID as an institutional member. He chaired the Plenary session and 3rd Parallel Session of Sub-Theme Challenges and Developments in Financing Irrigation and Drainage Sector of WIF1.

■ Global Water Partnership (GWP)



ICID has participated in the early phases of inception of the Integrated Drought Management Program (IDMP) and continued to have its interest in participating in IDMP being coordinated by WMO jointly with GWP. The IDMP's objective is to support stakeholders at all levels by providing them with policy and management guidance through globally coordinated generation of scientific information and sharing



best practices and knowledge for integrated drought management. WMO and GWP has renewed their request for ICID's continued cooperation and participation in IDMP.

Dr. Uma Lele from GWP delivered a keynote address on "Challenges and Developments in Financing Irrigation and Drainage Sector" and Dr. John Metzger presented an introduction on IDMP during a workshop on "Developing Management Strategies for Coping with Drought and Water Scarcity" organized during WIF1, which amply demonstrates GWP presence in ICID events. At WIF meeting in Mardin, SG Avinash Tyagi emphasized the need for close collaboration strategy between WMO, ICID and GWP.

■ The International Food Policy Research Institute (IFPRI)

IFPRI's inaugural Global Food Policy Report provides a comprehensive overview of major policy changes at the global, regional, national, and local levels, as well as their significance for food and nutrition security which ICID endorses. IFPRI was one of the key technical partners of ICID's WIF. IFPRI is one of the partner organizations who have been invited to send their nominations for ICID Scholarship to Young Professionals giving them an opportunity to engage, network and share experiences with the irrigation and drainage professionals at the 22nd ICID Congress in Korea in 2014.



■ International Commission on Large Dams (ICOLD)

ICID and ICOLD equally understand the importance of water storage in meeting the various demands for water, particularly due to increased variability. Hence, ICOLD and ICID have been collaborating for the progress in water resources harnessing and food production through irrigated land for people. While various kinds of water storage mechanisms such as soil moisture retention, groundwater, ponds and tanks can meet the needs of agriculture water management, hydropower development requires medium to large storage structures to increase potential energy stored in water. An International Conference and Exhibition on the theme "Water Storage and Hydropower Development - Africa" titled Africa 2013 was organized by Aqua-Media International, in cooperation with International Commission on Large Dams (ICOLD), Ethiopian Electric Power Corporation (EPCO), and in partnership with ICID at African Union Congress Centre, Addis Ababa, Ethiopia from 16 to 18 April 2013. Mr. Adama Sangare, Vice President, ICID and President of Malian National Committee of ICID (AMID) participated in "Africa 2013" and made a presentation on "Irrigation and Food Security Challenges in Africa" during the opening plenary session of the conference. The session on "Multipurpose water storage facilities" with focus on irrigation and food security was of particular interest to ICID. During 'Asia 2014' at Colombo in March 2014, Secretary General Avinash Tyagi held discussions with ICOLD President Dr. Adama Nombre on matters of mutual interest and future course of collaborative activities between the two organizations.



Recently, ICID has accepted an invitation from ICOLD to be part of ICOLD's new Committee on "Emerging Challenges and Solutions" which will hold its first workshop in Bali during ICOLD annual meeting in June 2014.

HYDROPOWER & DAMS

■ International Journal on Hydropower & Dams

ICID has been working with many partners on water and energy security, ICOLD and Hydropower are among them. The Fifth International Conference on 'Water Resources and Hydropower Development in Asia' organized by the International Journal on Hydropower & Dams and supported by ICID and ICOLD among others, was held on 11-13 March 2014 in Colombo, Sri Lanka. Er. Avinash C. Tyagi, Secretary General, represented ICID at the conference and delivered a keynote address on 'Reservoir Operation during Drought Conditions' at the opening ceremony of the conference. Er. (Ms.) Badra Kamaladasa, Chair of SLNICID delivered a keynote on "Ancient Irrigation Structures in Sri Lanka".



■ 7th World Water Forum (WWF7)

ICID has continued to play vital role of leading the subjects related to its domain during the past World Water Forums. ICID and FAO were the coordinators of Theme 2.2 on "Contribute to food security by optimal use of water", one of the twelve key priorities of the WWF6. In January 2014, ICID and FAO have jointly brought out a Synthesis Report on the Theme 2.2 which also outlines the recommendations for post-2012 follow up action and widely circulated amongst various stakeholders.

During the 2nd Asia Pacific Water Summit held at Chiang Mai, Thailand on 16-20 May 2013, the Organizing Committee of the WWF7 organized the Kick off event on 17 May 2013. As a member of Board of Governors of WWC, President Gao delivered a welcome speech in the presence of Prof. Ben Braga, President of WWC.

IEC has established a Task Force chaired by VPH Shinsuke Ota, to Guide its Inputs to WWF7. VPH Ota attended the 2nd Stakeholders Consultation Meeting (SCM) of WWF7 held on 27-28 February 2014 at Gyeongju, Korea. ICID is expected to play a major role on the sub-theme "Water for Food" which is one of the 16 sub-themes of the Forum with the main theme as "Water for Future". Also taking advantage of this occasion, Chair, TF-WWF7 organized a consultation meeting with the members of ICID Task Force for WWF7 present in Korea. ICID also invited all of its National Committees and the Working Groups to send their proposals for organizing sessions at the WWF7 under the sub-theme "Water for Food". The Forum to be organized from 12-17 April 2015 in Daegu and Gyeongju, will consist of four processes: Thematic Process; Regional Process; Science and Technology Process and the Political Process.

Chair, TF-WWF7 is also exploring the possibility of cooperating with French Water Partnership (FWP) and ICID to organize a session devoted to the subject "Water and food security: Scenarios, options and solutions for adapting to climate change" based on the proposal of FWP.

■ International Society of Paddy and Water Environment Engineers (PAWEES)

PAWEES has been collaborating with ICID through ICID's Asian Regional Working Group (ASRWG), giving special attention to harmonization of nature, society and humans. Prof. Dr. Kim, Tai-Cheol, Vice President of ICID during his term of Presidency of PAWEES (2011-12), established a Work Team on PAWEES-ICID collaboration. During the 2013 PAWEES conference held in Cheongju, South Korea on 30 October-1st November 2013, ICID was allotted a sub-theme session where six papers were presented. ICID looks forward to further contribution during the 2014 PAWEES Conference in Taiwan.



■ **International Association for Hydro-Environment Engineering and Research (IAHR)**

President Dr. Gao Zhanyi was invited to the 35th World Congress of the International Association for Hydro-Environment Engineering and Research (IAHR) held from 9-13 September 2013 at Chengdu City, China. The main theme of the Chengdu Forum was "Global Water Security". President Gao made a presentation on "Improving Water Management for Food Security and Multiple Purposes" during the Forum. After presentations and discussions, a 'Joint Declaration' was signed by the delegates, in the presence of Gretchen Kalonji, Assistant DG for Natural Sciences, UNESCO. The representatives from seven International Water Organizations, including ICID and United Nations and UNESCO attended the Forum. The participants held discussions with focus on what can be done collectively by the participating organizations to raise the profile of water security in policy, education, research and practice.



■ **World Farmers Organization (WFO)**

Vice President Laurie Tollefson (Canada) attended the thematic session on 'More Crop Per Drop' during the General Assembly of World Farmers Organization (WFO) held in Buenos Aires, Argentina on 25-29 March 2014. Being an invited speaker in the thematic session on water savings techniques, VP Tollefson found the meeting as a good opportunity to interact with food producers gathered from all over the world. On behalf of ICID, VP Tollefson is exploring the possibility of cooperation between WFO and ICID on matters of mutual interest.



■ **Consultative Group on International Agricultural Research (CGIAR)**

ICID President Gao Zhanyi participated in a panel discussion organized during the 4th Global Forum of Leaders for Agricultural Science and Technology (GLAST-2013) held on 5-6 June 2013 in Beijing, China. The Forum was hosted by the Chinese Academy of Agricultural Science. The purpose of the Forum was to share the experiences on international cooperation of agricultural research and management. It was also an occasion to celebrate the 30th Anniversary of China-CGIAR Cooperation. A Joint Declaration between CGIAR and Chinese Academy of Agricultural Sciences was prepared and circulated. President Gao explored the ways and means to enhance ICID's cooperation with CGIAR on various topics in which both the organizations have common goals.



Besides above stakeholders in irrigation sector, ICID is in partnership with ICARDA, ICRISAT, Council of Europe Development Bank, Arab Water Council (AWC), Latin American Water Week and Stockholm International Water Institute (SIWI) in areas of common interest.



REWARDING EXCELLENCE

ICID has instituted Annual 'WatSave Awards' in 1997; 'Best Paper Award' in 2006; and now 'World Irrigation and Drainage Prize' in 2013 to recognize the works and encourage the researchers for their outstanding contributions. The aim is to develop and implement innovative technologies, agronomic innovations, improved management measures, and institutional reforms towards sustainable irrigated and rainfed agriculture leading to higher crop productivity, higher farm income, and preservation of the land resources and the environment.

The First World Irrigation and Drainage Prize 2013



With the objective to promote sustainable irrigation and enhanced agriculture production to achieve food security around the world ICID has instituted the World Irrigation and Drainage Prize (WID Prize) and recognize the contributions made by an individual or an institution in the field of irrigation and drainage that have far reaching and wide impacts. WID Prize is intended to recognize the work of dedicated professionals and institutions who have actively contributed to the development of irrigation and drainage during the past 15 years ensuring increased agricultural production at national, regional and international level. The Prize includes a cash award of US \$10,000 and a 'Citation Plaque'.

The first World Irrigation and Drainage Prize 2013 was awarded to Prof. Victor A. Dukhovny (Uzbekistan) for his outstanding contributions to the development of agriculture water management for over five decades. Prof. Dukhovny was chosen from among a strong field of eminent candidates by the International Jury for the "World Irrigation and Drainage Prize 2013" in recognition of his outstanding contributions made over 57 years to the development and management of irrigated agriculture and management of water resources in the Aral Sea Basin.

Born on 20 April 1934 at Kharkov, Ukraine Prof. Dukhovny is currently the Director of Scientific Information Center of Interstate Coordination Water Commission of Central Asia (SIC ICWC) where he has been actively engaged in the implementation of drip irrigation, development of theoretical and practical frameworks for integrated water resources management in arid areas, with large-scale pilot testing in the Fergana Valley, and installation of SCADA system on the Syr Darya rivers and the Fergana Valley. A leading Professor of Irrigation and Drainage, he has been a universal teacher and mentor to a number of research students from all over the world, guiding them in their doctorate work.

An eminent researcher, academician, engineer and administrator in the irrigation and drainage sector, Prof. Dukhovny is known for his vision, knowledge, extensive experience, dedication, and unwavering commitment to land and water productivity, improvements for agriculture and to achieving food and water security. Prof. Dukhovny has been associated with many international organizations in the water sector: as Vice President of ICID; Governor of World Water Council; Member of Board of International Water Resources Association; and Executive Secretary of Eastern Europe, Caucasia and Central Asia network of International Network of Basin Organizations, to name a few.

Prof. Dukhovny has been a strong advocate of inter-state collaboration on the responsible use of water in a basin. He is well-known across the water sector internationally as a champion of irrigation and drainage, and for continuing research and exchange of ideas in its development. He has worked hard, often in very difficult circumstances to further these causes, and at the same time

nurture a new generation of irrigation professionals. Prof. Dukhovny's commitment and dedication to the water-related activities, especially in meeting the irrigation and drainage challenges encountered in the Aral Sea Basin, has evoked admiration among his peers. Prof. Dukhovny is an ardent advocate of the benefits of water sharing for peace, human security and economic prosperity.

Author of more than 350 publications, 28 books and monographs, Prof. Dukhovny has more than 30 patents and certificates of innovation awarded to him by the Soviet Government especially, for new methods of lining canals, design of trench less drainage machines with depth of 3 meters, system of combined drains and others. He was given Soviet Union State Award for implementation of horizontal drainage (1978), and for implementation of specific methods of vertical drainage (1973). Under his leadership, many of these innovations such as subsurface and vertical drainage, combined lining of canals, steady method of leaching, tube irrigation from stationary and flexible tubes and many others were implemented and recognized through numerous awards by the Governments of the erstwhile Soviet Union and the Uzbek Republic.



Watsave Awards 2013

WatSave award instituted in 1997 are given for proven and robust technology, tool or work that has actually resulted in saving of water in agriculture. Like every year, the WatSave awards were given away during the 64th meeting of the International Executive Council. Out of the four categories, in which award is given every year, the award was given only in two categories in 2013: the technology award and the innovative management award. The works awarded during the year are briefly described below.

■ Technology Award

Prof. Yi Yongqing's work on "Thin and Exposed Irrigation for Paddy Rice" has won the WatSave Technology Award 2013. In order to convey the concept in lay man's language he named the new water saving irrigation technique for paddy rice as "Thin and exposed irrigation". "Thin" means that the applied irrigation layer should be as thin as possible, usually around 20 mm; and "exposed" means that the soil surface is exposed to the air from time to time for allowing absorption of oxygen and emission of harmful gas.



Since 1980's, Prof. Yongqing has been experimenting with various irrigation methods for paddy to save water and also increase yields. After many years of theoretical study and field experiments, in 1994, he presented "Thin and Exposed Irrigation for Paddy" method to the world, which was adapted in Yuyao Municipality. This technology has since been extended to Zhejiang province over 4.20 million ha, where 3.91 billion cubic meters of water and 0.26 billion kilowatt of power have been saved and an increase of 1.45 billion kilogram of grain has been achieved with the economic benefit of RMB 3.63 billion Yuan (US\$ 0.70 billion). Zhejiang provincial government organised on-the-spot meetings for extension of this water saving technology in Yuyao Municipality. Over 150 domestic and international experts and 3600 technicians visited and acquired the knowledge of the water saving technology in Yuyao. Further information on the technology is available at http://www.icid.org/ws_tech_2013.pdf.

The technology has now been extended to over 5.11 million ha of farmland, where 5.15 billion cubic meters of water has been saved, an increase of 1.58 billion kilogram of grain has been achieved, and 0.30 billion kilowatt of power has been saved all together. Besides ecological benefits, the direct economic benefit was RMB 11.98 Yuan (US\$ 1.93 billion). In last two decades, Prof. Yongqing has been awarded 16 patents, and each patent has been applied in agricultural water saving schemes. He has published 40 papers and 4 books.

■ Innovative Water Management Award



Mr. Zhang Xuehui was given the WatSave Innovative Water Management Award 2013 for his work on “Innovations and Reforms for Modern Irrigation Management in Large Irrigation Schemes”. Mr. Xuehui worked with Jiamakou Irrigation Scheme (JIS) in Shanxi Province of China since 1984. The JIS was the first large high-lift irrigation scheme in Yellow River Basin constructed from July 1958 to July 1960. Mr. Xuehui designed and constructed a floating pumping station which could accommodate the fluctuating water level of the Yellow River and with this a major water shortage problem was solved. With the innovations of the special lubrication system and impeller, the pump set can operate 2,630 hours and the annual maintenance cost was lowered by 10 percent and the service life of the impeller jumped from 1000 hours to 4000 hours in 2002.

With the application of this innovation, water use efficiency at the main and branch canals of JIS has increased from 0.68 in 1996 to 0.83 in 2012 and, water saving of more than 18 million m³ achieved every year. About 120 million m³ of water has been saved from year 2000 to 2012. From 2002 to 2012, the annual added value of irrigation water increased from 570 million RMB Yuan (US\$ 93.4 million) to 1730 million RMB Yuan (US\$ 283.6 million). During the period, the annual net income per farmer increased from 5040 RMB Yuan (US\$ 826) to 14,100 RMB Yuan (US\$ 2311). The irrigated area has been increased from 12,333 ha in 1998 to 33,530 ha in 2007 and to 60,600 ha in 2012, while annual average income of each staff in JIS has increased from 3300 RMB Yuan (US\$ 540) in 1998 to 35,263 RMB Yuan (US\$ 5780) in 2012.

A training center has been established in JIS and more than 20 training programs have been conducted for extending the innovations and reforms achieved in JIS to other places. The innovations and reforms practiced in JIS have been extended to 10 large irrigation schemes in Shanxi Province and 3 large irrigation schemes in Gansu Province and 2 large irrigation schemes in Henan Province of China. The total extended area with the application of the innovations and reforms from JIS covered an area of 645,000 ha and saved 630 million m³ of water in 3 years. More information on the paper is available at http://www.icid.org/ws_inno_2013.pdf.

Best Paper Award



Instituted in 2006, the ‘Best Paper Award’ is given to the best paper published in the issues of the Journal of Irrigation and Drainage published by ICID in the preceding year. The ‘Best Paper Award’ for the year 2013 was given for the outstanding paper titled “An Interactive Water Indicator Assessment Tool to Support Land Use Planning” published in Issue 61.2 of the Journal by P.J.G. J Hellegers, H.C. Jansen and W.G. M. Bastiaanssen from The Netherlands. Prof. (Mrs.) Charlotte de Fraiture, Chairperson, Netherlands National ICID Committee (NETHCID) accepted the award on behalf of the authors. The award consists of a citation plaque and either US\$ 500, or US\$800-worth of Wiley books from M/s. Wiley-Blackwell (UK), the publisher of ICID Journal. The paper can be accessed at http://www.icid.org/best_pap2013.pdf.

ICID Scholarship to Young Professionals

Young professionals working in irrigation and drainage sector, particularly from the member countries of ICID are being encouraged to attend ICID events/ conferences with the objective of facilitating the involvement of young professionals in ICID’s activities. As per the existing practice young professionals attending ICID events are entitled to 50% concession in the Registration Fees.

At the 64th International Executive Council (IEC) meeting held at Mardin in October 2013 it was decided to further encourage participation of Young Professionals by providing scholarships to

ten young professionals every year in the ICID events. The scholarship will cover “TO and FRO” economy class air travel ticket by shortest route; full waiver of registration fee; and a small lump sum as pocket allowance. Young professionals (below 40 years) may submit their ‘Nomination Forms’ to the concerned National Committee or a partner International Organization of ICID for applying for this scholarship.

Recognition to “Heritage Irrigation Structures”

At the 63rd meeting of International Executive Council (IEC) held at Adelaide, Australia on 28 June 2012, the idea for recognition of the historical irrigation structures on the lines of World Heritage Sites was initiated. Accordingly, a Task Team has worked out a scheme giving out objectives, guidelines and procedures to select the Heritage Irrigation Structures from among the historical irrigation structures from around the world. Accordingly, nomination of historical irrigation structures, older than 100 years, have been invited from ICID National Committees for selection as “Heritage Irrigation Structures (HIS)” which will form part of a List of ICID Global List of Heritage Irrigation Structures. National Committee can nominate more than one structure. The first batch of Heritage Irrigation Structures will be included in the ICID List of World Irrigation Structures and awarded a “Plaque”, during the 65th IEC meeting in September 2014 at Gwangju, Republic of Korea.



DISSEMINATION AND COMMUNICATION

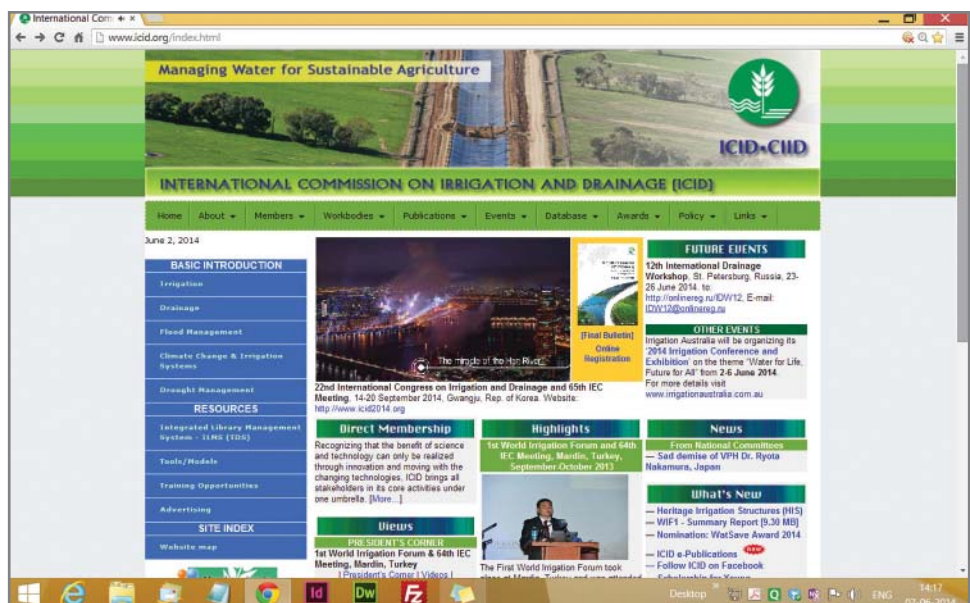
Managing the knowledge process is key to the success of any professional network. ICID has been successfully disseminating knowledge and facilitating exchange of information among its members and various stake holders related to irrigation, drainage and flood management over the years. The objective has been achieved through a mix of communication tools/ technologies like Internet, e-publications, digital and print format, and social media like Facebook, YouTube, LinkedIn, etc. This year ICID has started paying special attention to knowledge management to fulfill its mission.

Enriched and more user-friendly ICID website and the ICID flagship publication Journal of 'Irrigation and Drainage' are main tools in implementing dissemination strategy. The effort is supported by periodicals like newly introduced weekly e-Bulletin which has received appreciation from many, besides the monthly News UPDATE and the quarterly ICID NEWS. In addition, ICID brings out special publication as an outcome of the work body activities. National Committees also brings out publications of their specific interest, besides Newsletters, Journals in their local languages. Recently, ICID has successfully completed the digitization process of all its major publications and these e-publications are freely accessible to all our members.

A. ICID Website

ICID website provides an easy access to a wide range of information on irrigation, drainage, and flood management. Recently, the website underwent a major revamp to meet the latest requirements not only of our members but the public at large. Besides new design and layout, many new sections and features have been introduced, such as:

- ◆ **'Basic Introduction'** section introduces with widely used irrigation and drainage terms under themes such as: Irrigation, Drainage, Flood Management, Climate Change and Irrigation Systems, Drought Management etc. Under each thematic area a number of sub-topics have been introduced. It is proposed that these topics and sub-topics would be further developed by the experts from the ICID Working Groups.



- ◆ **Resources** section provides links to open source tools available in irrigation and drainage sector such as: Basin-wide Holistic Integrated Water Management (BHIWA) Model; PODIUM - The policy dialogue model; Multilingual Technical Dictionary (MTD); Water Evaluation and Planning (WEAP); SALTMED Model etc. The section would be required to be strengthened through voluntary contribution by the experts from various working groups.

- ◆ **Integrated Library Management System (ILMS)**

The **Text Delivery Services (TDS)** with the objective to collect and disseminate the grey literature, which is not covered under copyright restrictions, was initially started in 2001. The service has been further improved by expanding its scope to a virtual technical library by adding 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, Video / DVDs etc. are now being included. All **Digitized ICID** publications and documents from the year 1950 onwards are now available in e-format. Work is in progress to place all digitized special publications in the 'Members only' section for free download.



To further expand the scope, national committees are invited to join the data building activity to upload their collection using Internet technology. Some national committees have already started working in this direction and others are expected to follow soon.

- ◆ **e-Publications:** All publication brought out after 2000 are available for on-line sale in collaboration with M/s De Books New Delhi. The facility is now operational and visitors can purchase these online e-publications by paying nominal charges.

- ◆ **e-Learning:** This new service is proposed to provide the most viable option in training large number of professionals with various levels of understanding and experience on a repetitive basis. e-Learning tool can also be used to train the non-technical volunteers who work at the grass root level with the farmers. In this process ICID has taken the initiative to develop e-line courses. A new course with the active participation of INCSW is in pipeline using Moodle platform.



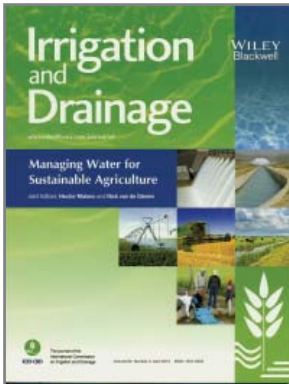
Expanded **ICID YouTube channel**, equipped with First World Irrigation Forum video collections and expanded SlideShare account to share important PowerPoint presentations made at various ICID events providing a versatile medium to share information widely. The 'Advertisers Catalogue' provides a platform to manufacturers, institutions, consultancy organizations to display their company profile. The website, updated on regular basis, receives on an average, 18,500 hits per month.

In addition, some 20 workbody websites are operational through ICIDONLINE.ORG domain name. A LinkedIn group for WG-ENV has been set up since 2010 (www.linkedin.com) as a professional network and is open for discussion to all persons.

ICID made its presence on 'Facebook' a popular social networking service for informal communication between members with common interest and thereby promoting their activities. All are invited to actively join this platform <<http://www.facebook.com/icidat>>. The Working Group on Young Professionals Forum (WG-YPF) is also available on 'Facebook' at <http://www.facebook.com/icid.ypf>. The YPFs have also created some accounts in other social networking platforms like Tweeter and SlideShare to facilitate networking between young professionals.



B Irrigation and Drainage Journal



ICID publishes a Journal on 'Irrigation and Drainage' which is the official journal of the International Commission on Irrigation and Drainage (ICID). It is a prestigious peer-reviewed specialized international flagship publication of ICID and publishes technical papers on all scientific, engineering, environmental and socio-economic issues associated with irrigation, drainage and flood management. The Journal is a rich resource of references to professionals, engineers, researchers, university professors and students of irrigation, drainage, and agriculture disciplines. Since 2002, 'Irrigation and Drainage' has entered the ISSN series under the number ISSN 1531-0353 and appears in the categories 'Water Resources' and 'Agronomy'. This flagship publication of ICID has become more popular among researchers, scientists, professionals, students and planners. This is clearly visible through the citation index figures.

The Journal is published through M/s. Wiley-Blackwell (UK) for the last 12 years. Oversight is provided by IEC through an International Editorial Board (EB-JOUR), chaired by President Hon. Prof. Em. Dr. Bart Schultz (The Netherlands). Five issues of the Journal are published every year along with one or two extra 'Special Issues' focusing on the current topics of significance almost every year. In 2013, in addition to the five regular issues of the journal during the year, three Special Issues were published i.e. (i) 'Water Productivity Towards Flood Security' (Volume 62, Issue 3), based on 21st ICID Congress, Tehran, Iran (ii) 'Sustainable Water and Land Management in Tidal Areas', (Volume 62, S1), supported by NCs of Korea, Japan and Chinese Taipei; and (iii) 'Soil, Water, and Vegetation Monitoring and Modelling' (Volume 62.S2), supported by Honours Centre of Italian Universities (H2CU) and Florida International University, Guest Editors: VPH Prof. Lucio Ubertini, Fernando Miralles-Wilhelm. More information about the 'Special Issue' can be seen at http://www.icid.org/spl_journal_issues.html.

The Journal is widely distributed around the world. Each National Committee gets 10 free copies (5 copies as 'online only' + 5 copies as 'online + print') of the Journal. All Office Bearers and workbody members are provided free online access. Additional copies of the Journal can be purchased at subsidized rates by ICID members. Under the Research4Life programme, local, not-for-profit institutions of select countries may register for access to Irrigation and Drainage for free under AGORA (agora.fao.org) and OARE (oare.oaresciences.org) initiatives. The Journal is accessible online at more than 8000 institutes worldwide. The full text of the Journal is available through Wiley 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 from 2001 to date. Access to abstracts is freely available to all guest users, with facility to view full text papers while facility to view papers early is limited to paid subscribers only. All papers have linkage to other Cross Reference papers from the reference lists.

C. Publications

Dissemination of technical knowledge and current information related to irrigation and drainage among the professionals across the world which remains the core ICID objective, is achieved through various publications like ICID Journal "Irrigation and Drainage", e-Bulletin, News Update, ICID News, Position Papers, Synthesis Reports, Special publications, and Proceedings of Congresses, Workshops etc. A list of recent ICID publications is shown on inside back cover. The Regional Working Groups and the National Committees too contribute richly to the knowledge management. Brief information of the key publications brought out during 2013-14 is presented below.

Weekly e-Bulletin

The e-Bulletin is a weekly compilation of important and latest news items on agriculture, climate change, drainage, droughts, floods, food security, irrigation and water resources management across the world. It also includes information on forthcoming events, latest publications, editorials and opinions and employment opportunities that might be of interest to the ICID fraternity. The brief news items are hyperlinked and direct the reader to the detailed news item. Fifty three issues of ICID e-Bulletin were compiled and prepared during the year and sent through e-mail to ICID National Committees, Office-Bearers, Workbody members, International Organizations (IOs), and other subscribers. e- Bulletin is also available on ICID website <www.icid.org> for the online visitors



along with back issues. All National Committees are encouraged to provide the contact details of their members and interested institutions, so that the e-Bulletin services could be provided to all of them directly from the Central Office. Past issues of e-Bulletin can be accessed from <<http://www.icid.org/ebulletin.html>>.

Monthly News Update

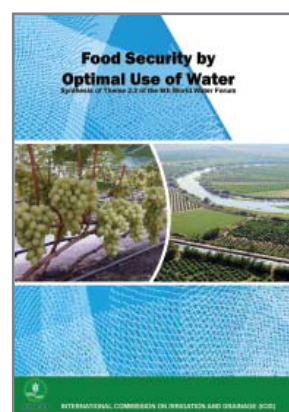
The News Update is a monthly e-publication of ICID that provides update on the progress made on various decisions taken by IEC and covers current news from National Committees, brief reports of the visits of the President and other Office Bearers of ICID, outcomes of the national/regional level workshops, meetings, visitors to the Central Office, announcement of ICID and related events, international workshops, training courses etc. Recently, a new feature “Know your National Committee” has been started. All the past issues of the News Update since 2012 can be viewed at http://www.icid.org/icid_newsupdate.html.



Quarterly ICID News

The ICID News, published quarterly, includes short invited technical articles of current interest relating to irrigation, drainage, and flood management from eminent professionals within and outside ICID; Outcome/ report of the key ICID events. Some of the articles published during April 2013 – March 2014:

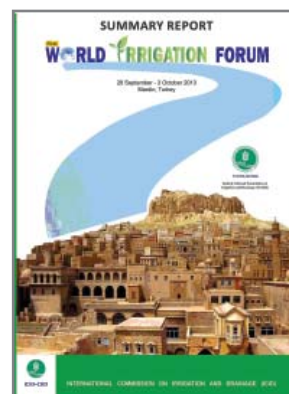
- ◆ Assessing the Eco-Efficiency of Paddy Rice in North-Eastern Thailand Using Life Cycle Analysis, by Dr. Sylvain Perret;
- ◆ New Eco-friendly System of Rice Production in Chao Phraya Delta of Thailand, by Vice President Hon. Engr. Chaiwat Prechawit;
- ◆ Better Governance for Improved Water Management, by L. Tollefson, H. El Atfy, and A. Kerc.
- ◆ Irrigation Development for Improving Food Security in Zimbabwe: Challenges and Opportunities, by Engr. Thubelihle A. Thebe;
- ◆ Financing Irrigation Water Management, Operation and Maintenance, by Francois Brelle, and Etienne Dressayre; and
- ◆ Jiamakou Irrigation Scheme – An Example of the Best Management Practices, by Zhang Xuehui.



Past issues can be accessed at http://www.icid.org/news_icidnews.html. For a more realistic feel, a flip version of the latest issue is made available through YUDU.COM portal.

Special publications

- ◆ ICID, Food Security by Optimal Use of Water – Synthesis of Theme 2.2 of the 6th World Water Forum, Marseille, France, March 2012, January 2014 + (CD-ROM).
- ◆ ICID, Summary Report – First World Irrigation Forum (WIF), 29 September – 3 October 2013, Mardin, Turkey, February 2014 + (Integrated Summary Report on DVD).



D. Virtual Communication Tool

Central Office is now able to facilitate WebEx Meeting that constitutes an important communication tool to interact with members in real time. The WebEx Meeting Center is a web-based service that works on any computer (Windows, Mac, Linux, or Solaris) – as well as iPhone, BlackBerry, or any other Wi-Fi or 3G-enabled mobile device. This web-based software also combines desktop sharing through a web browser with phone conferencing and video. This facility was introduced before the First World Irrigation Forum (WIF1). It has successfully been used to conduct video conferences with the organizing committee members. Now this tool has become very popular and able to organize virtual meetings of Management Board, and 22nd ICID Congress Organizing Committee etc.

E. National Committee Publications

Many National Committees are regularly bringing out publications and regular magazines. Only some of them are reported herein.

INACID, Indonesia

- ◆ Abstract Volume of Proceedings – Seminar National KNI-ICID on the theme Securing Water for Food and Rural Community under Climate Change, Semarang 29-30 November 2013 and CD-ROM, Indonesian National Committee of ICID (INACID).

KCID, Korea

- ◆ KCID Magazine, Korean National Committee on Irrigation and Drainage (KCID), 2013, Nos. 51 and 52
- ◆ KCID Journal, Korean National Committee on Irrigation and Drainage (KCID), 2013, Vol. 20, No. 1

F. Technical Library

The Central Office library has technical books, reports, proceedings, and periodicals, besides ICID's own publications. The library receives about 27 periodicals on complimentary basis. With the acquisition of 36 new books during the period 1 April 2013 to 31 March 2014, the Library has acquired 32,212 technical reference documents; and 44 CD-ROMs on various aspects of development, operation, maintenance, and rehabilitation of irrigation works. All ICID publications including the technical books, reports, proceedings, and workshops, etc. are digitized and available on request.



The ICID Central Office Technical Library, with the help of a new online library software on ICID website (www.icid.org), hosts 32,212 entries under "Books Section"; 10938 entries under "Articles Section"; and 44 entries in CD-ROMs/DVD section. The service would be beneficial for all ICID members and National Committees as this would provide easy access to all ICID publications.



Prudent financial management of an international organization like ICID is key to achieving its mission and its growth. It becomes increasingly important in a situation where the financial resources, as always, are becoming more difficult to be mobilized. The Commission therefore works assiduously to put in place financial system with sufficient checks and balances.

ICID's major funding comes from subscriptions from its member countries and direct members. Special contribution towards ICID budget is also made by the National Committee(s) who organize various ICID events. Currently, ICID network is spread over 100 countries out of which 56 are active members as compared to 59 active member countries at the end of the Financial Year ending 31st March 2013. The Commission also receives voluntary special funds from NCs or International Organizations to support specific activities that further ICID objectives.

In accordance with ICID Constitution, Secretary General acts as the Treasurer of the Commission and the finances of the Commission are managed by him under the overall direction of the International Executive Council (IEC) which is assisted by the Permanent Finance Committee (PFC) to look into all financial matters and aspects and implications. PFC reviews income and expenditure, advises the Council on the previous year's accounts and on the budget proposals for the coming three years. It makes recommendations on the annual subscriptions and other financial support of the participating National Committees for the current and future years. The Committee also recommends to the Council, from time-to-time, ways and means of improving the financial resources of the Commission in order to meet the financial requirements by undertaking different programs and activities emanating from the other workbodies. PFC is chaired by Vice President Hon. Dr. Saeed Nairizi (Iran) and Vice President Laurie Tollefon (Canada) has joined as Vice Chairman at the 64th IEC held at Mardin, Turkey.

Financial Accounts of the Commission are audited on an annual basis by a statutory auditor, appointed by IEC, as per the Indian Accounting and Assurance Standards and complying the Foreign Contribution Regulation Act (FCRA) 2010, and Income Tax Act 1961.

The Financial Statement of consolidated Income and Expenditure accounts for the Financial Year 1 April 2013 to 31 March 2014 is shown on page 70.



Financial Statement

Income and Expenditure Account (1 April 2013 to 31 March 2014)

		2013-14 (Rs.)	2012-13 (Rs.)
I.	INCOME		
1.	Membership & Subscription	13,581,104	13,514,736
2.	Publications	908,372	1,068,405
3.	Special Contribution to the Budget	-	2,909,522
4.	Interest on Fixed Deposits	3,500,967	3,333,293
5.	Other Receipts	5,562,965	3,710,775
6.	Rent and Maintenance Charges	26,014,249	10,015,247
7.	Closing Stock of Publications	510,125	641,280
8.	Excess of Expenditure over Income	6,975,010	-
	Total Income	57,052,792	35,193,258
II.	EXPENDITURE		
9.	Opening Stock of Publications	641,280	714,854
10.	Salaries	16,902,061	12,809,987
11.	Superannuation Relief to Retired Employees	2,435,315	2,100,896
12.	Compensation Package for Secretary General	2,507,400	2,264,408
13.	Services and Maintenance	5,607,022	2,995,592
14.	Taxes and Utilities	20,294,002	2,228,991
15.	Rehabilitation & Refurbishing – Building of Central Office	-	2,257,443
16.	Printing and Distribution	3,577,134	3,187,230
17.	Conference Expenditure	619,894	493,009
18.	Membership Fee to other Organisations (WWC)	66,179	-
19.	Travelling Expenses	760,529	983,872
20.	Depreciation on Fixed Assets	1,734,980	1,173,030
21.	Other Expenditure	-	2,081,564
22.	Subscriptions due written off	247,060	-
23.	Provision for Doubtful Subscription Dues	1,659,936	-
24.	Excess of Income over Expenditures	-	1,902,382
	Total Expenditure	57,052,792	35,193,258

Balance Sheet as on 31st March 2014

III.	ASSETS		
25.	Fixed Assets	12,438,530	7,656,328
26.	Receivables	9,070,255	8,870,877
27.	Stock of Publications	510,125	641,280
28.	Cash at Bank & in Hand	35,609,945	35,466,948
	Total Assets	57,628,855	52,635,433
IV.	LIABILITIES		
29.	General Fund	28,564,058	34,502,731
30.	Gratuity Fund	1,847,061	3,537,664
31.	Special Fund Receipts	3,310,230	1,863,132
32.	Dictionary Fund	-	660,595
33.	Security Deposits	19,310,000	9,186,520
34.	Wat Save Award Fund	-	661,479
35.	Subscription Received in Advance	4,154,029	2,223,312
36.	Gulhati Memorial Lecture Fund	443,477	-
	Total Liabilities	57,628,855	52,635,433

Note:

Expenditure Head - 'Salary & Retirement Dues' have been trifurcated into Sl. Nos. 10, 11 & 12. Expenditure under Head 'ICID Journal' has been clubbed with 'Printing and Distribution' at Sl. No. 16 above.

ACKNOWLEDGEMENTS

About 200 professionals from 44 countries contribute to various Committees, Working Groups, Task Forces, and Work Teams directly. We thank all our members who work voluntarily by devoting their valuable time in promoting the mission of ICID.

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WORLD IRRIGATION & DRAINAGE DATA

ICID has been compiling the data about irrigated and drained areas in its member countries based on the information provided by its National Committees. Wherever information from National Committee is not available, the data on irrigated area is taken from FAO-AQUASTAT. ICID is also compiling and updating data on sprinkler and micro irrigated areas in its member countries. Thanks are due to voluntary support of all its National Committees.

World-wide, the area equipped for irrigation is about 318 million ha, while the actual irrigated area is about 300 million ha. The highest share of irrigated area is by emerging/ developing countries (78%), followed by developed countries (16%), and in the least developed countries (6%). On regional basis, the highest irrigated area is in Asia (72%) followed by Americas (15%), Europe (8%), and Africa (5%).

As per the data compiled for 101 countries so far, the total drained area is 203 million ha. Collection of further details like drained area in rainfed and irrigated lands, waterlogged and saline areas in each country is being attempted.

Due to increasing water scarcity, growing shortage and expensive farm labour, sprinkler and micro irrigation is expanding rapidly in many countries. As a result, worldwide, the micro irrigation coverage has increased from 3.0 million ha in 2000 to about 11 million ha in 2013. Presently, the sprinkler irrigation is used on 43 million ha. The micro irrigation is likely to grow faster in coming years, especially in arid and semi-arid countries.

An updated data relating to worldwide irrigated area, sprinkler and micro irrigated, and drained area as compiled by ICID is included as Annex 2.1, Annex 2.2, and Annex 2.3, respectively.



WORLD IRRIGATED AREA

(Arranged in descending order of the irrigated area)

Sl. No.	Country	Irrigated Area (million ha)	Reference Year
DEVELOPED COUNTRIES			
1	USA	24.74	2009 ³
2	Spain	3.540	2013 ¹
3	Japan	2.924	2012 ¹
4	France	2.900	2011 ¹
5	Australia	2.550	2011 ²
6	Italy	2.420	2010 ¹
7	<i>Greece</i>	1.555	2011 ²
8	Romania	1.500	2008 ¹
9	Canada	1.053	2004 ¹
10	<i>New Zealand</i>	0.619	2011 ²
11	Portugal	0.540	2011 ²
12	Germany	0.516	2011 ²
13	Netherlands	0.486	2011 ²
14	<i>Denmark</i>	0.435	2011 ²
15	Hungary	0.208	2004 ¹
16	<i>Sweden</i>	0.164	2011 ²
17	Czech Rep.	0.153	2011 ¹
18	<i>Slovak Republic</i>	0.135	2011 ²
19	Austria	0.117	2011 ²
20	<i>Poland</i>	0.116	2011 ²
21	<i>Bulgaria</i>	0.102	2011 ²
22	Ireland	0.100	2010 ¹
23	<i>Norway</i>	0.090	2011 ²
24	UK	0.084	2010 ¹
25	Finland	0.080	2009 ¹
26	<i>Cyprus</i>	0.046	2011 ²
27	Switzerland	0.040	2007 ¹
28	<i>Belgium</i>	0.023	2011 ²
29	Slovenia	0.007	2011 ¹
30	<i>Lithuania</i>	0.004	2011 ¹
31	<i>Malta</i>	0.003	2011 ²
32	<i>Latvia</i>	0.001	2011 ²
	Sub-Total	47.251	

Sl. No.	Country	Irrigated Area (million ha)	Reference Year
EMERGING/DEVELOPING COUNTRIES			
1	India	62.000	2010 ¹
2	China	60.004	2010 ¹
3	Pakistan	19.420	2009 ¹
4	Iran	8.700	2013 ¹
5	Indonesia	6.722	2011 ²
6	Mexico	6.500	2011 ²
7	Turkey	5.730	2012 ¹
8	Thailand	4.736	2011 ¹
9	<i>Vietnam</i>	4.600	2011 ²
10	Russia	4.500	2007 ¹
11	Brazil	4.453	2006 ¹
12	Uzbekistan	4.186	2013 ¹
13	Egypt	3.670	2011 ²
14	Iraq	3.525	2011 ²
15	<i>Turkmenistan</i>	1.869	2013 ¹
16	Saudi Arabia	1.731	2011 ²

17	<i>Argentina</i>	1.650	2011 ²
18	South Africa	1.600	2007 ¹
19	Philippines	1.520	2008 ¹
20	<i>Korea, DP Rep</i>	1.460	2011 ²
21	Morocco	1.458	2011 ²
22	<i>Azerbaijan</i>	1.430	2013 ¹
23	<i>Syria</i>	1.399	2011 ²
24	<i>Peru</i>	1.196	2011 ²
25	Kazakhstan	1.200	2013 ¹
26	Ukraine	1.100	2013 ⁵
27	<i>Chile</i>	1.090	2007 ¹
28	<i>Colombia</i>	1.087	2011 ²
29	<i>Venezuela</i>	1.055	2011 ²
30	<i>Kyrgyzstan</i>	1.020	2013 ¹
31	Korea Rep.	1.010	2009 ¹
32	<i>Ecuador</i>	1.000	2011 ²
33	<i>Cuba</i>	0.870	2011 ²
34	<i>Tajikistan</i>	0.804	2013 ¹
35	<i>Algeria</i>	0.570	2011 ²
36	Sri Lanka	0.570	2011 ²
37	<i>Libya</i>	0.470	2011 ²
38	<i>Tunisia</i>	0.459	2011 ²
39	<i>Georgia</i>	0.433	2011 ²
40	Malaysia	0.385	2009 ¹
41	Chinese Taipei	0.380	2009 ¹
42	<i>Albania</i>	0.331	2011 ²
43	<i>Guatemala</i>	0.315	2011 ²
44	<i>Dominican Rep.</i>	0.307	2011 ²
45	Nigeria	0.293	2011 ²
46	<i>Moldova Rep.</i>	0.228	2011 ²
47	<i>Israel</i>	0.225	2011 ²
48	<i>Uruguay</i>	0.218	2011 ²
49	<i>Bolivia</i>	0.175	2011 ²
50	Zimbabwe	0.174	2011 ²
51	<i>Guyana</i>	0.150	2011 ²
52	<i>Belarus</i>	0.131	2011 ²
53	<i>Macedonia</i>	0.128	2011 ²
54	<i>Costa Rica</i>	0.108	2011 ²
55	<i>Kenya</i>	0.103	2011 ²
56	<i>Jordan</i>	0.096	2011 ²
57	<i>Serbia, Republic of</i>	0.092	2011 ²
58	<i>United Arab Emirates</i>	0.092	2011 ²
59	<i>Lebanon</i>	0.090	2011 ²
60	<i>Honduras</i>	0.088	2011 ²
61	<i>Mongolia</i>	0.084	2011 ²
62	<i>Ivory Coast</i>	0.073	2011 ²
63	<i>Paraguay</i>	0.067	2011 ²
64	<i>Nicaragua</i>	0.061	2011 ²
65	<i>Oman</i>	0.059	2011 ²
66	<i>Surinam</i>	0.057	2011 ²
67	<i>Swaziland</i>	0.050	2011 ²
68	<i>El Salvador</i>	0.045	2011 ²
69	<i>Panama</i>	0.043	2011 ²
70	<i>Ghana</i>	0.034	2011 ²
71	<i>Cameroon</i>	0.029	2011 ²
72	<i>Jamaica</i>	0.025	2011 ²

73	Croatia	0.024	2011 ²
74	<i>Puerto Rico</i>	0.022	2011 ²
75	<i>Mauritius</i>	0.021	2011 ²
76	<i>Qatar</i>	0.013	2011 ²
77	<i>Benin</i>	0.012	2011 ²
78	<i>Kuwait</i>	0.010	2011 ²
79	<i>NewCaledonia</i>	0.010	2011 ²
80	<i>Namibia</i>	0.008	2011 ²
81	<i>Trinidad and Tobago</i>	0.007	2011 ²
82	<i>Fr Guiana</i>	0.006	2011 ²
83	<i>Guadeloupe</i>	0.006	2011 ²
84	<i>Martinique</i>	0.006	2011 ²
85	<i>Barbados</i>	0.005	2011 ²
86	<i>Bahrain</i>	0.004	2011 ²
87	<i>Belize</i>	0.004	2011 ²
88	<i>Gabon</i>	0.004	2011 ²
89	<i>Bosnia & Herzegovina</i>	0.003	2011 ²
90	<i>Cape Verde</i>	0.003	2011 ²
91	Fiji Island	0.003	2011 ²
92	<i>St. Lucia</i>	0.003	2011 ²
93	<i>Botswana</i>	0.002	2011 ²
94	<i>China, H.Kong</i>	0.002	2011 ²
95	<i>Congo, Rep.</i>	0.002	2011 ²
96	Estonia	0.002	2013 ¹
97	<i>Bahmas</i>	0.001	2011 ²
98	<i>BruneiDarsm</i>	0.001	2011 ²
99	<i>Fr Polynesia</i>	0.001	2011 ²
100	<i>St. Vincent</i>	0.001	2011 ²
	Sub-Total	231.719	

Sl. No.	Country	Irrigated Area (million ha)	Reference Year
LEAST DEVELOPED COUNTRIES			
1	Bangladesh	5.217	2010 ¹
2	<i>Afghanistan</i>	3.208	2011 ²
3	<i>Myanmar</i>	2.292	2011 ²
4	<i>Sudan</i>	1.890	2011 ²
5	Nepal	1.180	2012 ¹
6	<i>Madagascar</i>	1.086	2011 ²
7	<i>Yemen</i>	0.680	2011 ²
8	Ethiopia	0.539	2005 ¹
9	<i>Cambodia</i>	0.354	2011 ²
10	<i>Lao People DR</i>	0.310	2011 ²
11	Mali	0.236	2011 ²
12	<i>Somalia</i>	0.200	2011 ²
13	Tanzania	0.184	2011 ²
14	Zambia	0.156	2011 ²
15	<i>Senegal</i>	0.120	2011 ²
16	<i>Mozambique</i>	0.118	2011 ²
17	<i>Haiti</i>	0.097	2011 ²
18	<i>Angola</i>	0.086	2011 ²
19	Malawi	0.074	2011 ²
20	Niger	0.074	2011 ²
21	<i>Mauritania</i>	0.045	2011 ²
22	<i>Bhutan</i>	0.032	2011 ²
23	<i>Burkina Faso</i>	0.030	2011 ²
24	Chad	0.030	2011 ²
25	<i>Sierra Leone</i>	0.030	2011 ²

26	<i>GuineaBissau</i>	0.025	2011 ²
27	<i>Burundi</i>	0.023	2011 ²
28	<i>Eritrea</i>	0.021	2011 ²
29	<i>Uganda</i>	0.014	2011 ²
30	<i>Sao-Tome Prn.</i>	0.010	2011 ²
31	<i>Rwanda</i>	0.009	2011 ²
32	<i>Togo</i>	0.007	2011 ²
33	<i>Gambia</i>	0.005	2011 ²
34	<i>Lesotho</i>	0.003	2011 ²
35	<i>Liberia</i>	0.003	2011 ²
36	<i>Congo, Dem. R.</i>	0.002	2011 ²
37	<i>Djibouti</i>	0.001	2011 ²
	Sub-Total	18.391	

SUMMARY

(A) Country Category⁴

Sl. No.	Type of Country	Irrigated Area (million ha)	Share (%)
1.	Developed Countries	47.25	15.9
2.	Emerging/Developing Countries	231.72	77.9
3.	Least Developed Countries	18.39	6.2
	TOTAL	297.36	100.0

(B) Region- wise

Sl. No.	Region	Irrigated Area (million ha)	Share (%)
1.	Africa	14.05	4.7
2.	Americas	46.51	15.6
3.	Asia and Oceania	213.42	71.8
4.	Europe	23.38	7.9
	TOTAL	297.36	100.0

Notes:

¹ICID data; ²FAO data (FAO Stat – FAO Statistics Division 2014);

³USGS – Estimated Use of Water in the United States in 2005

Bold: Active NCs

Italic: Inactive NCs

⁴Country Classification – World Economic Situation and Prospects (WESP), United Nations, 2012

⁵Report – Land with Irrigated Network, Ukraine, 2013

SPRINKLER AND MICRO IRRIGATED AREA

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

S.No.	Country	Total irrigated area	Sprinkler irrigation	Micro Irrigation	Total sprinkler and micro-irrigation	Percentage of total irrigated area	Year of reporting
		(Mha)	Hectares				
1	USA	24.7	12,348,178	1,639,676	13,987,854	56.5	2009
2	India	60.9	3,044,940	1,897,280	4,942,220	8.1	2010
3	China	59.3	2,926,710	1,669,270	4,595,980	7.8	2009
4	Brazil	5.80	3,857,104	621,346	4,478,450	77.3	2013
5	Uzbekistan	4.186	4,300,000	2,000	4,302,000	100.0	2013
6	Russia	4.5	2,500,000	47,000	2,547,000	56.6	2012
7	Spain	3.54	827,384	1,707,576	2,534,960	71.6	2013
8	Ukraine	2.2	2,450,000	52,000	2,502,000	100.0	2013
9	France	2.9	1,379,800	103,300	1,483,100	51.1	2011
10	Kazakhstan, Rep.	1.2	1,400,000	17,000	1,417,000	118.1	2013
11	Italy	2.42	958,535	422,534	1,381,069	57.1	2013
12	Iran	8.7	770,000	570,000	1,340,000	15.4	2013
13	South Africa	1.67	920,059	365,342	1,285,401	77.0	2007
14	Turkey	5.73	680,000	340,000	1,020,000	17.8	2012
15	Saudi Arabia	1.62	716,000	198,000	914,000	56.4	2004
16	Australia	2.38	690,200	214,200	904,400	38.0	2005
17	Canada	1.053	683,029	6,034	689,063	65.4	2004
18	Azerbaijan	1.433	610,000	100	610,100	42.6	2013
19	Korea	1.010	200,000	400,000	600,000	59.4	2009
20	Mexico	6.2	400,000	200,000	600,000	9.7	1999
21	Egypt	3.42	450,000	104,000	554,000	16.2	2000
22	Germany	0.54	525,000	5,000	530,000	98.1	2005
23	Japan	2.92	430,000	60,000	490,000	16.8	2012
24	Romania	1.5	448,000	4,000	452,000	30.1	2008
25	Slovak Rep.	0.313	310,000	2,650	312,650	99.9	2000
26	Israel	0.231	60,000	170,000	230,000	99.6	2000
27	Morocco	1.65	189,750	8,250	198,000	12.0	2003
28	Hungary	0.22	185,000	7,000	192,000	87.3	2008
29	Moldova	0.228	145,000	15,000	160,000	70.2	2012
30	Syria	1.28	93,000	62,000	155,000	12.1	2000
31	UK	0.11	105,000	6,000	111,000	100.0	2005
32	Finland	0.07	60,000	10,000	70,000	100.0	2010
33	Portugal	0.63	40,000	25,000	65,000	10.3	1999
34	Malawi	0.055	43,193	5,450	48,643	88.4	2000
35	Chile	1.09	16,000	23,000	39,000	3.6	2006
36	Chinese Taipei	0.38	18,850	8,750	27,600	7.3	2009
37	Bulgaria	0.588	21,000	3,000	24,000	4.1	2008
38	Czech Rep.	0.153	11,000	5,000	16,000	10.5	2007
39	Philippines	1.52	7,175	6,635	13,810	0.9	2004
40	Poland	0.1	5,000	8,000	13,000	13.0	2008
41	Slovenia	0.0073	8,072	733	8,805	100.0	2009
42	Malaysia	0.38	2,000	5,000	7,000	1.8	2009
43	Macedonia	0.055	5,000	1,000	6,000	10.9	2008
44	Nepal	1.18	-	-	5,000	0.4	2012
45	Lithuania	0.0044	4,463	-	4,463	100.0	2010
46	Estonia	0.002	100	500	600	30.0	2013
47	Iraq	3.52	-	-	159	0.0	2012
	Total	223.58	44,844,542	11,018,626	55,868,327	25.0	

S.No.	Country	Total irrigated area (Million ha)	Sprinkler irrigation	Micro Irrigation	Total sprinkler and micro irrigation	Percentage of to- tal irrigated area %	Year of reporting
			Hectares				
DEVELOPED COUNTRIES							
1	USA	24.7	12,348,178	1,639,676	13,987,854	57	2009
2	Spain	3.54	827,384	1,707,576	2,534,960	72	2013
3	Italy	2.42	958,535	422,534	1,381,069	57	2013
4	France	2.9	1,379,800	103,300	1,483,100	51	2011
5	Australia	2.38	690,200	214,200	904,400	38	2005
6	Canada	1.053	683,029	6,034	689,063	65	2004
7	Germany	0.54	525,000	5,000	530,000	98	2005
8	Japan	2.92	430,000	60,000	490,000	17	2012
9	Romania	1.5	448,000	4,000	452,000	30	2008
10	Slovak Republic	0.313	310,000	2,650	312,650	100	2000
11	Hungary	0.22	185,000	7,000	192,000	87	2008
12	UK	0.11	105,000	6,000	111,000	100	2005
13	Finland	0.07	60,000	10,000	70,000	100	2010
14	Portugal	0.63	40,000	25,000	65,000	10	1999
15	Bulgaria	0.588	21,000	3,000	24,000	4	2008
16	Czech Rep.	0.153	11,000	5,000	16,000	10	2007
17	Poland	0.1	5,000	8,000	13,000	13	2008
18	Slovenia	0.0073	8,072	733	8,805	100	2009
19	Lithuania	0.0044	4,463	-	4,463	100	2010
20	Estonia	0.002	100	500	600	30	2013
	Sub-total	44.2	19,039,761	4,230,203	23,269,964	53	
EMERGING/DEVELOPING COUNTRIES							
1	India	60.9	3,044,940	1,897,280	4,942,220	8	2010
2	China	59.3	2,926,710	1,669,270	4,595,980	8	2009
3	Uzbekistan	4.186	4,300,000	2,000	4,302,000	100	2013
4	Brazil	5.80	3,857,104	621,346	4,478,450	77	2013
5	Russia	4.5	2,500,000	47,000	2,547,000	57	2012
6	Ukraine	2.2	2,450,000	52,000	2,502,000	100	2013
7	Kazakhstan	1.2	1,400,000	17,000	1,417,000	118	2013
8	Iran	8.7	770,000	570,000	1,340,000	15	2013
9	South Africa	1.67	920,059	365,342	1,285,401	77	2007
10	Turkey	5.73	680,000	340,000	1,020,000	18	2012
11	Saudi Arabia	1.62	716,000	198,000	914,000	56	2004
12	Azerbaijan	1.433	610,000	100	610,100	43	2013
13	Mexico	6.2	400,000	200,000	600,000	10	1999
14	Korea Rep.	1.010	200,000	400,000	600,000	59	2009
15	Egypt	3.42	450,000	104,000	554,000	16	2000
16	Israel	0.231	60,000	170,000	230,000	100	2000
17	Morocco	1.65	189,750	8,250	198,000	12	2003
18	Moldova Rep.	0.228	145,000	15,000	160,000	70	2012
19	Syria	1.28	93,000	62,000	155,000	12	2000
20	Chile	1	16,000	23,000	39,000	4	2006
21	Chinese Taipei	0.38	18,850	8,750	27,600	7	2009
22	Phillipines	1.52	7,175	6,635	13,810	1	2004
23	Malaysia	0.38	2,000	5,000	7,000	2	2009
24	Macedonia	0.055	5,000	1,000	6,000	11	2008
25	Iraq	3.52	-	-	159	0	2012
	Sub-total	174.6	25,761,588	6,782,973	32,544,561	19	
LEAST DEVELOPED COUNTRIES							
1	Malawi	0.055	43,193	5,450	48,643	88	2000
2	Nepal	1.18	-	-	5,000	0	2012

SUMMARY

REGION WISE									
S.No.	Region	Total irrigated area	Sprinkler irrigation	Micro Irrigation	Total sprinkler and micro irrigation	Percentage of total irrigated area	% Sprinkler irrigation	% Micro Irrigation	% Total sprinkler and micro irrigation
		(Mha)	(Mha)						
1	Africa	6.795	1.60	0.48	2.09	30.70	3.57	4.38	3.73
2	Americas	38.9	17.30	2.49	19.79	50.92	38.59	22.60	35.43
3	Asia and Oceania	157.8	15.95	5.62	21.57	13.67	35.56	51.01	38.62
4	Europe	20.1	9.99	2.43	12.41	61.82	22.27	22.01	22.22
	Total	223.58	44.84	11.02	55.87	24.99	100.00	100.00	100.00

COUNTRY CATEGORY									
S.No.	Country	Total irrigated area	Sprinkler irrigation	Micro Irrigation	Total sprinkler and micro irrigation	Percentage of total irrigated area	% Sprinkler irrigation	% Micro Irrigation	% Total sprinkler and micro irrigation
		(million ha)	(million ha)						
1	Developed Countries	44.2	19.04	4.23	23.27	52.66	42.46	38.39	41.65
2	Emerging/ Developing Countries	174.6	25.76	6.78	32.54	18.64	57.45	61.56	58.25
3	Least Developed Countries	1.235	0.04	0.01	0.05	4.34	0.10	0.05	0.10
	Total	220.06	44.84	11.02	55.87	25.39	100.00	100.00	100.00

WORLD DRAINED AREA

Sl. No.	Country	Arable land and permanent crops (million ha)	Total drained area (million ha)	Drained area %	Reference year
DEVELOPED COUNTRIES					
1	Australia	44.37	2.17	4.89	2002 ²
2	Austria	1.44	0.2	13.89	1997 ²
3	Belgium	0.87	0.07	8.05	1996 ²
4	Bulgaria	3.25	0.08	2.46	2000 ²
5	Canada	67.5	9.46	14.01	2002 ²
6	Cyprus	0.11	0.02	18.18	2000 ²
7	Czech Rep.	3.26	1.07	32.82	2011 ¹
8	Denmark	2.35	1.77	50.00	2012 ¹
9	Estonia	1.33	0.64	48.00	2013 ¹
10	Finland	2.26	2.5	110.62	2008 ¹
11	France	19.33	3.00	15.52	2011 ¹
12	Germany	12.13	4.9	40.40	1993 ²
13	Greece	3.23	0.52	16.10	2002 ²
14	Hungary	4.8	2.3	47.92	2003 ¹
15	Ireland⁴	1.06	0.254	23.96	2010 ¹
16	Italy	13.2	5.3	40.15	2005 ¹
17	Japan	4.59	3.52	76.69	2010 ¹
18	Latvia	1.18	1.58	133.90	1995 ²
19	Lithuania ⁵	2.68	2.58	96.27	2011 ¹
20	Netherlands⁶	1.09	3.0	275.23	2010 ¹
21	Norwegian	1.02	0.61	60	2012 ¹
22	Poland	12.97	4.21	32.46	1999 ²
23	Portugal	1.64	0.04	2.44	2002 ²
24	Romania	9.85	1.83	18.58	2008 ¹
25	Slovak Republic	1.41	0.6	42.55	1997 ²
26	Slovenia	0.2	0.08	40.00	2007 ¹
27	Spain	26.30	0.3	1.14	1994 ²
28	Sweden	2.64	1.1	41.67	1996 ²
29	Switzerland	0.43	0.16	37.21	2002 ²
30	UK	6.05	4.65	76.86	1996 ²
31	USA	173.2	47.5	27.42	1987 ²
	Sub-Total	425.74	106.014	24.90	
EMERGING/DEVELOPING COUNTRIES					
32	Albania	0.7	0.28	40.00	1999 ²
33	Algeria	8.42	0.06	0.71	1999 ²
34	Argentina	33.0	0.13	0.40	2002 ²
35	Azerbaijan	2.09	0.61	0.29	2013 ¹
36	Belarus	5.64	3.0	53.19	1993 ²
37	Bolivia	3.82	0.02	0.52	2000 ²
38	Brazil	66.9	1.08	1.61	2006 ¹
39	Chile	0.78	0.035	4.49	2006 ¹
40	China	130.03	21.14	16.26	2008 ¹
41	Chinese Taipei	0.83	0.12	14.46	2009 ¹
42	Colombia	3.46	0.23	6.65	1989 ²
43	Costa Rica	0.5	0.04	8.00	1999 ²
44	Croatia	0.95	0.76	80.00	1990 ²
45	Cuba	3.97	0.33	8.31	1997 ²

Sl. No.	Country	Arable land and permanent crops (million ha)	Total drained area (million ha)	Drained area %	Reference year
46	Dominican Rep.	1.30	0.03	2.31	2000 ²
47	Ecuador	2.50	0.05	2.0	1998 ²
48	Egypt*	3.54	3.36	85.31	2011 ³
49	El Salvador	0.92	0.01	1.09	1997 ²
50	Fiji Island	0.25	0.01	4.00	2000 ²
51	Georgia	0.58	0.16	27.59	1996 ²
52	Guyana	0.45	0.15	33.33	1991 ²
53	Honduras	1.43	0.06	4.20	1991 ²
54	India	169.32	5.8	3.43	1991 ²
55	Indonesia	37.10	3.35	9.03	1990 ²
56	Iran	18.55	0.23	1.18	2013 ¹
57	Iraq	5.45	1.54	28.26	2002 ²
58	Israel	0.38	0.1	26.32	1987 ²
59	Jordan	0.15	0.01	6.67	2008 ³
60	Kazakhstan	22.8	0.45	1.97	2013 ¹
61	Kenya	5.8	0.03	0.52	2003 ²
62	Korea Rep.	1.82	1.15	63.19	2007 ¹
63	Kyrgyzstan	1.35	0.20	14.81	2013 ¹
64	Lebanon	0.29	0.01	3.45	2001 ²
65	Libya	2.05	0.01	0.49	2000 ²
66	Malaysia	9.5	6.0	63.16	2009 ¹
67	Mexico	27.50	5.2	18.91	1997 ²
68	Mongolia	0.85	1.5	176.47	2000 ²
69	Morocco	8.98	0.65	7.24	2004 ²
70	Pakistan	23.80	7.54	31.70	2009 ¹
71	Paraguay	4.3	0.01	0.23	2000 ²
72	Peru	4.44	0.08	1.80	2000 ²
73	Philippines	9.16	2.72	29.69	2008 ¹
74	Puerto Rico	0.1	0.02	20.00	2000 ²
75	Russia	192.6	4.78	2.48	2007 ¹
76	Saudi Arabia	3.68	0.04	1.09	1992 ²
77	Serbia & Montenegro	3.72	0.4	10.75	2000 ²
78	South Africa	18.00	0.06	0.41	2011 ¹
79	Sri Lanka	2.20	0.03	1.36	1967 ²
80	Surinam	0.06	0.05	83.33	1998 ²
81	Syria	5.68	0.27	4.75	1993 ²
82	Tajikistan	0.87	0.33	37.93	2013 ¹
83	Thailand	18.85	0.16	0.85	1997 ²
84	Tunisia	5.04	0.2	3.97	2000 ²
85	Turkey	26.01	3.43	13.19	2012 ¹
86	Turkmenistan	1.92	1.1	53.13	2013 ¹
87	Ukraine	33.5	3.3	9.85	2013 ¹
88	Uzbekistan	4.62	2.86	61.90	2013 ¹
89	Venezuela	3.35	0.31	9.25	2002 ²
90	Vietnam	9.42	1.0	10.62	1994 ²
91	Zimbabwe	11.00	0.1	0.90	2011 ¹
	Sub-Total	966.27	86.685	8.97	

Sl. No.	Country	Arable land and permanent crops (million ha)	Total drained area (million ha)	Drained area %	Reference year
LEAST DEVELOPED COUNTRIES					
92	Afghanistan	7.91	0.01	0.13	2000 ²
93	Bangladesh	8.70	1.5	17.24	1993 ²
94	Ethiopia	14.51	0.03	0.21	1987 ²
95	Madagascar	3.55	0.11	3.10	2000 ²
96	Myanmar	11.70	0.19	1.62	1994 ²
97	Nepal	2.47	0.09	3.64	2000 ²
98	Rwanda	1.57	0.09	5.73	2000 ²
99	Sudan	20.91	0.56	2.68	2000 ²
100	Yemen	1.61	1.5	93.17	2000 ²
	Sub-Total	72.93	4.08	5.59	

*Countries shown in bold are active members of ICID

SUMMARY

TYPE OF COUNTRY⁷

Sl. No.	Region	Arable land and permanent crops (million ha)	Total drained area (million ha)	Drained area %
1	Developed Countries	425.74	106.014	24.90
2	Emerging/ Developing Countries	966.27	86.685	8.97
3	Least Developed Countries	72.93	4.08	5.59
	Total (100 countries)	1464.94	196.77	13.43
	World	1552.98	202.9	13.06

REGIONWISE

Sl. No.	Region	Arable land and permanent crops (million ha)	Total drained area (million ha)	Drained area %
1	Africa	103.37	5.82	5.63
2	Americas	399.48	64.80	16.22
3	Asia	588.90	71.31	12.10
4	Europe	373.19	54.84	14.69
	Total (100 countries)	1464.94	196.77	13.43
	World	1552.98	202.9	13.06

Notes:

- 1 ICID data (both for arable land and permanent crop (APC) and for drained areas)
- 2 Cemagref data (for drained area)
- 3 Monitoring and Evaluation Department (EPADP), Egypt, 2011
- 4 The total drained area in Ireland is 0.254 million ha, the total utilized agricultural area is 4.02 million ha. Apart from a very small area of Ireland that is irrigated on a commercial basis for crop production there are no major irrigation schemes in Ireland Suggested figure for irrigated area in Ireland is 10,000 hectares. Source: Dr. Oliver Nicholson, Chairman, Irish National Committee on Irrigation and Drainage (IRCID), 28 June 2010
- 5 Statistics referred as "arable land" in Lithuanian registry as per 01.01.2010. The drained area slightly decreased as some of the area excluded from registry since that area has been completely depreciated and drainage no more functioning. Source: Prof.dr. AntanasMaziliauskas, President of Lithuanian National Committee (LICID), 26 June 2010.
- 6 The fact that the drained area is more than the APC area is a matter of definition. In the Netherlands' case the drained area includes areas with other functions such as drainage of meadows and urban areas. Source: Dr. Pol (A.L.) Hakstege, Secretary/ Treasurer, Netherlands National Committee (NETHCID), 2 July 2010.
- 7 Country Classification – World Economic Situation and Prospects (WESP), United Nations, 2012

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