Managing Water for Sustainable Agriculture

Dear Friends,

The science has once again emphasized that the realities of climate change are there to stay. The Working Group I “The Physical Science Basis” in its contribution to the Fifth Assessment Report accepted by the IPCC on 27 September 2013, has reiterated its earlier findings that the climate change is equivo-cal, but with more certainty. Globally, it is likely that the area encompassed by monsoon systems will increase over the 21st century. The variability is likely to get further accentuated with higher frequency of climate extremes. These extremes present distinct challenges to global food security. A brief glimpse at the findings of Summary for Policy Makers of AR5 is reported in this issue.

First World Irrigation Forum that concluded on 3rd October 2013 in Mardin, Turkey last month ad-dressed ‘Irrigation and drainage in a changing world: Challenges and opportunities for global food security’. One of the challenges addressed was climate change. In order to look at various issues that agriculture water management under changing climate is likely to face, 22nd ICID Congress, scheduled from 14-20 September 2014 in Gwangju, South Korea will address ‘Securing Water for Food and Rural Community under Climate Change’ by posing and answering questions 58 and 59, details of which are provided inside.

It is increasingly being realized that irrigation provides resilience and serves as one of the best tools against impending more severe and longer intra-seasonal and inter-annual droughts. Sahelian region in Africa at its recently concluded High Level Forum supported by World Bank has recognized this fact and has decided to double the irrigated area in the region by 2020. No doubt the countries in the region (three of them being ICID members) would need international organizations to cooperate and support them in their endeavor. ICID will be most willing to join these efforts through its members.

IPCC Fifth Assessment Report (AR5): A Glimpse

According to the IPCC Fifth Assessment Report (AR5), warming of the climate system continues as many of the observations since 1950s unequivocally present. The atmosphere and oceans have warmed, the amounts of snow and ice have diminished and sea level has risen. Each of the last three decades has been successively warmer at the Earth’s surface than any preceding decades since 1850. Ocean warming dominates the increase in energy stored in the climate system, accounting for more than 90% of the energy accumulated between 1971 and 2010. Over the last two decades, the Greenland and Antarctic ice sheets have been losing mass, glaciers have continued to shrink almost worldwide, and Arctic sea ice and Northern Hemisphere spring snow cover have continued to decrease in extent.

The climate models have improved since the last AR4 brought out in 2007. Observational and model studies of temperature change, climate feedbacks and changes in the Earth’s energy budget together provide greater confidence in the magnitude of global warming in response to past and future forcing. Human influence has been detected in warming of the atmosphere and the ocean and the evidence has grown since AR4. Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system that will continue beyond 2100 under all development pathways scenarios except one.

Changes in the global water cycle in response to the warming over the 21st century, however, will not be uniform. The contrast in precipitation between wet and dry regions and between wet and dry seasons will increase, although there may be regional exceptions. The high latitudes and the equatorial Pacific Ocean are likely to experience an increase in annual mean precipitation by the end of this century under various Representative Concentration Pathways (RCP) scenarios. The RPC concept replaces AR4 (SRES emission) scenarios represented through A1B, B1, A2 etc.

In many mid-latitude and subtropical dry regions, mean precipitation will likely decrease, while in many mid-latitude wet regions, mean precipitation will likely increase by the end of this century under various RCP scenarios. Extreme precipitation events over most of the mid-latitude land masses and over wet tropical regions will very likely become more intense and more frequent by the end of this century.

The global ocean will continue to warm during the 21st century. Heat will penetrate from the surface to the deep ocean and affect ocean circulation. It is very likely that the Arctic sea ice cover will continue to shrink and thin and that Northern Hemisphere spring snow cover will decrease during the 21st century as global mean surface temperature rises. Global glacier volume will further decrease. Global mean sea level will continue to rise during the 21st century. Under all RCP scenarios, the rate of sea level rise will very likely exceed that observed between 1971 to 2010 due to increased ocean warming and increased loss of mass from glaciers and ice sheets.

Globally, it is likely that the area encompassed by monsoon systems will increase over the 21st century. While monsoon winds are likely to weaken, monsoon precipitation is likely to intensify due to the increase in atmospheric...
moisture. Monsoon onset dates are likely to become earlier or not to change much. Monsoon retreat dates will likely be delayed, resulting in lengthening of the monsoon season in many regions. There is high confidence that the El Niño-Southern Oscillation (ENSO) will remain the dominant mode of inter-annual variability in the tropical Pacific, with global effects in the 21st century. Due to the increase in moisture availability, ENSO-related precipitation variability on regional scales will likely intensify. The full report of the Working Group 1 on the ‘Science Basis’ is available at: http://www.ipcc.ch/report/ar5/wg1/supp//UoqOdhypw


The reports of the WG 2 “Impacts, Adaptations and Vulnerability”, WG 3 “Mitigation and Climate Change” and the Synthesis report are expected to be released in March through October in 2014.

Background

International Commission on Irrigation and Drainage (ICID) has been organizing its flagship triennial event International Congress on Irrigation and Drainage since 1951. The ICID triennial Congresses focus on the upcoming issues that need to be addressed in irrigation, drainage and flood management. The Congresses also provide a platform for reviewing a number of contentious issues concerning the future of irrigation water vis-à-vis increased demands for competitive uses of water. Apart from the focus on research and recent developments, expectations stemming out of these to contribute to the growing demand of food and fibre for an ever increasing population are highlighted.

So far, ICID has organized 21 International Congresses on Irrigation and Drainage in venues spread across all continents addressing selected Main Themes, Congress Questions, Special Sessions and Symposia/Seminars of global interest under which the researchers, academicians, professionals across the water sector presented their research experience and knowledge in the form of technical papers and poster presentations.

ICID’s next mega event, after successful 1st World Irrigation Forum (WIF), is 22nd International Congress on Irrigation and Drainage (22nd ICID Congress) and 65th International Executive Council (IEC) meetings which will be organized by host Korean National Committee on Irrigation and Drainage (KCID) in cooperation with International Commission on Irrigation and Drainage (ICID) during 14-20 September 2014 at Kimdaejung Convention Centre in Gwangju Metropolitan City, Republic of Korea.

Congress Theme

The main theme of the Congress is ‘Securing Water for Food and Rural Community under Climate Change’. ICID Congresses concentrate on themes of global interest keeping in view the relevance of current issues of irrigation and drainage limiting food production vis-à-vis food security. Climate change is an added limitation on the increasingly complex and interlinked issues of rural development, food security under demographic changes, overstretched environmental and natural resources. It is believed that improving irrigation

Online Paper Submission for 22nd ICID Congress

‘Extended Abstracts’ / papers must be submitted online after registering on the following URL https://www.easychair.org/account/signin.cgi?conf=icid2014

All authors are requested to create a new account on the above EasyChair URL for submission of their papers by using “sign up for an account” link as shown on the ‘screen catch’ in case they are not already registered on EasyChair portal. Existing EasyChair users can use their account identities to submit their papers. The screen catch of the log in page is shown below:

Submission Instructions

Step 1: Prepare ‘Extended Abstracts’
Step 2: Log in to the EasyChair account (https://www.easychair.org/conferences/?conf=icid2014)
Step 3: Select ‘Sign up for an Account’ in case you are not having an account.

To use EasyChair, one should first create an account. The procedure for obtaining an account is as below:
1. You should type the words as shown on the screen and click on ‘Continue’.
2. Fill the form details with name and e-mail address and click on ‘Continue’.
3. On submission you will receive an e-mail with a link to EasyChair account

Step 4: Fill the details as required by EasyChair and click and ‘create’ account
Step 5: Account created, screen appears with a link to ‘ICID 2014’

Please contact Dr. Vijay K. Labhsetwar, Congress Coordinator for questions related to extended abstracts and/or paper submission. ICID has already launched their Congress website and you may access http://www.icid2014.org for other details.
Beating the Odds, Building Resilience in the Sahel: Water in the 21st Century

Mr. Moussa Amoudou, 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 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 others organizations such as the Regional Association for Irrigation and Drainage (ICID), Central Office : 48 Nyaya Marg, Chanakyapuri, New Delhi 110021, India. Tel : +91 11 26115679, +91 11 26116837, +91 11 24679532, Fax : +91 11 26115962; E-mail : icid@icid.org, Website <http://www.icid.org>
Japanese National Committee of ICID (JNC-ICID) since its foundation in 1951 when it officially joined ICID, has strived, among others, to stimulate interest and develop advance knowledge in the area of irrigation, drainage and other related fields with a view to enhance the world-wide food supply through participating in various ICID activities, cooperating with ICID member countries and relevant organizations and disseminating information worldwide.

The JNC-ICID has been supported by the Japanese Association of ICID, which is a private organization consisting of 155 individuals, 10 companies and 12 other organizations. The Secretariat of the Association is established in the Japanese Institute of Irrigation and Drainage (JIID). The main activities of JIID are to support JNC-ICID members and disseminate information relating to ICID by hosting meetings/seminars and publishing journals in Japan. The Association supports the Japanese YPF established in 2001 with the objective of capacity building of young Japanese engineers in irrigation and drainage and to contribute to the Working Group on Young Professional Forum (WG-YPF). The Japanese YPF has hosted annual conferences and regular meetings on the topics of international projects of JNC-ICID.

Prof. Dr. Yohei Sato with more than four decades of professional experience in the field of agricultural and environmental engineering is the Chairman of the Japanese National Committee of ICID (JNC-ICID) with a Ph.D. (1972) in agricultural engineering from the University of Tokyo. He began his academic career at the University of Tokyo in 1972, then, served Utsunomiya University, the University of Tsukuba and the University of Tokyo in the field of socio-economic planning or agricultural and environmental engineering as professor until his retirement in 2004. He was honored with ‘Honorary Professor’ by Wuhan University (former Wuhan Technical University of Surveying and Mapping), China (1998) and ‘Guest Professor’ by Beijing Normal University, China (2003-2008) as well as ‘Professor Emeritus’ by the University of Tokyo (2004). He was a Member of the Science Council of Japan from 2003 to 2006.

In ICID, he has been actively involved as a member of PCTA (2005-2012), WG-SOCIO (2004-2007) and WG-TRUE (2008-2009). At present, he is member of EB-JOUR and WG-POVERTY since 2005 and 2009, respectively. Prof. Sato has conducted numerous international and national research projects in the domain of water resource management, flood control, land use and land cover change, land consolidation, agricultural and rural development. He has published more than 150 papers and 32 books. He has received many prestigious professional awards and recognitions from various institutions not only in Japan but also outside of Japan. In 2006, two years after his retirement, the University of Tokyo appointed him as the President of the National Institute for Agro-Environmental Sciences.

Internationally, Prof. Sato has collaborated with various international organizations and made several outstanding contributions, not only to national societies as their President but also to international societies as the President, Chairperson and Executive Board Member. He provided leadership in establishing an international academic association, International Society of Paddy and Water Environment Engineering (PAWEEs) with collaborations of Korean Society of Agricultural Engineers (KSAE) and Taiwan Agricultural Engineers Society (TAES), and served the Society as its President for two years (2003 and 2004). Furthermore, he created an international scientific network, Monsoon Asia Agro-Environmental Research Consortium (MARCO) and organized several international conferences, symposia and workshops, and promoted collaborative research activities. He also provided leadership as Editor-in-Chief of an international scientific journal ‘Water Environment’ from Springer-Verlag for three years.

JNC-ICID has given ICID five Vice Presidents in the past, namely, VPH Dr. Tamotsu Seino (1957-1960); VPH Prof. H. Fukuda (1962-1965); VPH Prof. Michio Nakahara (1985-1988); VPH Dr. Riota Nakamura (1993-1996); VPH Dr. Shigetaka Taniyama (2001-2004) and VPH Mr. Shinshuke Ota (2008-2011). At present, VPH Shinshuke Ota is also the Chairman of TF-WWF7 and continues to be actively involved in the activities of ICID. Members of JNC-ICID participate in many Working Groups and have also chaired some. JNC-ICID has hosted many ICID events, such as 5th ICID Congress and 14th IEC in 1963 and 7th Afro-Asian Regional Conference in 1989. JNC-ICID had organized a ‘Side Event’ on PIM during the First World Irrigation Forum (1st WIF) at Mardin, Turkey in 2013. In recent years, JNC-ICID has also been supporting new issues, such as the worldwide increase in water use and fluctuations in rainfall volumes due to climate change, with a view to achieving sustainable irrigation. JNC-ICID has contributed to various ICID publications such as “Climate Change Adaptation for Irrigation and Drainage in Asia - Report of the Asian Regional Task Force for Climate Change” in 2012 and “Towards Sustainable Development of Tidal Areas: Principles and Experiences by Working Group on Sustainable Development of Tidal Areas (WG-SDTA)” in 2011.

ICID congratulates Prof. Dr. Yohei Sato, Chairman of JNC-ICID and members of JNC-ICID for setting new standards of international cooperation and looks forward to their continued involvement and support in the activities of ICID towards fulfilling the mission of ICID.

JNC-ICID (Japan)
The new e-mail address of Vice President Hon. Shinshuke Ota (Chair, TF-WWF7) is <shinshuke-ota@r5.dion.ne.jp>.

IRNCID (Iran)
**IRAN-IPRID Workshop**
The IRAN-IPRID organized a 5-day educational workshop for Iraqi engineers on 'Application of RS & GIS on irrigation' during 28 October to 01 November 2013 at Tehran, Iran. Nine engineers from various departments of Ministry of Water Resources and different provinces of Iraq participated in the workshop. The workshop covered various aspects of RS & GIS, such as – (i) An introduction to RS & GIS and their application in irrigation, (ii) Introducing 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 Magasai 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.

SLNICID (Sri Lanka)
The new e-mail address of Eng. Badra Kamaladasa (Chairman, Sri Lanka National Committee of ICID (SLNICID) is <dgi@irrigation.gov.lk>.

USCID (USA)
The pre-council meetings of ICID work bodies were successfully held during the 1st WIF and 64th IEC at Mardin in Turkey and key information emerging from the meetings is enumerated below:

**New Chairs**
- Dr. Sylvester Mpandeli (South Africa) - AFRWG
- Dr. Kamran Emami (Iran) - TF-VE

**Vice-Chairs**
- VP Laurie Tollefson (Canada) – Permanent Finance Committee (PFC).
- Mrs. Remziye Yildiz Gulagaci (Turkey) – TF-VE.

**Secretaries**
- Dr. Hajime Tanji (Japan) - WG-SDTA
- Mr. Fethi Lebdi (Ethiopia) – Interim Secretary (AFRWG)

**Newly-elected members of ICID Workbodies/Task Forces**

**PCTA:** PH Peter S. Lee (UK); **ASRWG:** Ir. Syed Abdul Hamid bin Syed Shuib (Malaysia); **ERWG:** Dr. Sami Bourfa (France); **WG-IDSST:** Dr. Katsuyuki Shimizu (Japan); **WG-YPF:** Dr. Atsushi Marui (Japan) and Ms. Pooja Kapoor (India); **WG-ENV:** Dr. Mohd. Azmi Ismail (Malaysia); **WG-CAFAM:** Ir. Mohd Adnan bin Mohd Nor (Malaysia); **TF-VE:** Mr. Francois Breille (France); **WG-ON-FARM:** Dr. Suman Sijapati (Nepal); **EB-JOUR:** Dr. Henk Ritzema (The Netherlands); Prof. Leon van Rensburg (South Africa), Associate Editor; Dr. Biju George (Australia), Associate Editor; Prof. Dr. Joong Dae, Choi (Korea) and; Dr. Brent Paterson (Canada); and **WG-CLIMATE:** Prof. Dr. Choi, Jin-Yong (Korea).

**Forthcoming ICID Special Session, Workshops, Seminar, Meetings in 2014**
1. WG-HIST proposed to organize a History Seminar on “Historical Water Sustainability: Lessons to Learn”.
2. WG-YPF proposed to organize a half-day Special Session on ‘Way forward for young water professionals’
3. WG-SDTA proposed to organize an International Workshop on “Sustainable Management of Tidal Areas in the Era of Climate Change”.

**Release of a DVD**
Working Group on Drainage (WG-DRG) released a DVD on Drainage for Sustainable Agriculture during the First World Irrigation Forum (1st WIF) and 64th IEC meeting held in Mardin, Turkey in October 2013. The DVD contains proceedings of all past IDWs, ICID publications related to drainage, proceedings of special workshops, special issue on drainage of the ICID journal, select publications of the World Bank, ILRI, FAO etc.

**Citation plaques to Retired Chairpersons of ICID Workbodies**
1. Dr. Maurits Ertsen (The Netherlands), Chairman, WG-MIS (2007-2012)
2. Prof. Linden Vincent (The Netherlands), Chairman, WG-TRUE (2007-2012)
3. Dr. Luis Rendon Pimentel (Mexico), Chairman of AMRWG (2010- 2012)

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**Forthcoming Events**

**ICID Events**

**12th International Drainage Workshop (IDW), 23-26 June 2014, St. Petersburg, Russia.**
Contact: Ms. Irena G. Bondarik, Secretary General, National Committee of the Russian Federation on Irrigation and Drainage (RuCID), E-mail: ibond@online.ru, rusip@idr.ru

**22nd ICID Congress and 65th IEC, 14-20 September, 2014, at Gwangju Metropolitan City, Republic of Korea.**
Contact: Ir. Hun Sun Lee, Korean National Committee on Irrigation and Drainage (KCID), 1031-7 Sandoong, Sangnok-gu, Ansan-Si, Gyeonggi-do 425-170, Republic of Korea. Tel: +82 31 400 1755/1756, +82 31 400 1759, Fax: +82 31 406 7278, E-mail: kcidkr@gmail.com, kcid@ekr.or.kr, Website: http://www.icid2014.org

**66th IEC and 26th European Regional Conference, 11-16 October 2015, Montpellier, France.**
Contact: Secrétaire Général, Association Française pour l’Étude des Irrigations et du Drainage (AFEID), 361 rue Jean-François Breton, BP 5095, F - 34196 – MONTPELLIER CEDEX 5, France. Tel: +33.4.67.04.63.16, Fax: +33.4.67.16.64.40, E-mail: afeid@cemagref.fr, Website: http://afeid.montpellier.cemagref.fr