Lahore Congress

This is the last Newsletter before the 20th ICID Congress and 59th Council Meeting 13-18 October in Lahore. The Pakistan National Committee (PANCID) has been working very hard to welcome us. The changes in the top level of the Pakistan Government have no effect on the arrangements, and as I reported after my visit earlier in the year, those arrangements are excellent. We are promised a very strong local participation, a fine venue, a good programme and the confirmed participation of many foreign delegates. I look forward to seeing you there.

International Drainage Workshop

There is a fuller report on pages 4-5 about the ICID International Drainage Workshop held in Finland and Estonia in July, but I would like to add my appreciation of the way it was organised, especially the field days. Having our hosts with us meant that we learnt far more, and I am sure all the participants came away with a very favourable impression of both countries.

National and Regional Events

As well as these international events, some of our national organisations are able to hold superb activities for their own countries or regions. Whenever possible I have been very happy to support these activities, recognising that ICID provides the context to bring together a broad spectrum of interests in managing water for sustainable agriculture: public and private, agriculture and water, suppliers and producers, consultants and researchers, and more students and young professionals than is possible at the international level.

The strengths of some of our national organisations are evident in the competition for the Best-Performing National Committee, for which the winner will be announced in Lahore. The judges had a difficult task choosing from some outstanding entries from China, Iran, South Africa and Morocco.

Brazil National Congress CONIRD XVIII

The Brazilian national committee (ABID) holds yearly gatherings with 400-600 participants in different agricultural centres. This year the congress was in São Mateus, in the northern part of Espirito Santo state, a region well-known for its papaya and other high value crops.

This was my second visit to an ABID congress and both occasions have been inspirational, mainly because of the emphasis on the broad interests of the producers. One example is the irrigation of pasture to free-up degraded rangelands for agro-forestry and other cropping, using a variety of soil improvement techniques (no-till, terracing, mulching etc) that to my mind are part of irrigation in the broader sense of managing soil moisture by any means. The field days were especially interesting, not just for the water application techniques but also for the successive cropping being used to maximise the productivity of water, land and nutrients.

ABID President, Helvecio Saturnino, also arranged for a seminar in the capital, Brasilia, attended by representatives from all the main government agencies concerned with water and agriculture. This focused on Brazil’s potential as a major exporter of agricultural produce and expertise, and the crucial role played by Brazilian farmers in investing in technologies, especially farm reservoirs, of which Brazil already has an estimated 100,000. We discussed the ‘top-ten’ technologies that could revolutionise food production (see page 2), and the relevance of IPTRID and the ICID WatSave awards, including the award last year to the Brazilian entry saving more than 50% water by irrigating rice under centre pivot. I hope that Brazil will continue to play a bigger role in ICID.

Preparations for the 5th Forum, Istanbul 2009

ICID has been confirmed as the coordinator of one of the key topics for the next World Water Forum, reflecting the improved standing of ICID, and agriculture in general, over the last two years. Of course, this has been helped very considerably by the rise in food prices making people more aware of the fragility of world food security in the face of global changes and demand for bioenergy. But also, we must be grateful to the work of PH Bart Schultz and VPH Henri Tardieu in taking the lead so ably in coordinating topic 2.3 Managing water and agriculture for ending poverty and hunger, and the others, including Central Office, who have been providing ICID input to other topics in the Forum, and the next UN World Water Development Report.

Keep up the good work, and I look forward to seeing you in Lahore.

Peter Lee
President, ICID
ICID has been promoting these top-ten contenders. Several are technologies that have won an ICID WatSave award for outstanding water saving. These include drain controllers in Egypt, the wetting front indicator in South Africa, wet-dry rice production in China, and centre pivot irrigation of rice in Brazil.

In time, farmer control of water will come even to large systems, for example by the total-channel-control (TCC) being adopted in Australia. Pakistan National Committee (PANCID) and the Organizing Committee of the Congress in close collaboration with the senior Government Officials are putting their full efforts to make the event successful.

The main purpose of highlighting a technology like this is to get people thinking how these might be implemented more effectively to revolutionize food production, and the policy implications.

Join our ‘e-forum’ on ‘ICID Top 10 Technologies’ at <icid_top10tech@yahooogroups.com> to add your thoughts on the listed top 10 technologies.

Peter Lee
President, ICID
Agriculture has been the backbone of the Pakistan’s economy contributing 24% to the GDP and providing employment to over 40% of the population. The Indus Basin has the world’s largest contiguous irrigation system and is the main source of water for agriculture. About 95% of the country’s total freshwater withdrawals are for agriculture. Despite abundance of water resources and fertile lands, the country is facing water scarcity as well as food grain deficiency. The following is a brief information on Pakistan’s water resources and irrigation development – Editor.

Water resources

The total geographical area of Pakistan is 79.61 million ha of which the total cropped area as 23.1 million ha. The mean annual rainfall ranges from 125 mm in South-East to 750 mm in North-West. The Indus rivers system constitutes the major surface water resources of Pakistan. The Indus with a total length of 2900 km has five major tributaries with perennial flows viz., Jhelum, Chenab, Ravi, Beas and Sutlej, besides three minor tributaries - Soan, Harow and Siran. As per the ‘Indus Waters Treaty’ between India and Pakistan (1960), unrestricted use of waters of three Eastern Rivers (Beas, Sutlej and Ravi) was assigned to India, whereas waters of three Western Rivers, Indus, Jhelum and Chenab were assigned to Pakistan. The Indus River System comprises 3 major storage reservoirs (Mangla, Chashma, and Tarbela) with a total storage capacity of 18.7 BCM, 19 large river headworks, 45 canal systems measuring 64,000 kilometers, and some 1.6 million kilometers of water-courses forming one of the largest contiguous irrigation systems of the world.

Irrigation development

The country lies in the arid and semi-arid region and the annual evaporation rate ranges from 150 to 200 cm. Thus, there is a need for assured irrigation supplies for optimum crop growth. Pakistan’s 83% of the cropped area is irrigated and is the 4th largest (19.12 million ha) in the world. On an average 130 BCM of river flows are diverted to the irrigation. In the Indus Basin, about 20% of irrigated area is fully dependent on groundwater and about 40% area is irrigated in conjuction with surface water supplies. The number of tube wells is close to one million and the estimated groundwater withdrawal in the basin is around 70 BCM. The irrigation through wells has been increasing both inside and outside canal irrigated areas, while the area irrigated by canals is decreasing (see Graph). The official estimate for the overall water use efficiency of canal irrigation is 35% to 40%. The problem of waterlogging and salinity is of great concern in Pakistan. Presently, about 0.45 million ha of the irrigated area is waterlogged while some 2.13 million ha are salt affected. Various drainage measures have been provided over 6 million ha, so far.

The major crops grown are rice, wheat, cotton, pulses and sugarcane, besides fruits and vegetables. The average yield of cereals is 2.16 tonnes/ha. Surface irrigation methods viz., basin, furrow, and border are traditionally practiced. Pakistan is just embarking on pressurized irrigation systems. The scope of the Government supported program comprises (1) Micro irrigation systems for fruit trees, vegetable crops and cotton, and (2) Sprinkler system, including center pivot for field crops like, pulses, maize, wheat, and sugarcane. The program is launched in 2007 at the cost of US$ 290 million and planned to equip 117,868 ha.

Issues and challenges

Present population of the country is 160 million, of which almost 66% lives in rural areas and is directly or indirectly dependant on agriculture for its livelihood. It is estimated that the population of the country will be 225 million by the year 2030. Despite massive investment in irrigation sector and agriculture, the country is facing food shortages. The food grain production in 2007 was 31.3 million tonnes which is in short by 2 million tonnes of the demand.

To achieve self sufficiency in food, there is a need for optimum utilization of land and water resources, keeping in view their sustainability and ecosystem. The major issues for sustainable development of water resources and irrigation are - equity in water distribution, better O & M and cost recovery, coordination between irrigation and agriculture departments, improvement in the overall irrigation efficiency and crop productivity, degradation of soils due to waterlogging and salinity, water and wind erosion, and flooding. Other issues like, primitive nature of farming, unbalanced and inefficient application of fertilizers and other agricultural inputs, post harvest losses, poor marketing system, complex agriculture credit institutions, lack of skilled manpower, and inadequate research and extension services also need attention.

We thank Dr. Zaigham Habib, Specialist, Integrated Water Resources Management, The Planning Commission, Govt. of Pakistan for her help in providing updated data on irrigated areas.
Agricultural Draining for Sustainable Integrated Water Management and Coping with the Global Food Demand

Programme Overview

The 10th International Drainage Workshop (IDW10) was successfully held in Finland and Estonia from 6 to 11 July 2008. The workshop was jointly organized and hosted by the national committees of Finland (FINCID) and Estonia (ESTCID) under the auspices of Working Group on Drainage (WG-DRG) and attended by 110 participants from 25 countries. There were six keynote speeches, 29 oral and 40 poster presentations. President Peter Lee, Prof. Hon. Bart Schultz, and four Vice Presidents were amongst the invited guests. The workshop was organized by ICID WG-DRG and Dr. Willem Vlotman (Australia), Chairman of ICID WG-DRG.

Technical Summary

The objectives of the agricultural drainage have been evolved over the years and vary with the circumstances. The primary objective in its early agricultural phase was to reduce flooding and soil salinity. Agricultural drainage can be seen as a part of integrated land and water resources management, where environmental aspects play an important role. The water quality is an important factor in the quality of agricultural drainage and the methods to mitigate nutrient and phosphate leaching. The effects of extreme weather conditions on agricultural drainage were also included in the topics. Finally, drainage was placed in the context of the sustainable integrated water management, where drainage is a driver of sustainability.

Research Results

Very interesting wide-scale data was presented indicating that drainage is not for phosphorus (P) reduction. Multiple solutions were presented. Field research on drain spacing and depth, two-bank or three-bank, drain elements, bio diversity in drained fields, and formulation of Manning’s ‘n’ for natural streams some of the interesting topics. Main conclusions on agricultural drainage, preventing nutrient and phosphate leaching. The effects of extreme weather conditions on agricultural drainage were also included in the topics. Finally, drainage was placed in the context of the environment, economic and social/cultural aspects. A model to remember this:

Key Highlights

Seven oral and six poster presentations and discussions on some of the past research with controlled drainage. The field visit to an EU funded experiment showing subsurface drainage and sub-irrigation at Laheotsa, Estonia (Photo: W F Vlotman). Training in drainage management included in the topics. Finally, drainage was placed in the context of the environment, economic and social/cultural aspects. The re-shaped drains (brook, stream, river), and formulation of Manning’s ‘n’ for natural streams were some of the interesting topics. Main conclusions on agricultural drainage, preventing nutrient and phosphate leaching. The effects of extreme weather conditions on agricultural drainage were also included in the topics. Finally, drainage was placed in the context of the environment, economic and social/cultural aspects. A model to remember this:

Transfer of knowledge.

Another silver bullet presented was the potential of applying the methods that resulted in long-term reductions in N and P in the Rhine basin to the hypoxia problem in the Gulf of Mexico. It was encouraging to see that the extension service in the US is very much alive and that private industry is taking an interest in becoming involved in drainage.Katrina’s experience to emphasize that a billion dollar of investment will safeguard the hypoxia problem in the Gulf of Mexico. It was encouraging to see that the extension service in the US is very much alive and that private industry is taking an interest in becoming involved in drainage.
INSIGHT ON ULTRA-LOW SEDIMENT FLOW PROVIDED BY ARGONAUT-ADV* 

LOUISIANA, USA. Louisiana’s coastal wetlands provide vital wildlife habitat and a strong buffer against storms. But they are threatened by subsidence and cut off from the historic floods that built the Mississippi River Delta. Using SonTek Argonaut-ADV®, a Louisiana State University team captured continuous streams of data on shallow, slow-moving currents (down to 1 mm/s) that are notoriously difficult to measure. Their findings are teaching stakeholders how releases of sediment-rich pulses of water through a diversion structure near New Orleans may be managed to help rebuild marshes while minimizing impacts on local fisheries. 


ACOUSTIC DOPPLER TECHNOLOGY ENABLES FAST ASSESSMENT OF POST-QUAKE HYDRAULIC CONDITIONS

SICHUAN PROVINCE, China. A 7.9 magnitude earthquake in China left millions homeless and susceptible to thirst and water-borne disease as it ravaged the country’s hydrology monitoring stations. SonTek/YSI immediately responded with assistance and hydroacoustic equipment — allowing hydrologists to gauge the speed and strength of water flow, as well as monitor drinking water distribution. The advanced RiverSurveyor® provided fast assessment of flood conditions and did in minutes what had taken hours for a field crew with conventional instruments. www.sontek.com/news/ChinaQuake.pdf

A SMART WAY TO HANDLE FLOODS

KUALA LUMPUR, Malaysia. Devastating floods are common in crowded Kuala Lumpur, necessitating the massive Stormwater Management and Road Tunnel (SMART) project. Because accurate and timely information on discharge and velocity are vital for success, 16 SonTek Argonaut-SL and Argonaut-SW current meters were required. Says Bruce Sproule, Greenspan Technology’s International Manager, “SonTek equipment was the easiest and most accurate to incorporate into this project. The support is good and the equipment reliable.”


The most common and widespread of the world’s natural hazards is the flood. According to UNESCO, these disasters strike about 150 times, impact 500 million lives, and create at least $60 billion in damages — each year. Providing fast and reliable flow data under unpredictable conditions is serious business at SonTek. And making a difference anywhere in the world means our instruments have to be accurate, reliable, and capable under extreme conditions.
Challenges of Irrigation Development in the Countries in Transitional Economy

Irrigated agriculture is facing organizational challenges worldwide, especially in the countries of transitional economy. Since over a decade, the Central and Eastern European countries (CEEC) have been struggling to continue their prominent role in the agriculture sector. State financial support has not been adequate to provide the requisite support to irrigation. Consequently, the landowners have formed collective associations with the main objective to develop irrigated agriculture. Such organizations are already operating quite efficiently in some CEEC. Prof. Peter Kovalenko, Vice President, ICID and President, Ukraine National Committee (UKCID) and Dr. Larisa Filipenko, Scientific Co-worker at the Institute for Hydraulic Engineering and Land Reclamation, Ukraine, provide a brief of the issues and challenges of irrigation sector reforms in the CEEC.

Preamble

At the beginning of the 1990s, the transition from central planning economies to market economies started in all the Central and Eastern European countries (CEEC). The trend worldwide for decentralization and privatization of irrigation systems has gained new topical importance since the agrarian sector in post-communist countries had to undergo fundamental and far-reaching changes. Among others, this had an enormous impact on irrigated agriculture, resulting in problems like decline in agriculture production, deterioration of irrigation and drainage infrastructure, and breakdown of the previous markets. In these countries, irrigation traditionally has played an important role for sustainable agriculture and food security.

The term “Transition” is used to describe major political, economic, or social change in a country – from communist to market economy, from military to civilian rule, from warfare to some measurable degree of political peace, and can also include major changes in the quality of governance (IDRC, Canada)

These countries started to change its macro-economic policy with the changes in agriculture and water resources management. The study “Irrigation sector reform in Central and Eastern European countries” was carried out in 2003-2004 under the aegis of European Regional Working Group (ERWG) of ICID. The main purpose of this study was to analyze the current situation and to elaborate and exchange best practices in irrigation sector reform commencing from the time of transition to the market economy. This study has clearly brought out common issues in water management in CEEC.

Pre-reform irrigation systems

In all CEE countries, the irrigation systems were built during 1965-1985. These systems were characterized by very large and collective farms, high level of technology and financial investment, and large number of agriculture workers and irrigation system service staff. The dominant irrigation system used was sprinkling. Big pumping stations to convey and distribute irrigation water under pressure over large areas (1200-2000 ha) were built. Mostly linear systems (DDA-100, Cuban, and Dnieper systems) or circular systems (Fregat) were used. These irrigation systems were expensive, resource and energy intensive. However, such systems assured high crop yields (50-300%) compared to dry farming in the arid zones. But more importantly, the irrigation infrastructure had a positive social impact, leading to the increase in the wealth of the society at large.

Post-reform developments

Economic depression in the CEE countries had provoked changes in agricultural policy and decrease of irrigated area (see table). After privatization and change of the land ownership, irrigated lands together with irrigation systems became the property of private owners, while the irrigation infrastructure remained property of the state. Lack of financial resources to maintain the existing irrigation systems led to a crisis in the irrigation development.

Reforms in agriculture and water management to solve the institutional and socio-economic problems were initiated taking into account the local natural conditions, traditional farm practices, infrastructure peculiarities as well as required institutional and legal aspects. The implementation of transitional economic policies by the CEEC was led by the need to increase productivity in agriculture based on market principles. During the implementation of the reforms, new experiences were gained and new approaches were developed. The need to restore existing irrigation systems and future irrigation development was clearly understood. In the countries having arid zones such as Ukraine, Russia, Bulgaria, Macedonia, Romania, etc. irrigation is crucial to achieve assured crop growth. With optimal management and adaption of environment friendly modern technologies, sustainable development in agriculture and water management will be achieved.

The authors wish to thank all those colleagues who have provided the irrigated area data of their countries. Vice Pres. Kovalenko can be reached at <kovalen@users.ukrsat.com> and Dr. Filipenko at: <icid@reclamation.org.ua>
59th IEC and 20th International Congress on Irrigation and Drainage 13-18 October 2008, Lahore, Pakistan

The theme of the 20th ICID Congress is ‘Participatory Integrated Water Resources Management – From Concepts to Actions’.

Information about technical programme, venue, registration, accommodation, tours, is available at the Congress website: www.icid2008.org. For any further query about the event or visa etc., please feel free to contact: Dr. Syed Raghib Abbas Shah, Secretary General, Congress Secretariat, 506 WAPDA House, Lahore, Pakistan, Tel: +92 42 9202538, Fax: +92 42 9202154, Cell: +92 333 4257879, E-mails: gmcmwater@wapda.gov.pk, icid@icid2008.org; or Central Office, ICID, New Delhi at icid@icid.org. (Also see page 2)

23rd European Regional Conference, 18-24 May 2009, Lviv, Ukraine

The theme of the conference is “Progress in Managing Water for Food and Rural Development”. For details, please contact: Vice President Prof. Peter Kovalenko, President, Ukraine National Committee of ICID (UKCID), Kiev, 37, Vasilkovskaja Str., Ukraine, 03022, Tel: +38 (044) 2573348, Fax: +38 (044) 257 40 01, E-mail: kovalen@users.ukrsat.com, uncid_2007@inbox.ru

60th IEC and 3rd African Regional Conference, 11-17 October 2009, Abuja, Nigeria

The Nigerian National Committee of ICID (NINCID) will organize 60th International Executive Council (IEC) meeting and 3rd Africa Regional Conference during 11-17 October 2009 in Abuja, Nigeria. The theme of the conference is “The Role of Irrigation and Drainage in Food Security : Towards attaining the Millennium Development Goals in Africa”. The sub-topics are – (i) Food production and income generation through irrigated agriculture; (ii) The role of private -public partnership in irrigated agriculture in poverty reduction; (iii) Performance appraisal of different irrigation systems towards achieving millennium development goals and the way forward; (iv) Irrigated agriculture as a strategy for poverty reduction in developing countries; and (v) Environmental sustainability and pursuit of the millennium development goals.

The deadline for submission of abstracts of papers is 30 August 2008 and the full length papers are to be submitted by 30 January 2009. For further information, please visit the Conference website: <http://www.icid2009.org/> or contact: Engr. D.B. Madu, Secretary General, Nigerian National Committee of ICID (NINCID), Federal Ministry of Agriculture and Water Resources, Department of Dams and Irrigation, Old Secretariat, Area 1, Garki, Abuja, Nigeria. Tel: +234 803 2977965; +234 804 4108000, Fax: +234 9 2347394, E-mail: nincid@yahoo.co.uk, nincid@icid2009.org.

5th Asian Regional Conference, December 2009, New Delhi, India

The theme of the Conference is “Improvement in Efficiency of Irrigation Projects through Technology Upgradation and Better Operation and Management”. The sub-topics include: (i) Supply management including pipe distribution system; (ii) Organization management; (iii) Demand management; (iv) Irrigated area drainage; (v) Command area improvement, water conservation, technology improvement, and (v) Legal aspects and gender issues. For details, please contact: Member Secretary, Indian National Committee, ICID (INCID), Second Floor, Wing No.4, West Block-I, R.K. Puram, New Delhi-110066, Tel: +91-11-2618 1148, Fax: +91-11-2617 6533, E-mail: msincid@yahoo.co.in, Website: http://www.cwc.gov.in/main/INCID/welcome.html

61st IEC Meeting and 6th Asian Regional Conference, 5-12 September 2010, Jogyakarta, Indonesia

The Theme of the Conference is “Improvement of Irrigation and Drainage Efficiency under the Small Land Holding Condition”. For details, please contact: Dr. Ir. Roestam Sjarief, President, Indonesian National Committee on Irrigation and Drainage (INACID), Directorate General of Water Resources, No. 20/Perc. 7 Kebayoran Baru, Jakarta 12067, Indonesia; Tel: +62 21 723-0317, +62 21 723-0318; Fax: +62 21 726-1956, +62 21 720-8285; E-mail: inacid@pu.go.id

62nd IEC Meeting and 21st International Congress on Irrigation and Drainage, 2011, Tehran, Iran

The theme of the 21st Congress is “Water Productivity towards Food Security”. The congress will discuss on Question 56 “Water and Land Productivity Challenges”; and Question 57 “Water Management in Rainfed Agriculture”, besides Symposium on “Climate Change Impacts on Soil and Water Resources”, and Special Session on “Modernization of Water Management Schemes”.

For details, please contact: Mr. S.A. Assadollahi, Secretary General, Iranian National Committee on Irrigation and Drainage (IRNCID), No. 24 Shahrsaz Lane, Kargozar Street, Dastgerdi (Zafar) Ave., Tehran, Tel: +98 21 2225 7348; +98 21 2225 0162, Fax: +98 21 2227 2285, E-mail: IRNCID@nedat.net.ir, irncid@gmail.com, info@irncid.org, Website: http://www.irncid.org