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ICID Newsletter

Managing water for sustainable agriculture

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Message from the President

20th Congress, Lahore 2008

After the New Year break, I have been on the move again with visits to Pakistan, India, Turkey and Italy. The visit to Pakistan was focused on the preparations for our 20th Congress and 59th International Executive Council (IEC) to be held in Lahore in October.

Several of you may have been concerned at the news coming out of Pakistan, but Maureen and I found the situation very calm and we were able to move about freely; even visiting old haunts in Karachi and Hyderabad, as well as meeting with national committee (PANCID) members in Islamabad and Lahore. My visit was hosted by VP Illahi Shaikh and I met VPH Shams-ul-Mulk and VPH Khalid Mohtadullah in Islamabad and VP Mark Svendsen in Lahore, as well many other friends and former colleagues.

The venue for our Congress is in the most secure area of the safest city in Pakistan, and we can be confident of the full support of the Pakistan Government and the broader membership of PANCID to ensure that all participants will be well cared for, right from the moment you arrive at the airport. We are working towards an interest-packed 6 day programme, to which we expect to attract hundreds of local participants, including many young professionals.

I am not so confident that there will be no further trouble reported that may cause concern to some foreign participants, but the elections have passed off calmly and I would like to emphasise we have a very good venue for our meetings, close to the main hotels in a city that is one of the country's most beautiful and well-ordered. I am sure that you will be made very welcome, and of course, we have much to gain technically in having our congress and meeting in such a strong irrigation country.

If any of you would like to find out more from Maureen and me about the Lahore venue, hotels and our experience with flights, visas etc, please feel free to phone or email me at home.

India

It was a short (and pleasant) flight from Lahore to Delhi to meet Mr Ahuja, the new Chairman of India's Central Water Commission and attend a meeting of the national committee, INCID.

President Lee and Secretary General Gopalakrishnan with Chairman INCID and CWC Mr B S Ahuja (left)

Delhi is also the home of our Central Office, which is quite separate from INCID. I have come to value more and more the relative advantage that ICID has over other international NGOs in having an active professional team based in the developing world. The reason that ICID is involved in so many international initiatives is largely due to the responsiveness of our secretariat.

5th World Water Forum 2009

From India, I went to Istanbul to attend the 2nd coordination meeting for the 5th Forum. PH Bart Schultz represented ICID at the 1st meeting in November, and this time we had expanded representation from VP Karim Shiati, VPH Henri Tardieu, VPH Riota Nakamura, VPH Victor Dukhovny and myself. Although we spread our presence over several themes and VP Tardieu did a superb job of chairing discussion on the key topic 2.3 *Water and agriculture for ending poverty and hunger*, agriculture was under-represented in the "enabling" themes, concerned with governance and management, finance and capacity building. I think it is important that we talk not just to our friends, but also engage others in such topics as 3.2 *Ensuring adequate water resources and storage infrastructure to meet agricultural, urban and energy needs*. I look forward to ICID being declared the coordinator of topic 2.3 (which will be hugely significant) and also being involved in several other important topics, either as part of the coordination or a significant contributor. My thanks to all those who have been contributing to the preparation for the recent meeting. There is still much to do.

Italy

In Rome, I represented ICID at the 30th Governing Council Meeting of IFAD and visited FAO to discuss the future of IPTRID. The roundtable meeting on biofuels, and also the opportunity to meet many new faces were the highlights of the IFAD meeting, and I am pleased that the relationships between ICID and IFAD and also FAO have been greatly strengthened over the last year or so, with work on several areas of common interest including poverty, multiple use, Africa and modernisation.

Peter Lee
President, ICID

International Commission on Irrigation and Drainage (ICID) was established in 1950 as a scientific, technical and voluntary not-for-profit non-governmental international organization. The Newsletter is published quarterly by ICID Central Office, New Delhi, India.

IN THIS ISSUE

Africa Needs Integrated Approach of Rainfed and Irrigated Agriculture to Sustain Rural Livelihood and Local Food Security

2nd African Regional conference was held from 6 to 9 November 2007 at Glenburn Lodge, South Africa. The conference was attended by 120 delegates representing 17 countries. The theme of the conference was 'Contribution of rainfed and irrigated agriculture to poverty alleviation through increased productivity in Africa' and focused on five important assets viz.' natural, social, human, physical and financial capital. President Peter Lee highlighted some of the valuable lessons learnt about Africa, through his own personal recollections of his career and travels throughout Africa. The Conference was organized by the South African National Committee (SANCID) jointly with the Southern African Regional Irrigation Association (SARIA), the Department of Agriculture and the Water Research Commission. Debbie Besseling, Editor of SA Irrigation magazine provides a brief report of the conference.

"Africa taught me the importance of field work, of staying in a place and meeting the people. Another important lesson is the essential inter-actions between arable agriculture, irrigated and rain-fed, and livestock production, fishing and other utilization of the natural and built environment, especially to sustain local food security and livelihoods. In terms of poverty alleviation, enhanced rain-fed production and informal irrigation have the potential to improve rural livelihoods and local food security, while more formal irrigation is needed to ensure national and regional food security, as well provide livelihoods through both direct and multiplier effects, all crucial to ending hunger and poverty." said President Lee.

Photo: SANCID

(L to R) Dr Gerhard Backeberg (Chairman, SANCID); Dr Salah Darghouth (World Bank); Dr Sizwe Mkhize, DDG, Department of Agriculture, South Africa; Peter Lee (President ICID); Felix Reinders (Vice President ICID); and Dr Andrew Sanewe (Chairman, SARIA)

With regard to global food security, President Lee highlighted that there is a predicted 67% increase in food production that will be required over the next 25-30 years. "I believe it is the savannah regions that will be called on to fill the gap, particularly here in Africa where most of the increased demand is forecast and yet there has been relatively little investment in the past" he commented. It is in this instance that we can learn from the experience of others. "What is interesting for Africa is the way that the Brazilians are increasing agricultural production in the savannah, where settled agriculture is replacing pastoralism through investment in irrigation. This is through construction of farm reservoirs that give farmers control over their water supply", said Lee.

The conference was opened by Dr Sizwe Mkhize, the Acting Deputy Director General (DDG), Department of Agriculture, South Africa. "As a country and as an agricultural sector, we have always wanted to share our interests with the rest of Africa. Over the past seven years, my Ministry has been fully behind New Partnership for Africa Development (NEPAD). Through NEPAD, South Africa wants to see Africa becoming a growing economy, and being able to support her people. Access to adequate, healthy and nutritious food and economic opportunities are among things that have guided my Department in supporting NEPAD. While most of our focus and energies go into ensuring that NEPAD becomes a success, it is a known fact that Africa still has a number of challenges" stated Dr Mkhize.

"This conference is surely going to afford us with that opportunity to critically look at ourselves as Africans in irrigated agriculture, and to strengthen our relationships as regional and national irrigation and drainage committees. Through our active participation in ICID, we can unlock the potential of our continent and be able to feed our peoples and bring back their dignity" concluded Dr Mkhize.

ICID WatSave Awards 2008: Invitation for Nominations

Nominations are invited for the '*WatSave Awards 2008*' from individuals/ team through ICID National Committees/ Committee. Awards are given in three categories viz. (i) Technology, (ii) Innovative Water Management, and (iii) Young Professionals. The Awards are only made in respect of **actual realised savings** and not for promising research results, plans and/or good ideas/intentions to save water. Each award carries prize money of US$ 2000 and a Citation. The ICID WatSave Awards for the year 2008 are sponsored by Pakistan National Committee (PANCID) and will be presented at the 59th meeting of the IEC scheduled to be held in October 2008 at Lahore, Pakistan. The entries are open to all professionals/ teams from ICID member countries as well as non-member countries. In case of an entry from a '*non-member*' country, *the nomination has to be routed through and validated by an active National Committee of ICID.*

The contact coordinates of the ICID National Committees/ Committee, the 'Nomination Form', 'Conditions and Criteria', and 'Evaluation Proforma' are available for download at <www.icid.org/awards.html>. The deadline for receipt of the entries from the National Committees along with a completed 'Nomination Form' to the Central Office ICID, New Delhi is **30 June 2008.** The entries should be submitted electronically to respective National Committees well in advance of the deadline. For more information, please contact Secretary General, ICID <icid@icid.org>.

Efficient Use of Recycled Water for Irrigation – Showcase: Israel

Increasing scarcity and sectoral competition for fresh water is constraining its availability for irrigation. Use of treated wastewater and effluent for irrigation is becoming more and more popular in many countries, especially in MENA region. Israel is at the forefront of developing and adoption of wastewater treatment technologies and its use for irrigation. Mrs. Ronity Golovaty[1], briefly describes Israel's status, approach and challenges in practicing the treated wastewater for irrigation.

About 60% of Israel's area is classified as arid and needs irrigation all the year round to sustain agriculture. The water supply scenario is one of a fragile balance between supply and demand. Under these conditions it is essential to adopt measures for water saving and also find alternative sources that can be used especially in agriculture which is the biggest consumer of water. Treated Wastewater (TWW) is the most readily available water resource and provides a partial solution to the scarcity problem. The main challenge for increased use of TWW for irrigation is human health protection and prevention of environment al pollution.

New Policy - Sustainable Approach

Notwithstanding the benefits of using effluents as an alternative source of water, there are a few aspects that have to be taken into account such as - health considerations to the people who eat the agricultural product and for the farmers/ workers who come in contact with the water; TWW chemical quality, nutrient content and salinity parameters; TWW storage and distribution (environmental considerations); clogging potential of the irrigation system selected; prevention of contamination and salinization of land, surface and ground-water sources and possible damages to the plants, if any.

An Inter- Ministerial Committee has been nominated to recommend a new regulation for the use of TWW for irrigation in agriculture and for disposal to streams. It is obligatory for farmers to acquire permits for irrigation with effluent water. The permits are given by the Ministry of Health according to the quality of water and crops irrigated.

Wastewater/ Effluent Treatment in Israel
(Facts and Figures, 2004)

- **Wastewater ≈500 million m³/year**
- 50% treated to secondary level
- 30% treated to tertiary level
- 4% discharged via cesspits
- 16% inadequately treated
- **Effluents ≈ 450 million m³/year**
- 65% of effluents reclaimed for irrigation
- 35% discharged to rivers or sea
- By 2010, reclaimed Effluents ≈ 50% of all water supply to agriculture

Photo: Ronit Golovaty

Effluent treatment system for unlimited irrigation, Jerusalem

Limitations in use of TWW and effluents

While the benefits of recycling treated sewage water are indisputable, there are challenges too. As the concentration of salts in recycled water is about twice that in fresh water, irrigation with recycled water causes a gradual salinization of the soil. The problem of soil salinity can be overcome by regularly monitoring salt concentrations and by flushing out accumulating salts downwards from the soil layer where the roots are active.

According to the quality of effluents, the number of "barriers" needed is decided for irrigation with this water. The "barriers" are decided according to the potential health risks in the effluents. Such barriers can be the physical distance between the effluents and the crop, non-eatable crops, fruits that are treated with very high temperature, thick peeling, fruit that is eaten cooked, and sub-surface irrigation. For assimilating the agro- techniques that have to be adopted for using TWW, the Ministry of Agriculture has designated a special department to study the short-term and long-term implications of such irrigation on the crops and the environment.

The professional inputs received from the researchers assist in assimilation and acceptance of farmers the usage of effluents for irrigation and ensuring a safe marketing of agricultural products for overseas markets. The role of the Governmental extension service consists of - transferring the knowledge gained from the research to the farmers, identifying problems with the farmers and bringing it to the researchers and organizing training courses and seminars.

Technologies Adopted

For successful application of TWW in irrigation, technologies like - advanced drip irrigation systems that ensure safe and efficient irrigation with effluents, advanced filters with automatic and manual cleaning mechanisms that protect the irrigation systems from clogging and monitoring devices on the water flow for early detection of clogging are particularly useful. Efficient self-cleaning filter technology allows continuous irrigation without manual intervention of the operation.

□

1 Ronit Golovaty, Executive, Dep. of Water and Environmental Technologies, The Israel Export and International Cooperation Institute, Tel Aviv. Member, Israel National Committee of ICID (ISCID) <golovaty@export.gov.il>

Comprehensive Approaches to Managing Riverine Flood Risks

According to a UN study the number of people affected by catastrophic floods is likely to double by 2050, from the present one billion. In view of above, ICID Working Group on Comprehensive Approaches to Flood Management (WG-CAFM), contributed to the theme 5 on 'Risk Management' of 4th World Water Forum held in Mexico. Subsequently, an ICID position paper on 'The Management of Riverine Flood Risk' was developed by the Working Group. Mr. Dick de Bruin (The Netherlands), Chairman and Mr. Peter Borrows (UK), Member of this Working Group floated a position paper. Dr. Vijay K Labhsetwar, Central Office, ICID provides a brief summary of the paper.

Among natural catastrophes, flooding has claimed more lives than any other single natural hazard. More than 25,000 lives are lost every year by floods and weather related disasters, and the costs of these disasters range between US$ 50-60 billion annually. Of the estimated 520 million people affected by disasters annually worldwide, more than 400 million people are directly exposed to flood threats, mainly in Asia. During the period 1987-1997, of the 228,000 lives that were lost due to various disasters in Asia, 93% were flood related. It is imperative that human society adopts a risk management approach for harmonious co-existence with floods. The issues may be broadly dealt under four general topics viz. planning, technical, operational and institutional.

Planning

Spatial planning and land use must take all aspects of flood risk and water management into account. Flood risk management must be catchment-based and needs-related. Flood management and risk control measures have an impact on drought issues, which can be given attention by integrated planning at catchment level. In a large river basin, it may be appropriate to plan flood-related works at a sub-basin or lower scale (See figure).

Technical issues

Design should use recognised codes but be open to innovation. A consistent methodology should be used to justify expenditure. Before measures to manage flood risk can be implemented, the nature and scale of the risk have to be identified through a systematic assessment.

Operational aspects

Budgets and plans must provide for life time operation and maintenance. Robust data collection and management is needed to support decision making. Supervision and enforcement are necessary to ensure that flood risk management measures are not compromised. For adequate early warning in international river basins, data exchange is crucial. A free exchange of data between organizations and countries (riparian states) not only reduce the impact of floods, but also hasten recovery and limit their economic impact.

Institutional matters

Governance arrangements must be open with clear accountabilities. Human resources management must be organised to attract and retain personnel at all levels. Public support should be sought through an open dialogue supported by access to relevant information. Legislation must provide adequate powers and sanctions to allow effective flood risk management. Planning, delivery and continuing maintenance of flood risk management measures and actions are dependant on political support. These should be backed by legislation clarifying the powers and responsibilities of all involved with flood risk management. It is vital that the institutional arrangements for governance of the different aspects of flood risk management facilitate an open and informed dialogue between government at national and local levels, their supporting agencies and beneficiaries of the service.

Conclusions

Flood risk will continue to increase unless there is a fresh approach to the occupation and use of, and investment in flood prone areas together with more effective measures to control the human impact on the global climate. Flood risk management is an integral element of water management which itself is closely linked to land management and must be a consideration in spatial planning. The knowledge and tools exist to manage flood risk, but the most urgent need is to prevent the exposure of yet more people to the hazards of living in flood prone areas. Governments need to establish clear institutional, financial and social mechanisms and associated processes for flood risk management, in order to ensure the safety of people and property and, thereby, contribute to food security, poverty reduction and sustainable economic growth. Only then can there be harmonious co-existence with floods.

The full draft paper can be accessed at <http://www.wg-cafm.icidonline.org/draft_pos_pap.pdf> □

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Challenges for Increasing Agricultural Productivity in Asian LDCs

Since the majority of the poor live in rural areas, a key to making progress toward the goal of poverty eradication and development for LDCs is to increase the productivity of agriculture mainly with the help of irrigation, drainage and flood control. ICID in 2003 established a task force for Least Developed Countries in Asia (TF-LDCsAS) to study their problems, requirements and identify the priority issues to address for the development. The TF is led by Dr. S Taniyama, Chairman, Asian Regional Working Group (ASRWG) with a membership of Prof. Soon-Kuk-Kwun (Korea), Dr. Hector M. Malano (Australia), Dr. Nairizi (Iran), and Mr. Cai Lingen (China). Dr. Taniyama JNC-ICID provides a summary of the main conclusions of the report.

As reflected in the Brussels Declaration[1], Governments and international organizations are called to heed the needs to give concrete and substantial support to the efforts being made by the LDCs for their development, in a sprit of shared responsibility through partnerships, including with the civil society and private sector. Admittedly, the fundamental causes of the problems in LDCs are broad, complex and deeply rooted in their socio-political circumstances and governance issues as well as technological matters. Adopting of affordable technologies in the development and management of irrigation, drainage and flood control schemes is a key for poverty alleviation and progress in Asian Least Developed Countries (LDCs).

Photo: Taniyama

A view of a tributary of the Ganges, Bangladesh

Importance of irrigation and drainage

The least developed countries (LDCs) are still grappling with growing populations, and the number of the poor in LDCs have not decreased because of the stagnation in economies and inappropriate policies. To improve such situations, it is important to increase and stabilize agricultural production by improving and extending irrigation and drainage systems, as many people in LDCs depend on the agricultural sector for their day-to-day survival.

Present conditions in LDCs

LDCs are facing many problems - capital shortage, poor governance, limited capacity to finance, inadequate legal systems, and undeveloped farmers organizations in rural areas. They all constitute the fundamental hindrance to the improvement and expansion of the irrigation and drainage systems. LDCs need to overcome these disadvantages in order to develop their prime source of income.

Priority proposals in LDCs

In order to solve the problems, the Task Force (TF) recommends promoting irrigation/drainage projects by focusing on the following aspects:

- Practicing of participatory management of irrigation/drainage facilities and formation of farmers/water users organizations,
- Development of small, affordable and sustainable facilities from the viewpoint of beneficiaries paying due attention to market access and resilience to natural disasters,
- Enhancement of legal systems and financial support by governments and international organizations in the irrigation/drainage administration,
- Transfer and dissemination of irrigation/drainage technological and management skills from experts in governments and international organizations to the irrigation management organizations of farmers, and
- Conservation and allocation of adequate amount of water for development.

When a country is called as least developed?

According to the United Nations, Least Developed Countries (LDCs) are those which exhibit the lowest indicators of socioeconomic development, with the lowest Human Development Index (HDI) ratings of all countries in the world. A country is classified as a Least Developed based on three criteria: (a) Low-income (three-year average GNI per capita of less than US $750; (b) Human resource weakness (based on indicators of nutrition, health, education and adult literacy); and (c) Economic vulnerability (based on instability of agricultural production). Of the total 50 LDCs in the world, currently, there are 15 LDCs in Asia viz., Afghanistan, Bangladesh, Bhutan, Cambodia, Kiribati, East Timor, Lao, Maldives, Myanmar, Nepal, Samoa, Solomon Islands, Tuvalu, Vanuatu, and Yemen. The rest are in Africa/ Latin America.

Women play an important role for the livelihood and survival of their families and community, particularly in critical circumstances. Achieving a gender equality and empowerment of women in LDCs is an important objective. Many large scale reservoirs and main channels have been constructed. However, these facilities cannot give the best performance without the development and adequate management of small farm-level facilities.

In LDCs, strengthening irrigation systems are critical in coping with poverty and starvation in the future. The TF recommends ICID to evolve measures to help resolve LDCs problems by encouraging LDCs to take part in the ICID activities and events, taking initiatives to raise awareness through its work bodies and other forums. For further information, please contact Dr. S Taniyama <taniyama@msc.biglobe.ne.jp> and/or Mr. S. Seyama <shu@zas.att.ne.jp>.

1 The Third United Nations Conference on the Least Developed Countries, May 2001 http://www.un.org/special-rep/ohrlls/ldc/ContributionsReport%20of%20the%20LDC%20III_E.pdf

Welcome to the 10th International Drainage Workshop
July 2008, Finland and Estonia

The National Committees of Finland (FINCID) and Estonia (ESTCID) have a great honour to invite all prospective delegates to the ICID's 10th International Drainage Workshop (IDW10) scheduled to be held in Helsinki and Tallinn from 6 to 11 July 2008, during the luminous northern white nights.

Workshop topics: The main topics of the workshop are: (i) Agricultural drainage and water quality, (ii) Drainage in the context of environmental river engineering, and (iii) Extreme weather conditions and drainage. The workshop consists of six separate sessions including over 70 oral/ poster presentations from 24 countries. During the workshop several technical and social tours have been planned. The keynote speakers opening the sessions are world-renowned experts featuring Eiko Lübbe, Chandra Madramootoo, Seppo Rekolainen, Bart Schultz, Wayne Skaggs and W. F. Vlotman.

The Workshop participants will cross the Gulf of Finland between Helsinki and Tallinn by boat during the workshop. Theory and practise intertwine during the workshop. The water quality of the Baltic Sea is also one of the key concerns of agricultural water management in the countries surrounding the Sea.

Registration: There is an 'Early Bird' registration fee before **March 31st 2008.** For any practical or other questions regarding the arrangements, please contact <fincid@fincid.fi>. For online registration and more information about the workshop, please visit <www.fincid.fi/idw2008>. We look forward to see you at Helsinki and Tallinn in coming summer!

Pertti Vakkilainen
Chairman, FINCID

Mati Tõnismäe
Chairman, ESTCID

59th IEC and 20th International Congress on Irrigation and Drainage
13-19 October 2008, Lahore, Pakistan

The theme of the 20th ICID Congress is *'Participatory Integrated Water Resources Management – From Concepts to Actions'*. All those authors whose 'summary and conclusions' of papers have been accepted are requested to expedite preparation of their full length papers and submit to the ICID Central Office <icid@icid.org> on or before **1 March 2008**.

President Peter Lee held a meeting with Pakistan National Committee (PANCID) on 23 January 2008 at Islamabad to review the arrangements for the forthcoming 59th IEC meeting and 20th Congress. President also made a courtesy call on HE Tariq Hameed, Federal Minister for Water & Power who assured full support of the Government of Pakistan in organizing the event and making it an outstanding session. President Lee expressed complete satisfaction over the arrangements being made by PANCID. He viewed that Lahore with its tradition, cultural heritage and rich association with irrigation and drainage, would provide a truly outstanding venue for the ICID 2008 Congress.

The Congress website <http://www.icid2008.org> is functional and details like programme, venue, registration, accommodation, tours, are available. For any further query about the event or visa, etc. please feel free to contact : Congress Secretariat, 506 WAPDA House, Lahore, Pakistan, Tel: +92 42 9202538/ 9202610, Fax: +92 42 9202154, E-mail : icid@icid2008.org or Engr. Dr. I.B. Shaikh, Chairman, PANCID & Vice President, ICID at pancid@icid2008.org, Tel: +92 51 920 6589.

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