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# Newsletter 2003/1

••• *Managing Water for Sustainable Agriculture*

INTERNATIONAL COMMISSION ON  
IRRIGATION AND DRAINAGE

## MESSAGE FROM THE PRESIDENT

Greetings from Central Office

The recently concluded 3<sup>rd</sup> World Water Forum (3<sup>rd</sup> WWF) in Kyoto from the 16<sup>th</sup> to 23<sup>rd</sup> March 2003 was one of the biggest event on water for this International Year of Freshwater. In all, more than 25,000 people participated in over 300 sessions on almost all aspects of water. A Ministerial Conference and a Ministerial Meeting on Water for Food and Agriculture were organized alongside the Forum.

The 3<sup>rd</sup> WWF was organized by the World Water Council of which ICID is one of the founder members. ICID was actively involved in organizing/sponsoring/co-sponsoring a number of sessions. Together with the Food and Agriculture Organization (FAO), ICID was one of the main organizers for the theme on Agriculture, Food and Water and I presented a Keynote Paper at the plenary session. I highlighted the fact that while only 17 % of the land used for agriculture was irrigated, it contributed some 40 % of the food produced and provides livelihood and employment for 2 billion people in rural areas. Presently 815 million people (777 million of which are from developing countries) are undernourished and we are already behind the World Food Summit target to reduce this figure to half by 2015. Irrigated agriculture remains the main hope for solving this problem but there are several challenges to be overcome. Key to this will be Irrigation Modernization which is a process of technical and managerial upgrading of irrigation scheme combined with institutional reforms with the objective to improve resource utilization and water productivity.

ICID played a significant role in a number of sessions and in one of them, the reports of a number of ICID

Task Forces were presented. These reports covering food production, cost recovery, appropriate decision making for large dams and performance measurement through benchmarking were very well received and I urge National Committees to study them thoroughly.



ICID was also provided a 5 minutes slot at the Ministerial Meeting on Water for Food and Agriculture where I invited the Japanese Government, the Ministry of Agriculture, Forestry and Fisheries Japan and the Japanese National Committee to join with ICID in working on a number of areas involving water for food. I am optimistic that our Japanese colleagues will respond positively to this invitation.

I was particularly pleased to see the active involvement of so many National Committees in Kyoto, and I am sure that we all collectively made an impact on behalf of the irrigation sector. ICID's influence could be detected in the Statement from the Session on Agriculture, Food and Water; the Recommendations from the Ministerial Meeting and ultimately the Ministerial Declaration from the Ministerial Conference.

Ir. Keizrul bin Abdullah  
President, ICID

## 54<sup>TH</sup> INTERNATIONAL EXECUTIVE COUNCIL (IEC) MEETING AND 20<sup>TH</sup> EUROPEAN REGIONAL CONFERENCE, 14-19 SEPTEMBER 2003 MONTPELLIER, FRANCE

The preparation for the 54th International Executive Council of ICID and 20th ICID European Conference, to be held from 14-19 September 2003 in Montpellier, France, is going on as scheduled, and is coordinated by an Organizing Committee. This committee was appointed by mid-2001 by AFEID under the co-ordination of Dr. Alain Vidal, Chairman of the AFEID

Technical Committee, and is now formally meeting quarterly, with frequent electronic exchanges.

All meetings will have a single venue, 'Le Corum', the Congress and Opera Centre of Montpellier, with whom AFEID has subcontracted the event logistics and registration, and is located downtown, within a

walking distance from numerous restaurants and hotels of all categories.

The 54th IEC of ICID will be organized from 14 to 19 September, and simultaneous translation will be available for PCTA, PCSPOA and IEC Meetings.

- An International Exhibition focused on irrigation technology but open to other exhibitors working in the irrigation and drainage sector, will take place from 17-19 September.
- A social programme including 2 receptions and a farewell dinner, and a programme of visits for accompanying persons will enable participants to discover various aspects of the cultural, touristic and culinary richness of the Montpellier region.

More information on the conference is available on the AFEID Website: <http://afeid.montpellier.cemagref.fr/afeideng.htm>

### ***20th European Regional Conference, Montpellier, France, 17-19 September 2003***

The **20th ICID European Conference** will be organised by AFEID in Montpellier, France from 17-19 September 2003 on the theme of «Consensus to resolve irrigation and water use conflicts in the Euromediterranean region». It will include an opening ceremony, a plenary session, parallel sessions, and a half-day technical visit to the 'Canal de Gignac'. An international Scientific Committee has been appointed and the call for papers has been released in March 2002.

Contributions from professionals and scientists in water and irrigation management are welcomed on two themes :

#### **Theme 1 : Origin of water use conflicts**

Understanding actual conflicts needs to identify demand drivers and to analyse sectoral evolution

- The role of agro-business and consumer demand
- Demographic growth and urban uses
- Environnemental awareness

#### **Theme 2 : Methods of conflict resolution**

On the basis of stakeholder involvement and bottom-up processes, which are the economic and institutional instruments to regulate allocation conflicts?

- Conflict perception and the role of media
- The role of basin/aquifer organisations
- The role of service providers and economic instruments, with due consideration of poverty alleviation.

A half-day technical visit to the canal of Gignac, which is located 30-40 km west of Montpellier on the lower and middle terraces of the Hérault river. It has served a command

area of 3800 ha for more than 100 years. The system nowadays experiences dramatic economic and social changes due to the age of the canal and the evolution of water demand. The modernization of the canal regulation through automatization is an improvement likely to generate significant water savings, which can be mobilized for other uses and contribute to the improvement of environment quality. On this canal, it is proposed to visit the facilities of the Cemagref experimental station. They allow to study *in situ* the methods of automatic canal regulation, to demonstrate their effectiveness, and to provide operational tools. Once validated, these tools can be used in other regions.

The members of the Scientific Committee are – Thierry Rieu (France), Alain Delacourt (France), Jacky Astier (France); Fatma Attia (Egypt); Jacob Burke (FAO); Martin Burton (United Kingdom); Sara Fernandez (France); Paul van Hofwegen (The Netherlands); Marcel Kuper (France); Nicola Lamaddalena (Italy); Jose Ortiz (Spain); Nouredine Ennabli (Tunisia); and Olga Zhovtonog (Ukraine).

### ***International Workshop on “Improved irrigation technologies and methods: Research, development and testing”, 18-19 September 2003, Montpellier, France***

An International Workshop on 'Improved irrigation technologies and methods : Research, development and testing' will take place on 18-19 September and will consist of one day plenary and parallel sessions, and 2nd day of technical visits in the region. An international Scientific Committee has been appointed and the call for papers has been released in May 2002. The workshop is divided in :

#### **A plenary session**

The state of art and perspectives of new technologies and methods in irrigation

- Improvements in irrigation equipments during the last decades
- Irrigation equipment testing and standardization

#### **Two parallel sessions**

##### **(i) Surface irrigation**

- Performance and evolution during the last years
- Evaluating the efficiency of traditional and modernized systems
- Irrigation management at plot level
- Interactions between cropping methods, fertilizers application and irrigation.
- Water quality and surface irrigation.

- Water saving opportunities in pressurized and surface irrigation.
- Experimental design for surface irrigation and technology testing.

**(ii) Pressurised irrigation**

- Sprinkler irrigation (solid sets and irrigation machine)
- Drip irrigation

Following the initiation of an international network of irrigation equipment testing laboratories, a meeting of laboratories delegates concerned will be held during the IEC.

A one-day technical tour will complement the workshop to visit: Cemagref testing facilities in laboratory at Aix-en Provence and in field at Le Merle experimental farm (Salon de Provence) for raingun and sprinklers evaluation, BRL water meter testing facilities, Precision agriculture in a farm near Tarascon.

The members of the Scientific Committee are Bruno Molle (France), Pierre Ruelle (France), Bruno Lidon (France), John Mapson (Australia), Heinz Sourell (Germany), Felix Reinders (South Africa), Daniele de Wrachien (EurAgEng), Luis Rendon Pimentel (Mexique), and A. Zairi (Tunisie)

***Workshop on benchmarking and quality control of services provided by irrigation and drainage systems, 16 September 2003, Montpellier, France***

ICID's Working Group on Development and Management of Irrigation Systems (WG-DMIS), in collaboration with the Benchmarking initiative and the French National Committee (AFEID) will organize an International Workshop on 'Benchmarking and Quality Control of Services Provided by Irrigation and Drainage Systems' on 16 September 2003 at Montpellier, France on the occasion of the 54th IEC. The purpose of the workshop is to update information about the progress of organisations, methods and operational facilities used for the management of the quality of the service to the users and of environment.

The purpose of this workshop is to gather and discuss testimonies of administrative organisations regarding provisions implemented for such improvement of the quality of service:

- How to define the quality of service needed by users?
- In this respect, what is the nature of technical, financial and administrative commitments existing between administrators and users?
- How can we ensure that the actual service provided complies with these commitments?
- How should we deal with identified failures?
- How can we maintain a virtuous circle of continuous improvement designed to match the needs of each user?

- In particular, which are the reference tools and methods of management for other more or less comparable public services? Can they be effectively transposed on to irrigation and drainage systems?
- Do improvements obtained reflect such efforts and the relevant costs?

Please submit one page summary of proposed paper(s) by end of April 2003 to Mr. Jacques Plantey, Vice Chairman, WG-DMIS (France), Société du Canal de Provence, Le Tholonet, BP 100, 13603 Aix-en-Provence Cx1, France. Tel: +33 4 42 66 70 17, Fax: +33 4 42 66 70 80, E-mail: jacques.plantey@canal-de-provence.com, Website: <http://afeid.montpellier.cemagref.fr/conf2003.htm>.

***2<sup>nd</sup> International Workshop on Sustainable Development of Tidal Areas (WG SDTA), 17 September 2003, Montpellier, France***

***Background and Objectives***

The second International Workshop on Tidal Areas is organized by the ICID Working Group on Sustainable Development of Tidal Areas (WG-SDTA) to be held in 2003 in Montpellier, France in co-operation with the French National Committee (AFEID), the Korean National Committee (KCID) and other distinguished leading experts in related Work bodies of ICID.

Tidal areas have been developed for the demand of food, water and land resources and flood management from ancient periods in the world. More than 75 % of world population has dwelled within 100 km of tidal area. In the developed nations, major land reclamations are not positively contemplated due to environmental issues, but are definitely interested in appropriate management of tidal area. In developing nations, however, who can not afford to contemplate major land reclamation, they may be interested in using and protecting vulnerable low lying land for agricultural use. Recently, Paddy rice fields have been recognized as valuable wet lands for the habitats of wild flora, fauna. However, fertilizer and insecticide abuse results in poor water qualities in the area. Sea water intrusion and quality of wastewater should be managed not only for human welfare, but also for the environmental protection in these areas.

The main objective of the Workshop is to bring together the experienced experts, professionals and practitioners in the field of Environmental Conservation for the Tidal reclaimed area.

***Topics***

Several empirical methods are still applied to measure the environmental changes resulted from the tideland reclamation in the world. These methods are not enough to draw full factors in estimating the environmental impacts of the project,

therefore, an advanced managerial technology has to be developed to evaluate the environmental changes for the sustainable agricultural and aqua cultural development projects in tidal areas. For engineers and practitioners, advanced mitigation schemes are needed in planning and designing the tidal reclaiming project. Water quality should be conserved to create amenity space and to access for both human and flora and fauna in the area. Environmental changes and mitigation schemes with advanced technology and related experiences on sustainable development of the project would be valuable topics in the Workshop. Papers are invited on the following topics :

***The tentative title : Wise Use and Environmental Conservation of the Tidal Area***

- Operation and maintenance issues in reclaimed area including acid sulphate and heavy clay soil management.
- The physical and biotic characteristics before and after the sustainable development in the tidal areas.
- The chemical and water quality characteristics of tidal swamps and estuaries

Case studies on environmental conservation in tidal areas can also be a good topic for Workshop.

***Important Deadlines***

- |                         |  |
|-------------------------|--|
| <b>01 February 2003</b> | Submission of 500-600 words abstracts of the proposed paper to the Secretariat |
| <b>01 March 2003</b>    | Review by the Committee and discussion with the Author                         |
| <b>01 July 2003</b>     | Receipt of full text of the papers in electronic format                        |

Proceedings will be made available to participants at registration in Montpellier.

For more details, please contact: Ir. Henk P. Ritzema, Secretary of WG-SDTA, ILRI ALTERRA, P.O.Box 47, 6700 AA Wageningen, the Netherlands, Email: h.p.ritzema@alterra.wag-ur.nl and the Reviewers and Committee members are : Dr. Park, Sang Hyun(Chairman of WG-SDTA, Korea); Ir. Jonnathan Simm(Vice chairman of WG-SDTA, UK); Ir. H.P. Ritzema(the Netherlands); Dr. S. Taniyama (Japan); Mr. Cai Lingen (China); Dr. Indreswari Guritno (Indonesia); Ir. Mohd. Azhari Ghazalli (Malaysia); Mr. Hugh Turrall (Australia); Dr. E.J.JAMES(India); Dr. Harry Denecke (IPTRID); Mr. Kim, Joo Chang (Korea); Dr. Eo, Daesu(Korea)

***International Workshop on Use of Remote Sensing of Evapotranspiration for Large Regions, 17 September 2003, Montpellier, France***

Improved management of water resources require increased accuracy in the quantification of various components of the hydrologic cycle, including evapo-transpiration and water consumption by irrigated crops. It is critical for water managers and planners and hydrologists to determine the spatial and temporal variation of ET over large land areas.

The main objective of the workshop is to illustrate the benefits of quantifying and managing ET in irrigated agriculture, the current techniques to determine ET from remote sensing, applications of remote sensing for irrigated agriculture, and extended applications for prediction of soil moisture, crop yield and irrigation uniformity and scarcity. The goal of the Workshop is to bring together international experts, professionals, practitioners and decision-makers to illustrate the technology and experiences of implementing remote sensing in irrigated agriculture.

***Topics***

The main topics to be addressed in the Workshop will include:

- Uses of evapotranspiration «maps» created by remote sensing for water management and planning;
- Current techniques to determine ET from remote sensing;
- Creation of extended products from remote sensing of ET and their application, including the prediction of crop yields, impacts of irrigation non-uniformity and water scarcity, unauthorized application of irrigation water, prediction of abstraction of ground water; and
- Future developments in remote sensing determination of ET and irrigation related descriptors.

The workshop is being organised by ICID's Working Group on Sustainable Use of Natural Resources for Crop Production (WG-CROP), FAO's Land and Water Development Division and US National Committee (USCID).

For more details, please contact the United States National Committee of ICID (USCID) c/o Dr. Richard G. Allen University of Idaho Research Center 3793 N.3600 E Kimberly, Idaho 83341, USA Tel: +1 208 423 6601 Fax: +1 208 423 6559 E-mail: rallen@kimberly.uidaho.edu

***Workshop on "Drought Management Strategies in different countries" 16 September 2003, Montpellier, France***

A half day technical workshop on "Drought Management Strategies" in different countries, with invited speakers will be held at the time of 54th ICID annual meeting, Montpellier, France, Sep. 2003. The invited speakers will present their respective country reports on "Drought Management Strategies". The following items will be deliberated during this workshop.

- Appropriate indices to describe and quantify the implication of drought and aridity.
- Drought impact assessments.
- Appropriate policies and management strategies for drought mitigation.

All WG-IADWS members are strongly recommended to provide papers related to their experiences in their own countries. The representative of the Food and Agricultural Organization (FAO) will also present a paper in this workshop.

For more details, please contact: Dr. Saeed Nairizi, Vice President, ICID & Chairman, ICID Working Group on Irrigation Agriculture under Drought and Water Scarcity, Managing Director, Toos-AB Consulting Engineers Co., Post Box 91775/1569, Mashad, Iran. Tel: +98 511 768 4600/+98 511 768 4091-6, Fax: +98 511 768 8868; E-mail: S.Nairizi@toos-ab.com.

***FAO/ICID International Workshop on “Capacity Building in Irrigation and Drainage - Issues, Challenges and the Way Ahead”, 16 September, 2003, Montpellier, France***

Capacity building for irrigation, drainage and flood control is increasingly recognized as a key element to achieve water and food security and in establishing the institutional framework that will ensure integrated and sustainable water resources management. This is the result of significant changes in the wider policy framework of increasing water use efficiency in the agricultural sector and in the devolution of responsibility of water management to local organizations and water users groups. Responses are required across the whole spectrum of capacity-building, covering both institution building and human resource development of users associations and service providers, creating the appropriate enabling environment.

Irrigation, drainage and flood control can be one of the more effective ways of achieving food security and alleviating hunger and poverty. But many countries do not have the capacity to take advantage of the opportunities that better water control can bring. Not only do they lack the human resources to plan, design and implement water control works, they also lack appropriate policies, legal frameworks and the institutions needed to support irrigators and farmer organisations, markets, supply chains for irrigation technologies and support services for farmers. Equally important is the need for an enabling social and economic environment in which these important changes can take place.

Capacity building includes all these issues but too often it is over-simplified and defined just in terms of human resource development and training courses. This is only one of the instruments needed. Others include reforms to regulatory and legal frameworks, new institutional structures, changes in

administrative procedures, new channels of information and communication and changes in the education system.

All this demands a much wider, more comprehensive definition that alerts people to the real issues of building sustainable capacity. The experiences of those already involved in this work can add to this understanding as well as to the development of action plans that can help and guide those wishing to build capacity in a more systematic and sustained way.

The ICID working group on capacity building, training and education, in association with FAO and other agencies, is therefore holding a one-day workshop, as part of the ICID Montpellier Conference, to focus on issues of capacity-building for irrigation, drainage and flood control.

The overall aim of the workshop is to highlight the important role of capacity building in the irrigation and drainage sector and to bring together agencies, institutions and individuals, to review and address the following issues :

- Why is capacity building important and what are the specific issues and challenges that need to be addressed in a capacity building programme;
- What is the present “state of the art” with respect to capacity building for the sector?
- What approaches are currently being used, and what are the issues and challenges arising from them, including more effective tools to assess the needs and impact of capacity building?
- What new approaches in capacity-building are needed to address likely changes in the sector in the near future?
- What facilitating and complementary roles can different agencies such as ICID and FAO (and others) play in supporting and promoting effective capacity-building within the sector

Keynote papers will be presented at the workshop together with invited papers on the following topics:

- The concepts, issues and challenges of capacity building in the Irrigation and Drainage sector;
- Institution building of local organizations and associations in managing water resources; approach and methodologies, constraints and special interest groups, including women;
- Strengthening water agencies in providing effective support and monitoring services in water resources management and irrigation development;
- Training and Education in Irrigation and Drainage, including the role of international and national training institutes, inventory of training programmes available and review of approach and training manuals;

- Monitoring and measuring impact of capacity building and training.

The keynote papers and case studies prepared for the workshop will be compiled and made available prior to the meeting through the ICID and FAO websites. Proceedings and keynote papers will be presented together with a synthesis of the issues and proposed actions that result from this workshop and published as a joint ICID/FAO publication in the FAO Water report series.

### Organizing Committee

#### Chairperson

Mr. Tom Franks, Chairman of the ICID Working Committee on Capacity building, Training and Education Organizing Members  
 Mr. Antonio Soares (Vice Chair, Brazil)  
 Mr. A Delacourt (ENGREF)  
 Mr. Robert Edwards (USBR)  
 Mr. P.van Hofwegen (World Water Council)

Prof. M.Satoh, (IAFE, Tsukuba)  
 Mr. Melvyn Kay (UK)  
 Mr. Martin Smith/ Daniel Renault (FAO)  
 Ms. R. Wahaj (FAO)

#### Cooperating Agencies

ALTERRA-ILRI, Wageningen  
 EIER/ETSHER – ARID, Ouagadougou  
 INPIM, Washington  
 CAP-NET;UNDP, IHE, Delft  
 IWMI, Colombo  
 IPTRID, Rome  
 ENGREF/CEMAGREF, Montpellier  
 IAM, Bari,  
 HR-Wallingford

For more details, please contact: The Secretariat, Water Management Group, Land and Water Development Division, Food and Agriculture Organization. Viale delle Terme di Caracalla, Rome 00100, Italy. Tel. +39 06 570 53818; Fax: +39 06 570 56275; E-mail: [watermanagement@fao.org](mailto:watermanagement@fao.org).

## DR. HASSAN ISMAIL MEMORIAL INTERNATIONAL AWARD 2003 : INVITATION FOR NOMINATIONS

ICID presents every year Dr. Hassan Ismail Memorial International Award in order to encourage young professionals, especially from Africa for carrying out creative work in water management and sustainable development of agriculture. Late Dr. Hassan Ismail was Professor of Hydraulics and Dean, Faculty of Engineering, Cairo University. He was also the Chairman of the Egyptian National Committee on Irrigation and Drainage (ENCID), in whose memory this award has been instituted since 1996.

Nominations for the award are invited from young professionals for the Hassan Ismail Memorial International Award 2003.

The award is given to young professionals, below **40 years of age**, for their work, which has wide applicability and brought to the notice of irrigation and drainage community through technical papers on African issues contributed to or presented at ICID Congress or Afro-Asian Regional Conference/African activities and judged as the best paper by a Selection Committee composed of Chairpersons of Permanent Committee on Technical Activities (PCTA), Working Group on Research and Development (WG-R&D), African Regional Working Group (AFRWG), Egyptian National Committee of ICID (ENCID) and the Secretary General, ICID.

The award consists of a cash honorarium of US\$1000

and a citation and will be presented at the annual meeting of the International Executive Council of ICID scheduled to be held in Montpellier, France in September 2003. All original papers which are not submitted or published anywhere before and are exclusively by young professionals, connected with the broader field of irrigation and drainage, and contributed at Seminars/Symposia/Workshops organized in the African context such as Nile 2002 Conference or any other African event, will be eligible for consideration.

#### Nomination and Selection Procedure

Entries should be sent to the Central Office through the National Committee before **15 May 2003** with the text of paper(s) together with the name(s) of the authors, their biodata and the contact address(es), the conference/workshop where and when the paper(s) were presented and details on the affiliation of the contributors to the ICID Young Professional Forum to enable it to forward the same for selection of the best paper by the Review/Selection Committee. While forwarding nominations, it should be ensured that the nominee has not completed 40 years of age on **19 September 2003**. A certificate to that effect is required to be sent to Central Office along with each nomination. If the paper is a joint effort, and if only one of the authors is below 40 years of age, he alone would be eligible to get nominated.

## NOMINATIONS INVITED FOR ICID WATSAVE AWARDS 2003

For the last five years, ICID has been presenting WatSave Awards to professionals around the world, to recognize their outstanding contribution to water saving/ conservation in agriculture. So far, 11 awards in three categories have been presented to professionals from six member countries of ICID. The three categories of WatSave awards are: Technology Award, Innovative Water Management Award, and Young Professionals Award. Each award carries a prize money of US\$ 2000 and a Citation.

The WatSave Awards for the year 2003 will be presented during the 54th meeting of the International Executive Council (IEC) scheduled to be held on 19 September 2003 at Montpellier, France. The Japanese National Committee (JNC-ICID) has the honour of sponsoring the WatSave Awards 2003. Nominations are invited from all those professionals who are engaged in water saving/ conservation activities, through ICID National Committees/Committee. Nominations for the Awards are open to all professionals/ teams from ICID member countries as well as non-member countries, but the nomination must be made and validated by an active National Committee/ Committee of ICID.

The entries from the National Committees should reach the Central Office ICID, New Delhi latest by **30 May 2003**. The selection of the winners from amongst the nominations received, as per specified "Conditions and Criteria" will be made by an 'International Panel of Judges' to be appointed by the President, ICID in consultation with the Chairman, WatSave Work Team (WT-WATS). The details of the 'Conditions and Criteria', "Evaluation Process" are kept available with all active National Committees and on ICID website <http://www.icid.org>. The papers of the past award winners may be also viewed on the website, by those interested.

The winners will be declared well in advance of the 54th IEC meetings, facilitating them to remain present and receive the award in person. Nomination along with all enclosures should be sent directly to the concerned National Committee electronically. If the submission can not be sent in electronic format, for any reason, the concerned National Committee should send seven sets of hard copies of the nomination papers to ICID Central Office. For further details, please contact the ICID Central Office.

## COUNTRY POLICY SUPPORT PROGRAMME BASIN LEVEL CONSULTATIONS

As a part of Phase I of ICID's Country Policy Support Programme (CPSP), two river basins viz. Sabarmati (21,674 km<sup>2</sup>) on the West Coast and Brahmani (39,268 km<sup>2</sup>) on the East Coast of India were selected by INCID as sample basins for assessment of water needs and drawing lessons for application to all the country basins. The CNCID similarly selected two river basins viz. Qiantangjiang (55,558 km<sup>2</sup>) and Jiaodong Peninsula (20,008 km<sup>2</sup>). The objective of this assessments was to work out present water uses, find out past uses and make projections to achieve integration of needs for future (2025) for all three sectors, namely, water for food (agriculture), for people (municipal, industrial and energy) and for nature (eco-system). This step was considered essential to draw lessons for water policy support programme. The Central Office, ICID in close association with Indian National Committee (INCID) of India and with Chinese National Committee (CNCID) of China is coordinating the work of CPSP. Various apex National, State/Province level organisations/ agencies and NGOs related to three water sectors are being consulted in the assessment process.

After the Preparatory Workshop in October 2002, the CPSP picked up speed. In order to present the preliminary findings



**India Basin Consultations – Country Policy Support Program (IBC-CPSP), 23-24 January 2003, Ahmedabad (Gujarat), India (LtoR) Mr. B.J. Parmar, Mr. A.D. Mohile, Dr. C.D. Thatte and Mr. M.U. Purohit**

of the water need assessments in the two selected basins of India, basin level consultations viz. Brahmani Basin at Bhubaneswar (Orissa State) and Sabarmati Basin at Ahmedabad (Gujarat State) were held on 16-17 January 2003 and 23-24 January 2003, respectively. Key presentations on

Integrated Water Resources Development and Management (IWRDM), Rainfed Agriculture, Treatment and Reuse of Municipal and Industrial Wastewater, and Water Needs of Forestry and Mangroves, besides presentation of past, present and future water availability/ need scenario were made and suggestions for policy interventions ascertained at each consultation. More than fifty-five professionals from Govt. Departments, prominent Non-Governmental Organizations (NGOs), Consultants, and representatives of Contributing Organizations (COs) and Dialogue Participating Organizations (POs) participated in each of the consultations. The comments/ suggestions received from the participants are being used by the study teams for reforming/ refining the assessments and framing policy support interventions. Papers based upon these developments will be presented on 19 March 2003 at the ICID Session in 3rd World Water Forum, Kyoto, Japan.

The CNCID organized a CPSP Preparatory Workshop (PW) on 11-12 November 2002 at Beijing. More than fifty professionals from Government departments, academic and research institutions participated in the PW and launched sample basin studies. Now CNCID proposes to hold basin level consultations after completion of preliminary assessments in the selected basins.

### ***2<sup>nd</sup> Asian Regional Conference, 14-17 March 2004, Echuca/Moama, Australia***

The 2<sup>nd</sup> Asian Regional Conference of ICID will be held at Echuca/Moama, Australia from 14-17 March 2004. The 2<sup>nd</sup> Asian Regional Conference will be organised by the Australian National Committee of ICID (ANCID) and sponsored by Goulburn-Murray Water. The preparations for the Conference is in full swing and ANCID has drawn up an excellent programme for the participants.

The theme for the Conference is "Irrigation in a Total Catchment Context, Sharing the River". ANCID believes that the most successful methodology for resolving issues relating to irrigation and drainage and its impacts on land management and the environment is to involve all catchment stakeholders in the development of total catchment management plans and programs. The Conference will provide delegates with the opportunity to present and debate the issues and successes achieved in managing from a total catchment perspective and to learn from Australia's considerable experience in this area.

The papers have been invited for the Conference under the following Topics:

- Total catchment management in various countries' experience

- Legal frameworks for catchment management in national and international situations.
- What is a fair share of the river for all users.
- What does the environment demand? Case studies
- Keeping the river clean.
- Supplying the demands for water from irrigators –doing it smarter.
- Reclaimed water – better technologies
- Matching competing demands for water in the catchment – economic social and other issues.
- Flood plain management – how necessary to keep water off agricultural land. Does Flood plain management conflict with environmental needs?
- Technology to support monitoring and management of the catchment and its waterways
- Where can savings be made with the major distributors and users of water?
- What are critical things needed and a view of the future for catchment management?
- Any other issues relating to catchment matters and irrigation will be considered.

Both Scientific, Applied and Policy presentations will be accepted. Authors of Scientific and Technical papers have the option of submitting the paper/s to a Referee panel nominated by the Conference Program Committee. Papers will be selected for inclusion in a Refereed Irrigation Publication.

The Scientific and Technical Papers should cover Research results, Scientific studies, Investigations; and the Applied Papers should cover Experiences, Technologies, Operational issues, Projects, Reports, Case studies and Policy matters.

Important deadlines for paper submissions are as follows :

<b><i>Close for Call for Papers</i></b>	<b>30 April 2003</b>
<b><i>Notification of Presenters</i></b>	<b>30 June 2003</b>
<b><i>Paper Submission Deadline</i></b>	<b>30 November 2003</b>

Copy of Call for Papers can be accessed from the website of [www.icid2004.com](http://www.icid2004.com).

For more details, please contact : ICID2004 Conference Secretariat, PO Box 2389, North Brighton, Victoria, Australia, 3186. Phone: +61 3 9530 6777; Fax: +61 3 9530 6526; Email: [services@profconferences.com](mailto:services@profconferences.com).

For Conference Program Organising Committee details, please contact: Assoc. Professor Hector Malano (Email: [h.malano@devtech.unimelb.edu.au](mailto:h.malano@devtech.unimelb.edu.au)).

## WORLD WATER DAY – 22 MARCH 2003

Dublin provided a sound basis for an action programme for water that was finally articulated in Agenda 21 and unanimously adopted by 179 countries in Rio de Janeiro at the United Nations Conference on Environment and Development, popularly known as the «Earth Summit» in 1992. By focusing on aspirations of the people and their partnerships and on building capacity at the local level, Agenda 21 charted a new path for sustainable water resources management.

Water in today's context is a critical natural resource on the earth because of inadequate development, competing demands, wastage and degradation due to pollutants. The United Nations Organization (UNO), therefore, decided in 1993 to observe every year 22 March as the "World Water Day (WWD)" to focus attention of the world community on the importance, need and urgency of preserving the quality and augmenting the quantity of water available in all places. ICID is one of the water-related international organizations which supported in December 1992 the proposal for observance of the WWD under the auspices of the United Nations.

The WWD provides an important opportunity to remind us of the challenge that confronts us all and to enhance our resolve to continue with fresh vigour our efforts, till the goal is achieved. Incidentally the UN has declared 2003 as the «Year of Freshwater» and hence the WWD 2003 assumes a special importance.

The United Nations Environment Programme (UNEP) has been charged with coordinating the commemoration of WWD 2003 on 22nd March 2003 under the theme "Water for Future".

The themes of the past WWDs were as follows:

1994	Caring for Water Resources is Everybody's Business
1995	Women & Water
1996	Water for Thirsty Cities
1997	World's Water - Is There Enough?
1998	Ground Water - The Invisible Resource
1999	Everyone Lives Downstream
2000	Water for the Twenty-First Century
2001	Water and Health
2002	Water for Development

United Nations Environment Programme (UNEP), the lead UN agency for World Water Day 2003, aims to work with governments and key partners worldwide to plan events that achieve this end. It is notable that World Water day, this year, coincides with celebrations marking 2003 as the International Year of Fresh Water. The goal for World Water Day 2003 is to inspire worldwide political and community action and encourage greater global understanding of the need for more responsible water use and conservation.

World Water Day 2003 will be the highlight of the Third World Water Forum (Osaka, 16-23 March 2003). The forum will witness the launch of the World Water Development Report, a UN effort towards monitoring progress made in water development and cross cutting issues in fields such as health, food, ecosystems, cities, industry, energy, risk management, water valuation, resource sharing, knowledge base construction and governance.

More information can be had from web address <http://www.waterday2003.org/index.htm>.

## THE INTERNATIONAL YEAR OF FRESHWATER

The United Nations General Assembly in resolution 55/196 proclaimed the year 2003 as the International Year of Freshwater. The resolution encourages governments, the United Nations system and all other actors to take advantage of the Year to increase awareness of the importance of sustainable freshwater use, management and protection. It also calls upon governments, national and international organizations, non-governmental organizations and the private sector to make voluntary contributions and to lend other forms of support to the Year. The Web site of the IYF is hosted by UNESCO at <http://www.wateryear2003.org>, and more information can be sought from [wateryear2003@unesco.org](mailto:wateryear2003@unesco.org).

The International Year of Freshwater, 2003, received its official launch at a ceremony at the United Nations in New York on December 12. The aim of the year is to raise awareness of the importance of protecting and managing freshwater.

The UN General Assembly resolution proclaiming the Year was initiated by the Government of Tajikistan and supported by 148 other countries. In a message issued at the ceremony, UNESCO Director-General Koïchiro Matsuura said that "water can be an agent of peace, rather than conflicts, and UNESCO is looking at ways that will allow this century to be one of 'water peace' rather than 'water wars'. By developing

principles and methods to manage this resource efficiently and ethically, while respecting related ecosystems, we move a step closer to the goal of sustainable development.”

One of the main events of the International Year of Freshwater (IYFW) will be the 3rd World Water Forum, to take place in Kyoto (Japan), March 16-23. The Forum is timed to coincide with World Water Day, held on March 22 each year. At the Kyoto meeting, the World Water Assessment Programme (WWAP), a collaboration between 23 UN agencies involved in freshwater and hosted by UNESCO, will present its World Water Development Report. This is the first of a planned series of reports on the state of water stress in the world, due to be published every three years. The Report identifies critical issues and problems as illustrated by in-depth case studies of selected, representative river basins. One of the aims of the Year is to reassert the UN’s Millennium Declaration Goal on Water, which pledged “to halve, by the year 2015, the proportion of the world’s people unable to reach, or to afford, safe drinking water” and “to stop the unsustainable exploitation of water resources.” The goal, endorsed by the World Summit on Sustainable Development held in Johannesburg (South Africa) in August this year, also set a new target of halving the proportion of people who do not have access to basic sanitation by 2015. It also recognized the key role of water in agriculture, energy, health, biodiversity and ecosystems as well as in combating poverty.

“The Year offers a wonderful opportunity to raise awareness about water issues and to motivate people of all ages to get involved. Schools, the private sector, youth and community associations – each has something to contribute,” says Alberto Tejada-Guibert, the UNESCO Coordinator for IYFW.

Projections show that the combined effects of population increase, global warming and mismanagement of existing water resources are likely to increase the number of countries experiencing severe water stress during the next decades. To help offset conflict between nations over shared water resources and to promote peaceful negotiation, UNESCO’s International Hydrological Programme (IHP) has started a new project called From Potential Conflict to Cooperation Potential. Another programme, also led by IHP and entitled Hydrology for the Environment, Life and Policy (HELP), is creating a new approach for the integrated management of catchments.

On the morning of the IYWF launch (December 12) Mr Matsuura addressed UNESCO’s permanent delegates at Paris Headquarters and officially inaugurated the IYFW website. Another event was held at United Nations Headquarters in New York. A press conference with Nitin Desai, Under-Secretary-General of the UN Department of Economic and Social Affairs (DESA), was scheduled for 11.15 a.m. local time.

No matter who we are, where we are, and what we do, we are all dependent on water. We need it every day, in so many ways. We need it to stay healthy, we need it for growing food, for transportation, irrigation and industry. We need it for animals and plants, for changing colours and seasons. However, despite the importance of water resources in our lives and well-being, we are increasingly disrespectful of them. We abuse them. We waste them. We pollute them, forgetting how essential they are to our very survival.

2003 is a year of opportunity. It is a year for us to focus our attention on protecting and respecting our water resources, as individuals, communities, countries, and as a global family of concerned citizens. 2003 is a year for action and reflection. During this year we have a chance to mend our ways, to take stock and make a difference.

By protecting our freshwater, we help to ensure our future and our planet’s long-term prospects.

Join us in celebrating the International Year of Freshwater 2003. Send us your information, ideas, news, documents, images and testimonies, anything that could be shared with others around the world.

### ***UNESCO designates Saudi Prince Talal as Special Envoy for Water***

On the eve of the International Year of Freshwater, (2003), the Director-General of UNESCO, Mr Koïchiro Matsuura, appointed HRH Prince Talal Bin Abdul Aziz Al Saud, of Saudi Arabia, as the Organization’s Special Envoy for Water. The official designation took place at UNESCO Headquarters on December 18, during the award ceremony for this year’s AGFUND International Prize for Pioneering Development Projects.

Prince Talal is President of AGFUND (Arab Gulf Programme for United Nations Development Organizations), which he helped found in 1980, with the support of the Gulf States.

The Prince’s nomination comes in recognition of his contribution to sustainable development in his native country, regionally and on the international level, in addition to tackling the issue of water scarcity through AGFUND and its affiliated institutions and organizations. AGFUND has so far contributed to 27 water projects worth \$US30 million.

As UNESCO Special Envoy for Water, during 2003, International Year for Freshwater, HRH Prince Talal will work to draw the attention of heads of states, specialists, civil society and youth to the looming world water crisis and the need to act. Some 2.7 billion people will face serious water shortages by 2025 if consumption patterns and inefficient use go unchanged.

**WORLD WETLANDS DAY**  
**2 February 2003 – ‘No Wetlands - No Water!’**

February 2nd of each year is World Wetlands Day. It marks the date of the signing of the Convention on Wetlands in 1971, in the Iranian city of Ramsar on the shores of the Caspian Sea. The theme chosen this year is ‘No wetlands - no water!’, in support of the International Year of Freshwater initiative.

Wetlands are a main component in helping to maintain the water cycle, capturing and holding rainfall and snowmelt, retaining sediments, and purifying water. For fifty years now they have been very much threatened by human actions and activities. Initiatives need to be taken in order to reverse the destruction of these essential ecosystems.

Wetlands are important areas of biodiversity, and they also provide immense services to humans, both as water recyclers and as producers of biomass and nutrients for the food chain. Around some cities, they even serve as a natural wastewater treatment system, like in India: the East Calcutta Wetlands, a 12,500 hectares wetlands area outside Calcutta, helps to purify the city’s domestic waste.

In addition to their role as breeding grounds for fish, wetlands also provide people with a vast range of fertile grazing lands and staple food plants. Thus wetlands are essential for providing food, especially animal protein (fish provide 28% of animal protein in Asia, and 21% in Africa).

One of the major threats to wetlands comes from new construction and infrastructure development. This threat is likely to increase: the urban population is expected to surpass the rural population between 2015 and 2020. When allocating water between its different users, ecosystems should also be taken into account, and considered together with agricultural, industrial and domestic users.

The Ramsar background document gives several examples of local involvement and private sector efforts that try to restore the right balance between all water users. It stresses the high potential role of agricultural practices in protecting ecosystems. Agriculture needs to adapt technologies in order to save more water: drip irrigation can cut water use by 30 to 70%. Alternatives to intensified agricultural practices do exist: coming back to traditional cultivation might be wiser than developing double cropping. It can help to diversify agricultural production, for example by harvesting wetlands products such as fish, shrimp, bamboo shoots, mushrooms, as is done in Thailand.

Reversing the actual process can also help alleviate poverty – the rural poor being the main victims of wetlands destruction, since they are the most dependant on their products. Ecotourism shows that protecting ecosystems can bring benefits to local people while also contributing to economic development.

**NEWS FROM NATIONAL COMMITTEES**

***Macedonia (MAKCID)***

**The 3rd International Workshop on Research on Irrigation and Drainage, Skopje, Republic of Macedonia, 19 March 2003**

The 3rd International Workshop on Research on Irrigation and Drainage is being organised on 19 March 2003 by Macedonian National Committee of ICID as a part of celebration of the World Water Day 2003 under patronage of EurAgEng at Skopje, Republic of Macedonia.

The topics for the Workshop include: Formulation of Sustainable Solutions for Irrigation Development and Management; Studying and Comparison the Problems in Irrigation Management; Economic Management of Innovation, Productivity and Quality in Construction; Irrigation and the Environment; Environmental Engineering; and Environmental Physical, Analytical, Life and Health Sciences.

There is no conference fee. For further information, please contact: Prof. dr. sc. Zvonimir Vukelic, University St Cyril and Methodius in Skopje, Faculty of Civil Engineering, Boulevard Partizanski Odredi 24, P.B. 560, 1000 Skopje, Macedonia. Tel: 00389-2-116-066/155 (O)/ 00389-2-469-140 (R); Fax: 00389-2-117-367; E-mail: vukelic@gf.ukim.edu.mk.

***France (AFEID)***

**Dr. Alain Vidal becomes the Head of the European and International Affairs Office of Cemagref**

Dr. Alain Vidal, Chairman, ICID’s Working Group on Integrated Land and Water Resources Management (WG-ILWRM) has become the Head of the European and International Affairs Office of Cemagref, with effect from 1 February 2003. He may be contacted on following address - Service des Relations Européennes et Internationales,

European and International Affairs Office, CEMAGREF, 361, rue Jean-François Breton - BP 5095, 34033 Montpellier Cedex 1, France. Tel: +33 4 67 04 63 38, +33 1 40 96 61 80, Fax: +33 4 67 63 57 95, E-mail: [alain.vidal@cemagref.fr](mailto:alain.vidal@cemagref.fr), Website: [www.cemagref.fr](http://www.cemagref.fr), e-card : <http://noel.lyon.cemagref.fr/ecard/ecard.php?id=1096361099>. Newsletter congratulates Dr. Vidal for the honour.

### **India (INCID)**

#### **New Chairman of INCID**

Mr. R. Jeyaseelan is the new Chairman of the Indian National Committee (INCID) with effect from 1 November 2002. He took over as Chairman of the Central Water Commission (CWC) after retirement of Mr. Suresh Chandra on 31 October 2002. He also automatically becomes a member of the ICID Staff Committee. Mr. Jeyaseelan may be contacted on following address: Room No. 315, South Wing, Sewa Bhawan, R.K. Puram, New Delhi 110 066, India. Tel: +91 11 2610 8855, Fax: +91 11 2610 8614, E-mail: [cwcchairman@netscape.net](mailto:cwcchairman@netscape.net).



### **Iran (IRNCID)**

#### **Technical Workshop on "Drought Management Strategies", Tehran, Iran, 20-21 May, 2003**

The Iranian National Committee on Irrigation and Drainage (IRNCID) is organizing an International Technical Workshop on "Drought Management Strategies" to bring together experts, professionals and practitioners in this field to exchange their experiences and knowledge of combating the droughts. The following subjects will be submitted and deliberated by the experts from Iran, The United Kingdom, India, South Africa and FAO during the workshop.

- 1 Water Development in Drought Prone Areas with Scarce Water Resources
- 2- Drought Management in South Africa
- 3- Climate Change and Its Effect on Arid Regions
- 4- Regional Cooperation for Drought Mitigation
- 5- Drought Conscious Development Plan for Iran
- 6- Drought Frequency in Iran During the Last Three Decades

All ICID National Committees, especially from Asian Countries and members of the WG-IADWS are encouraged to participate in the workshop. Those interested can register by sending

their request to: IRNCID, No. 24, Shahrzaz Lane. Kargozar ST. Zafar Ave. Tehran, Iran. Tel: + 9821 – 2257348; Fax: + 9821 – 2272285; E-mail: [irncid@neda.net.ir](mailto:irncid@neda.net.ir) <http://www.irncid.org>.

#### **Translation of ICID Publication by Iranian YPF**

The members of the "Young Irrigation Professional Forum, YPF" under the supervision of the Iranian National Committee have translated the publication titled "How to Workout a Drought Mitigation Strategy", ICID Guideline authored by Prof. Dr. Laszlo Vermes and published by the German National Committee of ICID into Farsi. This book provides an overview on drought analysis, inventory of the harmful impacts and damages of drought, measures taken so far against harmful impacts of drought damages, means and methods of the complete fight against drought damages.

### **South Africa (SANCID)**

#### **New Office Bearers of SANCID**

The new Office Bearers of the South African National Committee (SANCID) with effect from 1 January 2003 are : Dr. G.R. Backeberg, Chairman ([backeberg@wrc.org.za](mailto:backeberg@wrc.org.za)), Mr. F.B. Reinders, Vice Chairman ([felixr@ingl.agric.za](mailto:felixr@ingl.agric.za)), Dr. S.S. Mkhize, Secretary ([sizwe@wrc.org.za](mailto:sizwe@wrc.org.za)), and Mr. F.P.J. van der Merwe, Treasurer ([francois@dwaf.gov.za](mailto:francois@dwaf.gov.za)). The contact address of the SANCID is - ARC-Institute for Agricultural Engineering, Private Bag X519, Silverton 0127, Republic of South Africa. Tel: (2712) 842 4000, Fax: (2712) 8040753.

### **Yugoslavia (YUGCID)**

#### **Yugoslavia Joins Membership**

Yugoslavia has joined ICID membership with effect from October 2002. The country has an irrigated area of 0.1 Mha, while 0.22 Mha area is protected by drainage and flood control works.

The contact coordinates of the Yugoslav National Committee (YUGCID) are: Mr. Petar Pantelic, President, Yugoslav Association on Drainage and Irrigation, 11000, Beograd, Kneza Milosa 7/11, Yugoslavia. E-mail: [dragovic@ifvcns.ns.ac.yu](mailto:dragovic@ifvcns.ns.ac.yu); [olja@srbijavode.com](mailto:olja@srbijavode.com).

We heartily welcome YUGCID to ICID family and look forward to their active participation.

## VISITORS TO ICID CENTRAL OFFICE

### ***Vice President André Musy visits Central Office***

Prof. André Musy, Vice President, ICID and Président, National Committee of Switzerland (CH-AGRID) visited Central Office on 7 January 2003. Several issues related to Constitutional Amendments, Special Committees, Text Delivery Service, Dialogue, Journal on Irrigation & Drainage, participation of ICID in 3rd WWF, MoU of ICID with EurAgEng and forthcoming international events of ICID were discussed in the meeting. VP Musy stressed on increased involvement of all the Vice Presidents in ICID's activities, specifically in their respective regions.

### ***Mr. Tom Franks, Member, BNC-ICID visits Central Office***

Mr. Tom Franks, Member of British National Committee (BNC-ICID) and Secretary of ICID's Permanent Committee for Technical Activities (PCTA) and Member of Working Group on Capacity Building, Training and Education (WG-CBTE) visited the Central Office, New Delhi on 5 February 2003. Mr. Franks was apprised of the preparations for the 3rd WWF, proposed programme of 54th IEC, progress

of various Task Forces etc. He informed that the WG-CBTE would organize a Workshop on Capacity Building at the 54th IEC scheduled to be held at Montpellier. He discussed the composition of Working Groups and offered suggestions for improvement so as to get better outputs from them. Mr. Franks visited the technical library and computer centre and also saw the ongoing additional construction at the Central Office.

### ***Dr. Daniel Zimmer, Executive Director, WWC visits the Central Office***

Dr. Daniel Zimmer (France), Executive Director, World Water Council (WWC); Joint Editor, ICID Journal and member of ICID's Working Group on Drainage (WG-DRG) visited the Central Office on 14 February 2003. He was apprised on the ICID's ongoing Country Policy Support Program (CPSP), Text Delivery Service (TDS), WWC meetings and various sessions to be held at 3rd WWF, Kyoto. Earlier, Dr. Zimmer met members of the Governing Council, New Delhi Centre of WWC (NDC-WWC) and also attended a brainstorming session on Interlinking of Indian Rivers organised by the NDC-WWC on 11 February 2003.

## INDIA DECIDES TO GO FOR MASSIVE INTER-BASIN TRANSFER OF WATERS

Spurred by severe droughts and faced with continued mismatch between needs and availability, in spite of countrywide efforts from mega to micro scale development in past, Government of India recently announced setting up of a High Level Task Force to prepare an action plan to achieve the objectives of a National Perspective for harnessing surplus waters across major river basin boundaries of this sub-continent. The perspective envisages construction of dams and diversion structures at selected locations to facilitate transfer of waters through some 30 links. Some links involve lifting of water through heights upto 120m. Some links will run North to South and a few in East-West direction in navigable open

canals and through a few tunnels. Flow carrying capacity of each link varies from 100 to 1500 m<sup>3</sup>/s. The pre-feasibility reports are completed for all the links, while preparation of feasibility reports is in progress. Presently the project is estimated to cost US\$112 billion.

Mr. Suresh P. Prabhu, a former Cabinet Minister of Power in Govt. of India heads the Task Force, while Dr. C.C. Patel a former Vice President of ICID is appointed as its Vice Chairman. Dr. C.D. Thatte, Secretary General, ICID will work as Member Secretary of the Task Force.

## WATER CENTRE INAUGURATED IN SYRIA

The Syrian Minister of Irrigation and the Japanese Ambassador to Damascus inaugurated the US\$1 million 'Water Information Centre' in Thawra, Tishrin, Syria. The Centre, established with the assistance of the Japanese International Cooperation Agency (JICA), will be the source for statistics on the seven water basins in Syria. As the first step in creating a network

for integrated water resources, a branch office will be established in every basin to handle water shortage and pollution issues based on accurate information. The Syrian Government expects to obtain an additional US\$10 million Japanese grant to supply to the Centre additional necessary equipments in the future. [Source: Hydropower and Dams, Issue Six, 2002]

### **INDIAN SCIENTIST WINS UN ENVIRONMENT PRIZE**

Dr. Ashok Khosla, has won 2002 United Nations Environment Programme (UNEP) Sasakawa Environment Prize. The prize, worth \$200,000 was awarded to Dr. Khosla for his work in demonstrating the value of sustainable development through the teaching and fostering of environmentally friendly and commercially viable technologies. These range from village power plants which use agricultural wastes as fuel to mini-factories that recycle paper to local enterprises that make low-cost roofing tiles. The prize was formally presented to Dr. Khosla at New York on 19 November 2002. [Source: UN Weekly Newsletter, Vol.57 No.44]

### **NEW ASSIGNMENT Change of Designation and Address of Ir. Paul van Hofwegen**

Since 1st February 2003, Ir. Paul J.M. van Hofwegen, Joint Editor of ICID Journal has started functioning at the head office of the World Water Council (WWC). His new contact details are as follows:

Ir. Paul J.M. van Hofwegen  
Joint Editor, ICID Journal  
World Water Council  
'Les Docks de la Joliette' Atrium 10.3  
10, Place de la Joliette  
13304 Marseille Cedex 2, FRANCE  
Tel: +33 04 91994100/4118 (direct)  
Fax: +33 04 91994101  
E-mail: p.vanhofwegen@worldwatercouncil.org

We wish him all the best in the new endeavour.

### **NEW WAYS OF USING SALINE PROCESS WATER**

Oil companies spend millions of dollars disposing of water produced during the oil production process. To dispose of this waste, or saline process water, high pressure pumps inject the water through deep injection wells into underground rock strata up to 3 km below the surface. Not only this is very expensive, but the wastewater contains oil and heavy metals, which contaminate the underground strata.

Now, a new venture in Biosaline agriculture could change all this. An oil company in Oman, Petroleum Development Oman (PDO), is working with International Center for Biosaline Agriculture (ICBA) to biologically clean this water and use it to irrigate crops. Using the water for Biosaline Agriculture would also make a contribution towards conserving the environment and provide the oil company with carbon credits

to offset carbon dioxide emissions. The PDO had already established reed beds to treat saline process water and remove oil and heavy metals before using the water for agriculture. After draining through the reed beds, the process water was expected to be more saline but pollutant-free. However, ICBA scientists found that the reeds were unhealthy and the water still contained a significant amount of oil and some residual heavy metals. ICBA scientists were able to make recommendations, which improved the functioning of the reed beds. The oil-in-water content dropped from over 100 parts per million to less than 15 parts per million and the water quality improved, making it acceptable for use in Biosaline Agriculture. [Source: Biosalinity News, ICBA, Vol.3, No.2, October 2002]

### **INTERNATIONAL CONFERENCE ON ECO-RESTORATION 23-30 SEPTEMBER 2003, INDIA**

The International Conference on Eco-Restoration will be held from 23-30 September 2003 in Dehradun and New Delhi from 23-30 September 2003. The Conference will be organized by National Institute of Ecology jointly with Indian Council of Forestry Research and Education (Dehradun) and in association with Planning Commission (India); Society for Ecological Restoration (USA), Indian Chapter, International Society for Tropical Ecology, and Indian Society for Agricultural Sciences and other organizations.

The main objectives of the Conference are as follows:

1. To review the existing knowledge on ecological, socio-economic and environmental dimensions of degradation of land and water resources, especially in the developing countries;
2. To document eco-restoration approaches with case studies in different countries
3. To review the impacts of government policies on eco-restoration of degraded environments;

4. To provide a sound scientific basis for developing appropriate policy framework for eco-restoration in developing countries
5. To identify areas of interdisciplinary research relevant to eco-restoration of land and water resources.

Following is the list of major topics to be discussed at the Conference. The emphasis shall be laid on the ecological, socio-economic and policy dimensions:

1. Land and Water Resources: Degradation and Restoration
  - (a) Spatio-temporal trends: descriptive accounts and mathematical models
  - (b) Driving factors and socio-economic-environmental consequences
  - (c) Consequences of degradation for biota
  - (d) Global Issues such as Bio-diversity and Climate Change
2. Sustainable agriculture and Agroforestry
3. Sustainable production forestry and Joint forest management
4. Restoration of mined habitats
5. Restoration related to multipurpose river valley projects
6. Hydrological balance in mountain ecosystems
7. Restoration of Lakes
8. Restoration of Rivers
9. Restoration of Wetlands
10. Mangroves and other coastal ecosystems
11. Ground water resources
12. Watershed as a landscape unit for restoration
13. Eco-restoration : multi-disciplinarity and scalar considerations
14. Combining environment, economic and social imperatives of development:
15. Combining local, national, regional and global development goals and priorities

Comprehensive Case Studies on eco-restoration will be of particular interest. Theoretical contributions are unlikely to

be considered. However, participation without contribution will be welcome.

Researchers from all countries are invited to contribute papers for presentation at the Conference. Contributions should be original in nature and should not have been published or presented at another conference earlier, or be under consideration for publication elsewhere.

The Abstracts (an Extended Summary) of papers to be presented at the Conference must be submitted before 1 June 2003. It should not exceed 400 words. It should be informative and should reflect the contents of the contribution. Statements reflecting common knowledge should not be made.

The abstracts should preferably be submitted by EMAIL only at the address [conf@nieindia.org](mailto:conf@nieindia.org). It may be sent by post (two hard copies) only if email facility is not available. It should be prepared using Word Perfect 5.1 or 6.0 (for Windows) or MS-Word 6.0. Higher versions should not be used.

The Abstracts will be evaluated by the Scientific Committee. They will be judged for their brevity, clarity of expression and the scientific content. Acceptance of the Abstract shall be communicated by email to the corresponding author after 1 July 2003. This will indicate whether the contribution is accepted for ORAL or POSTER Presentation.

A formal letter of invitation will be sent to the contributors whose abstracts have been accepted for presentation. However, such invitations are meant only to raise funds and to obtain visa for travel to India. The invitation is in no way a commitment on the part of the organizers to provide any financial support.

The contributions to the Conference shall be published within 6 months after the Conference, in several peer reviewed international journals and edited books. Editors of major journals are being contacted for the purpose. All participants will, therefore, be required to submit the full text of their contribution before 31 August 2003.

For more details, please visit Conference website: <http://www.nieindia.org/conferences.htm>.

**CONFERENCE ON INFORMATION TO SUPPORT  
SUSTAINABLE WATER MANAGEMENT : FROM  
LOCAL TO GLOBAL LEVELS, 15-18 SEPTEMBER 2003  
ST. MICHIELSGESTEL, THE NETHERLANDS**

The Conference on «Information to Support Sustainable Water Management: From Local to Global Levels» will be organized by Institute for Inland Water Management and Waste Water

Treatment (RIZA), Netherlands and National Institute for Coastal and Marine Management (RIKZ), Netherlands in cooperation with UNESCO – World Water Assessment

Programme, France and International Water Assessment Centre (IWAC), Netherlands. The Conference will take place at «de Ruwenberg», St. Michielsgestel, The Netherlands, from 15 to 18 September 2003.

For more information, please contact: Conference Secretariat Monitoring Tailor-Made IV, IWAC, P.O. Box 17, 8200 AA Lelystad, The Netherlands. Tel.: +31 320 298 894; Fax: +31 320 297 642; E-mail: [mtm@riza.rws.minvenw.nl](mailto:mtm@riza.rws.minvenw.nl); Internet: <http://www.mtm-conference.nl>.

**CENTRAL-ASIAN SCIENTIFIC-APPLIED CONFERENCE ON  
“ECOLOGICAL SUSTAINABILITY AND ADVANCED  
APPROACHES TO WATER RESOURCES MANAGEMENT  
IN THE ARAL SEA BASIN”  
5-7 MAY 2003, ALMATY, KAZAKHSTAN**

The Central-Asian Scientific-Applied Conference on «Ecological Sustainability and Advanced Approaches to Water Resources Management in the Aral Sea Basin» and IV International Exhibition of Water Technologies «Water & Eco' 2003» will be held from 5-7 May 2003 at Kazakh Business Centre, Almaty in Kazakhstan. The Conference will include plenary session and section meetings on Water Resources Management Organizing;

Technical and Economic Perfection of Water Resources Management; and Ecological Aspects of Water Resources Use and Management.

For further information, please contact: «Atakent-EXPO», 42, Timiryazev Str., Almaty, 480057 Kazakhstan. Tel: (3272) 41 68 03, 47 66 69; Fax: (3272) 50 96 08; E-mail: [expo@netel.kz](mailto:expo@netel.kz).

**INTERNATIONAL WORKSHOP ON  
INTEGRATED WATER RESOURCES MANAGEMENT  
7-11 APRIL 2003, DENVER, COLORADO, USA**

The Integrated Water Resources Management International Workshop will be presented by U.S. Department of the Interior Bureau of Reclamation and will be held from 7-11 April 2003 at Denver, Colorado, USA. The workshop will review and analyze recent developments in water resources management and tools. The objectives of the workshop are to provide an overview of system-wide planning and management practices; to evaluate inter-organizational cooperation and to demonstrate actual procedures, facilities and techniques used in integrated water resources management. The workshop will be

followed by an optional 3-day study tour around Colorado. The workshop is specifically designed for policy-makers, managers and administrators who are involved in the planning, operation, maintenance and management of water distribution systems in their countries.

For further information, please contact: U.S. Bureau of Reclamation, International Affairs-Denver, D-2100, P.O. Box 25007, Denver, Colorado 80225, USA. Tel: (303) 445-2127; Fax: (303) 445-6322; E-mail: [Lprincipe@do.usbr.gov](mailto:Lprincipe@do.usbr.gov); Website: <http://www.usbr.gov>.

**DAM SAFETY, OPERATION AND MAINTENANCE  
INTERNATIONAL TECHNICAL SEMINAR AND STUDY TOUR  
15-25 SEPTEMBER 2003, DENVER, COLORADO, USA**

The International Technical Seminar on «Dam Safety, Operation and Maintenance» and Study Tour will be held from 15-25 September 2003 at Denver, Colorado, USA. The seminar will be organised by U.S. Department of the Interior Bureau of Reclamation. The objectives of the seminar are to provide an overview of the institutional and technical requirements

of a successful dam safety, operation and maintenance program; provide a model for establishing or improving a dam safety program; increase the technical capabilities of those responsible for dam safety; and present procedures and demonstrations, through site visits, for conducting dam safety examinations and evaluations.

For further information, please contact: International Affairs Team, D-2100, Bureau of Reclamation, P.O. Box 25007, Denver, Colorado 80225, USA. Tel: (303) 445 2127;

Fax: (303) 445 6322; E-mail: [Lprincipe@do.usbr.gov](mailto:Lprincipe@do.usbr.gov); Website: [www.usbr.gov](http://www.usbr.gov).

**THE ALTERNATIVE WATER FORUM  
UNIVERSITY OF BRADFORD, UK, 1-2 MAY 2003**

The 2003 has been designated the International Year of Freshwater by the United Nations. The widespread interest in managing water resources is shown by the number of recent and forthcoming international conferences, including the Bonn Freshwater Conference, the Johannesburg Summit and the 3rd World Water Forum in Kyoto, March 2003.

Key themes of these conferences include: the need to proactively manage a complex resource, the empowering possibilities of a people-centred approach and the imperative to deal with scarcity and competition.

Much work is going into the generation of a common “vision” within the water community, and this is reflected in the common policy directions of national and international agencies. However, such apparent consensus can occlude alternative views and lead to the muting of dissident voice.

This purpose of this workshop as an «Alternative Water Forum» is to question some of the taken-for-granted

themes and assumptions of dominant policies, and to unpack other perspectives. Sessions in the workshop will draw on emerging research and recent field practice to extend and deepen our understanding of the complex dynamics of water management.

The Workshop is aimed at both academics and practitioners in the water sector and aims to provide space for a positive dialogue between theory and practice. The workshop is being organised by the Livelihoods Research Cluster at the Bradford Centre for International Development. The Workshops Themes include : Reproducing exclusion? Poverty, gender and demand led approaches; Managing water wisely: the mantra of water governance; and Dealing with scarcity: The political economy of water.

For further information, please contact: The Alternative Water Forum, Bradford Centre for International Development, University of Bradford, Bradford BD7 1DP. Fax: 01274-235280, E-mail: [t.r.franks@hradford.ac.uk](mailto:t.r.franks@hradford.ac.uk).

**2<sup>ND</sup> INTERNATIONAL COURSE ON  
DIAGNOSING IRRIGATION AND DRAINAGE  
PRACTICES WITH SATELLITE REMOTE SENSING  
28 APRIL TO 16 MAY 2003  
ENSCHDEDE, THE NETHERLANDS**

The objective of the Course is to inform agricultural water managers on the possibilities to use remote sensing as a tool in irrigation management decision making and on the costs related to applying this technique. ITC – together with ALTERRA-ILRI - will conduct a course targeting at updating water managers, policy makers and geo-information experts on the potentialities of satellite remote sensing for irrigation management. Water resources can be better managed with information systems, and remote sensing can be an important low-cost tool. The core of the course module describes the data needed for modern irrigation management. The method on how remote sensing can be used to improve the accuracy of the needed

information and lower the cost of data measurement will be discussed.

Information related to technical aspects of the course can be obtained from Wim Bastiaanssen [bastiaanssen@itc.nl](mailto:bastiaanssen@itc.nl)). Queries related to organisational aspects of the course can be obtained through Ms. Ineke Theussing ([theussing@itc.nl](mailto:theussing@itc.nl)).

Further information can also be had from : ITC, Hengelosestraat 99, P.O. Box 6, 7500 AA Enschede, The Netherlands. Phone: 0031-53-4874444, Fax: 0031-53-4874336 or Alterra-ILRI, P.O.Box 47, 6700 AA Wageningen, The Netherlands.

## **INTERNATIONAL MEETING ON ADVANCES IN DRIP / MICRO IRRIGATION**

An International Meeting on Advances in Drip/ Micro Irrigation (D/MI) was held in Tenerife, Canary Islands from 2-5 December 2002. The meeting was attended by over 125 professionals from Spain and other countries. Prof. Jack Keller, Utah State University, USA, delivered the opening keynote lecture on "Evolution of Drip/Micro-irrigation: Traditional and Non-traditional Uses", followed by key presentations of Prof. R. Allen, Dr. D. Suarez, Prof. I-pai Wu, Dr. Charles M. Burt, Dr. Claude J. Phene, Dr. Freddie Lamm from USA, and Prof. Benami Bravdo and Prof. Israela Ravina from Israel. The meeting discussed agronomic aspects, hydraulic design and evaluation, subsurface drip irrigation and new trends in micro-irrigation. The meeting was organized by the Canary Institute for Agricultural Research (ICIA) and College of

Agricultural Engineering, Canary Islands. An exhibition of latest micro-irrigation equipments and materials was held on the occasion in which several Spanish manufacturers/dealers participated.

A technical field tour to the Teide mountain foothills to see Spain's prime tomato and banana farms grown under net greenhouses, using latest and sophisticated micro-irrigation and quality control technologies was arranged. For more information, please contact Prof. Jesus Rodrigo, La Laguna University, E-mail: Jrodrigo@ull.es or Mr. Jose L. Santana, ICIA, E-mail: jlsantana@icia.es. (Source: Communitation from Dr. Jose A. Ortiz Fdz.-Urrutia, Executive Secretary, CERYD, Spain).

## **WORKSHOP ON INTEGRATED WATER RESOURCES MANAGEMENT FOR SOUTH AND SOUTHEAST ASIA**

A Workshop on Integrated Water Resources Management for South and Southeast Asia was held at Asian Institute of Technology (AIT), Bangkok from 2-4 December 2002. The objective of the workshop was to review the status of Integrated Water Resource Management (IWRM) in these regions. The workshop was attended by leading experts and policy makers from Cambodia, Finland, India, Japan, Malaysia, Mexico, Nepal, Thailand, and Vietnam. Ir. Keizrul bin Abdullah, President, ICID made presentation on "An Institutional set up for Integrated River Basin Management (IRBM) in the Klang river basin" and Dr. C.D. Thatte, Secretary General, ICID presented his paper

on "Status of IWRM for Sabarmati river basin". The experts endeavoured to define IWRM in the case specific context and highlighted aspects requiring integration, by whom and through what process, was the process successful, partially successful or failure and what were the reasons and constraints and how can they be overcome.

The workshop was supported by Finnish International Development Agency (FINNIDA). For further details, please contact Dr. Asit K. Biswas, President, Third World Centre for Water Management, Mexico, E-mail: akbiswas@att.net.mx.

## **INTERNATIONAL CONFERENCE ON WATER RESOURCE DEVELOPMENT - FLOOD CONTROL, IRRIGATION, DRINKING WATER, WATERWAYS, ELECTRIC POWER AND ITS TRANSMISSION SYSTEM 4-6 FEBRUARY, 2004 NEW DELHI, INDIA**

The Indian Dams Society, The Hydro Power Association of India in association with Council of Power Utilities, India are organizing an International Conference on "Water Resource Development - Flood Control, Irrigation, Drinking Water, Waterways, Electric Power and its Transmission System - 4-6 February 2004 at Hotel Hyatt Regency, New Delhi, India. The major objectives of this conference is to provide a forum for sharing of experiences of senior utility engineers, water resources development, planners, managers, consultants, academicians, environmentalists, user etc. on the theme of

Water Resource Development -Flood Control, Irrigation, Drinking water, Waterways, Electric Power and its Transmission System.

A number of lead papers on topics indicated in the Information Bulletin of the conference are expected to be presented by eminent experts from India and abroad. The conference is expected to be attended by a large number of delegates from different organizations associated with water development projects, flood control, irrigation, drinking water, water ways,

hydro power development projects, environmental aspects and power transmission system etc. from all over the world.

The full length papers received by 31st October, 2003 and accepted by Technical Committee for presentation in the Conference, will be included in the proceedings. The conference also provides opportunity for sponsoring organizations companies to promote their produce/service to

a focused audience. The details of sponsorship fee and facilities allowed to each category of sponsors are given in the Information Bulletin. Those Desirous of attending the conference as participants, as sponsors or contributing papers or inserting advertisement in the Proceeding Book volume may give their consent at the earliest. For more details, please visit: <http://www.indiapwer.org/http://www.india-power.org> or email: [cvj@vsnl.com](mailto:cvj@vsnl.com)

## PUBLICATION ON BIO-DRAINAGE

Bio-drainage, an efficient anti-waterlogging and anti-salinity measure has been sparingly adopted presuming it to be a second preference. A recent publication (ISBN 0-07-040231:333 - Tata McGraw Hill Publishing Co. Ltd.; 7, West Patel Nagar, New Delhi 110018 India; E-mail@mcgrawhill.com) authored by Mr. A.S. Kapoor, The book depicts the ease in adoption of Bio-drainage. The author discusses the existence of salts in soil and water absorbing capacity of Minerals by Plants to bring out easy-to-follow design and planning principles. Findings from a case study under field conditions have been compared with other available options along with the ramification of bio-

drainage on Agro-forestry and Silviculture and the management aspects.

The book provides ample clues for resort to bio-drainage, its effectiveness, and the cost structure, for arresting waterlogging and soil salinity. The prevailing conditions around the globe vis-à-vis the status of Irrigated Agriculture are described to highlight groundwater salinity, plant physiology, uptake of water and minerals by the crops and trees. Farmers loose precious cultivable land to the twin menace when other attempts for reclaiming the land undergo many bottlenecks. The publication is running in about 350 pages.

## COUNTRY PROFILE - ITALY

### *Physiography and People*

Italy, with a surface area of 301,341 km<sup>2</sup>, is situated in Southern Europe at a central location in the Mediterranean basin with a high latitudinal extension, and linked to central Europe through the Alps mountains and also to the Sicily isle lying in front of the African coast. The country is bordered by France in North East, by Switzerland and Austria in North and by Slovenia in North East.

The country has four main land regions with a wide physiographical variation as; the North the Alps mountains chain, extending from the west to east (including the highest peak in Europe: Monte Bianco); the South of the Alps, the lowland of the large basin of the Po river and its 141 tributary streams of first and second order; the peninsula, 800 km long, including the central Apennine mountains running from North to South and the coastline (7,500 km long) bordering the Adriatic sea in the East, Ionio sea in the South-East and Tyrrhenian sea in the West; the two wide isles Sicily and Sardinia located respectively at the South and the West of the peninsula.

The Alps act as a protection barrier against the cold wind blowing from the North, giving rise to a climatic pattern different from that of Central Europe.

Rome, is the largest city situated in the central part of the country. The official language is the Italian.

The population of the Country is 57,680,900 with a density of 190 inhabitants per km<sup>2</sup>; the population growth over the last few years has been almost entirely the results of foreign immigration, while the size of the Italian population has decreased. The population engaged in agriculture is decreasing year by year.

The urbanisation process is progressively absorbing land in Italy. There is a tendency for the total amount of unproductive land to be absorbed further by the spread of built-up areas and infrastructure. The areas of agricultural land, on the other hand, has decreased by about 2.7 million hectares (-15.3%) since 1970 (almost 10% of national territory). Many anthropic factors such as deforestation, fires, careless agricultural activities along the slopes, development of settlements and road network along the slope increases the soil erosion risk.

Out of a total land surface area of about 30 million hectares, only 23% is lowland in the North, 18% in the South and 9% in Central Italy. As a whole, Italy is still geologically a relatively new land, nearly all its territory has emerged from the more recent orogenetic upheaval (the alpine upheaval), whose movements,

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although weaker, spread into the axis of the Central and Southern Apennines.

The GNP was 350,220 billions of dollars. The ratio, country deficit/GNP is decreasing by 2.7% and the inflation has decreased to 1.5%. The per capita GDP is \$20,170.

There are four major river basins in Italy: Po, Tevere, Adige, Arno, etc. In the North East of the country, the rivers Adige, Brenta, Piave, Tagliamento and Isonzo from the Alps flow into the Adriatic sea. From the Central Apennines, the flows of the rivers Reno, Metauro, Tronto reach the Adriatic sea while those of the Arno, Tevere, Volturno, Garigliano, Sele discharge into the Tyrrhenian sea.

From Southern Apennines, the streams Pescara, Sangro, Biferno, Fortore and Ofanto are flow into the Adriatic sea while Bradano, Basento, Agri reach into the Ionic sea.

In the Sicily isle, the Alcantara river is reaches the Ionic sea while in the Sardinia isle the Flumendosa river flows from the northern region into the Tyrrhenian sea.

### ***Climate***

The climate varies widely among the several Italian regions, characterised by extremely variable conditions across more than 10 degrees of latitude between the Alps and Mediterranean Sea and ranging; semi-arid Southern area (precipitation ranging over 450-600 mm/year and average temperature of 18°C), sub-humid conditions (500-800 mm/year and 15°C) in the Northern plain, and humid condition (800-1530 mm/year and 13°C) on the Alps and Apennine mountains.

A wide range of climate results in differences in water resources availability. Southern areas of the peninsula, such as Apulia, as well as isles of Sicily, Sardinia and some regions in the Centre-North are sometimes subject to serious shortages of water supply for various uses and in particular for drinking purposes. Other Southern coastline areas located in the Campanian - Lucanian areas normally receive adequate amount of rainfall which in conjunction with carbonate aquifers, provides sufficient water availability.

Italian climate is characterised by a spatial highly variable precipitation, concentrated over short periods of the year (mainly spring and autumn, by a large inter-annual variability and by frequent extreme events such as floods and droughts).

Rainfall regime greatly depends on the orography and latitude, more than 1000 mm/year well distributed over the year, are recorded in northern plain - and up to

3000 mm/year on the Alps - whereas less than 400 mm/year, mainly concentrated in autumn-winter, are recorded in Southern regions.

Due to the particular position of the peninsula, the Italian climate appears very responsive to the influences of both global changes and human action. Significant aspects of the global and regional changes are: increase of the sea level; reduction of glaciated areas; increase of climate variability; increase of evaporation process; extension of the urban heat isles: growing frequency of very concentrated rainfall episodes. All these conditions increase the risk of land degradation, salinisation and deterioration of soil structure favouring frequent slope processes - from superficial erosion to mass movement - with heavy repercussion on flood phenomena in the valley and plain areas. The large diffusion of marked geomorphologic and hydrologic hazards (earthquakes, volcanic activity in central and southern parts of the peninsula) is essentially tied to the geologic and geomorphologic complexity of the territory.

### ***Agriculture***

Out of the total surface area, almost two thirds (22 millions hectares) is farm land with 68% of this (15 million hectares) in use for agricultural purposes. Italy is characterised by variations in land use across the areas considered with an evolution that has reflected, since ancient times, the natural distribution of water and which has in itself had a great impact on water resources. The main urban agglomerations in the central and northern parts of the country are located beside, or in the vicinity of rivers which supply a range of needs including agriculture, handicraft and sometimes transportation. The increase in the population and the need to protect riverside settlements has necessitated the construction of large hydraulic works for flood control river training and diversion, and large reclamation schemes that still pose challenge to the natural regime of water.

In southern regions and in the larger islands the shortage of surface water has led to the compulsory development of concentrated dwelling areas with high population density. These are located so as to gain the best possible advantage from local springs and rely on the supply of rainwater stored in domestic sumps.

Since the end of the Second World War Italy has undergone a substantial economic transformation involving the growth of the industrial sector to the detriment of agriculture and favouring a further increase in the size of large urban agglomerations. In particular the proportion of employment in the agricultural sector decreased from 45% of the total labour force in 1951

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to 19% in 1971 while that of the industrial sector increased from 22% to 43%. At the same time there was a massive migration of approximately 15 million people to the industrialized towns of the north-west mainly from the southern regions and the islands.

This change has occurred in such a rapid and unplanned fashion that it has been impossible to ensure rational land use in accordance with the availability of natural resources, particularly water, and with the goals of harmonised social and economic improvement.

This has aggravated the conflict among the various users with the consequent deterioration of both land and water resources. The active population of the countryside has declined while the urban agglomerations have become an unwelcome model of bad living conditions.

In the Southern regions rainfall shortages have exacerbated an endemic incapability of meeting some essential water demands including that of potable and domestic use, especially during the summer, when some large urban communities can no longer rely on the volumes of surface water stored in reservoirs or in replenished aquifers.

All these phenomena are relevant to land use since the uncontrolled urban development of recent years has increased water demand in restricted area and in a comparatively short space of time. The difficulty of meeting such a demand from the available resources seems so far to have had very little effect on the actual trend of urban development and has resulted in the need to harness new resources resulting in an aggravation of the conflict among users.

Agriculture has suffered greatly from water shortages as several reservoirs, especially in southern regions, have remained partially empty for a long period of time. Such an unexpected event has aroused justified criticism of a planning activity that, based on the possibility of storing rainwater, had wrought deep changes in the cultivation patterns and favoured new settlements in areas where the natural conditions were not suitable for normal living conditions.

It is estimated that 2,470,600 farms exist in the country; 581,100 of them are managed by women. The average surface of a farm is 5.6 ha.

In 1997, there were 2,302,264 families on Italian farms, numbering 5,804,657 members. People have been leaving the agricultural sector at a higher rate than in the past.

In 1997, 96.5% of Italian farms were managed directly by the farmer, in 80% of these, the farmer managed his farm with the help of family labour only.

### ***Irrigation, Drainage and Flood Control***

The average precipitation depth is about one meter, corresponding to approximately  $10^9$  m<sup>3</sup> of water received by the whole land in Italy. Rainfall is extremely variable in the Country, both spatially and temporally.

The surface flow is about  $155 \times 10^9$  m<sup>3</sup> per year. Not all of this water is directly available since part of it belongs to bodies that are difficult to exploit. Potential water availability has been estimated as about  $110 \times 10^9$  m<sup>3</sup>.

Considering the existent water storages systems in Italy (dams, reservoirs, etc.), the total exploitable water resources in Italy are estimated at approximately  $40 \times 10^9$  m<sup>3</sup> per year.

According to a recent study, it has been estimated that the total amount of groundwater available in Italy is about  $40 \times 10^9$  m<sup>3</sup> per year, where  $30 \times 10^9$  m<sup>3</sup> are relative to the large regional aquifers, and the remaining  $10 \times 10^9$  m<sup>3</sup> contribute to local aquifers balance. About 30% of the latter are related to spring outflow. The global national needs for water can be roughly estimated as  $50 \times 10^9$  m<sup>3</sup> per year. Most of this volume is devoted to agriculture ( $30 \times 10^9$  m<sup>3</sup>), the remaining is used by industry ( $14.2 \times 10^9$  m<sup>3</sup>) and as municipal water supply ( $5.8 \times 10^9$  m<sup>3</sup>).

**Table : Water Demand in Italy**

Water Demand	Volume			
	10 <sup>9</sup> m <sup>3</sup>		%	
Agriculture	30.0		60.0	
Industry	14.2		28.4	
Civil Use	5.8		11.6	
• Domestic		3.95		68.0
• Non domestic		0.52		9.0
• Public		0.46		8.0
• Industrial		0.87		15.0
Total	50.0	5.80	100.0	100.0

The annual amount of water used by the municipal water supply systems in Italy is about  $5.8 \times 10^9$  m<sup>3</sup>, for about 300 liters/person per day. The water for civil use is obtained by groundwater (50%), springs (40%) and surface water (10%). The quantity of water used for agricultural purposes can be estimated at about  $30 \times 10^9$  m<sup>3</sup> per year, differing from North (78%), to the Center (5.5%) and to the South (16.5%). The main source of irrigation water is surfaced water from

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rivers (67%), followed by reservoirs (6%) and groundwater (27%).

Drought has also affected groundwater in the Northern lowlands with aquifers, largely depleted by domestic use and by irrigation, displayed an unusual lowering of the water table, which lasted long after the period of scarcity was over. In the Central and Southern regions the yield of many springs have greatly decreased.

Hydroelectricity has been badly affected by drought. Generating plant equipped with reservoirs was not only unable to store the required amount of water, but also suffered a reduction of power as an effect of the lower head. In such conditions the pumped storage, characteristic of the most technologically advanced plants, was able to make only a very small contribution. Run-of-plants suffered from shortage of water and low river level, and likewise did the thermal plants, because of the unavailability of cooling water.

The impact of water shortage was very heavy on ecology and preservation of aquatic life, as water withdrawal from bodies was particularly intensive in the absence of other resources. Low flow in a river meant poor dilution of the discharged pollutants, and thus a risk of harming aquatic life. This kind of damage was very serious and persisted long after the emergency had passed.

As shown by the 1988 - 1990 event, a drought, with its associated shortage of water and severe effect on water resources management can deeply impact the economy of an entire region. As such events are likely to be repeated, the responsible Authority should work out rational management criteria to set up suitable conditions for coping with the effects of a foreseeable drought and reducing the damage to the water related activities.

In Italy 2,711,000 hectares are irrigated in 1990 whereas 3,882,000 hectares are potentially irrigable.

In 1944, the ANBI (National Associations for reclamation, irrigation and rural development) was established. ANBI included Consortia for the reclamation, Consortia and agencies for the rural development and Consortia for water management.

The Government has been financing structural works for the reclamation of marsh and ponds, for reforestation,

for the control of mountain streams, for strengthening slopes and dunes, for flood control and structures required for rural development. Land owners are obliged to belong to Consortia and are called in to bear the costs of the services provided by Consortia according to the received benefits. The association operates within the public utility system and is the type of enterprise that now predominates in the irrigation districts.

The Consortia collects sufficient funds to meet the annual charges for the operation and maintenance as required to deliver water to users and to maintain the systems in good operational shape.

The equipped surface served in 1998 with water delivered by Consortia is 2,730,601 hectares as shown below:

**Table : Equipped Surface Served by Consortia**

Region	Equipped Surface ha
North	2,036,508
Centre	127,322
South and Isles	566,771
<b>Italy</b>	<b>2,730,601</b>

A large number of works are managed by Consortia.

### ***ICID and Italy***

Italy joined ICID in 1950 as a founder member and has been actively associated with ICID activities in Italy as well as at the international level. The 9<sup>th</sup> and 46<sup>th</sup> IEC Meetings were held in Rome, Italy in 1964 and 1995 respectively. Mr. F. Curato, Prof. M. Botallico and Prof. C. Fasso were Vice Presidents of ICID during the terms 1955-58, 1969-72 and 1993-1996. Prof. Fasso is the Chairman of Permanent Committee for Technical Activities from 1999 till date. At present, Dr. E.V. Scarascia is the Secretary-General of Italian National Committee of ICID (ITAL-ICID). ITAL-ICID is actively represented in 25 workbodies.

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## **FORTHCOMING EVENTS**

### ***Future ICID Congresses***

19th International Congress on Irrigation and Drainage, Beijing, People's Republic of China, 10-18 September 2005. Contact :

Chinese National Committee on Irrigation and Drainage, No. 20 West Chegongzhuang Road, Beijing 100044, People's Republic of China. Tel : +86 10 6841 5522 / 6841 6506; Fax : +86 10 6845 1169. E-mail : cncid@iwhr.net.

20th International Congress on Irrigation and Drainage, Lahore, Pakistan, 2008. Contact: Mr. Illahi B. Sheikh, Secretary, Pakistan National Committee on Irrigation and Drainage (PANCID), Chairman, Federal Flood Commission, Office of the Chief Engineering Adviser, 16-D (East) Safdar Mansion, Blue Area, Islamabad, Pakistan. Tel: +92 51 920 1705; Fax: +92 51 922 1806; E-mail: pakfloodcommission@hotmail.com.

### ***ICID Council Meetings***

54th IEC meeting, Montpellier, France, 14-19 September 2003. Contact: Dr. Thierry Rieu, Secrétaire Général, Association Française pour l'Etude des Irrigations et du Drainage (AFEID), 361, rue Jean-François Breton, F-34090, Montpellier, France. Tel: 33.4.67.04.63.16, Fax: 33.4.67.04.37.85, E-mail: afeid@cemagref.fr, Website: <http://afeid.montpellier.cemagref.fr>.

55th IEC meeting, Russia, 1-8 September 2004. Contact : Ms. Irena G. Bondarik, Secretary General, Russian National Committee on Irrigation and Drainage, VNIIGiM, room 601B, B.Akademicheskaya ul., 44, 155129, Moscow, Russia. Tel/Fax: 7-095-15394-06, E-mail: ibond@online.ru; rusiptrid@mail.ru.

56th IEC meeting, Beijing, People's Republic of China, 10-18 September 2005. Contact : Chinese National Committee on Irrigation and Drainage, No. 20 West Chegongzhuang Road, Beijing 100044, People's Republic of China. Tel : +86 10 6841 5522 / 6841 6506; Fax : +86 10 6845 1169. E-mail : cncid@iwhr.net.

57th IEC meeting, 2006, Kuala Lumpur, Malaysia. Contact : Mr. Mohd. Azhari bin Ghazali, Secretary/Treasurer, Malaysian National Committee on Irrigation and Drainage (MANCID), Director, Planning and Evaluation Division, Department of Irrigation and Drainage, Jalan Sultan Salahuddin, 50626 Kuala Lumpur, Malaysia. Tel : +60 3 292 8384; Fax : +60 3 291 1082; E-mail : jps04@pop.moa.my.

58th IEC Meeting, 2007, Sacramento, USA. Contact: Mr. Larry D. Stephens, Executive Vice President, U.S. National Committee on Irrigation and Drainage (USCID), 1616 Seventeenth Street, Suite 483, Denver, CO 80202, USA. Tel: +1 303 628 5430; Fax: +1 303 628 5431; E-mail: stephens@uscid.org; Website: [www.uscid.org](http://www.uscid.org).

59th IEC Meeting, 2008, Lahore, Pakistan. Contact: Mr. Illahi B. Sheikh, Secretary, Pakistan National Committee on Irrigation and Drainage (PANCID), Chairman, Federal Flood Commission, Office of the Chief Engineering Adviser, 16-D (East) Safdar Mansion, Blue Area, Islamabad, Pakistan. Tel: +92 51 920 1705; Fax: +92 51 922 1806; E-mail: pakfloodcommission@hotmail.com.

60th IEC Meeting, Abuja, Nigeria. Contact: Engr. I.K. Musa, Director (Irrigation and Drainage), Chairman, Nigerian National Committee of ICID (NINCID), Federal Ministry of Water Resources and Rural Development, PMB 159, Garki, Area 1, Abuja, Nigeria. Tel: +234 9 234 2910; Fax: +234 9 234 3035; E-mail: ikmusa@rosecom.net; info@nincid.com.

### ***ICID Regional Conferences***

20th European Regional Conference on Irrigation and Drainage, 14-19 September 2003, Montpellier, France. Contact: Dr. Thierry

Rieu, Secrétaire Général, Association Française pour l'Etude des Irrigations et du Drainage (AFEID), 361, rue Jean-François Breton, F-34090, Montpellier, France. Tel: 33.4.67.04.63.16, Fax: 33.4.67.04.37.85, E-mail: afeid@cemagref.fr, Website: <http://afeid.montpellier.cemagref.fr>.

2nd Asian Regional Conference, March 2004, Maoma, Echuca, Australia. Contact: Mr. John Mapson, Secretary/Treasurer, Australian National Committee, ICID (ANCID), Manager Water Services, Goulburn-Murray Water, P.O. Box 165, Tutura Vic 3616, Tel : +61 3 5833 5515, Fax : +61 3 5833 5502, E-Mail : johnmap@gmwwater.com.au, WWW : <http://www.ancid.org.au>.

The Interregional Conference on "Food Production and Water: Social and Economic Issues of Irrigation and Drainage", 1-8 September 2004, Moscow, Russia. Contact : Ms. Irena G. Bondarik, Secretary General, Russian National Committee on Irrigation and Drainage, VNIIGiM, room 601B, B.Akademicheskaya ul., 44, 155129, Moscow, Russia. Tel/Fax: 7-095-15394-06, E-mail: ibond@online.ru; rusiptrid@mail.ru.

1st African Regional Conference, September 2004, Cairo, Egypt. Contact : Eng. Hussien El-Atfy, Secretary, Egyptian National Committee on Irrigation and Drainage (ENCID), Ministry of Public Works and Water Resources, El-Shawatie Building, P.O. Box 86, Shoubra El-Khaima, Postal Code 13411, Cairo, Egypt, Tel : +20 2 312 3275, Fax : +20 2 310 9591, E-mail : encid@link.com.eg.

21st European Regional Conference on Irrigation and Drainage, 2005, Germany and Poland. Contact: Prof. Dr. -Ing. Joachim Quast, Secretary, German National Committee of ICID (GECID), Institute of Hydrology, Centre for Agricultural Landscape and Land Use Research (ZALF) e.v., Eberswalder Straße 84, D-15374 Müncheberg, Germany. Tel: +49 334 3282169, 3282300; Fax: +49 334 3282301; E-mail: gecid@zalf.de; Website: [www.zalf.de](http://www.zalf.de) or Prof. W. Mioduszewski, Secretary General, Polish National Committee of ICID (POCID), Institute for Land Reclamation and Grassland Farming, Falenty, 05-090 Raszyn, Poland. Tel: +48 22 628 3763; Fax: +48 22 628 3763; E-mail: w.mioduszewski@IMUZ.edu.pl.

3rd Asian Regional Conference, 2006, Kuala Lumpur, Malaysia. Contact : Mr. Mohd. Azhari bin Ghazali, Secretary/Treasurer, Malaysian National Committee on Irrigation and Drainage (MANCID), Director, Planning and Evaluation Division, Department of Irrigation and Drainage, Jalan Sultan Salahuddin, 50626 Kuala Lumpur, Malaysia. Tel : +60 3 292 8384; Fax : +60 3 291 1082; E-mail : jps04@pop.moa.my.

4th Asian Regional Conference, 2007, Iran. Contact : Dr. S.A. Assadollahi, Secretary, Iranian National Committee on Irrigation and Drainage (IRNCID), No. 24, Shahrsaz Lane, Kargozar St., Zafar Ave., Tehran. Iran. Tel : +98 21 2257348; Fax : +98 21 2272285; E-Mail : IRNCID@neda.net.ir; WWW : <http://www.irncid.org>.

2nd African Regional Conference, 2009, Abuja, Nigeria. Contact: Engr. I.K. Musa, Director (Irrigation and Drainage), Chairman, Nigerian National Committee of ICID (NINCID), Federal Ministry of Water Resources and Rural Development, PMB 159, Garki, Area 1, Abuja, Nigeria. Tel: +234 9 234 2910; Fax: +234 9 234 3035; E-mail: ikmusa@rosecom.net; info@nincid.com.



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### *Other Future ICID Events*

9th ICID International Drainage Workshop, 10-13 September 2003, Utrecht, The Netherlands. Contact : Dr. Ing. W.F. Vlotman, International Institute for Land Reclamation and Improvement, Post Box 47, 6700 AA Wageningen, The Netherlands. Tel : +31 31749 5576, +31 31749 5549, Fax : +31 31749 5590, E-mail : [W.F.Vlotman@Alterra.wag-ur.nl](mailto:W.F.Vlotman@Alterra.wag-ur.nl); [w.f.vlotman@ilri.agro.nl](mailto:w.f.vlotman@ilri.agro.nl), WWW : <http://www.ilri.nl/workshop/index.htm>.

### *ICID-Sponsored Events*

2nd International Conference on Irrigation and Management: Water for a Sustainable World: Limited Supplies and Expanding Demands, 12-15 May 2003, Phoenix, Arizona, USA. Contact: Mr. Larry D. Stephens, Executive Vice President, U.S. Committee on Irrigation and Drainage (USCID), 1616 Seventeenth Street, Suite 483, Denver, CO 80202. Tel: +1 303 628 5430, Fax: +1 303 628 5431, E-mail: [stephens@uscid.org](mailto:stephens@uscid.org), Website: <http://www.uscid.org/03prelim.html>.

### *Other Forthcoming Events*

First International Conference on Hydrology and Water Resources in Asia Pacific Region, 13-15 March 2003, Kyoto, Japan. Contact : Prof. Takara Kaoru, Secretary General, APHW2003, Kyoto University, Uji, Kyoto 611 0111, Japan. Fax: +81 774 38 4130; E-mail: [APHW2003@rdp.dpri.kyoto-u.ac.jp](mailto:APHW2003@rdp.dpri.kyoto-u.ac.jp); Website: [www.wrrc.dpri.kyoto-u.ac.jp/](http://www.wrrc.dpri.kyoto-u.ac.jp/).

International Workshop on Integrated Water Resources Management, 7-11 April 2003, Denver, Colorado, USA. Contact : Ms. Leanna Principe, U.S. Bureau of Reclamation, International Affairs-Denver, D-2100, P.O. Box 25007, Denver, Colorado 80225, USA. Tel: (303) 445-2127; Fax: (303) 445-6322; E-mail: [Lprincipe@do.usbr.gov](mailto:Lprincipe@do.usbr.gov); Website: <http://www.usbr.gov>.

Workshop on the Alternative Water Forum, 1-2 May 2003, Bradford, UK. Contact: Mr. Tom Franks, The Alternative Water Forum, Bradford Centre for International Development, University of Bradford, Bradford BD7 1DP. Fax: 01274-235280, E-mail: [t.r.franks@hradford.ac.uk](mailto:t.r.franks@hradford.ac.uk).

2nd International Congress on Management for Water Supply Systems, 29 June-2 July 2003, New York City, USA. Contact : Mr. Peter E. Black, Organizing Chair, SUNY ESF, 1 Forestry Drive, Syracuse, NY 13210, USA. Tel: 315 470-4831 (RCH); Fax: 315-470 6956; E-mail: [pebchair@esf.edu](mailto:pebchair@esf.edu); Website: [www.awra.org/meetings](http://www.awra.org/meetings).

International Water Management Course (IWMC), 5-12 July 2003, Rüslikon, Switzerland. Contact: Annina von Mural, Swiss Federal Institute for Environmental Science and Technology, Switzerland.

E-mail: [annina.von-muralt@eawag.ch](mailto:annina.von-muralt@eawag.ch); Website: [www.iwmc.eawag.ch/](http://www.iwmc.eawag.ch/)

30th Congress of International Association of Hydraulic Engineering and Research (IAHR), 24-29 August 2003, Thessaloniki, Greece. Contact: Prof. Jacques Ganoulis or Prof. Panayotis Prinos, Hydraulics Laboratory, Dept. of Civil Eng., Aristotle University of Thessaloniki, 541-24 Thessaloniki, Greece. Tel: +30 310 995682, +30 310 995689; Fax: +30 310 995681, +30 310 995658; E-mail: [2003iahr@auth.gr](mailto:2003iahr@auth.gr); Website: [www.civil.auth.gr/2003iahr](http://www.civil.auth.gr/2003iahr).

XI International Conference on Rainwater Catchment Systems, 25-29 August 2003, Mexico. Contact: Dr. Manuel Anaya-Garduño, Coordinator General, IRENAT, Colegio de Postgraduados en Ciencias Agrícolas, km 36.5 Carr. México-Texcoco, C.P. 56230 México. Tel./Fax: +52 (595) 9510323/ 9520238, +52 555 8045938; E-mail: [ircsa@colpos.mx](mailto:ircsa@colpos.mx).

Micropollutants and microorganisms in the Environment: Analysis, behaviour and treatment, 11-12 September 2003, Paris, France. For more information, please visit: <http://www.u-psud.fr/labospe.nsf/gruttee>.

Conference on Information to Support Sustainable Water Management: From Local to Global Levels, 15-18 September 2003, St. Michielsgestel, The Netherlands. Contact: Conference Secretariat Monitoring Tailor-Made IV, IWAC, P.O. Box 17, 8200 AA Lelystad, The Netherlands. Tel.: +31 320 298 894; Fax: + 31 320 297 642; E-mail: [mtm@riza.rws.minvenw.nl](mailto:mtm@riza.rws.minvenw.nl); Website: <http://www.mtm-conference.nl>.

International Conference on Eco-Restoration, 23-30 September 2003, Dehradun and New Delhi, India. For more information, visit <http://www.nieindia.org/conferences.htm> or e-mail: [info@nieindia.org](mailto:info@nieindia.org).

Lowland River Rehabilitation 2003, 29 September - 02 October 2003, Wageningen, The Netherlands. For information, please visit: <http://www.ncr-web.org>.

The XIth Congress of the International Water Resources Association, 5-9 October 2003, Madrid, Spain. For more information, visit <http://www.cedex.es/iwra@siu.edu>.

Eighth International Drainage Symposium, 14-17 April 2004, Sacramento, California, USA. Contact: Prof. Chandra A. Madramootoo, Symposium Chair, McGill University, Agric & Environmental Sciences, Macdonald Campus/ 21111 Lakeshore, Ste-Anne-de-Bellevue, QC H9X 3V9, Canada. Tel: (514) 398 7834; Fax: (514) 398 7767; E-mail: [madramootoo@macdonald.mcgill.ca](mailto:madramootoo@macdonald.mcgill.ca) or Adel Shirmohammadi, Program Chair, Biological Resources Engineering Dept., 1419 Animal Science/ Agr Eng Bldg, University of Maryland, College Park, MD 20742-2315, USA. Tel: (301) 405 1185; Fax: (301) 314 9023; E-mail: [AS31@umail.umd.edu](mailto:AS31@umail.umd.edu) or [ashirmo@umd.edu](mailto:ashirmo@umd.edu).

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