

# INTERNATIONAL SEDIMENT INITIATIVE NEWSLETTER

*Reporting ISI news to you quarterly*

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## 20th session of IHP Intergovernmental Council is held in Paris



The Intergovernmental Council of the International Hydrological Programme (IHP) of UNESCO was held its 20th session from 4 to 7 June 2012 at UNESCO Headquarters, Paris. During this session, the Council examined the relevant outcomes of the 36th session of UNESCO's General Conference, including the Organization's Programme and Budget for 2012-2013 (36 C/5), particularly as these relate to the implementation of the Seventh Phase of IHP (IHP-VII, 2008-2013). The Council also looked into recent institutional developments in IHP, reviewed progress on the implementation of the resolutions and other decisions adopted by the 19th session of the IHP Council (Paris, July 2010), examined the status of UNESCO's water-related category 1 institute and category 2 centres under its auspices, and reported on the formulation of the Eighth Phase of IHP (IHP-VIII, 2014 – 2021), including the endorsement of its Strategic Plan.

Prof. Hu Chunhong, Secretary-General and Deputy Director, and Prof. Liu Cheng, Deputy Division Chief, of the International Research and Training Center on Erosion and Sedimentation (IRTCES) participated in the session.

IRTCES was specifically mentioned in the report of the outgoing Chairperson made by Mr. Soontak Lee, in which he spoke highly of the role of the IRTCES, the first established category 2 center, in its big contributions in IHP activities and knowledge sharing and advancement in the field of erosion and sedimentation in the world. The representatives of the Chinese Delegation appealed to continue paying close attention to the sediment problem in the Eighth Phase of IHP considering its important roles on socio-economic development during discussions on Strategic Plan of the Eighth Phase of IHP (IHP-VIII, 2014 – 2021).

A Meeting of UNESCO water-related centres was held on the evening of 5th June. Directors and representatives of over 20 water-related centres attended the meeting. Prof. Liu Cheng made a speech introducing IRTCES and its recent activities, and proposed to strengthen cooperation among water-related centers.

During lunch time on 4th June, a meeting with participation of Prof. Hu Chunhong and Prof. Liu Cheng of IRTCES, Dr. Anil Mishra and Mr. Koen Verbist of UNESCO and Prof. Manfred Spreafico, the Chairman of ISI Steering Committee was held to discuss ISI activities..

## High-Level Roundtable on Water Resources Management System Development in China



UNESCO Office in Beijing joined hands with Global Water Partnership China (GWP-China), Asian Development Bank, World Wide Fund for Nature (WWF) China, The Nature Conservancy (TNC) in organizing the "High-Level Roundtable on Water Resources Management System Development in China" on 20 April 2012 in Beijing. The main purpose of this round-table is to discuss the "No.1 Policy Document" and "the regulations for strictest water resources management" issued by Government of China.

The No.1 Policy Document on reform and development in water sector was issued by the Chinese Central Government in early 2011 and the Central Water Working Conference pointed out that the strictest water resources management system should be developed. Based on the recommendation the Government of China worked on "the Regulations for Strictest Water Resources Management", which was issued by the State Council in January 2012 with an emphasis on allocation, conservation and protection of water resources, strengthening of water resources demands and uses management in order to promote the sustainable development of water resources and building water-saving society, building capacity and improving management and identifying the targets of the "three red lines".

This round-table meeting was opened by His Excellency Mr. Chen Lei, Minister for Water Resources. He emphasized that "implementation of the strictest water resources management system is a complicated and systematic approach and a revolutionary reform to the traditional growth model. Joint efforts of the whole society are required".

This roundtable was attended by ministers, policy makers, planners and scientists and discussed how to build water management mechanism with well-defined duties, rights and responsibilities, standard actions, collaborative operation and the cooperation and coordination mechanisms for the harmonious development of river basins and regions. In addition, information was exchanged on how the strictest water management of river basins through the integrated water resources management approach could be achieved. The international success stories were also shared with Chinese policy makers, planners and experts. (Source: UNESCO Office Beijing, <http://www.unescobej.org/>).

## Closing Event of EU-China RBMP held in Beijing

In the morning of June 21, 2012, the Closing Event of EU-China RBMP was held in Beijing. Vice Minister Liu



Ning, EU Ambassador Markus Ederer and Ambassador of the Republic of Portugal Mr. Suarez presented at the conference.

The EU-China River Basin Management Programme (RBMP) formally initiated in 2007 is designed for China to benefit from advances in integrated water resources management and protection gained during 25 years of formulation and implementation of common EU water policy and legislation, synthesized in the EU Water Framework Directive (EU WFD). The vision is pursued through to support Ministry of Water Resources, Ministry of Environmental Protection, the Yellow River Conservancy Commission (YRCC), the Changjiang Water Resources Commission (CWRC) to enhance integrated river basin management (IRBM) practices with specific attention to the Yellow and Yangtze River basins.

In his speech, Vice Minister Liu Ning highly appraised the achievement made by the programme, which has contributed to China's national goal for the water sector "sustainable management and use of China's water resources that are compatible with socio-economic development and natural global change".

The two parties wish to further strengthen cooperation after the programme and cope with challenges brought by water crises with joint hands. About 80 participants joined the wrap-up meeting. (Source: MWR, <http://www.mwr.gov.cn/>)



### **Workshop on the International Sediment Advancements (WISA) will be launched during the ISRS2013 in Kyoto Japan**

The first edition of the Workshop on the International Sediment Advancements (WISA) will be launched during the 12th International Symposium on River Sedimentation (ISRS2013) to be held in Kyoto, Japan, on September 2-5, 2013. The Workshop, organized under the auspices of UNESCO-IHP-ISI, will constitute the morning plenary session of the second day of the ISRS2013 and will be devoted to disseminate beyond the limits of each membership the most significant progresses attained by several scientific associations operating in the field of sediment research and management. In order to involve the largest possible number of organizations and to cover their most recent advancements, the Workshop is intended to be replicated in the occasion of other important meetings of the same organizations. The format of WISA in fact is an itinerant, inter-organizational event which would tendentially be hosted during the subsequent years by all the societies, agencies and research groups dealing with sediments. The second edition of WISA may probably be hosted by the 35th IAHR Congress to be held in Chengdu, China, on the following week September 8-13, 2013. (by Giampaolo Di Silvio)

### **Interview: Integrated water management pivotal to sustainable development: UNESCO official**

Management of water resources needs "substantial improvement and actual reform in many countries," and an integrated management is significant for "the most valuable natural resources," Olcay Unver from the UNESCO's water assessment program told Xinhua. "There has been some improvement over the the past decade or so, but we would very much like to see this expedited mostly by national government," the director of UENSCO Program Office for Global Water Assessment said in a recent interview.

#### **WATER FOCUSED IN RIO+20**

Unver's remarks came ahead of the United Nations Conference on Sustainable Development (Rio+20) on June 20-22, which will highlight seven priority areas, namely decent jobs, energy, sustainable cities, food security and sustainable agriculture, water, oceans and disaster readiness.

"With sustainable development accepted as the global norm for social and economic development, Rio+20 is steering into actually materializing the principles of sustainable development in a green economy and improving institutional setups," Unver said. He added that "both a green economy and an efficient governance system require water to be a direct pivotal part of it." Unver said water had always been a part of talks concerning transport, energy, food production, agriculture, health. "So we are expecting that water will be discussed not only during the sessions that are more explicitly related to water resources, but also in the sessions that are related to these other components, and will be incorporated in the decisions related to the overall broad spectrum of sustainable development," he said.

The UNESCO official pointed out three major problems relating to water resources management on a global scale. On the top was "the lack of proper governance of water resources," followed by "the lack of technical and institutional capacities of organizations and entities in charge of developing, protecting and managing water resources and related systems and structures," and finally "an underinvestment and lack of interest in education." To improve the governance of water resources, the water official suggested that an integrated manner should be introduced to be involved in all the related compartments, such as water supply, irrigation, hydro power and flood control. He called for the coordination between those who are in charge of managing water resources and those who make decisions in other sectors such as food, energy, security, environment, transport, otherwise. "Gains in one sector can unfortunately be offset by losses, declines in other sectors," he said. To change the current situation, Unver, who is also coordinator of the UN World Water Assessment Program, underlined that political will and commitment at an international level were needed. He said the UN World Water Development Report launched in March 2012 at the Sixth World Water Forum indicated that national governments should establish laws, regulations and the conducive environment for an integrated management of water resources, and for an active and effective dialogue between water and other sectors.

The water official hoped that after the efforts made by governments and international communities following the guideline of the latest water report in the last three months,



"they can come to the Rio+20, to see the findings and messages of the report which we hope could be integrated into the decisions, can influence the decisions to be taken in Rio (+20)." He said from a lay person to government official, as a user of water, "everybody does have something to do about water resources."

#### CHINA'S EFFORTS IN IMPROVING WATER MANAGEMENT

As a water professional and a researcher, Unver is expecting his first visit to China in the coming fall. "China is like a huge laboratory of water resource issues, not because of its sheer size, which is obviously very large, but also due to the plethora of issues they face and the way they deal with these issues. It is a developing country but also an investor in other countries, a donor," he said. Unver said water resources played an important role in China's fast development but was facing negative impacts such as demands growing much faster than supply, water pollution, and environmental and water quality degradation. He said he had noticed that China started to deal with these issues effectively. "Over the last couple of years especially, China has made very important strides in terms of streamlining its management of water resources and obviously its past development and management efforts, be it by building thousands of dams and structures but also efforts to deal with the impacts of climate change, among other things, are noteworthy," he said. "We hope that China will improve further in the direction that it is going into for an efficient management of water resources," Unver said.

Rio+20, also known as the Earth Summit, marks the 20th anniversary of the landmark UN Conference on Environment and Development hosted by Rio in 1992. The forthcoming summit will be held on June 20-22 in Rio de Janeiro, Brazil. (Source: Xinhua)

#### IRTCES delegation visits University of Stuttgart



On June 8, 2012 Prof. Hu Chunhong, Secretary-General and Deputy Director, and Prof. Liu Cheng, Deputy Division Chief, of the International Research and Training Center on Erosion and Sedimentation (IRTCES) visited the University of Stuttgart, Germany to inspect its qualifications for bidding host of the 13th International Symposium on River Sedimentation (13th ISRS) to be held in 2016, and to strengthen bilateral cooperation and exchanges. Prof. Silke Wieprecht and Prof. Walter Marx, Director and Deputy Director, and Dr. Karolin Weber of the Department of Hydraulic Engineering and Water Resources Management hosted the visit.

First a short meeting was organized. Prof. Wieprecht introduced the university, the Institute for Modelling Hydraulic and Environmental Systems, the Water Research Center, and their scientific focuses, and

presented its advantages for bidding to host the 13th ISRS and the preliminary Symposium organization plan. Prof. Hu Chunhong, on behalf of the IRTCES the ISRS Permanent Secretariat, expressed his thanks to Prof. Wieprecht for her enthusiasm to bid for hosting the 13th ISRS, and mentioned he had a very good impression of the university's excellent conditions for an international conference organization. IRTCES will inform WASER about this visit and inspection, and make the final decision for the 13th venue cooperatively with WASER.

Guided by Prof. Wieprecht, Prof. Marx and Dr. Weber after the meeting, Prof. Hu and Prof. Liu visited the main venue, parallel session rooms, reception hall, hotel, and subway exit for the Symposium and other facilities. They also visited the Hydraulic Laboratory and had discussions on sediment related studies.

#### The WASWAC Secretariat Delegation Visits Thailand



The WASWAC Secretariat Delegation members including Prof. Ning Duihu, the deputy director of IRTCES and secretary general of WASWAC, Prof. Niu Chonghuan, the deputy director of soil and water conservation department of MWR, Prof. Liu Guobin, the head of ISWC (CAS&MWR), Prof. Deng Wei, the head of IMHE (CAS), Prof. Li Dingqiang, the head of GIEESS and the councilor of WASWAC, Ms Qiu Dunlian, the director of technological information and communication center in IMHE (CAS), and Ms Tan Rongzhi, the secretary of key laboratory of mountain hazards and earth surface processes of IMHE (CAS), were invited by the Land Development Department (LDD) of the Ministry of Agriculture and Cooperatives of Thailand to communicate and investigate during the period of May 21 to May 26, 2012. The delegation members highly appreciate the invitation of the LDD and are thankful to its hospitality throughout the period of their visit.

On May 22, the LDD professionals and staff members extended a warm welcome to the guests. Prior to the meeting, Mr. Thavatchai Samrongwatana, the director general, and Mr. Anusorn Chantanaroj, the deputy director general, had met with the delegates respectively. As one of the key topics, the 2nd WASWAC World Conference was discussed in detail. Conference time, venue, topics, sponsors, supporters, registration fees, publications and the organization and arrangement for this important event were discussed one by one. A range of decisions was made after the discussion. Details will be shown in the first conference announcement to be released by the conference secretariat soon. In addition, through communication, both parties agreed on having the relationship well maintained in a positive, healthy and stable momentum of development as it has been over the recent years, with the mutual efforts from both sides, and hoped to cooperate more closely to push ahead with the 2nd WASWAC World Conference preparation.



The delegates were also invited to visit several agencies and institutions related to soil and water conservation, including, (1) Department of Soil Science, Kasetsart University, (2) Department of Water Resources, the Ministry of Natural Resources and Environment, (3) Faculty of Agricultural Technology, King Mongkut's Institute of Technology Ladkrabang, (4) the Khao Hin Sorn Royal Development Study Centre, and (5) the Kung Krabaen Bay Royal Development Study Centre. During the visit, the delegates communicated with the staff working in these affiliations in the aspects of methods, techniques, models for soil and water conservation research, and the experience of organization and management for researchers in a friendly atmosphere.

### Sand-washing operation of Yellow River held at Xiaolangdi Reservoir

Water gushes out from the Xiaolangdi Reservoir on the Yellow River during a sand-washing operation in Mengjin County, central China's Henan Province, June 20, 2012. The Yellow River has been plagued by an increasing amount of mud and sand. Each year, the river bed rises as silt deposits build up, slowing the water flow in the lower reaches. The Xiaolangdi Reservoir in the middle reach of the Yellow River has experienced sand-washing operation for 13 times since 2002 and succeeded in clearing out the silt deposits at the dam and washing 762 million metric tons of mud and sand into the sea. The sand-washing operation of the Yellow River this year started on June 19 and will last for about 20 days. (Xinhua/Wang Song)



Since the year of 2002, the Xiaolangdi Reservoir on the Yellow River has been implemented 13 water and sediment regulations before the flood season and a total of 762 million tons of sand has been discharged into the sea during the past decade, according to data provided by the Yellow River Conservancy Commission.

Over the past ten years, the riverbed elevation of the main channel of the downstream was rushed to decrease by about 2.03 meters averagely. And the minimum flowing capacity restored to 4,100 cubic meters per second in 2011 from 1,800 cubic meters before flood season in 2002, achieving remarkable economic and social benefits.



Water and sediment regulations is using reservoir storage capacity and man-made flood to scour riverbed, thereby reducing river siltation and even balancing the erosion and deposition so as to curb the riverbed. (Edited and translated by Liang Jun, People's Daily Online)

### More News in ISI Website

- Contents of IJSR (Vol. 27, No.2, 2012)
- The WASWAC Secretariat Delegation Visits Thailand
- Closing Event of EU-China RBMP held in Beijing
- USA: Congressman Introduces DREDGE Act 2012
- Status Report of the International Sediment Initiative (ISI) of UNESCO/International Hydrological Programme, 2012
- Interview: Integrated water management pivotal to sustainable development: UNESCO official
- North Atlantic: Sediments provide records of climate change
- Russian Arctic: Sediment cores reveal intense warm climate intervals
- The Amazon's Dirty Mouth: Big Pic
- [PIC] Sand-washing operation of Yellow River held at Xiaolangdi Reservoir
- Marmot Dam removal publication reveals how rivers change after dams are removed (USA)
- 762m tons of sediment rushed to sea from Yellow River (China)
- Alarm sounded for serious pollution in China's rivers, seas
- Water plan to take effect by 2012 (China)
- IRTCES delegation visits University of Stuttgart
- IRTCES participates in the 20th session of IHP Intergovernmental Council in Paris
- Delegation of the Jasa Tirta I Public Corporation, Indonesia Visits IRTCES
- Deadline for submitting the proposal for hosting the 13th ISRS: October 31, 2012
- The DG signs agreement with China establishing a Category 2 Centre on Science and Technology Strategy
- Ecology study: Erosion from farms pollutes rivers (USA)
- USA: DEC Reveals Hudson River Cleanup Plan
- Deadline for abstract submission of the 5th International Yellow River Forum extended to May 31, 2012
- High-Level Roundtable on Water Resources Management System Development in China
- Corps begins major Mississippi River study (USA)
- Soil erosion modeling: It's getting better all the time (USA)
- Images from space show sediment-rich South American river water mixing in Atlantic Ocean
- 12th International Symposium on River Sedimentation (Kyoto, Japan, Sep. 2-5, 2013)
- Workshop on the International Sediment Advancements (WISA) will be launched during the ISRS2013 in Kyoto Japan
- Prof. S. Wieprecht, Stuttgart University visits IRTCES
- More .....

(<http://www.irtces.org/isi/>)



## ISI STATUS REPORT

### Status Report: International Sediment Initiative (ISI) UNESCO - IHP (International Hydrological Programme), 2012

#### 1. Introduction

Sediment management is an important component of sustainable water resources management. Across the world, erosion, transport and sedimentation processes have significant social, economic and environmental impacts. Every year human lives are lost to erosion, landslides and debris flows. More than fifty per cent of the original storage capacity of the world's reservoirs is likely to be lost within the next thirty years due to sedimentation. The sediment balance in catchment and river basins is altered by human activities, producing social, economic and environmental repercussions. The negative impacts of erosion and sedimentation are further exacerbated by global changes associated with a rapidly growing population and increased vulnerability to severe climatic conditions, which increase soil erosion. However, there are significant gaps in baseline sediment data, in current knowledge and understanding of sediment transport and sediment budgets and in our understanding of socio-economic and environmental impacts. Sediment management practices need to be improved if we are to overcome erosion and sedimentation problems.

ISI was launched by UNESCO's International Hydrological Programme (IHP) in 2004. The Secretariat of the initiative is provided by the International Research and Training Centre on Erosion and Sedimentation (IRTCES) in Beijing, China. ISI is guided by UNESCO staff and by an International Steering Committee with experts from Europe, Africa, the Americas and Asia.

ISI activities aim to increase awareness of erosion and sedimentation dynamics and sediment issues in all spheres of water management. The initiative promotes sustainable management of soil and sediment resources at local, regional and global scales.

The International Sediment Initiative organizes and promotes an international information exchange on sediment related matters, ensuring direct access for the policy makers in the member states.

The objectives of ISI are:

ISI motivates and activates the scientific and professional communities in the interested regions and countries.

ISI is a vehicle to advance the sustainable management of soil and sediment resources at local, regional and global scale, taking into account the commitments of the international community to sustainable water resources development.

ISI deals with both sediment quantity and quality and focuses on economic, social and ecological aspects related to sediments.

ISI aims to develop a decision support framework for sediment management, in order to provide guidance on legislative and institutional solutions, applicable to various socio-economic and physiographic settings, in the context of global change.

ISI is linking science with policy & management needs and is supporting the global agenda for sustainable sediment management.

The ISI outcomes contribute to the Millennium Development Goals, the World Water Assessment Programme, World Water Development Reports and other

global efforts. The Initiative will also help to highlight the importance of sustainable sediment management within the context of the two UN Decades: "Water for Life" and the "Decade for Education for Sustainable Development".

#### 2. ISI Activities

The ISI activities can be structured into 5 themes:

1) Global Evaluation of Erosion and Sediment Transport (GEST Project)

The GEST project focuses on the development of a global repository for data, information and documentation on soil erosion, sediment transport and sediment-related issues, which will serve as a basis for a global assessment of erosion and sedimentation problems, and their social and economic implications. The data and information base will be developed by the Secretariat in IRTCES and by other existing international institutions.

The ISI Information System provides information access through the creation of a global information resource portal, an information repository through the establishment of a global repository for data, information and documentation, as well as information development through the implementation of strategic training activities.

Achievements:

- The Web page <http://www.irtces.org/isi/> has been established and is in operational use. It includes two main parts:

a) ISI Web pages, in which information can be found concerning the history and objectives of ISI, the Steering Committee and ISI Technical Secretariat. A link list helps to find other organisations working in the field of sediment. Information on sediment related news and forthcoming events is also provided.

b) ISI Information System (<http://www.irtces.org/isi/info.asp>). This has been constructed for the purpose of helping to organize and promote international information exchange and providing direct access for policy makers in Member States while activating scientific and professional communities in all regions concerned. Documents and related material, publications and links to other ISI- and sediment- related activities can be found there.

- The quarterly ISI Newsletter provides useful information concerning news, meetings, workshops, conferences, training courses and other events. Recent publications are listed and some of them are reviewed. In addition information on forthcoming symposia, conferences and training courses related to erosion, sediment transport and deposition is provided.

- An E-Conference facility (<http://www.irtces.org/isi/bbs/>) has been established on the ISI Website by the ISI Technical Secretariat, so that member of the Steering Committee can discuss relevant issues remotely, via the internet.

Mid-term program 2012-2014

- Expert systems should also be implemented into the Information System. An expert system for predicting erosion, sediment transport and deposition in mountain environments has been developed by Switzerland and will be soon ready for implementation.

2) Case Studies of River Basins as Demonstration Projects



Case studies are effective means of raising awareness about erosion and sedimentation problems in different regions and comparing the problems and management response found in different river basins. The production of detailed case studies for a number of large river basins provides valuable examples of sediment management practices and makes available information on successful strategies and procedures to experts from other river basins.

As an example the Rhine case study covers the following topics: Description of the basin, longitudinal and cross-sectional profiles, human impacts, population, land use, hydrometeorology, travel times of water in the river, hydrogeology, morphological landscape structure, soils, user information, necessary sediment observations, available sediment data, monitoring equipment and methods, estimation techniques for erosion, transport and deposition of sediment, legal, administrative and organizational aspects, selected recommendations concerning sediment management, examples of sediment studies and selected literature.

#### Achievements:

- The case studies of the Mississippi, Nile, Yellow, Rhine, Volga, Haihe and Liouhe rivers have been completed.

Some work has been undertaken in assembling case study reports for the Danube and Parana River basins.

The Rhine case study: Erosion, Transport and Deposition of Sediment - edited by Manfred Spreafico and Christoph Lehmann – has been published by the International Commission for the Hydrology of the Rhine Basin, as a scientific contribution to the ISI.

ISI has compiled and published a series of fact sheets and a first Interim Synthesis Report based on the Case studies reports.

The case studies and related products are available at ISI web site: <http://www.irtces.org/isi/info.asp>.

#### Mid-term program 2012-2014:

- In order to exploit fully the work undertaken in compiling the ISI Case Studies, there is a need to synthesise and analyse further the information presented. Therefore it is planned to synthesise and integrate the content of the various case studies into an academic publication. The synthesis will draw together the existing information from the Case Studies (e.g. by highlighting different sets of problems and different management approaches). The UNESCO Office in Beijing under the chairmanship of R. Jayakumar is working on this synthesis and analysis in cooperation with IRTCES and under the guidance of Professors M. Spreafico and D. Walling as well as with support of A. Mishra from UNESCO headquarter.

Sediment Issues & Sediment Management in Large River Basins Interim Case Study Synthesis Report (2011)

<http://unesdoc.unesco.org/images/0021/002128/212891E.pdf>

International Sediment Initiative (ISI)-Fact sheets

<http://unesdoc.unesco.org/images/0021/002128/212885E.pdf>

- Negotiation with the owners of the sediment data for the provision of relevant information to ISI is foreseen in coordination with other existing international institutions.

- Support of the experts working at the case studies of the Danube River and Rio Parana should be provided.

- A feasibility study for a case study of the Zambezi River should be planned.

#### 3) Review of Erosion & Sedimentation-Related Research

A survey of ongoing research is an important contribution to the development of sustainable management, given the lack of knowledge concerning many aspects of erosion and sediment needed to address key sedimentation problems. Associations such as the International Coordinating Committee on Reservoir Sedimentation (ICCORES) and the World Association for Sedimentation and Erosion Research (WASER) could play substantial roles in this endeavour.

#### Achievements:

- Three publications have been produced linked to this theme.

- a) Erosion and sediment dynamics from catchment to coast

A Northern Perspective by Giampaolo Di Silvio

A Southern Perspective by Gerrit Basson

IHP-VI Technical Documents in Hydrology No. 82, 2008

- b) The Impact of Global Change on Erosion and Sediment Transport by Rivers: Current Progress and Future Challenges

By D.E. Walling

IHP/World Water Assessment Programme, Scientific Paper. The paper is a scientific contribution to the UN World Water Assessment Programme.

- c) The IAHS publication Sediment Problems and Sediment Management in Asian River Basins edited by Des.E. Walling. This publication arises from a workshop organised jointly by the International Commission on Continental Erosion of IAHS, the UNESCO International Sediment Initiative and the World Association for Sedimentation and Erosion Research.

- Several journal and conference papers linked to this theme have also been published. E.g.

- a) Sediment load reduction in Chinese rivers

By Liu et al., 2008. International Journal of Sediment Research, Vol. 12, No. 1

- b) Changes in Runoff and Sediment Yield along the Yellow River during the Period from 1950 to 2006

By Liu et al., 2008. Journal of Environmental Informatics, Vol. 12, No. 2

- c) Variations of Runoff and Sediment Fluxes into the Pacific Ocean from the Main Rivers of China

By Liu et al., 2009. Proceedings of the Third International Conference on Estuaries and Coasts (September 14-16, 2009. Sendai, Japan), Vol. 1

#### Mid-term program 2012-2014:

- Discussion with other stakeholders aimed at promoting cooperation in assessing the current state of knowledge should be undertaken.

#### 4) Education & Capacity Building for Sustainable Sediment Management

ISI promotes scientific conferences, workshops and seminars focussing on important issues relating to erosion, sediment transport and deposition, at the local, regional and global scale. International and local experts discuss problems at these meetings and develop proposals for solving them.

Within the medium term, the initiative will focus on identifying the modes of education at all levels while also taking into account regional priorities and interests in different socio-economic, eco-hydrological and physiographic settings. This activity should use the information assembled by the GEST Project and the survey of sediment-related research.

#### Achievements:



In the first phase of ISI various symposia, workshops and training courses have been organized and a first ISI conference was held in Sudan in 2006. These events have included:

Workshop on Ecological, Sociological and Economic Implications on Sediment Management,  
Berne, Switzerland, January 2001  
Workshop on Debris Flow Monitoring,  
Berne, Switzerland, November 2001  
Symposium on Ecological, Sociological and Economic Implications on Sediment Management in Reservoirs,  
Paestum, Italy, April 2002  
International training course on river sedimentation and flood control,  
Beijing, China, September 2003  
International training course on sedimentation engineering,  
Pyongyang, DPRK, October 2003  
International Conference on Estuaries and Coasts,  
Hangzhou, China, November 2003  
Symposium "From Watershed Slopes to Coastal Areas: Sedimentation Processes at Different Scales",  
Venice, Italy, December 2003  
9<sup>th</sup> International Symposium on River Sedimentation,  
Yichang, China, October 2004  
International training course on landslides and debris flows,  
Pyongyang, DPRK, November 2004  
Workshop on Erosion and Transport of Sediments,  
Buenos Aires and La Plata, Argentina, March 2005  
International training workshop on watershed eco environment and water resources management,  
Beijing, China, September 2005  
Workshop on Sediment Budgets,  
Sharm el Sheikh, Egypt, November 2005  
National Workshop on Advanced Sediment Measurement Techniques,  
Zhengzhou, China, December 2005  
Workshop on Sediment Management in South and South-East Asia,  
AIT, Bangkok, Thailand, April 2006  
Training course on flood forecasting and preparedness,  
Pyongyang, DPRK, June 2006  
ISI Conference,  
Khartoum, Sudan, November 2006  
Second International Conference on Estuaries and Coasts,  
Guangzhou, China, November 2006  
Curso on Monitoreo y gestion de los sedimentos,  
Jiutepec, Morelos, Mexico, March 2007  
Workshop on Sediment Management,  
La Plata, Argentina, August 2007  
10<sup>th</sup> International Symposium on River Sedimentation,  
Moscow, Russia, August 2007  
Symposium on Erosion and Torrent Control as a Factor in Sustainable River Basin Management,  
Belgrade, Serbia, September 2007  
Advanced training workshop on reservoir sedimentation management,  
Beijing, China, October 2007  
Curso Sedimentacao para gestores, decisores, tecnicos e comunicadores,  
Brasilia, Brasil, October 2007  
Workshop on Erosion, Transport and Deposition of Sediments,  
Berne, Switzerland, April 2008  
Workshop on Sedimentation Processes in Latin America and the Caribbean,  
Panama City, Panama, August 2008

ISI presentation during the IHP workshop on "Adapting to the Impacts of Global Changes on River Basins and Aquifer Systems",

UNESCO, Paris, September 2008

ISI workshop: "The impacts of global change on erosion and sediment dynamics: current progress and future challenges",

Beijing, China, November 2008

International Conference on Land Conservation-Landcon 0905 "Global Change Challenges for Soil Management",

Tara mountain, Serbia, May 2009

Seminar on Integrated River Basin Management under Global Climate Change,

Beijing, China, July 2009

International advanced training workshop on integrated river basin management,

Beijing, China, July 2009

International Workshop on Sediment Problems and Sediment Management in Asian River Basins, Organised jointly by IAHS/ICCE, ISI and WASER and hold as a part of the IAHS/IAH Scientific Assembly in Hyderabad, India, September 2009

3<sup>rd</sup> International Conference on Estuaries and Coasts,

Sendai, Japan, September 2009

Curso "Produccion de sedimentos; cuantification y correccion de los procesos",

Santiago de Chile, Chile, November 2009

11<sup>th</sup> International Symposium on River Sedimentation,

Stellenbosch, South Africa, September 2010

International Conference on the Status and Future of the World's Large Rivers, Special ISI seminar,

Vienna, Austria, April 2011

IHP Symposium on Extreme Events "Meteorological, Hydrological and Tsunami Disasters: Social Adaptation and Future", Special ISI Event,

Kyoto, Japan, October 2011

Further activities:

- ISI and SedNet European network members met on 18-19 August, 2011 in Paris at UNESCO HQs to develop a joint project proposal on "Practical training course on sustainable sediment management (SSM) as an integral part of river-basin management (RBM).

A follow up meeting was organized in Zagreb, Croatia from 1-2 December 2011 to discuss the content of the ISI-SedNet SSM training course, and its testing in the Sava River context. The meeting was hosted by the Sava River Commission.

- A special ISI session has been organised during the IHP Symposium on Extreme Events in Kyoto from 24-28 October 2011.

Mid-term program 2012-2014

Further events and participation in events organised by other bodies are under consideration e.g.:

- Involvement of ISI in the International Symposium on River Sedimentation, Kyoto, Japan, 2013

5) Networking and Partnership

ISI is open to collaboration with all interested international, regional or national institutions, organisations and agencies in the interest of promoting sound and sustainable sediment management policies. ISI is eager to establish close working relationships with other projects, programmes and networks.

Achievements:

Collaborative links have been established with IAHS, WASER, ICCORES, ICOLD, GEMS/WATER, IAHR, FRIEND, IFI and SedNet.



#### Mid-term programme 2012-2014

- The cooperation with other UNESCO-IHP bodies including FRIEND, HELP, IFI etc. must be strengthened.
- Cooperation with International Commissions of large river basins in different areas of the world must be strengthened. This includes cost sharing of project implementation or sponsoring. For example, the International Commission for the Hydrology of the Rhine Basin has carried out the Rhine case study and has provided it to ISI without cost.
- Together with SedNet a "Practical training course on sustainable sediment management as an integral part of river basin management" is to be developed and training courses should be organized.
- There is a need to strengthen links and cooperation with the World Bank, the International Hydropower Association (IHA) and UNESCO-IHE.
- The setting-up of regional ISI working groups should be supported. Such a regional group is already working properly in Latin America.
- The involvement of South-East Asian countries in ISI should be promoted.
- Networking with National Agencies should also be strengthened.

### 3. Looking Ahead

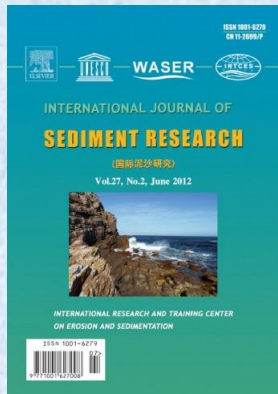
The original aims of ISI, which emphasize the need to promote the inclusion of sustainable sediment management within Integrated Water Resource Management, must be seen as assuming increasing relevance in the contemporary world. The challenges of sustainable development to meet the needs of a rapidly growing global population become even greater when seen against a background of climate change and other components of global change, and sustainable sediment management is a key priority in many regions of the world. It is therefore important that the activities of ISI should continue to be promoted, to facilitate scientific synthesis, information exchange, capacity building and closer links between science and policy, at the local, regional and global scales. Particular areas and initiatives to be targeted by future activities include:

- Continued development and expansion of the ISI Information System and Information Repository.
- Directing increased attention to the integrated management of both sediment quantity and quality e.g. through collaboration with SedNet.
- Directing further attention to the sediment problems in areas of the world where erosion rates and sediment yields are relatively low and such problems relate primarily to ecological issues and improving the ecological status and biodiversity of river basins. Such problems are assuming increasing importance in many regions of the Developed world.
- Strengthening the role of ISI in knowledge transfer and training through strategic cooperation with IRTCES, WASER, IAHS, IAHR, SedNet, World Bank and related bodies. With its very limited funding, ISI must emphasise its role as a facilitator. However, financial support is required to support such activities and the search for such funds must continue and be strengthened.
- Strengthening cooperation with other key players in the field of Integrated Water Resources Management at global, regional and local scales, in order to emphasise the importance of sustainable sediment management.
- Strengthening links with other UNESCO IHP programmes, such as FRIEND, HELP and IFI, in order to benefit from their networks and activities, whilst also providing a focus of competence in erosion and sediment management.
- Strengthening cooperation with International River Basin Commissions especially in the field of policy making.
- Extending the success of the ISI Regional Group established by LAC countries to other regions of the world.



## PUBLICATION

### Papers Published in Issue 2 Volume 27, 2012, International Journal of Sediment Research



Volume 27, Number 2

Jun. 2012

#### Technical Papers

Distribution and species composition of macroinvertebrates in the hyporheic zone of bed sedimen

Meng-zhen XU, Zhao-yin WANG, Bao-zhu PAN, and Na ZHAO

Bed morphology and grain size characteristics around a spur dyke

Hao ZHANG, Hajime NAKAGAWA, and Hideaki MIZUTANI

Optimum configuration of groynes for stabilization of alluvial rivers with fine sediments

Mohammed ALAUDDIN and Tetsuro TSUJIMOTO

Effects of rainfall intensity and slope gradient on the application of vetiver grass mulch in soil and water conservation

Somchai DONJADEE and Chaiyuth CHINNARASRI

Experimental study on flow pattern and sediment transportation at a 90° open-channel confluence

Tong-huan LIU, Li CHEN, and Bei-ling FAN

Effects of accelerating and decelerating flows in a channel with vegetated banks and gravel bed

Hossein AFZALIMEHR, Elham Fazel NAJAFABADI, and Jacques GALLICHAND

Using an integrated model to track the fate and transport of suspended solids and heavy metals in the tidal wetlands

Chou-ping YANG, Wu-seng LUNG, Jan-tai KUO, Jih-sung LAI, Yu-min WANG, and Chih-hung HSU

Scour prevention in bottomless arch culverts  
B. M. CROOKSTON and B. P. TULLIS

#### Technical Notes

SWAT-based runoff and sediment simulation in a small watershed, the loessial hilly-gullied region of China: capabilities and challenges

Lin-jing QIU, Fen-li ZHENG, and Run-sheng YIN

An analytical study on turbulence with mixed-flow model and two-phase model

Dan-xun LI, Marian MUSTE, Qiang ZHONG, and Xing-kui WANG

An experimental study on erodibility of intertidal sediments in the Yellow River delta

Xiang-mei MENG, Yong-gang JIA, Hong-xian SHAN, Zhong-nian YANG, and Jie-wen ZHENG

Stratification of selected hydrolytic enzyme activities in the sediment in two lakes in Finland

Mika A. KÄHKÖNEN and Risto HAKULINEN

Cover Photo: Wave erosion at cape of good hope

#### **Publications in ISI Information System**

- Geomorphic Response of the Sandy River, Oregon, to Removal of Marmot Dam (USGS)
- Sediment Issues & Sediment Management in Large River Basins Interim Case Study Synthesis Report (ISI)
- Distribution, sources and ecological risk assessment of heavy metals in surface sediments from Lake Taihu, China (Yin et al.)
- The 4th edition of the UN World Water Development Report (WWDR4)
- Sediment dynamics of an impounded river: Yegua Creek, Texas (Martinez)
- Suspended sediment transport in the Ganges-Brahmaputra River System, Bangladesh (Rice)
- Nutrient and Suspended-Sediment Trends in the Missouri River Basin, 1993–2003 (USGS)
- Trends in Streamflow and Nutrient and Suspended-Sediment Concentrations and Loads in the Upper Mississippi, Ohio, Red...(USGS)

More .....

(<http://www.irtcs.org/isi/info.asp> )



## COMING EVENTS

### 4th International Conference on Estuaries and Coasts (Vietnam, Oct.8-11, 2012)

**Date:** 8-11 October 2012

**Venue :** T45 Conference Hall, Water Resources University, Hanoi, Vietnam

**Summary:** The 4th International Conference on Estuaries and Coasts (ICEC-2012) will be held in Hanoi, Vietnam, co-organized by Water Resources University and the International Research and Training Center on Erosion and Sedimentation (IRTCES). The ICEC2012 aims at providing a forum for discussion and exchange among researchers and scientists in the field of estuary and coast.

**Organizer:** Water Resources University, Vietnam

**Sponsors:** International Research and Training Centre on Erosion and Sedimentation (IRTCES)

**Co-Sponsors:** UNESCO, IAHR, IAHS, WASER, and other institutes and organizations to be invited

**Secretariat:** Water Resources University, Vietnam

**Permanent Secretariat:** IRTCES

**Conference Themes:** Vision and Imagination – Water in an Era of Change, with sub-themes

Climate Change

Water Resources and Hydrology

Environmental and Ecological Hydraulics

Coastal and Estuarine Hydrodynamics

Estuarine and Coastal Management

Design, Maintenance and Management of Waterways

in Estuaries and Harbors

Research Technologies for Estuarine Engineering

Coastal Structures

Coastal Hazard

**URL:** <http://www.icec2012.edu.vn/>

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### 12th International Symposium on River Sedimentation (Kyoto, Japan, Sep. 2-5, 2013)

**Date:** Sep. 2-5, 2013

**Venue:** KYOTO TERRSA, Kyoto, Japan

**Summary:** Erosion and sedimentation processes in river catchments as well as their management are of global importance. The social, economic, environmental and political impacts of these processes are significant. They pose great challenges for our human society on the way to the mid-21st century. The issue calls for integrated and sustainable solutions. On behalf of the entire Local Organizing Committee, we would like to take our great pleasure in inviting you to the 12th International Symposium on River Sedimentation (ISRS2013), September 2-5, Kyoto, Japan. Organized triennial from 1980 under the auspices of IRTCES (the International Research & Training Center on Erosion and Sedimentation), the ISRS symposia have been successfully held in China, USA, Germany, India, Egypt, Hong Kong (China), Russia and South Africa, the symposium series provide an important forum for scientists, engineers and policy-makers to exchange ideas, share

information and make collaborations. Japan experienced and is still experiencing a lot of challenges in erosion and sedimentation. With the rapid change of global climate, there is a greater demand on the improvement of sediment management know-how and practices. The Kamo River in the city of Kyoto provides an excellent demonstration on typical sediment-related problems & management methods in Japan. As the location resulted in the famous Kyoto Protocol to the UN Framework Convention on Climate Change, we hope that the 12th ISRS in Kyoto will also become an event of special meaning. Kyoto University is one of the leading institutions in research & education on sediment hydraulics, erosion control engineering and river morphology. The University has a staff of well reputed scholars, capable students and is located in an excellent environment with advanced facilities.

The city and the university are ready to welcome participants from all over the world.

The online abstract submission system is open NOW and will be closed on 31 August, 2012. Accepted abstract will require a full paper to be submitted. Full papers will be peer-reviewed and be published in the symposium proceedings. ISRS2013 features Best Paper Award and Young Researcher Paper Award to award authors with superior quality paper submission to the symposium. Selected papers will be considered for a possible publication in the International Journal of Sediment Research.

**Organizer:** Research Center for Fluvial & Coastal Disasters Disaster Prevention Research Institute, Kyoto University

**Sponsors:** International Research and Training Centre on Erosion and Sedimentation (IRTCES); World Association for Sedimentation and Erosion Research (WASER)

**Co-Sponsors:** UNESCO; International Sediment Initiative (ISI); IAHR; Japan Society of Civil Engineers (JSCE); Japan Society of Erosion Control Engineering (JSECE); Japan Society for Natural Disaster Science (JSNDS); Japan Society of Dam Engineers (JSDE); Ecology and Civil Engineering Society (ECES); Japan River Association (JRA)

**Secretariat:** Kyoto University

**Permanent Secretariat:** IRTCES

**Theme and Topics:** The theme of the symposium is Integrated Sediment Management for River Basin Sustainability: Challenges & Prospects towards Mid-21st Century

Under this theme, the symposium topics include

1. Integrated sediment management in river basin scale
2. Sediment yield
3. Sediment transport & morphology in rivers & lakes
4. Local scour & erosion
5. Reservoir sedimentation and management
6. Sediment issues in estuarine & coastal area
7. Environmental & ecological aspects of sediment management
8. Modeling & measurement techniques
9. Sediment related disasters
10. Social, economic & political problems related to sediment management.

**URL:** <http://www.dpri.kyoto-u.ac.jp/~ISRS2013/>

**Contacts:**

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E-mail: [isrs2013@uh31.dpri.kyoto-u.ac.jp](mailto:isrs2013@uh31.dpri.kyoto-u.ac.jp)



## The 2nd WASWAC World Conference (Thailand, May 13-18, 2013)

**From** 2013-05-13 to 2013-05-18

**Venue:** Bangkok, Thailand

**Summary:** The main theme of the conference includes following subthemes:

- Situation and evolution of land degradation
- Control measures to prevent and mitigate land degradation (mechanical, biological, agronomical, management) and to restore degraded land
- Evaluation of impact of land degradation on food production and the environment
- Effects of global climate change on land degradation and food security
- Law and policy to prevent and mitigate land degradation
- Water resource management

**Invitation:** You are cordially invited to participate in the International Conference on "The Threats to Land and Water Resources in the 21st Century: Prevention, Mitigation and Restoration" and the Second Councilor Meeting of WASWAC (LANDCON1305) to be held in Bangkok, Thailand from May 13-18, 2013. Land is foundation of human survival and development, but the degradation of land is intensifying in many parts of the world because of many reasons, including the improper land use and global climate change. Land degradation could induce the deterioration of the ecological functions and productivity of land. Land degradation has been threatening the socioeconomic and cultural development at regional and global scales. Fortunately, the increasing attention has been paid in combating land degradation all over the world that there have been a number of projects being operated by many agencies in various regions to cope with such problems. It is therefore timely to organize the next WASWAC World Conference (WASWAC WC) in May 2013, which will coincide with the 50th Anniversary Celebrations of the Land Development Department of Thailand, our main host. We look forward to welcoming you in Thailand.

### **Organizers:**

- Land Development Department (LDD), Bangkok, Thailand
- Soil and Water Conservation Society of Thailand (SWCST)
- Soil and Fertilizer Society of Thailand (SFST)
- International Research and Training Center on Erosion and Sedimentation (IRTCES)
- Institute of Soil and Water Conservation, Chinese Academy of Sciences (ISWC-CAS), Shaanxi, China
- Guangdong Institute of Eco-Environmental and Soil Sciences (GIEESS), Guangzhou, China
- World Association of Soil and Water Conservation (WASWAC)

**E-mail:** [waswac2@ldd.mail.go.th](mailto:waswac2@ldd.mail.go.th)

**URL:** [http://www.ldd.go.th/web\\_waswac2/](http://www.ldd.go.th/web_waswac2/)

## 35th IAHR World Congress: The Wise Find Pleasure in Water (China, Sept. 8-13, 2013)

**From** 2013-09-08 to 2013-09-13

**Venue:** Chengdu, China

**Summary:** The congress will focus on: Water Science and Civilization; Hydro-Environment and Eco-hydraulics; Hydraulic Engineering and Integrated River-basin Management; Maritime Hydraulics and Coastal Engineering; Water Resources and Hydroinformatics Technology; and Hazards, Extreme Events and Adaptation to Climate Change.

**Invitation:** On behalf of the 35th IAHR World Congress **Organizers** and **IAHR**, we would like to invite you to join us in Chengdu, China for the 35th World Congress of the

International Association for Hydro-Environment Engineering and Research (IAHR). The Congress will be held with the central theme of **"THE WISE FIND PLEASURE IN WATER"** (*Confucius, BC 552-BC 479*). The congress will focus on: Water Science and Civilization; Hydro-Environment and Eco-hydraulics; Hydraulic Engineering and Integrated River-basin Management; Maritime Hydraulics and Coastal Engineering; Water Resources and Hydroinformatics Technology; and Hazards, Extreme Events and Adaptation to Climate Change. Chengdu is a charming city with a long history, fast advancing development, unique culture as well as delicious food. It will surely provide every delegate with a memorable experience. The congress will be accompanied with fascinating technical tours to Three Gorges, Tibet, Ancient Dujiangyan Irrigation Project and Chengdu Panda Base as well as the newly completed earthquake museum. The congress is co-hosted by three major Chinese universities and one research institute in water and environment science, namely, China Institute of Water Resources and Hydropower Research (IWHR), Sichuan University (SCU), Tsinghua University (THU) and The University of Hong Kong (HKU). We look forward to welcoming you in September 2013 to what we are confident will be one of the most successful IAHR World Congress.

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

**Contact Name:** Congress Secretariat

**E-mail:** [iahr2013@vip.163.com](mailto:iahr2013@vip.163.com)

**URL:** <http://www.iahr2013.org/>

## International Symposium on Erosion and Sediment Yields in the Changing Environment (China, Oct. 11-15, 2012)

**From** 2012-10-11 to 2012-10-15

**Venue:** Chengdu, China

**Summary:** The International Commission on Continental Erosion (ICCE) is one of five commissions of the International Association of Hydrological Sciences (IAHS). The field of interests of the ICCE may be broadly defined as including the erosion, transport and deposition of sediment and the interaction of these processes with other components of the environment. The Chengdu ICCE'2012 Symposium will focus on both erosion and sediment yields in the changing environment, considering:

- Dynamic processes of erosion and sediment transport in fluvial systems;
- Impacts of climate change and human activities on erosion and sediment yields;
- Erosion and sediment yields modeling, mountain hazards and debris flows; and
- Monitoring and tracing methodology.

**Organizers:** The International Commission on Continental Erosion (ICCE) of the International Association of Hydrological Sciences (IAHS); Chengdu Institute of Mountain Hazards and Environment (IMHE).

**Contact Name:** Prof Xiubin He

**E-mail:** [xiubinh@imde.ac.cn](mailto:xiubinh@imde.ac.cn)

**URL:**

[http://www.iahs.info/conferences/2012\\_Chengdu\\_ICCE.pdf](http://www.iahs.info/conferences/2012_Chengdu_ICCE.pdf)

## The 5th International Yellow River Forum (China, Oct. 16-19, 2012)

**From** 2012-10-16 to 2012-10-19

**Venue:** Zhengzhou, China



**Summary:** The 5th International Yellow River Forum (IYRF) on ensuring water rights for and the maintenance of a healthy river basin will take place on October 16-19, 2012 in China. We are very pleased to extend an invitation to you. The forum will focus on hot spots of water issues related to integrated water resources and river basin management. Facing the deterioration of the natural environment, and taking into account the water needs of both the environment and human society, there is a need to protect river ecosystems and provide for the sustainable development of rivers in order to provide positive support for the human development.

**Theme:** Central theme "Ensuring water right of the river's demand and healthy river basin maintenance"

**Organizers:** Yellow River Conservancy Commission, Ministry of Water Resources, China; China Yellow River Foundation

**Contact Name:** Mr. Shang Hongqi, Secretary-general

**E-mail:** [yrf@yrcc.gov.cn](mailto:yrf@yrcc.gov.cn); [iyrf@hotmail.com](mailto:iyrf@hotmail.com)

**URL:** <http://www.yellowriverforum.cn>

### River Flow 2012: International Conference on Fluvial Hydraulics (Costa Rica, Sep. 5-7, 2012)

**From** 2012-09-05 to 2012-09-07

**Venue:** San José, Costa Rica

**Summary:** The objective of the Conference is to create the opportunity for reflection, discussion and exchange of knowledge and experiences related to the fluvial hydraulics.

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

**Contact Name:** Conference Secretariat

**E-mail:** [info@riverflow2012.org](mailto:info@riverflow2012.org)

**URL:** <http://www.riverflow2012.org/>

### More Coming Events in ISI Website

- International Conference on Climate Change, Water and Disaster in Mountainous Areas (Nepal, Nov.27-29, 2013)
- 35th IAHR World Congress: The Wise Find Pleasure in Water (China, Sept. 8-13, 2013)
- 12th International Symposium on River Sedimentation (Kyoto, Japan, Sep. 2-5, 2013)
- The 2nd WASWAC World Conference (Thailand, May 13-18, 2013)
- 3rd International Conference on Managing Rivers in the 21st Century (Malaysia, Dec. 6-9, 2012)
- The 5th International Yellow River Forum (China, Oct. 16-19, 2012)

- International Symposium on Erosion and Sediment Yields in the Changing Environment (China, Oct. 11-15, 2012)
- 4th International Conference on Estuaries and Coasts (Vietnam, Oct.8-11, 2012)
- ISE2012 - 9th International Symposium on Ecohydraulics (Austria, Sep. 17-21, 2012)
- River Flow 2012: International Conference on Fluvial Hydraulics (Costa Rica, Sep. 5-7, 2012)
- 10th International Conference on Hydroinformatics (Germany, July 14-18, 2012)
- 4th International Congress of ECSSS (Italy, July 2-6, 2012)

More .....

(<http://www.irtces.org/isi/>)

### Newsletter Layout and Production:

ISI Technical Secretariat

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