



International
Water Association

IAHR/IWA Joint Specialist Group on URBAN DRAINAGE

Newsletter No. 19, February 2006

For updated information, please regularly visit our website at:
<http://www.iwahq.org.uk/template.cfm?name=sg12>

CONTENTS

1. Joint Committee Contacts	2
2. Chairman's Thoughts	3
3. From the Secretary's Desk	5
4. Working Group Reports	6
5. News from IAHR and IWA	10
6. News from IWA Publishing	13
7. News from around the World	15
8. Reports on Conferences	27
9. Future Meetings and Conferences	29
10. Recent Publications of Interest	32
11. Working Group Contacts	32

Prepared by:

Dr Jiri Marsalek
Joint Committee Secretary
c/o National Water Research Institute
867 Lakeshore Road, Burlington, Ontario L7R 4A6, Canada
jiri.marsalek@ec.gc.ca

Disclaimer: *This is not a journal, but a Newsletter issued by the IAHR/IWA Joint Committee on Urban Drainage. Statements made in this Newsletter do not necessarily represent the views of the Joint Committee or of IAHR/IWA. The use of information supplied in the Newsletter is at the sole risk of the user, as the Joint Committee and the IAHR/IWA do not accept any responsibility or liability.*

IWA is a registered charity (England) 1076690 at Alliance House, 12 Caxton Street, London SW1H 0QS, UK.
Tel: +44 (0)207 654 5500; Fax: +44 (0)207 654 5555; E-mail: water@IWAhq.org.uk; Web: www.IWAhq.org.uk

IAHR is at Paseo Bajo Virgen del Puerto 3, 28005 Madrid, Spain. Tel: +34 91 335 7908; Fax: +34 91 335 7935; E-mail: iahr@iahr.org;
Web: <http://www.iahr.org>

1. JOINT COMMITTEE CONTACTS

Dr Jean-Luc Bertrand-Krajewski (Chairman)

URGC Hydrologie Urbaine
INSA de Lyon
34 avenue des Arts
F-69621 Villeurbanne Cedex
FRANCE
Ph.: 33 4 72 43 81 80; Fax: 33 4 72 43 85 21
E-mail: jean-luc.bertrand-krajewski@insa-lyon.fr

Dr Ana Deletic

Institute for Sustainable Water Resources
Dept. of Civil Engineering, Building 60
Monash University
Clayton, Vic 3800
AUSTRALIA
Ph: 61 3 9905 2940, Fax: 61 3 9905 4944
E-mail: ana.deletic@eng.monash.edu.au

Prof Peter Krebs

Institute for Urban Water Management
Dresden University of Technology
D-01062 Dresden
GERMANY
Ph: +49-351-463-5257; Fax: +49-351-463-7204
E-mail: pkrebs@rcs.urz.tu-dresden.de

Dr Maria Rafaela de Saldanha Matos

Sanitary Engineering Division
Laboratório Nacional de Engenharia Civil
Av. do Brasil, 101
PT-1700-066 Lisbon
PORTUGAL
Ph: +351 21 844 3265; Fax: +351 21 844 3032
E-mail: Rmatos@lnec.pt

Prof Nilo de Oliveira Nascimento

Federal University of Minas Gerais
Dept. of Hydraulics and Water Res. Engineering
Av. do Contorno, 842/8a.
30110-060 - Belo Horizonte, MG.
BRAZIL
Tel.: (+55.31)3238.1872, Fax: (+55.31)3238.1001
e-mail: niloon@ehr.ufmg.br

Prof Richard M. Ashley

Pennine Water Group
Dept. of Civil and Structural Engineering
University of Sheffield
Sir Frederick Mappin Building, Mappin Street
Sheffield S1 3JD
UK
Phone: 44(0) 114 222 5766, Fax: 44(0) 0114 222 5700
E-mail: r.ashley@sheffield.ac.uk

Prof H. Furumai

Department of Urban Engineering
The University of Tokyo
7-3-1, Hongo, Bunkyo-ku
Tokyo, 113-8656
JAPAN
Ph: 81-3-5841-6239, Fax: 81-3-5841-8535
Email: furumai@env.t.u-tokyo.ac.jp

Prof J H W Lee

Department of Civil Engineering
The University of Hong Kong
Pokfulam Road
HONG KONG, PRC
Phone: 852 2859-2672, Fax: 852-2559-5337
Email: hreclhw@hku.hk

Dr Peter Steen Mikkelsen

Institute of Environment & Resources
Technical University of Denmark
Bygningstorvet, Building 115,
DK-2800 Kgs. Lyngby
DENMARK
Phone: 45 4525 1600, Fax: 45 4593 2850
psm@er.dtu.dk

Dr Mohd Nor bin Mohd Desa

Director, Humid Tropics Centre Kuala Lumpur (HTC)
No 2 Jalan Ledang off Jalan Duta
50480 Kuala Lumpur
MALAYSIA
Phone: 603 2095 8700, Fax: 603 2095 3366
Email: drmohdnor@water.gov.my

Mr Eric W. Strecker
Geosyntec Consultants
55 SW Yamhill Street, Suite 200
Portland, OR 97204
USA
Ph.: 001-503-222-9518; Fax 001-503-242-1416
E-mail: Estrecker@GeoSyntec.com

Dr Maria Viklander
Division of Sanitary Engineering
Lulea University of Technology
S-971 87 Lulea
SWEDEN
Ph.: 46 920 491 634, Fax: 46 920 491 493
E-mail: Maria.Viklander@sb.luth.se

Dr Jiri Marsalek (Secretary)
National Water Research Institute
867 Lakeshore Road
Burlington, ON L7R 4A6
CANADA
Ph: 001-905-336-4899; Fax: 001-905-336-4420
E-mail: jiri.marsalek@ec.gc.ca

2. CHAIRMAN'S THOUGHTS

Dear friends and colleagues,

It is a great pleasure for me, a recently elected JCUD chairman, to write these few lines in our 2006 Newsletter. I would like to reiterate here publicly my thanks to all JCUD colleagues for their confidence leading to my election. I hope we will all work together to increase and improve our activities and visibility during the next three years. Let me also express my special thanks to two colleagues: Wolfgang Rauch, our former chairman, who is now an associate member of the JCUD, and Jiri Marsalek, who kindly accepted to continue to serve as our secretary with his well known efficiency and support.

According to the Joint Committee (JC) rules, there are 12 elected positions on the committee. In July 2005, Hiroaki Furumai (Japan) was elected as a new Japanese representative. During our last committee meeting held in Copenhagen, Denmark in conjunction with the 10th ICUD, Eric Strecker (USA) has been re-elected for the second three-year term. And, in October 2005, three new colleagues have been elected after an earlier call for nominations: Ana Deletic (Australia), Mohamad Nor (Malaysia) and Maria Viklander (Sweden). We have now a full JCUD membership, with good geographical representation of the various regions of the world, and also with more women, which represents a significant step towards achieving a better gender balance in our committee. I also want to thank the leaving members for having served the JCUD during the last 3 (or even 9) years: Wolfgang Rauch (Austria), Jaroslav Pollert (Czech Republic), Mitsuyoshi Zaizen (Japan) and Tony Wong (Australia). Three other members will finish their terms in 2006: consequently, three new positions will be opened for elections and a call for nominations or self-nominations will be issued in the fall of 2006.

When looking back at 2005, I would like to mention two important events. The first one was the successful 10th ICUD held in Copenhagen, Denmark, Aug. 21-26. This event, perfectly organized by Peter Steen Mikkelsen, Thorkild Hvitved-Jacobsen and their colleagues, attracted more than 450 participants. More than 350 papers were presented in platform sessions (i.e. traditional sessions), workshop sessions and poster sessions. Workshop sessions were an innovation in the ICUD series: I think that the experience was very interesting and I know that it will be continued, with some modifications, at the next UDM 2006 Urban Drainage Modelling conference to be held in Melbourne, Australia, 2-7 April 2006. During the ICUD, many US colleagues were present; it was a pleasure for all of us, and I really believe the collaboration with ASCE, and more widely with North American colleagues, should be further developed

in the future. Similarly, the South American scientific community on urban drainage is very active and my opinion is that links should be reinforced with these colleagues.

The second event I want to mention, which is linked to the 10th ICUD, is the Poul Harremoës Award. The PH Award has been established by the JCUD in 2004, in agreement with Poul's family, after his sudden death in November 2003. The Award's goal is to identify and promote papers on urban drainage, written by young scientists, with original ideas and concepts presented in an appealing way. After successive steps of selection among more than 100 proposed papers, the first PH Award has been won by Christoph Ort from EAWAG, Switzerland. The next PH Award will be awarded in 2008, during the 11th ICUD to be held in Edinburgh, UK. I hope that even more entries and more "out of the box" papers will be submitted.

The year of 2008 leads me to my next paragraph. For those who remember it or for those who keep good records of conference proceedings, the 1st ICUD conference was held in Southampton, UK in 1978. It has been proposed that the next 11th ICUD in 2008 will be an opportunity to celebrate "30 years of the urban drainage community" and the formation of the JCUD in 1982. A historical and perspective report will be prepared for publication and dissemination during the 11th ICUD. This is a big task for the next two years, which will partly contribute to the wish expressed by W. Rauch in his 2004 chairman's thoughts to organise the 'institutional memory of the JCUD'. We will advise you later this year about this project, for which we are soliciting contributions in the form of textual contributions, souvenirs, photos, etc.

Anniversaries of past events are nice, but contributing to the future of urban drainage is even more important. In Copenhagen, the JCUD and its working groups have launched a process to review our mission statements. Contributions were due by Dec. 31, 2005. Based on the documents and messages received, the JCUD will start the review process. Our revised mission statement will include e.g. JCUD goals, updated definitions of the scientific field of urban drainage, objectives, actions and activities, collaborations and cooperation with other working groups within IWA and IAHR and outside, internal rules, possible changes in the name or in the acronym, etc. It is planned to have these revised mission statements available in July 2006.

We have recently created a worldwide email list of with more than 1,200 addresses of colleagues interested in urban drainage. It will serve to directly disseminate some information from the JCUD and its working groups to the urban drainage international community, and to our both parental organizations, in order to increase our visibility and attract new members for our working groups. I personally think that joint communications by the JCUD on the one hand and by its WGs on the other hand, will be mutually beneficial. The first information disseminated with this list will be this 2006 Newsletter. I know that most of us are inundated by emails: this is why we will limit the number of our messages per year, but we will also do our best to deliver interesting and valuable information contributing to developing and maintaining a dynamic urban drainage community. Links to our website will be particularly emphasized.

Lastly, I would like to share with you some elements of a discussion we had within the Joint Committee in Copenhagen and some related thoughts. This discussion was about the visibility and the significance of urban drainage in the field of water science and technology. Compared to other fields, we discussed the fact that we, globally as a community, do not publish enough high-calibre scientific papers in good quality journals. We publish a lot, but maybe too much in conference proceedings (which are incidentally well cited and referred to) and not enough in international peer reviewed journals. This is a critical question. I read recently in the European magazine *RTD Info* (special issue November 2005, p. 9, available at http://europa.eu.int/comm/research/rtdinfo/index_en.html) that, in all scientific disciplines, 16,000 journals publish 1.2 million articles annually! I don't know how many among those 1.2 million deal with urban drainage, but likely too many for my own reading capacity. Who can maintain a fully updated literature review? One of my first reactions was that too many papers "kills" the use and value of papers. And that many papers result from the pressure of the "publish or perish" motto. Additionally, we are subject to the constraint of the "citation index" and of the "impact factor", which generate *ad hoc* developed response behaviour and strategies of both individuals and journals aiming to maximise these numbers without any guarantee of an intrinsically better scientific quality. I also remember the story of a

scientist who published a very good quality paper in a poorly ranked journal: his first version was rejected by the first chosen journal, his second version was rejected too by the second journal, and, lastly, the third version, significantly improved thanks to all comments and remarks he received, was published in a less notable journal... The above thoughts and elements will of course not close the discussion on this topic. But let me express the wish that the urban drainage field, thanks to the efforts of all of us, will have more good-quality papers published in refereed journals. Despite the difficulty of the task to read so many published papers, I think we should also increase our level of international citations, as urban drainage appears too frequently as a kind of national (if not a regional...) discipline. I do not underestimate the fact that some aspects of urban drainage strongly depend on national context, regulation and history. But more international citations and references will really contribute to the development of, and agreement on, common concepts, approaches and methods which contribute to the emergence of a real scientific field. With my best personal and professional wishes for 2006,

Jean-Luc Bertrand-Krajewski,
Chairman, IAHR/IWA Joint Committee on Urban Drainage

3. FROM THE SECRETARY'S DESK

Committee Newsletter – we will continue publishing an annual newsletter to serve the needs of our international community and meet the requirements of our parental organisations. Please keep in mind that the main purpose of the newsletter is to facilitate communication and interaction among specialists in our field, rather than presenting detailed information.

Both IWA and IAHR now distribute newsletters only electronically, and place our newsletter on their web sites. IAHR also distributes some excerpts from our newsletter in their Newsflash. Furthermore, thanks to the past efforts of Mitsuyoshi Zaizen and Shoichi Fujita, our newsletter was translated into Japanese and 200 hard copies were distributed in Japan. We will also distribute the Newsletter to more than 1,200 colleagues on our mailing list, which is based on IWA and IAHR membership, and participation in ICUD and NOVATECH conferences.

Please share your electronic newsletter copy with other colleagues, or refer them to the IAHR and IWA websites. Your comments on the current issue and contributions to future newsletters are welcome.

We will also send directly our Newsletter to more than 1200 colleagues identified in our own mailing list based on IWA and IAHR membership, and on ICUD and Novatech conferences.

Joint Committee Activities – The annual Committee meeting was held in Copenhagen Denmark, on Aug. 21, 2005. The meeting was attended by 22 people, including 9 JCUD members. A summary of information items discussed at the meeting and not covered elsewhere in the newsletter follows.

Two ECI (Engineering Conferences International) conferences are planned. The first one on Urban runoff modelling in Aug. 2006; the second one on urban drainage master planning will be held in 2007/08; for more information contact Eric Strecker. The UWRRC (Urban Water Resources Research Council) continues to work on the ASCE BMP database which is now managed by WERF. Rich Field has become the new chairman of the UWRRC.

A position paper on urban drainage (from NOVATECH 2004) was further updated/edited and submitted for a journal publication. It is currently under review. A new project – history of the Joint Committee – is under way. The Committee is almost 30 years old, so it is time to write a JCUD history, what has been achieved and published, who were the main contributors, and the evolution of the field. All contributions are welcome.

Urban Water – Cedo Maksimovic reported that after a one year hiatus (2003), the journal publication was restarted in 2004 by Francis & Taylor Publishers. The journal will be published in four issues per year, plus one special issue (this year on water quality in distribution systems). Those who have read

the recent issues of the journal can attest to high quality of this publication. To keep this our publications, we should work actively on increasing the journal subscription base! The Editorial Board will start a series of monographs, 10 topics were already suggested.

12th ICUD in 2011, a call for proposals was made during the closing session of the 10th ICUD. Four proposals have been received and are currently being evaluated by JC.

Status and Boundaries of the JCUD – a question was raised whether the field of urban drainage is maintaining sufficient priority among the current water management issues. Concerns were expressed that we may need broader terms of reference, or risk being left outside the main stream. If you wish to express your opinion on this topic, please contact the JC chair (Jean-Luc Bertrand-Krajewski), or the secretary (Jiri Marsalek).

Database on sewers – this (external) activity was described by Ton Beenen (Dutch Organization for Sewers). He has been developing a sewer database (www.rioned.org). So far, they scanned the past 19 years and found about 1800 entries on 69 themes. This public domain database is free, searchable, and identifies author names and institutions. He would like to include the ICUD proceedings in this effort – there was general support for this idea. We will work with him on future information abstraction.

JC is looking for ways of raising some funds to finance some of our activities (e.g., attendance of JC members at parental organization meetings).

Future JC meetings: 2006 – Melbourne (April 8), 2007 in Lyon (at the NOVATECH conference, on June 25, 2007), and in 2008, just before the 11th ICUD in Edinburgh, UK.

Jiri Marsalek
JC Secretary

4. WORKING GROUP REPORTS

4.1. International Working Group on Data and Models (IWGDM) (Chairman: Dr. Lothar Fuchs, ITWH, Engelbosteler Damm 22, 30167 Hanover, Germany; Phone: +49-511-971-9321, Fax: +49-511-971-9377, E-mail: L.Fuchs@itwh.de). Secretary: Ana Deletic, Institute for Sustainable Water Resources, Dept. of Civil Engineering, Building 60, Monash University, Clayton, Vic 3800, Australia, Ph: 61 3 9905 2940, Fax: 61 3 9905 4944, E-mail: ana.deletic@eng.monash.edu.au).

The meeting of the working group was held in conjunction with the 10th ICUD on Aug. 23, 2005, in Copenhagen, Denmark. The main topics discussed were: (1) aims of the Working Group and its scope, (2) initiating new focus areas, (3) initiating new activates, and (4) recruiting new members. It was agreed that the group needs to be revitalized, with new members attracted and new agenda developed. A questionnaire was prepared after the meeting and distributed to potential members. This helped us recruit new members (only people who filled the questionnaire should join the group). The new members identified the areas of their interest and potential future activities of the group. The answers were collected and collated into a new statute of the group. The group now has 13 active members, and will work further on traditional topics of data collection and model development in urban drainage systems, but focusing more on uncertainty in data collection and modelling, and integrated urban water modelling. The working group's web page is hosted by the Institute for Sustainable Water Resources (Monash University, Australia). (<http://iswr.eng.monash.edu.au/iwgdm>).

The main current activity of the group is the Urban Drainage Modelling (UDM) conference that will be held in conjunction with the Water Sensitive Urban Design conference in Melbourne, Apr. 3-7, 2006. The conference received 180 full papers that have been rigorously reviewed and selected for possible oral and poster presentations. In total 150 papers were accepted. The conference will have a strong international flavour, with a lot of local participants attending. The best papers from the conference

will be selected for publication in Water Science and Technology (IWA) and the Australian Journal of Water Resources.

The group is also organizing (in conjunction with Co-operative Research Center eWater, Australia) a workshop on the '**Integrated Urban Water Management Modelling: Challenges and Dilemmas**' to be held in Melbourne on the first day of the UDM and WSUD conference (3 April 2006). A number of the group members will be present at the workshop.

4.2. The Real-Time Control of Urban Drainage Systems (RTCUDS) Working Group (Chairman: Dr H. Colas, BPR-CSO, 5100 Sherbrooke St. E., Suite 400, Montreal, Quebec H1V 3R9, Canada; Phone: 001-514-257-2439, Fax: 001-514-257-2414, E-mail: Hubert.Colas@bpr-cso.com). Secretary: Dr Alberto Campisano, Department of Civil and Environmental Engineering, University of Catania, Viale Andrea Doria 6, 95125 Catania, Italy, Phone: +39 (0)95 7382711, Fax: +39 (0)95 7382748, e-mail: acampisa@dica.unict.it). Web site: <http://www.dica.unict.it/users/acampisa/rtcwg/>.

The RTCUDS Work Group organized a well-attended one day pre-conference workshop in conjunction with the 10th ICUD Conference in Copenhagen, on August 21, 2005. The group also met to discuss future activities and projects. The minutes of the meeting are accessible on group's website (see the address below, under the heading "Minutes of the Meetings"). The upcoming activities include the 20th European Junior Scientist Workshop on "Real Time Control of Urban Drainage Systems" in Barcelona, Spain, May 25-28, 2006. CLABSA has taken the lead to organise this workshop. Please contact Gustavo Ramon Wilhelmi (GustavoR@clabsa.es) or Alberto Campisano (acampisa@dica.unict.it) for further details. Further information will become available on the group's website (<http://www.dica.unict.it/users/acampisa/rtcwg/>).

4.3. Sewer Systems and Processes Working Group (SS&PWG) (Chairman: Prof. José Saldanha Matos, Technical Superior Institute of the Technical University of Lisbon, Av. Rovisco Pais, 1049-001 Lisbon, Portugal: jsm@civil.ist.utl.pt. Vice-Chairman and Secretary: Prof Francois Clemens, Faculty of Civil Engineering and Geoscience, Delft Technical University, Stevinweg 1, Postbus 5048, 2600 GA Delft, The Netherlands. Ph: 31 (0) 15 278 5450, Fax: 31 (0) 15 278 4918, E-mail: F.H.L.R.Clemens@CiTG.TUdelft.nl. Web site: <http://www.sspwg.civil.auc.dk/>).

The group has developed a substantive document on Objectives, Activities and Boundaries of the SS&PWG. An important main objective of the group is to contribute to a more comprehensive and multidisciplinary understanding of sewer system performance. During this period of eight years (1997-2005), the main topics of interest of the group have included: sewer solids, sewer biofilms, wastewater changes and sewer atmosphere, monitoring techniques and methods for analysis of measured data, sulphide formation, odour problems and corrosion, infiltration, exfiltration and inflows in sanitary sewers; design, operation and control related to sewer processes; sewer rehabilitation and maintenance; and, interactions between sewers and wastewater treatment plants and between sewers and receiving waters. More knowledge and information related to sewer solids and processes is required to control deposits, effects of flushing, overflows and potential impacts on downstream wastewater treatment plants (WWTP) and receiving waters. More information is also needed for the adequate design of more sustainable sewer systems.

It is considered that the topics of interest of the SS&PWG are broad enough and sufficiently important in terms of contribution to a more proper and sustainable provision of wastewater services. It can be said that despite the investment that has been made for acquiring knowledge in sewer systems and processes, there are a lot of topics where knowledge is still deficient. Core activities of the group should be maintained, with focus on new and scientifically solid knowledge expressed in general and conceptual terms. The information should be divulged in order to facilitate the knowledge transfer to Society, in the

field of sewer systems design, operation and maintenance.

More holistic approaches are now advocated for the management of wastewater systems as a whole, considering the sewer, the treatment plant and the receiving waters as a continuum, and considering the different aspects of the operation and management (water phase, solid phase, air phase and social and economic issues). The interactions between the SS&PWG and other JCUD or IWA specialist groups should be explored in order to get added values to the overall objective of improving the performance and sustainability of wastewater systems.

The IAHR/IWA Joint Committee on Urban Drainage is a large group mostly influenced by researches and academics. In terms of the number of members involved and initiatives, the JCUD is perhaps much more active than, for example, the great majority of IWA specialist groups. In fact, some of the JCUD working groups may be comparable, in terms of the number of technical and scientific initiatives, to some existing IWA specialist groups.

At present, JCUD includes eight working groups which cover the following fields of interest: data and models; real time control; sewer systems and processes; source control; urban rainfall; technology exchange, transfer and training; urban drainage in cold climate and water sensitive urban drainage.

One of the greatest challenges of a such large committee is to promote an active membership and to increase the influence on the development of urban drainage in the world, playing a bigger role on decision processes. We think that JCUD should maintain the focus on scientific and technical work, while promoting visibility through conferences, workshops and Journal publications.

It is relevant to the JCUD to stay in touch with pressing issues of wastewater management and with new emergent challenges: major uncertainty of climate change, at-source separation of wastewater, reduction in per-capita water uses and sustainability requirements. In order to achieve this, it is important to better explore the interactions and complementary activities of the eight existing working groups, through common reflection on broad topics and through the development of technical and scientific joint initiatives.

In the beginning of this new millennium, knowledge on urban drainage is still deficient but new opportunities to contribute to the development of Society are emerging. Perhaps the noblest challenge of the JCUD is also to contribute to the extension of proper and sustainable wastewater services to the majority of the world's population, for a more secure sanitation and flood protection.

4.4. Working Group on Source Control for Stormwater Management (SOCOMA) (Chairman: Gilles Rivard, Aquapraxis Inc, 948 Donat-Belisle, LAVAL (Qc), Canada H7X3W5; Phone: 001-450-689-2967, Fax: 001-450-689-2969, E-mail: GRivard@aquapraxis.com; Vice-chair: Sylvie Barraud; Sylvie Barraud, INSA Lyon - URGC - Bâtiment Coulomb, 34 Avenue des Arts, F-69621 Villeurbanne Cedex. Tel : 04 72 43 83 88 - Fax : 04 72 43 85 21 - E-mail : sylvie.barraud@insa-lyon.fr; Secretary: Carsten Dierkes, Hydrocon, HefeHof 25, 31785 HAMELN, Germany, Ph.: 49 5151 100295, Fax: 49 5151 100296, E-mail: dierkes@hydrocon.de).

The working group studies source controls, which are defined as all measures applied to control stormwater before it enters sewers or the surface receiving waters. The group's objective is to facilitate the development of these techniques, by conducting research and experiments, and disseminating the results.

The group worked on a synthesis paper, which was presented at the 10th ICUD and addressed source controls. The paper was authored by G. Rivard, G. Raimbault, S. Barraud, G. Freni, B. Ellis, M. Zaizen, R. Ashley, M. Quigley and E. Strecker. The group will co-sponsor a junior scientist workshop. The group co-sponsored the 4th World-Wide Workshop for Young Environmental Scientists held near Paris, France, May 10-13, 2005. The title was Urban Waters: Resource or Risk? (www.enpc.fr/cereve). Many members of the group were at the final DayWater Conference in Paris (November 3-4 2005). The European research project DayWater aims to develop knowledge and tools to support European water managers activities dealing with sustainable Urban Storm Water Management. Hydropolis consists of information on Best Management Practices, Priority Pollutants, Case Studies and Urban Dynamics. Furthermore an experienced user can model the effects of BMPs on the water system with STORM and

SEWSYS. The first main conclusion of the conference concerns the development of Hydropolis, which has led to an increased attention to sustainable urban storm water management among end-users. The second conclusion of the conference is that Hydropolis offers interesting and supporting information for water managers, but the user friendliness can be improved and the content needs to be supplemented (www.daywater.cz).

Currently, the group is working on a list of source control manuals and is preparing a dedicated web site that will give information on source controls and links to relevant sites. The next meeting of the SOCOMA working group will probably be held during the Urban Drainage Modeling conference (Melbourne, Australia, April 3-7 2006).

4.5. Working Group on Urban Rainfall (GUR) (Chairman: Dr Guido Vaes, HydroScan, Tiensevest 26/4, B-3000 Leuven, Belgium; Phone: +32-16-240501, Fax: +32-16-240509, E-mail: guido.vaes@hydroscan.be. Secretary: Dr Thomas Einfalt, Einfalt & Hydrotec GbR, Breite Str. 6-8, D-23552 Lübeck, Germany. Ph: +49-451-7027333 Fax: +49-451-7027339, E-mail: thomas@einfalt.de. Group's web site: <http://www.kuleuven.ac.be/hydr/gur>

The GUR held its annual meeting at the ICUD conference in Copenhagen in August 2005. The minutes of the meeting can be found on the website. The next annual meeting will be held at the 7th International Workshop on Precipitation in Urban Areas in St-Moritz, Switzerland in December 2006.

The GUR has organised a 'Radar seminar for hydrologists' at the ICUD conference in Copenhagen on the 21st of August 2004. This was the first event of this kind, and the attendance of more than 20 persons indicates the seminar success. It is planned to repeat such an event at the next ICUD. The chairman and secretary have been re-elected in November 2005 for another 3-year term (until the next ICUD).

The GUR supported a regional workshop on hydrometric measurements on Dec. 1 and 2, 2005 in Belgrade. On this occasion, hydrological and meteorological services from Balkan countries met in order to exchange current practice in hydrometry and hydrometeorology as well as to discuss the future needs in different countries. The conclusions from this meeting will be distributed by the organiser Prof. Jovan Despotovic in January, 2006.

Selected papers from the 6th International Workshop on Precipitation in Urban Areas have been published in a special issue of Atmospheric Research, volume 77.

The preparations for the 7th International Workshop on Precipitation in Urban Areas in St-Moritz, Switzerland in December 2006 have started; the facility is booked and the first announcement is available on the website.

The most recent information related to GUR activities can be found on the GUR website which is regularly updated, see www.kuleuven.ac.be/hydr/gur

Future meetings and conferences – the 7th International workshop on PRECIPITATION IN URBAN AREAS, with sub-themes Extreme precipitation, multi-source data measurement and uncertainty, will be held in St. Moritz, Switzerland, Dec. 7-10, 2006.

The workshop goal: the apparent increases of damages related to storm rainfall point out the need for improving the knowledge of extreme precipitation event structure and behaviour, their observation by means of combination of data from different sources and their modelling, and the evaluation of the uncertainties associated with both measurements and model results. A quantitative assessment of uncertainties is particularly important for operational purposes, especially in urban hydrology, which is characterised by small time and space scales.

Following the tradition of the previous workshops the main objective of this event is to provide a forum for exchanging ideas and information in order to bridge the gaps between scientific achievements and critical issues that need to be addressed in practice. Accordingly, contributions on the workshop themes and dealing with application-oriented basic research or operational urban hydrology are welcome.

WORKSHOP THEMES: (1) Extreme precipitation events, Quality control of rain gauge and radar data; methods to artificially enhance space and time resolution of data; Accuracy of rainfall measurements for extreme events and formulation of accuracy criteria based on event characteristics; and, Predictability

of rainfall extremes at fine resolution scales, including both real-time and simulation frameworks;

(2) Uncertainties in precipitation measurement and modelling; Analysis of spatial and temporal rainfall variability including trend analysis; non-stationarity of rainfall series; Detection of natural and anthropogenic effects and accounting for them in design-oriented modelling; Scaling versus non-scaling methods in space and/or time for rainfall modelling; and, Impact of rainfall uncertainties on hydrological processes.

(3) Combining multi-source precipitation data for operational applications; Integration of different measurement and forecasting techniques for operational purposes; and Rainfall information for applications: design rainfall, warning systems, etc. For more information, please visit our website at: <http://www.kuleuven.be/hydr/gur>

Recent publications of interest: Atmospheric Research, Volume 77 (September-October 2005), contains selected reviewed papers from the 6th international workshop on precipitation in urban areas held in Pontresina, Switzerland, Dec. 4-7, 2003.

4.6. Technology Exchange, Transfer and Training Working Group (TETTWG) – group’s operation has been suspended. Opportunities for re-activating this group will be explored at the next JCUD meeting in Melbourne, April 8, 2006.

4.7. Urban Drainage in Cold Climate Working Group (UDCCWG) (Chair: Dr Maria Viklander, Division of Sanitary Engineering, Lulea University of Technology, S-971 87 Lulea, Sweden, Ph. 46 920 491 634, Fax: 46 920 491 493, Email: Maria.Viklander@sb.luth.se; Secretary Dr John J. Sansalone, Civil and Environmental Engineering, Rm. 3510 CEBA Bldg, Louisiana State University, Baton Rouge, LA 70803-6405, USA, Ph.: 001-225-578-6047, Fax: 001-225-578-8652, Email: jsansal@lsu.edu

4.8. Formation of a New Group on Water Sensitive Urban Design (Convener: Dr Tony Wong, Ecological Engineering, PO Box 453, Prahran, Victoria 3181, Australia, tel +613 9533 8445; fax +613 9533 7781; tony@ecoeng.com.au)

A new working group on Water Sensitive Urban Design is being formed to provide a forum for sharing research findings and implementation experiences on the integrated urban water cycle management in urban environments. Potential participants should contact the conveners of this new group, Dr. T. Wong and Prof. R. Ashley.

5. NEWS FROM IAHR AND IWA

IAHR News

IAHR Secretariat contacts: IAHR, Paseo Bajo Virgen del Puerto 3, 28005 Madrid, Spain; Tel: +34 91 335 7908; Fax: +34 91 335 7935; E-mail: iahr@iahr.org, URL <http://www.iahr.org>. For more information on IAHR activities and free subscription of the IAHR e-newsletter ‘NewsFlash’, please contact the IAHR Secretariat: IAHR@IAHR.org

Starting in 2005, IAHR launched a new “electronic” membership which includes all normal membership benefits except the printed Journal of Hydraulic Research. Also, for 2005 an electronic access to the Journal of River Basin Management is offered for 10 Euros. In the field of urban hydrology, the *Urban Water Journal* can be subscribed at a special reduced rate for IAHR members.

The XXXI Congress of IAHR (Seoul, Sep. 11-16, 2005) was held with great success in Seoul, Sep. 11-16, 2005. The congress addressed the following major themes: (A) Hydroinformatics, Hydraulic Modelling, and Data: Competition or Integration?, (Theme B) entitled “Urban and Industrial Flows - Analysis, Management and Security” (C) Protecting and Restoring the Aquatic Environment - Water

Quality and Habitat Challenges, (D) Coping with Extremes in Water Resources, (E) Coastal Development, Dynamics, and Ecosystem Fragility - A Delicate Balance, and (F) Freshwater Crisis – Trends, Challenges, and Global Change. As always, the congress will also include a range of seminars and technical workshops. For full information visit the new Congress Website at: <http://www.iahr2005.or.kr/>.

The XXXII Congress of IAHR will be held in Venice, Italy, July 1-6, 2007.

Finally, the IAHR membership renewals are now due, for details, please contact the IAHR Secretariat (see the web site above).

IWA News

2006 will be an exciting year for IWA with the further development of our existing programmes and some new programmes to meet our member needs and requirements. For further information or to become involved with any of these programmes, please contact Keith Robertson, Programmes Manager (Keith.Robertson@iwahq.org.uk). Our programme of activities for 2006 includes:

Specialist Groups

Four NEW Specialist Groups have recently been created and cover the topics of “Institutional Governance and Regulation”, “Strategic Asset Management”, “Sustainability”, “Water Security and Safety Management”. More information on all of these groups is available on the IWA website and you are invited to join any or all of these when you renew your membership. In addition there are early proposals for further new groups on “Procurement” and “Climate Change and Utilities” - so keep your eyes open!

Members of IWA can elect to join an unlimited number of Specialist Groups ranging from the theory to practice of water management. The London office supports these groups through regular liaison with Specialist Group leaders about developments relevant to their groups; assistance in organising conferences; dissemination of information and newsletters produced by the groups; assistance in running elections for leadership of Specialist Groups and other matters. If you have any questions, you may want to contact one of the Specialist Group liaison officers Ms Urszula Rychta.

IWA World Water Congress and Exhibition

One conference we must draw your attention to is the IWA World Water Congress and Exhibition that will take place in Beijing, China September 10-14 2006. Beijing will provide unique cultural and professional experiences for all those who attend, building on the outcomes and thinking of the 2002 Melbourne and the 2004 Marrakech Congresses. By capturing the best of scientific thinking and practical application, the IWA Congresses help to make a genuine and long-lasting contribution to the myriad short- and long-term water management issues that confront us all, locally and globally. For more information see the Congress website at www.iwa2006beijing.com.

Bonn Charter for Safe Drinking Water

The Bonn Charter for Safe Drinking Water is a high-level principles document that accompanies the WHO Drinking Water Quality Guidelines (3rd Ed.). Its goal is “Good, safe drinking water that has the trust of consumers”. Its purpose is to set out the fundamental elements necessary to deliver improved quality drinking water to consumers. It is also a document that politicians and industry leaders can hold up as a standard to which they aspire. The Bonn Charter was developed through a workshop process attended by leading utility managers, regulators and academics. The IWA London office is now actively engaged in rolling out the document globally. It has been translated into 5 languages, with more to follow.

Dry Area Forum

Established at the Marrakech World Water Congress, the Dry Area Forum is a network of individuals and research agencies active in the area of arid zone water management. The goal of the Forum is to identify innovative approaches being taken and to raise awareness of them globally, as well as identifying research

gaps and advocating new projects to fill these gaps. As the most rapid urbanisation is now occurring in arid areas, this work has never been more important.

Environmental Regulator's Network

In conjunction with America's Association of State and Interstate Water Pollution Control Administrators (ASWIPCA) IWA is creating an Environmental Regulator's Network to enable 'regulators to speak to regulators', facilitating information exchange and providing a mechanism for open discussion about innovative regulatory approaches that might be taken

Strategic Asset Management

There are large needs in the water sector to optimize investment and improve service. Strategic Asset Management is a topic of relevance and importance to utility personnel, regulators and consultants and encompasses techniques, technologies and management approaches that can optimise the investment made in infrastructure while achieving demanded customer service standards. IWA as a network of water professionals has led the way in fostering greater understanding of the importance of asset management globally. Foremost among the initiatives pursued, is the convening of a number of conferences by the Association. In 2004, IWA organized in the U.S. its first Leading Edge Conference on Strategic Asset Management and a well-attended workshop on asset management during the Marrakech Congress. 2005 saw the launch of IWA's first electronic newsletter "Water Asset Management International" with contributions from authors around the globe. Utilities would benefit from transfer of knowledge of recently improved and developed practices, tools and technologies. A specialist group has been formed to facilitate this and will be followed by the development of a concept paper and other products that will benefit the utility and consultant segments of IWA's members.

Sustainability

The application of this concept to water is vital as cities grow and evidence mounts of the unsustainability of many current practices (the draining of the Aral Sea is a prime example). Accordingly IWA formed a steering committee to oversee production of a Vision document that can be used as a guide to the theory and practice of sustainable management of the urban water cycle. Recently, the Association has also moved to the establishment of a new Specialist Group on Sustainability. In future, a programme of workshops and information exchange and dissemination will back these efforts.

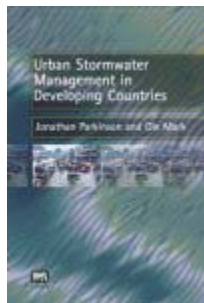
Utilities Programme

IWA provides an international voice for all its members, with a current focus on utilities. In 2006 we will be launching IWA Utilities, an initiative to raise the profile of utilities issues, to promote information exchange among utility representatives, and to create a wider utilities network. Several new 'utilities-relevant' specialist groups have been created to support this effort (see above).

Excellence in Innovative Water Engineering Award

The new IWA International Award Programme for Excellence in Innovative Water Engineering is about excellence in projects, not a lifetime award for individual achievements. It is engineering and water focussed, but is not exclusively focussed on physical infrastructure. Planning and management projects are equally eligible for recognition. Nominated projects can originate from existing national awards programmes for project innovations or from "bottom-up" national nominations from countries/regions in which no awards programme currently exists. The winners of the awards will be announced at the IWA Biennial Congress commencing at the IWA Beijing World Water Congress in 2006. Winners will be entitled to a physical display of their entry at the Congress Exhibition Centre, a feature article in Water 21 and the IWA Yearbook, the use of the IWA International Award Programme for Excellence in Innovative Water Engineering certificate in advertising.

6. NEWS FROM IWA PUBLISHING



Urban Stormwater Management in Developing Countries

Authors: J Parkinson, O Mark

The purpose of this book is to disseminate contemporary knowledge and practical experiences concerning problems and solutions related to urban hydrology and drainage. Although the main focus is on developing countries, the book draws from experiences in many other parts of the world. Based upon numerous practical examples and case studies, the book provides information to assist in the management, planning and engineering design processes.

This book encourages the reader to adopt an integrated approach towards stormwater management and considers the importance of institutional arrangements, participation of local stakeholders in planning, as well as aspects of financing and cost recovery.

ISBN: 1843390574 · October 2005 · 240 pages · Paperback

IWA Members Price: £26.25 / US\$47.25 / €37.50

Non Members Price: £35.00 / US\$63.00 / €50.00



Sewer Networks and Processes within Urban Water Systems Selected Proceedings of the 18th European and 1st Asian Junior Scientists Workshops

Editors: J-L Bertrand-Krajewski, M Almeida, J Matos, S Abdul-Talib

The papers in this volume of the Water and Environmental Management Series (WEMS) were originally presented at the 18th European Junior Scientists Workshop (EJSW), Portugal, on 8–11 November 2003 and at the 1st Asian Junior Scientists Workshop (AJSW), Malaysia, on 7–10 February 2004.

The workshops were organised by the SS&PWG (Sewer Systems and Processes Working Group) of the IWA/IAHR Joint Committee on Urban Drainage. From the 37 full papers presented at the two workshops, 16 papers have been selected by independent reviewers from the SS&PWG for publication in Sewer Networks and Processes within Urban Water Systems. They reflect rather well the variety of topics presented during both workshops, and bring the high-quality work of these junior authors to the wider audience it merits.

Water and Environmental Management Series (WEMS)

ISBN: 1843395061 · November 2004 · 172 pages · Paperback

IWA Members Price: £48.75 / US\$87.75 / €78.00

Non Members Price: £65.00 / US\$117.00 / €104.00

Post-Project Monitoring of BMP's/SUDS to Determine Performance and Whole-Life Costs WERF Report (Project 01-CTS-21T)

Author: LK Lampe

Over the past 20 years, the use of Best Management Practices (BMPs) in the United States has been instrumental in reducing both the detrimental impacts to receiving water quality and the exacerbated flooding caused by urbanization and storm water drainage. More recently, Sustainable Urban Drainage Systems (SUDS) have started to be used in the United Kingdom. Both SUDS and BMPs attempt to mimic the drainage patterns of the natural watershed, and can also provide a degree of treatment needed to improve the quality of the water discharged to an acceptable level.

This project includes a literature review and a survey of stormwater authorities and organizations in the U.S. and U.K. to identify the most commonly used BMPs and SUDS and to determine the availability of data on their cost and performance. It also involves establishment of protocols for whole-life costs and performance data for BMPs and SUDS.

WERF Report Series

ISBN: 1843397161 · November 2004 · 400 pages · Paperback

IWA Members Price: £77.25 / US\$124.00 / €124.00

Non Members Price: £103.00 / US\$165.00 / €165.00



Urban Drainage A Multilingual Glossary

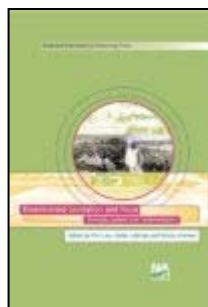
Editors: JB Ellis, B Chocat, S Fujita, J Marsalek, W Rauch

Urban Drainage: A Multilingual Glossary has been written by research engineers and scientists with substantial experience in the urban drainage field. It provides definitive descriptions of urban drainage terms in English, French, Japanese and German, giving guidance on their appropriate usage and context. The glossary also contains many diagrams, tables and technical discussions, and is a very practical tool to facilitate international technical communication in the urban drainage field.

ISBN: 190022206X · March 2004 · 528 pages · Paperback

IWA Members Price: £66.75 / US\$113.25 / €93.75

Non Members Price: £89.00 / US\$151.00 / €125.00



Decentralised Sanitation and Reuse Concepts, Systems and Implementation

Editors: P Lens, G Zeeman, G Lettinga

Decentralised Sanitation and Reuse presents technical solutions for on-site collection and transport of concentrated waste streams, and focuses on the compromise between reliability and minimal water wastage. A whole range of available sustainable technologies, both low and high-tech, to treat concentrated (black water) and diluted (grey water) streams are addressed in detail from the

fundamental scientific and engineering points of view. It will be an invaluable resource for a wide academic and professional readership active in the fields of environmental protection and public sanitation.

Integrated Environmental Technology Series

ISBN: 1900222477 · March 2001 · 650 pages · Hardback

IWA Members Price: £67.50 / US\$114.75 / €108.75

Non Members Price: £90.00 / US\$153.00 / €145.00

For more information on IWA Publishing products or to buy online visit www.iwapublishing.com

Or order from IWA Publishing's distributor:

Portland Customer Services
Commerce Way
Colchester
CO2 8HP, UK
Tel: +44 (0)1206 796 351

7. NEWS FROM AROUND THE WORLD

Australia and New Zealand (reported by Ana Deletic and Tim Fletcher)

Institute for Sustainable Water Resources (ISWR), Monash University (<http://iswr.eng.monash.edu.au/>), has been working on a number of research projects including: (a) Investigation and modeling of clogging of stormwater treatment systems, (b) Technical recommendations for stormwater harvesting, (c) Large scale monitoring of water quality of stormwater in Melbourne, (d) Modeling stormwater pollution generation in Australian conditions, (e) Modelling surface stormwater treatment systems, (f) Aquifer Storage and Recovery (ASR) for stormwater in Melbourne, (g) Characterization and modeling of pathogens in stormwater, (h) Ecological responses to urbanization, and (i) Nitrogen treatment in constructed wetlands. For more information, contact Ana or Tim.

Facility for Advancing Water Biofiltration (FAWB) has been established as a joint venture between ISWR, Monash University and Ecological Engineering Ltd on the basis of a large Science and Technology Innovation Grant awarded to ISWR and EE by the state government. The key objective of FAWB is to provide proof of concept by developing and testing a range of biofilter systems (also known as bioretention systems) that can be applied to specific market based needs.

The Australian National Urban Water Governance Program, led by Rebekah Brown from the School of Geography and Environmental Science at Monash University, was officially launched on Sept. 1, 2005. With the support of industry partners, the program aims to provide a credible knowledge base to inform and assist urban water managers in building institutional capacity, and improving urban water governance to deliver more sustainable forms of water management.

The newly formed eWater Cooperative Research Centre (eWater CRC), a major partnership between private and public water businesses and research groups across eastern Australia, has scoped its urban water research portfolio. Under the leadership of Grace Mitchell (from ISWR, Monash University), the Urban Systems & Design research program is divided into two project areas: (1) Scaling, technologies and systems analysis for urban water management and (2) Innovative WSUD intervention strategies. The first project (lead by Grace Mitchell) focuses on developing urban water models which explicitly consider spatial and temporal scaling issues, investigate the nesting of fine scale models within coarser scale models, account for uncertainty and reflect complex urban system dynamics. The second project, lead by Peter Coombes of the University of Newcastle, will address issues such as enhancing the capacity of aging infrastructure, and providing capacity and resilience to accommodate the pressures of human population growth and climate variability. Further information will appear on the eWater CRC web site (www.ewatercrc.com.au) shortly.

Melbourne Water (www.melbournewater.com.au) is investing substantial resources into the widespread adoption of water sensitive urban design throughout Melbourne, with a particular emphasis on management of the Yarra River (the main river flowing through Melbourne). A key focus is on the development of institutional capacity.

Engineers Australia (the National Institution of Professional Engineers) has just launched the Australian Runoff Quality (ARQ) guidelines, a document which provides the overarching national guidance on urban stormwater management (there are also local technical guidelines which have been developed by State agencies). The ARQ guidelines include 14 chapters, which cover topics such as (a) Stormwater Quality (sources, pathways and setting management objectives), (b) Policy, Governance, and Integrated Water Cycle Management, and (c) Stormwater Treatment Measures (design guidance) and Modelling System Performance (application guidance). A series of workshops around Australia will be used to demonstrate application of the guidelines.

Australian Rainfall and Runoff, the document that presents the basis of most flood estimation undertaken in Australia, has been reviewed and edited as an initiative of The National Committee on Water Engineering (NCWE) of Engineers Australia. A series of seminars have been presented around Australia giving preliminary details of the revision, with the launch being held on 29 November 2005.

The Warren Centre at Sydney University has commenced a project on "Metropolitan Water Options" with the focus being on an integrated approach to management of water in the urban environment. While using Sydney as a case study, the aim of the project is to investigate and propose approaches to the integrated management of urban water systems within social, economic, political, and technical constraints.

Auckland Regional Council (ARC), NZ, is championing application of Water Sensitive Urban Design in New Zealand. They have commissioned a number of interesting projects including the following: urban soil compaction effects on runoff volume, low impact development, peat/sand filter, flow reduction by porous pavement, sizing of stormwater practices using continuous vs. event simulations, NZ studies of trace metals in stormwater metals, and funding options for stormwater management. ARC is also interested in green roofs, rain gardens, and other innovative stormwater management practices, and examining the feasibility of implementing a policy prohibiting the use of galvanized roofing materials.

Austria (reported by Messrs. Ertl and Gangl, Dr. Gruber and Prof Rauch)

Mr. Th. Ertl of the University of Natural Resources and Applied Life Sciences, Vienna reports that the national benchmarking internet platform www.abwasserbenchmarking.at has been running for about one year now. With this web-platform and under the guidance of the Austrian Society of Wastewater Engineers (ÖWAV) the continuous benchmarking process for sewerage and wastewater treatment operators is established on the basis of the refined results of the year 2000 research project. The installation of the platform is generously sponsored by the Ministry of Environment www.lebensministerium.at which also financed the earlier project. The number of participants (30 wastewater treatment and 6 sewer operators) should increase in the following years to make it a powerful instrument for national water management.

In the field of sewer personnel training, the 17th sewer basic course on SOM, the 10th sewer cleaning course and the 9th sewer inspection courses were held under the auspices of the national water association (ÖWAV) with great success. A new course for advanced sewer operation and maintenance has been implemented successfully this year as well.

From the University Innsbruck, Institute of Environmental Engineering, Prof. Rauch reports on activities undertaken during the last year.

The open source platform development CITYDRAIN©, which was already reported on last year, received additional funding and has been further improved. The software is designed for modelling urban drainage systems (including the receiving water) in an integrated way. Following the principles of block-wise modelling of integrated systems, CITY DRAIN has been developed in a Matlab/Simulink© environment. The Simulink platform is widely used for different kinds of dynamic simulations and was found suitable for hosting the CITY DRAIN© software. The basic idea is to create a toolbox of different subsystems (catchment, CSO, WWTP,...) which can be freely arranged and connected to each other. Version 1 has implemented Mass transport of pollutants for conservative matter/tracer substances. In version 2 we implemented processes for transformation of pollutants and also included a WWTP on the basis of the activated sludge model family.

On-site infiltration of stormwater from parking lots has been investigated in a project funded by the regional government. Proper operation of those facilities is assumed to be about 15 years, as reflected by the permits granted for this time. The investigations attempt to closely examine the temporal development of hydraulic and pollutant removal capacity of infiltration troughs. Experimental investigations addressed covered infiltration troughs of different ages in eleven supermarket parking lots in Tyrol. Hydraulic permeability was assessed as well as chemical conditions of soil materials regarding hydrocarbons and heavy metals (Cu, Zn, Pb and Cd). No distinct relation of pollutant loads and such

factors as facility age or permeability was found. Load estimations were made using literature based minimum and maximum concentrations in surface flows and used in assessing the operational life time on the basis of pollutant load considerations.

Following earlier research at IUT, the aspect of temporal and spatial variation of rainfall in urban areas has been further analysed. It is a well-known problem encountered in urban drainage design that rainfall differs significantly from location to location, depending on climatic and physiographic conditions. The current activities seek a possible explanation of the regional variation through adequate indicators. We have been able to show in an extensive simulation study (69 long-term rain series from all parts of Austria) that different rainfall characteristics are needed to describe the influence of local rain pattern on the drainage performance, i.e. there is a correlation between the mean annual rainfall depth and the CSO volume, but there is no relationship with the collection efficiency of the drainage system, which was defined as percentage of the total rain runoff that is treated at the WWTP. Publications of results are under preparation. Furthermore, research is under way to estimate the potential trend of precipitation with respect to global change. For that issue we analysed several long-term rainfall series (duration at least 50 years) for statistical trends in rainfall properties and also the effect on the drainage system performance.

Mr. Gerald Gangl from Graz, University of Technology reports on the project entitled "Examination, evaluation and guaranty of the operability of sewerage plants in Austria", which started in 2004. The main goal of the project is to provide a maintenance manual including a special part on the quality management of CCTV inspections of sewer systems. In the first part, the participants (representatives of agents – the Austrian Federal Economic Chamber, principals - civil engineers, managers of sewer systems, public administration officers and universities) discussed theoretically current problems of high-pressure jetting, CCTV sewer inspections, data management, inspection strategies and performance indicators. This part was finished in 2004; the main focus in 2005 was to implement the findings obtained in part 1. Two of the sewerage associations involved in the project, improved their operating methods by starting to survey their sewer systems and implementing a GIS.

Another important step was to improve the training of the TV-inspection personnel. Evaluated videos of a test-inspection in summer 2004 led to the decision to arrange an advanced training course for TV-inspection companies with a practical focus, but also aim at upgrading the European Standard for CCTV Inspection Code EN 13508-2.

After waiting a few months for the implementation of the new EN-Code in the inspection software, the inspection companies have been invited to another test-inspection. The focus was not only on using the software and the quality of the delivered results, but also on the digital data exchange between the client and the contractor. The first evaluation showed that the new results were of a better quality than before, which should lead to a continuing quality management of TV-inspections. By June 2006, the scientific analyses of the implementation of the selective inspection strategy in small sewer systems and the GIS-supported condition analyses with influence on service requirements should be finished. The final project report will be discussed by a nation-wide working group of the Austrian Water and Waste Association as a basis for a new sewer operation and maintenance guideline.

Dr. Gruber from Graz, University of Technology reports on first experiences with operating an on-line sewer monitoring station for the City of Vienna. The monitoring station in Vienna has been operating continuously since November 2004. Besides this station, the operation of an on-line sewer monitoring station in the City of Graz (started in Oct. 2002) was also continued. The catchment selected in Vienna serves a population of 275,000 inhabitants and has a total catchment area of 6,333 ha. The monitoring station is located at a pumping station where the CSO overflow discharges are pumped into the Danube River. The location of the station seems to be of great interest in connection with the just starting RTC project in Vienna. Both stations were designed for long term monitoring and should improve the knowledge of the complex processes in and outside sewer systems. The main goal of the monitoring stations is to measure pollution discharges in sewer systems and into the receiving water bodies by means of UV-VIS spectrometers and ISE probes.

Two different solutions have been adopted for sensor installation. The first solution consists of locating the sensor within the sewer structure itself, such as on the underside of a pontoon anchored to the

chamber walls and to the ceiling by steel cables. With such an installation in the CSO structure in Graz, the sensor is always located in the top water layer and subsequently measures the water quality which is discharged at the overflow weir during storm flow conditions. The second solution, used in Vienna, consists of installing the sensor in a by-pass measuring flume located in a shelter outside the sewer system in a large pumping station in Vienna. A submersible shredding pump (2 L/s and 1 m/s) is used to pump the wastewater from the sewer into the measuring flume.

The operational experiences so far have shown that the maintenance demands for the used by-pass installation in Vienna is higher than for the floating installation in Graz since two critical points have to be maintained regularly: the intake of the shredding pump and the by-pass measuring flume. Furthermore it is urgently recommended to measure also the flow rate in the by-pass continuously to guarantee representative flow conditions in the by-pass measuring flume.

Finally, Dr. Martin Hochedlinger has successfully defended his Ph.D. thesis entitled “Assessment of Combined Sewer Overflow Emissions” in July 2005. The thesis was written in English and can be downloaded from the website of the institute (www.sww.tugraz.at or directly by the link ftp://129.27.75.3/pub/lehre/dissertationen/DISS_Hochedlinger.pdf). The thesis deals with the assessment of combined sewer overflow loads as measured by an UV-VIS spectrometer at the on-line sewer measurement station in Graz. In the thesis five different linear regression methods are used and compared to calculate COD_{tot,eq}, COD_{sol,eq} and TSS_{eq} concentrations from the recorded absorbencies of the spectrometer.

Canada (reported by Jiri Marsalek)

The Federation of Canadian Municipalities (FCM) and the National Research Council (NRC) have continued working on the National Guide to Sustainable Municipal Infrastructure. This Guide is designed to assist Canadian municipalities in dealing with infrastructure issues, and specifically, it aims to provide: (a) a decision-making and investment planning tool; (b) a compendium of technical best practices (BPs); (c) a road map to the best available knowledge and solutions for addressing infrastructure issues; and (d) serve as a focal point for the Canadian network of practitioners, researchers and municipal governments dealing with infrastructure issues. So far, about 27 water-environment related best practice documents have been produced, including those dealing with source and on-site controls for municipal drainage systems, infiltration/inflow control/reduction for wastewater collection systems, and wastewater source control.

A recently completed (July 2005) BP addressed Conveyance and End-of-Pipe Measures for Stormwater Control. The report introduces the subject, explains the rationale for stormwater control, describes conveyance and end-of-pipe practices, as well as their applications and limitations, and offers illustrative examples. For more information (including free downloads), visit the Infraguide web site at: www.infraguide.gc.ca

France (reported by Prof B. Chocat and Dr Jean-Luc Bertrand-Krajewski)

Characterisation of sediments from road and urban retention /infiltration ponds – a 3-year study on “the characterisation of sediments from road and urban retention/infiltration ponds” has been carried out in the frame of a research program coordinated by the Laboratoire Central des Ponts et Chaussées (LCPC). This work received a financial support from the Réseau Génie Civil et Urbain (RGCU). The BRGM, the University of Poitiers, the company St Dizier Environnement, the urban community of Lille Métropole and several regional laboratories of the Ponts et Chaussées participated in this project. The main objectives were: (a) to study the mechanisms of pollutant transport, and (b) to characterise the sediments from stormwater runoff systems with respect to their potential reuse.

A 2-day synthesis conference was organized at the LCPC centre in Nantes on Nov. 15 and 16, 2005. About 60 participants attended the conference and 20 contributions were presented, dealing with four main

topics: (a) sediment characterisation, (b) evaluation of the sediment toxicity, (c) mobility and transport of pollutants in road environments, and (d) valorisation of the sediments. The conference papers are available on the LCPC web site (at www.lcpc.fr). The main research results are also presented in a synthesis report (Ruban, 2005) and in several papers and communications (Durand, 2003; Durand et al., 2003; Durand et al., 2004a and b, 2005).

This collaboration will continue in the frame of a new research programme concerning: (a) the origin of pollutants in road and urban environments, (b) the risk assessment of pollutant transport, and (c) the treatment of sediments. For more information, please contact Mrs. Véronique Ruban at Veronique.Ruban@lcpc.fr

References

- Durand C., 2003. Caractérisation physico-chimique des produits de l'assainissement pluvial. Origine et devenir des métaux traces et des polluants organiques. Thèse de doctorat de l'Université de Poitiers, pp 252.
- Durand C., Ruban V., Amblès A., Clozel B., Achard L., 2003. Characterisation of road sediments near Bordeaux, with emphasis on phosphorus. *Journal of Environmental Monitoring*, 5, 463-467.
- Ruban V., 2005. Caractérisation et gestion des sédiments de l'assainissement pluvial. Rapport ERLPC, EG 19, pp 151.
- Durand C., Ruban V., Amblès A., Oudot J., 2004a. Characterisation of the organic matter in sludge: Determination of Lipids, Hydrocarbons and PAHs from road retention/infiltration ponds in France, *Environmental Pollution*, 132, 375-384.
- Durand C., Ruban V., Amblès A., 2004b. Mobility of trace metals in retention pond sediments, *Environmental Technology*, 25, 881-888.
- Durand C., Ruban V., Amblès A., 2005. Characterisation of complex organic matter present in contaminated sediments from water retention ponds. *J. Anal. Appl. Pyrolysis*, 73, 17-28.

Assessment of the modelling of wet weather pollutant loads – during the period 2001-2005, a research programme, funded by the French RGCU (Research Network for Civil Engineering) and by the SIAAP (Sewer Institution for the Paris Region), has been carried out by the CEREVE in Paris and by the INSA de Lyon, in collaboration with the University of Montpellier, on the modelling of wet weather pollutant loads in sewer systems. The project assessed three main types of models: site mean concentration models, event mean concentrations models, and pollutograph models. The three main questions investigated were the following ones: (a) what is the real use of such models by practitioners, and why do they use them rarely?, (b) how can we improve the calibration of these models and reformulate them to reduce the frequent over-parameterisation and decrease the parameters inter-correlations?, and (c) how do model calibration, validation and outputs depend on the available field data?

The first question was answered by means of a national enquiry. The second question was the topic of a PhD thesis prepared by A. Kanso at CEREVE, and the third question was the main topic of a PhD thesis prepared by M. Mourad at INSA de Lyon.

Many results have already been published in French and at international conferences and in journals. A synthesis paper in English is now under preparation and will be ready in 2006. For more information about the results and/or to get some papers, please contact either G. Chebbo at Cereve (chebbo@cereve.enpc.fr) or Jean-Luc Bertrand-Krajewski at INSA de Lyon (jean-luc.bertrand-krajewski@insa-lyon.fr).

The OTHU project - The Field Observatory for Urban Water Management (OTHU) - was launched in Lyon (France) in 1999. It is a long term field-observatory, which is set up on the drainage system of the urban community of Lyon and on some water bodies that receive its effluents. Its objectives are to collect reliable data on urban wet weather effluents and on their impacts on receiving waters, in order to provide

results, knowledge and methodologies to assess the sustainability of urban water systems. From a scientific point of view, the OTHU project relies on a research consortium that brings together 15 research teams from 7 Universities or research institutes, all of them located in Lyon (BRGM, Cemagref, ECL, ENTPE, INSA, University Lyon 1, Lyon 3). It constitutes the working support of about 45 researchers interested in most fields of environmental research (climatology, biology, chemistry, hydrology, hydrogeology, hydraulics, health sciences, sociology, economy, ...). From an operational point of view, the OTHU project benefits from the support of main institutional and operational partners, which keep the project in touch with public decision making. The OTHU observatory is an open project that has been implemented to encourage collaboration among scientists from all over the world and promote data sharing.

Every two years, Technical Conferences are organized to disseminate methods, results and techniques to practitioners. Technical worksheets are produced for these Technical events and are also available on the OTHU website.

Every two years, Scientific Seminars are also organised. The last one was held on Jan. 25, 2006. The topics included standard rainfall inputs to models, efficiency and characterisation of stormwater infiltration facilities, impact of urbanisation on small urban rivers, and the use of on-line UV-visible spectrometers to estimate TSS and COD loads in sewers. For further information, visit <http://www.othu.org> or contact: info@othu.org

OPUR: An Urban Pollutant Observatory in Paris. The research carried out by the CEREVER between 1995 and 2000 on the “Le Marais” experimental catchment area (42 hectares) has shown that the sewer network is a physico-chemical reactor, which affects by its characteristics the quality of urban water. In the light of these results, CEREVER, in partnership with the City of Paris, the SIAAP and the AESN, started in 2001 a new research program to study the impact of spatial scales on the characteristics and origins of pollutants in combined sewer network flows. This research has led to the creation of an experimental catchment called OPUR (« Observatoire des Polluants URbains », Urban Pollutants Observatory), which comprises a network of six experimental catchment areas on the Right Bank in Paris, along the axis of the Clichy trunk. The catchments studied cover areas from 40 to 3,000 ha, with network lengths from 1 to 13 km and populations from 12,000 to 650,000 inhabitants. It is a combined sewer network. The experimental equipment used can quantify and describe flows and the pollutant fluxes at the outlets of the catchment areas studied. The pollution parameters studied include suspended solids, organic matter, nutrients, and inorganic and organic micropollutants. Two research programs are carried out on the OPUR site: (1) The spatial evolution of the characteristics and origins of wet- weather flow pollution in combined sewers, and (2) The analysis and development of operational calculation models for storm water pollutant flows in sewer networks. For more information, contact Ghassan Chebbo (chebbo@cereve.enpc.fr) or Marie-Christine Gromaire (gromaire@cereve.enpc.fr) CEREVER (ENPC) – France.

Events held in France in 2005: on June 28 and 29, 2005, a national conference on the theme “Monitoring, diagnostic and modelling of wet-weather pollutant loads in sewer systems” was organised by the French SHF/ASTEE joint national working group on Urban Hydrology. The conference attracted more than 185 participants and had three main objectives: (a) to review scientific and technical knowledge regarding monitoring, data and modelling of pollutants loads transported by sewer systems during storm events, (b) to promote discussion and sharing of knowledge and experience between researchers and practitioners, and (c) to disseminate research results to consulting companies, public and private sewer operators, water agencies, etc. There were 6 sessions and 26 papers. For more information, please contact Jean-Luc Bertrand-Krajewski at INSA de Lyon (jean-luc.bertrand-krajewski@insa-lyon.fr). A selection of 13 papers is presently under peer review for future publication in the French journals *La Houille Blanche* (SHF journal) and *TSM* (ASTEE journal) in 2006.

Germany (Reported by Dr Manfred Schütze, Magdeburg and Prof Peter Krebs, Dresden)

In 2005, a number of research and pilot projects were carried out in Germany, and various events were organised, where urban drainage played a major role.

Infiltration into and exfiltration from sewer systems is a topic of increasing importance. In several larger and some specialised research projects, the interaction between groundwater and the sewer system, and the consequences of extraneous water on wastewater treatment plant (WWTP) operation and on the receiving water quality is investigated. The discussions are quite controversial. While some groups declare the leaking sewer system are major polluters of urban groundwater, other groups ignore this phenomenon because of colmatation with sewer sediments and suspended solids, and the related decrease of exfiltration as well as the sorption processes in the soil. Also, concerning the consequences of extraneous water infiltration for WWTP and sewer operation, there is a disagreement on how large a fraction of extraneous water is acceptable. The disadvantages of extraneous water are well described, e.g. that the P-load in the WWTP effluent is increased due to the fact that the respective concentration cannot be reduced below a certain value. Some operational advantages are to be considered on the other hand: less sewer sediments build-up, less cohesion and better stability of the WWTP process since the relative load variations decrease and the buffering capacity usually increases. However, an important area of research opens up here and the answers will not be generally applicable but site-specific.

Real time control (RTC) of sewer systems remains one of the key areas of activity – large systems with significant German involvement are in their planning and implementations phases (Dresden, Schleiden-Eschweiler, and Vienna) and constitute good examples of benefits and critical issues to be considered when implementing RTC. Also at other locations RTC projects are currently on-going or in preparation, increasingly in joint considerations of the drainage system and the wastewater treatment plant as one system. The RTC Working Group of DWA (German Wastewater Association), formerly known as ATV-DVWK) has finalised their work on the M180 guideline document on planning of RTC systems. This comprehensive document (more than 50 pages) provides assistance to engineers, authorities and wastewater system operators in evaluating the RTC potential in their drainage systems and gives valuable advice for the planning stage by suggesting a step-wise procedure. Publication of the guideline document is expected in late 2005. Currently, options for its translation into English are explored. An English language summary paper has been presented at the 10th ICUD conference in Copenhagen 2005 (Schütze, M., Haas, U., Scheer, M., and Schilling, W. (2005). New guidelines for planning of real time control for urban drainage systems).

General interest in Germany in guidelines and regulations can also be seen in the recent work of the Central European Simulation Research Group (with members not only from Germany, but also from Austria, Switzerland, Poland, Luxemburg and the Netherlands) aiming to develop guidelines providing assistance in simulation of wastewater treatment plants and in simulation of integrated wastewater systems. Meetings with intense and fruitful discussions were held in Graz/Austria and Berlin.

The annual SIMBA users' group meeting was held this year at the heart place of the Lutheran Reformation, Lutherstadt Wittenberg. The meeting had not only the strong traditional focus on wastewater treatment plant simulation, but increasingly also on urban drainage simulation, due to increased modelling options. The biennial Wuppertal conference on Measurement and Control engineering in wastewater systems was again well attended, bringing together practitioners active in this area, which interfaces the environmental and control engineering disciplines. The Hannover Software Days in April provided a good overview of what is currently on the software market for urban drainage in Germany. Finally, DWA organised a two-day seminar on real-time control, which gave a thorough introduction to the fundamental concepts of RTC and provided practical examples and a practical training session. The next event of this series is planned for late autumn 2006. Compilation of additional training material will form part of the activities of the DWA working group.

Recently, the WSM300 project has been concluded – it provides tools for integrated water management and implementation of the European Water Framework Directive, particularly in small

catchments. A Dresden-Magdeburg joint project focuses on the development of simplified models facilitating integrated simulation studies and their evaluation.

Hong Kong Special Administrative Region (HKSAR), China (reported by Prof Joseph Hun-Wei Lee)

Flood Prevention in the Urban Areas, HKSAR, China - Flood prevention projects in the urban areas mainly include improvements of the stormwater drainage networks in order that stormwater would be collected and conveyed efficiently. Under some special circumstances, other methods such as flood storage, flood pumping or flow diversion are used to minimise the extent of works that may cause disturbances to traffic or conflict with underground utilities. In West Kowloon, works under Stages 1 and 2 of the West Kowloon Drainage Improvement Project were completed in June 2003 and December 2004 respectively. These included about 33 km of stormwater drains in Yau Ma Tei, Mong Kok, Kowloon Tong, Sham Shui Po and Lai Chi Kok, as well as an underground flood storage tank in Tai Hang Tung and a stormwater diversion tunnel from Kowloon Tong to Kai Tak Nullah. Under Stage 3, the construction of about 12 km of stormwater drains is in progress for completion in 2007. Plan is also in hand to implement a stormwater transfer scheme at Lai Chi Kok where the area is susceptible to flood risk due to surface runoff from the hinterland and the potential overflow from the Kowloon group of reservoirs in Kowloon. For flood prone areas in the Northern Hong Kong Island and East Kowloon, drainage improvement projects costing about HK\$2.6 billion are being planned. In order to minimise the disturbance to local residents and road traffic caused by trench excavation, stormwater drainage tunnels will be constructed to divert stormwater away from the mid-hill level area so as to reduce the loading on the existing urban drainage systems.

Flood Monitoring and Reporting System, and Wireless River Gauging Stations. Drainage Services Department (DSD) of the Government of the HKSAR has developed a Flood Monitoring and Reporting System (FMRS) to monitor the flooding situation and to collect the hydrological data for the calibration of computer drainage models. Under the system, more than 60 automated gauging stations have been installed at rivers and channels throughout the territory. The gauging stations provide real-time round-the-clock surveillance of water levels and to collect hydrological data including rainfall depths and tide levels at 5 min. intervals. Most of these stations are equipped with ultrasonic probes to measure water depths in rivers, and transmit the real-time data immediately to DSD control center. Duty officers at the control center could analyze the flooding situation based on the real-time trends of hydrometric information, video images and operation status of the gauging stations, and issue any necessary flood warnings to relevant emergency services such as Police and Fire Services Department and the drainage maintenance crews to mitigate the flood risk. Through collaboration with the University of Hong Kong, DSD improved the FMRS in 2002 by installing the Mobile and Online Surveillance and Incident Controller II (MOSAIC II) system for gathering and transmission of hydrometric information based on wireless telemetry technology. This system adopts the advanced mobile communication technology called General Package Radio Services to compress and transmit various data collected from the gauging station to DSD control centre in a speed 8 times faster than common GSM mobile phones. To make use of renewable energy and to reduce the installation and operation costs, many of the stations have been powered by solar battery cells. Moreover, DSD has installed night vision digital network cameras at some flooding black spots to provide real-time high resolution images of the critical drainage locations. Due to the application of these innovative technologies, the average failure rate of the gauging stations during adverse weather conditions was significantly reduced from 17.4% in 2001 to 4.6% in 2004.

Tai Hang Tung Storage Scheme. The Tai Hang Tung Storage Scheme (THTSS) commissioned in 2005 forms an integral part of an overall West Kowloon drainage improvement scheme to solve the flooding problem in Mong Kok. It is the first large-scale underground floodwater storage tank built in Hong Kong with a capacity of 100,000 m³, and involves deep excavation to a depth of over 10 m within an extremely

tight space at the Tai Hang Tung Recreation Ground. Two-stage construction has been adopted to cope with the space constraints and to minimize disturbance to the park users. Additional working space is created by early completion of storage tank roof slab and using the roof slab as access to control and storage area. Extensive grouting and recharging wells have been used to control settlement arising from the deep excavation to a tolerable limit. This THTSS has been put into operation by allowing floodwater flowing into the partially completed tank during heavy rains since March 2004. Even though the construction was affected by the stormwater inflow, the project has proved to be effective that the tank was partially functioning to protect the Mong Kok area from flooding in the wet season of 2004 before its total completion.

Kai Tak Transfer Scheme. Kai Tak Transfer Scheme (KTTS) being the first diversion drainage tunnel system built in Hong Kong forms an integral part of the West Kowloon Drainage Improvement works for solving the flooding problem in Mong Kok. Upon completion, KTTS will intercept and transfer about 60% of upstream stormwater flow in an existing decked nullah underneath Waterloo Road, Kowloon Tong, through a 1.42 km long drainage tunnel of 4.4 m internal diameter to Kai Tak Nullah at San Po Kong. The target flow transfer through the drainage tunnel is 40m³/s under a 50-year return period rainfall. The works also include construction of a 40 m long interception structure, 500 m box culverts and six access shafts to facilitate tunnel construction, operation and maintenance. By adopting the drainage tunnel transfer concept, the KTTS has greatly reduced the open excavation in highly congested urban areas of Mong Kok. The Scheme was built safely in an environmentally friendly manner with minimum disruption and disturbance to the public. The operation of the Scheme in the rainy season 2005 marked an important milestone in the Government's efforts in solving the flooding problem in Mong Kok.

Flooding in Ngau Tam Mei Basin Resolved. Ngau Tam Mei area is a low-lying area in the New Territories of HKSAR and has long been a well-known flooding black spot. Serious flooding has occurred almost every year. The area has been classified as a major flooding black spot (the most serious rank) according to DSD's classification. Rapid development over the last 20 years has reduced the flood storage capacity of the original flood plain and also increased the volume of surface runoff that exacerbates the flooding problem. To tackle the flooding problem, a new channel was designed to divert the flood water from the upstream area of Ngau Tam Mei to the newly constructed Kam Tin Channel directly. The channel is designed so that it can accommodate the flow generated from a 200-year return period storm event. During low flow condition the water inside the channel was comparatively small. The tidal water, which is contaminated, will back-flow from Kam Tin Channel to the upstream area and thereby creating nuisance problem. As such, an inflatable dam together with a low flow pumping station is provided at the downstream end of the channel as a tidal barrier. Construction of the channel started in late 1999 and completed in March 2005. The flooding problem at Ngau Tam Mei areas is now resolved.

Urban Stormwater Pollution in Hong Kong. The problem of urban stormwater pollution in Hong Kong was first studied by Environmental Protection Department (EPD) in late 90s. The small scale study found that the quality of urban stormwater runoff was largely similar to that found in other densely populated cities elsewhere, with elevated levels of pollutants including bacteria, organics, nutrients and heavy metals which contributed a considerable amount of pollution loads to Hong Kong's aquatic environment.

In view of the plan to develop the West Kowloon sea-front areas which receive significant quantity of urban stormwater discharges, EPD decided to conduct another small scale in-house study in 2004 to obtain more information about the stormwater pollution problem in that area. The area studied includes a main drainage nullah which flows from the upstream hillside terrain through an old urban flat area with dense and mixed commercial and residential developments, then a newly reclaimed area for discharge to the coastal marine water. The residential and employed populations in the study area were about 185,000 and 145,000 respectively. Field inspections and sampling results of the study indicated that the area's urban stormwater was highly polluted. The drainage nullah served like a combined sewer, the quality of water in the nullah was close to that of the influent to a typical sewage treatment works in Hong Kong. A conservative projection based on two rounds of 24 hour sampling results suggested that

around 8-20% of the pollution load from sewage generated in the study area went into the stormwater drainage system, which was eventually discharged to the coastal water untreated.

The study also found that the major urban stormwater pollution sources were located at the densely populated old urban area with aged buildings and public infrastructures. There were three major pollution sources, namely, misconnections from private buildings; street runoff; and public drains and sewer cross-connection and integrity problems. These sources were estimated to account for 80% of the overall pollution problem.

For further details, contact Mr. P.H. LUI, Principal Environmental Protection Officer, Infrastructure Planning Group of EPD, E-mail: pului@epd.gov.hk

Integrating Computational Fluid Dynamics into the Process Design of Wastewater Treatment Plants. The Drainage Services Department of the Hong Kong Special Administrative Region of the People's Republic of China, responsible for the stormwater drainage and wastewater treatment of the city, is employing computational fluid dynamics (CFD) techniques in its design of wastewater treatment plants. Numerical modelling based on CFD was first applied to the simulation of final clarifiers for the expansion of the Tai Po Sewage Treatment Works and the Shek Wu Hui Sewage Treatment Works, both being activated sludge plants with nitrogen removal. The simulations have provided useful design information with flow regime visualisation, thus allowing a level of design optimisation not achievable previously. The Department is now attempting to extend the use of CFD to model the most important component of the wastewater treatment process – the bioreactor. Understanding that the flows in a bioreactor are complex, multi-phased and variable in space and time, the Department is limiting the attempt to the inlet zone (bio-selector), which nonetheless is the most complicated part of the bioreactor. The CFD simulation is expected to provide insights into the 3-dimensional hydrodynamics of that zone, where multiple feeds (settled sewage, returned activated sludge and mixed-liquor re-circulation flow) all with different characteristics meet, and where careful design is called for to realize the bio-selection effect conducive to the suppression of process anomalies such as foaming. The Department is looking forward to betterment of its process design and operation services with its progressive move towards using more sophisticated analytical tools such as CFD models.

Japan (reported by Hiroaki Furumai and Nobuyuki Horie)

CSO control technologies (reported by Nobuyuki Horie). To develop appropriate technologies for sewage works, Ministry of Land, Infrastructure and Transport (MLIT) initiated a project called Sewage Project, Integrated and Revolutionary Technology for the 21st Century, or SPIRIT 21. As the first theme, during 2002-05, the project addressed the following areas of CSO treatment and instrumentation: twenty four technologies for CSO treatment and control were field-tested in 13 cities, and found to be useful for Japanese municipalities. Those technologies were categorized into 8 types of screens, 5 high-rate filtrations, 2 coagulation/separations, 7 disinfections and 2 measurements. The project report, SPIRIT21: CSO control technology '02-05, is available on the website of the Japan Institute of Wastewater Engineering Technology: <http://www.jiwet-spirit21.jp/e-spirit/english-main.htm>

Setting up a committee on urban flood control (reported by Hiroaki Furumai). In view of the flood disasters in 2004, a committee was established in December 2004 to review and re-examine the urban flood control policy. Although the Committee's report was published only in Japanese, the following new directions and policy changes were proposed by the committee in July 2005:

(a) Goals and targets for flood control should be expressed in easy terms understood by the citizens. While infrastructure construction has been planned on the basis of design conditions of rainfall intensity and return period, the outcome brought about by the newly built facilities should yield reductions of predicted damages according to the local situations.

(b) Mitigation and minimisation of damages by strengthening self-help and support mechanisms as well as by construction and improvement of facilities for flood control. To promote self-help, several ideas were proposed, such as public announcement of the predicted flood maps, provision of real-time information on rainfall and flood possibility, and education on flood damages.

(c) Priority selection and concentrated investment should be recommended under time constraint and limited financial resources. Local districts and regions with high priority should be selected for efficient investments. For example, flood countermeasures in underground malls and intensive land use areas should be primarily implemented within three years, considering the needs for life protection and prevention of property losses.

Development of run-off and inundation models for urban areas (reported by Hiroaki Furumai). As described in the previous two newsletters (2004, 2005), the 'Law Concerning Damage Control for Designated Urban River Inundation' came into effect in 2004 and was designed to promote cooperation between sewer system operators and river authorities. Under the law, Predicted Urban Inundation Areas will be designated in various regions. To permit designation, flood analysis in urban areas is needed, taking into account complex phenomena such as the effects of water discharge into drainage canals and sewer systems and water escape from drainage canals and sewer systems as well as surface floods. The Flood Disaster Prevention Division of The National Institute for Land and Infrastructure Management (NILIM) has been developing and upgrading a flood analysis model (called NILIM) for urban areas considering interaction between sewer and river systems. For more information, visit: <http://www.nilim.go.jp/lab/rcg/newhp/english/kenkyuukadai/10.html>

Improvement of rainfall prediction technologies and their application (reported by Hiroaki Furumai). To better respond to rainfall fluctuations, NILIM embarked in 2003 on the development of improved prediction technologies, error assessment methods, and other technologies that will allow application of rainfall forecasts in water management. Although this project focused on water management at the watershed level, it should provide useful information for urban drainage management too. For more information, visit: <http://www.nilim.go.jp/english/report/annual2004/ar2004e.html>

Self-introduction of a new Joint Committee member - Hiroaki Furumai (Japan). It is my pleasure to be able to contribute to the JCUD activities and promote sustainable urban drainage on the international forum. In addition, I would like to continue the good tradition and high quality of service established by the earlier Japanese representatives, Prof. Shoichi Fujita and Mr. Mitsuyoshi Zaizen. My major experience in urban drainage research started when I joined the Department of Urban Engineering, the University of Tokyo in 1997, after working at several national universities. My overseas research from 2000 to 2001 at the Oregon State University (USA) and EAWAG (Switzerland) gave me a lot of opportunities to enhance my knowledge and research ability in this field.

Currently, I have been conducting research addressing the following subjects: (a) Monitoring urban non-point pollution and combined sewer overflows, (b) Model analysis of urban pollution runoff with GIS, (c) Investigation of wash-off and infiltration behaviour of micro-pollutants (PAHs, and heavy metals), (d) PAHs behaviour in estuary sediments and its accumulation in benthos, and others.

I recently organized an international workshop on rainwater and reclaimed water for urban sustainable water use at the University of Tokyo in June 2005. At the workshop, Dr. Jiri Marsalek delivered a keynote speech on "The Current State of Sustainable Urban Stormwater Management: An International Perspective". The information on the workshop is available on our web site listed below. I have a definite plan to organize a follow up international workshop/symposium in Tokyo in 2009. This will be a larger scale, widely open workshop, whereas the previous one (June 2005) was semi-open (by invitation). Please visit our web site: <http://www.env.t.u-tokyo.ac.jp/furumailab/crest/e/workshop-e.html>

Malaysia (reported by Dr. M. Nor)

Introducing a newly elected JCUD member from Malaysia, Dr. Mohd Nor. Dr Nor has been the Director of a UNESCO water centre known as the Humid Tropics Centre Kuala Lumpur (HTC) since its establishment in 1999. His responsibilities, among others, include implementation and coordination of the International Hydrological Programme of UNESCO (IHP), coordination of regional and collaborative research, such as the ASIAN Pacific FRIEND (Flow Regimes from International Experimental and Network Data), which is currently focusing on design rainfall and IDF curves determination, capacity building on Integrated Water Resources Management, conducting training, organising conferences, etc. All these programmes cover the humid tropics region of Southeast Asia and the Pacific and are conducted in close cooperation with the UNESCO field office. Dr. Nor's main area of interest is urban hydrology, particularly short duration extreme rainfall in the humid tropics, as well as urban drainage. He has set up two experimental urban catchments in Malaysia, which serve to monitor urban rainfall and runoff, and is now leading a group of local researchers conducting a wide area of hydrological research.

Mitigating Flash Floods in Kuala Lumpur, Malaysia - The SMART Way (reported by Mohd Nor bin Mohd Desa). Malaysia is located in the equatorial region and as such it is much affected by two pronounced monsoon systems occurring annually: the northeast and southwest monsoons. Heavy and widespread annual rainfall amounts of about 2,500 mm/y are received in Peninsular Malaysia. In spite of that large amount, the rainfall distribution throughout the year is highly non-uniform with respect to time and space. So in some months of the year, heavy thunderstorms occur due to local convective weather systems and these always bring about nuisance flash floods lasting for about one to two hours. These floods occur several times a year and create some social and economic impacts. During the last decade major flood protection projects have been implemented within the city of Kuala Lumpur, using both structural and non-structural measures. One of the major ongoing flood mitigation projects cutting across the City of Kuala Lumpur territory is construction of the so-called SMART (Stormwater Management and Road Tunnel) System with dual objectives: (a) to solve flood problems in the Kuala Lumpur City Centre, and (b) to solve traffic congestion at the Kuala Lumpur's southern gateway. The SMART will provide a flood protection for a 100-y return period.

The scope of work included the construction of a 9.7 km long bypass tunnel, with an internal diameter of 11 m, a retention basin, upgrading an former mining pond, a twin-box culvert outlet structure (about 500 m long), and related control structures. Upon completion, the ponds and the bypass tunnel will have the capacity to store three mega-m³ of flood water. A portion of the tunnel (about 3 km in length) will integrate both flood mitigation (stormwater management) and motorway purposes. The motorway portion of the tunnel comprises of a double-decked carriageway in the tunnel. In addition a flood warning system will be integrated in the SMART system. The entire project is scheduled to be completed in December 2006 and costs nearly 500 million USD.

United States (reported by Eric Strecker)

The Urban Water Resources Research Council (UWRRC) of the Environmental and Water Resources Institute (EWRI) of the American Society of Civil Engineers (ASCE) held their annual meeting in May of 2005 at the EWRI congress in Anchorage. The next meeting of the UWRRC will be held in Omaha, Nebraska at the EWRI 2006 World Water & Environmental Congress on May 21, 2006. The UWRRC committee activities include:

- A. History of UWRRC (Scott Kenner). A draft of the History of the UWRRC document has been submitted for review. It should be in publication in 2006.
- B. BMP Database Project (Eric Strecker). Funding coalition now includes EPA, FHWA, WERF and ASCE. Twenty new BMPs have been added to the database. New initiatives include development of protocols for LID controls.

- C. Urban Streams (Mike Clar). The group provided peer review of the NCRS manual on stream restoration, and is currently reviewing NCRS guidelines. Teaming with the BMP Technology Committee for a joint Symposia on Urban Watershed Management in Omaha, Nebraska.
- D. LID Conference (Mike Clar) is getting organized.
- E. Urban Watershed BMP Standing Committee (Rich Field) sponsored large symposia for Omaha EWRI Conference and published a book with papers from the Salt Lake City 2004 EWRI conference. The Committee is planning to develop an issue or position paper with rationale about why BMPs are not working adequately to remove bacteria, and how they can be made to work better. A new subcommittee was created for CAFOs (confined animal feedlots) and nurseries.
- F. Gross Solids (Betty Rushton). The TC is working on finalising its report, Guidelines for Measuring Gross Solids. Three levels of investigation are identified in the guidelines.
- G. Wet Weather Flow Technology (Rich Field). Committee is focusing on re-establishing CSO/SSO research as a priority by funding agencies and municipalities; organising a mini-symposium in Omaha; developing a guidance document on bacteria removal in urban wet weather flows for distribution to EPA and EWRI, and developing a guidance document for balancing modelling uncertainties vis-a-vis hydraulics, quality, controls, and costs; and, establishing common research interests with EU countries.
- H. MOP Update – WEF MOP (Manual of Practice) No.23 and ASCE MOP No.87 (Marcus Quigley). Committee will act as liaison to coordinate existing efforts. WEF has already announced its intent to revise the MOP. UWRRRC will be working with WEF on update.
- I. 2007 Engineering Foundation Conference (Wayne Huber). Wayne Huber reported that the conference will focus on the modelling of urban wet weather flows, including quantity and quality, and the new title of the Engineering Foundation is Engineers Conference International (ECI). The conference will present how to use models correctly, what is the state of the art, and what are reasonable results. Potential sites in California, Colorado and Montana and a cost of approximately \$1000 for all 5 days were discussed as likely targets. There will be 10 invited papers presented per day for 5 days and a publication will result from the conference. Conference size is typically 100 –150 attendees. The timeframe is from mid-June to mid-August 2007.
- J. Global Outreach (Jiri Marsalek). Jiri Marsalek reported that the 11th ICUD will be held in Edinburgh in 2008. Discussed potential options for collaboration with JCUD and sub-committees

The UWRRRC officers include Richard Field, US EPA Edison, NJ – Chair, Linda Pechacek – Vice-Chair, and Andrew Earles as Secretary.

8. REPORTS ON CONFERENCES

10th International Conference on Urban Drainage (reported by Peter Steen Mikkelsen). The 10th ICUD was held in Copenhagen, Denmark, Aug. 21-26, 2006. The conference Executive Committee consisted of Peter Steen Mikkelsen (chair) and Anna Ledin of the Technical University of Denmark as well as Thorkild Hvitved-Jacobsen and Jes Vollertsen from Aalborg University. The main conference venue was the Danish Society of Engineers (IDA) building on the waterfront in downtown Copenhagen.

The conference attracted 475 participants from 43 countries in the world. Most participants were from Europe (71%) while many also came from Asia (11%, mostly Japan and Malaysia), North America (USA and Canada) (9%), Australia/New Zealand (6%) and fewer came from Africa and South America (1.5% from each). With respect to the attendance, the top-10 countries were Denmark, Germany, United Kingdom, Japan, France, USA, Australia, Sweden, The Netherlands and Italy, contributing in total 77% of the participants.

Three seminars/workshops were held on Sunday prior to the conference, organised by working groups of the Joint Committee on Urban Drainage. A "Real time control" seminar was organised by the Real-time control of urban drainage systems Working Group, a "Radar for hydrologists" seminar was organised by the Working Group on Urban Rainfall – GUR, and a "Water sensitive urban design" workshop was organised by

the WSUD Working Group. These events were well-attended and showed the vitality of the JC working groups.

A selection of field trips was also offered in conjunction with the conference, on Wednesday afternoon. The field trips included “Surface waters in Ørestad, a new development area of Copenhagen”, “Forecasting, control and treatment for protection of bathing water in Copenhagen”, “Plant tour at the Avedøre Wastewater Treatment Plant”, “Stormwater management in Albertslund, a suburban municipality West of Copenhagen” and “Stormwater systems in the "Eco-City Augustenborg", Sweden/Malmö”.

More than 350 papers were presented at the conference in Platform Sessions, Workshops and Poster Sessions. Platform Sessions and Workshops both contain oral presentations while the poster sessions focused on display and discussion of the posters in a thematically organised session held just after the field trips on Wednesday afternoon in combination with refreshments. The posters were displayed at the conference venue for an extended period of time in addition to the poster session. The Platform Sessions were “traditional” oral sessions with limited time for discussion at the end after 4 sequential presentations (each presenter spoke for 15 minutes supported by a PowerPoint presentation, followed by 3 minutes of direct questions). The workshops were somewhat different from common oral sessions; they combined the best features of oral and poster sessions (each presenter spoke for 3 minutes supported by 3 PowerPoint slides, which served as an “appetizer” for the poster displayed in the meeting room). Each session contained 5-10 papers selected to complement each other, and there was time for discussions by the posters after the oral introductions. This new session type was introduced to stimulate interaction among the participants and was considered a positive element by most participants.

The sessions were organised along the following 12 themes: “Data and models”, “Urban rainfall and hydrology”, “Urban drainage hydraulics”, “Receiving water impacts”, “Management and planning”, “Sewer processes and networks”, “Technology for CSO and stormwater treatment”, “Ponds, wetlands, infiltration basins”, “Small scale stormwater systems”, “Pollutant sources and transport”, “Urban water and society” and “CityNet”, as well as a “miscellaneous” theme containing papers on education and training and cold climate issues. The CityNet theme was organised in collaboration with a cluster of 6 major research projects on integrated urban water management funded by the European Commission (see <http://citynet.unife.it>) and facilitated travel support to selected delegates from less economically developed regions. The detailed programme planning was done in collaboration with the international Advisory Scientific Committee consisting of 26 members of the JC and JC working groups as well as other international experts.

A new initiative was the “Poul Harremoës Award for Best Urban Drainage Paper by a Young Author”. Vision and innovation were the hallmarks of Prof. Poul Harremoës (1934 - 2003) who was among the founders of the Joint Committee, and the JC, in cooperation with the International Water Association, has established a triennial competition for the best paper written by a young author. The award is given for presentation of novel and ideally provocative ideas relating to developments in urban drainage.. The first award in this series was made at the 10th International Conference on Urban Drainage in Copenhagen. More than 100 papers were submitted to the competition, and the Award was won by Christoph Ort from EAWAG, Switzerland who presented his paper orally during a plenary session after the opening of the conference together with the two other pre-selected candidates, Hans Korving from Witteveen+Bos, The Netherlands and Torsten Franz from Dresden University of Technology, Germany.

Contributions to the 10th ICUD were selected on the basis of a rigorous two-step peer review procedure (review of abstracts and later papers; see the conference website for details). All accepted papers were distributed to the participants at the conference on a CD-ROM, and the abstracts were made available to the public prior to the conference via the conference website. The very best papers from the conference will be offered for publication in special issues of well-recognised international journals after the conference. The Executive Committee has established provisional agreements with Water Science & Technology and Water Practice & Technology, which are both affiliated with IWA, and with Urban Water Journal which is affiliated with IAHR. Electronic archiving of additional papers not included in the journal special issues will also be pursued. The Executive Committee is currently inspecting the review reports as well as the additional reports prepared by the session chairmen at the conference and plans to address the selected authors in March 2006.

UNESCO workshop on Integrated Urban Water Management in Cold Climate. Prof. Sveinn Thorolfson of the Norwegian University of Science and Technology NTNU), Trondheim, Norway, with colleagues from other agencies, organised the 1st UNESCO IHP VI Workshop on Integrated Urban Water Management in Cold Climate, at NTNU, Trondheim, Norway, Nov. 3-4, 2005. The main goal of the workshop was to bring together experts on urban water management in cold climate for strategic discussions of the approaches to water supply, sanitation, stormwater management and aquatic environment protection in cold climates. The workshop was attended by almost 50 participants from 11 countries. The book of abstracts (T.M. Muthanna and S. Thorolfsson (eds.)(2005) Integrated Urban Water management in Cold Climate, NTNU, Trondheim, Norway, ISBN: 82-471-6035-8) contains 33 entries addressing a broad list of topics including: urban planning and low impact development in cold climate; water utilities and services in cold climate (water supply, drainage, and wastewater management); snow, snowmelt and stormwater pollution (monitoring and modelling); catchment processes in cold climate (infiltration, sediment transport, and pollution transport); snow disposal; stormwater management practices (bioretention areas, wetlands, and ponds); and, integrated urban water management in cold climate. The group also developed a table of contents for an UNESCO report on Integrated Urban Water Management in Cold Climate. For more information, contact Prof. S. Thorolfsson: sveinn.thorolfsson@bygg.ntnu.no

9. FUTURE MEETINGS AND CONFERENCES

When reviewing JC activities, Jean-Luc Bertrand-Krajewski developed a table listing proposed conference and workshops. The table appears below; additional information on some events is also presented. All information about conferences, seminars, workshops, summer schools, etc. dealing with urban drainage is welcome and will be added this table. Please send such information to Jiri Marsalek or Jean-Luc Bertrand-Krajewski. You should also use this table when proposing new events - to avoid overlaps in time and topics.

Urban Drainage Events (Jan. 2006)

Year	Month	JCUD	Data and Models WG	RTC in urban drainage	Sewer Systems & Processes WG	WGUR (urban rainfall)	Other events of interest
		JLBK	L. Fuchs	H. Colas	J. Matos	G. Vaes	
		J.Marsalek	A. Deletic	A.Campisano	F.Clemens	T. Einfalt	
2006	Apr.		3-7 Apr., 7th UDM, Urban Drainage, Modelling, Melbourne, Australia				
2006	May			25-28 May, Jun. Sci. workshop on RTC of Urban Drainage Systems, Barcelona, Spain			24-26 May, Int. Short Course on Advances in Knowledge of Urban Drainage, Rende, Italy
2006	Sept.	10-14 Sept., IWA Biennial Congress, Beijing, China					4-8 Sept. Hydroinformatics 2006, Nice, France
2006	October				25-26 Oct., Sewer Operation and Maintenance, Vienna, Austria		
2006	December					7-10, Dec. Workshop on Precipitation in Urban Areas, St. Moritz, Switzerland	
2007	June	25-28, June Novatech, Lyon, France					
2007	July	2-7 July, 32 nd IAHR Congress, Venice, Italy					
2007	August	31 Aug.-3 Sept. DiffPoll 2007, Belo Horizonte, Brazil			29-31 Aug., 5 th SPN, Delft, The Netherlands		
2008	August	31 Aug. – 5 Sept., 11 th ICUD, Edinburgh, UK					

For updates, please visit regularly our website:

<http://www.iwahq.org.uk/template.cfm?name=sg12>

7th International Conference on Urban Drainage Modelling and the 4th International Conference on Water Sensitive Urban Design, Melbourne, Australia, Apr. 3-7, 2006, hosted by the Institute for Sustainable Water Resources, Monash University, Engineers Australia, International Water Association, and the Stormwater Industry Association. This joint conference will bring together a broad range of industry specialists including engineers, modellers, environmental scientists, social scientists, planners, urban designers, landscape architects, architects, managers, practitioners, policy-makers, consultants and researchers to discuss the challenges and opportunities of integrated urban water management and modelling. For paper listing, visit: www.icms.com.au/UDMandWSUD

An International Short Course on “**Advances in Knowledge of Urban Drainage: From the Catchment to the Receiving Waters**”, University of Calabria, Rende, Italy, May 24-26, 2006. This course is meant for practicing engineers as well as graduate and university researchers. It will provide an overview and analysis of actual problems in urban drainage, with particular emphasis on stormwater control and water quality management. Each of the three days, a leading researcher will present a topic overview (Prof. Sansalone, and Drs. Bertrand-Krajewski and Marsalek) to be followed by other contributions. For details

and registration, please visit www.liu-cs.it/corso2006.htm and if interested, apply before Apr. 26, 2006.

The 20th European Junior Scientist Workshop on “**Real Time Control of Urban Drainage Systems**” will be held in Barcelona, Spain, May 25-28, 2006. CLABSA has taken the lead to organise this workshop. Please contact Gustavo Ramon Wilhelmi (GustavoR@clabsa.es) or Alberto Campisano (acampisa@dica.unict.it) for further details. Further information will become available on the group’s website (<http://www.dica.unict.it/users/acampisa/rtcwg/>) (also mention in Section 4.2 of this Newsletter).

IWA World Water Congress and Exhibition, Beijing, China, 10–14 September 2006

At the 2006 Beijing Congress, approximately 2,500 international experts and 1,000 Chinese experts will gather to discuss both the challenges and solutions to the world’s pressing water problems. This event, hosted by IWA and the Ministry of Construction, China can be expected to draw the top water professionals from both the international community and China.

The water needs of the globe have never been more pertinent. Helping people within the water industry to communicate their ideas and practices will enable the progress of sustainable water management in the new millennium.

The technical programme has been divided into seven themes or tracks such as Drinking Water Treatment, Wastewater Treatment, Integrated Water Resource and River Basin Management, Operating Water and Wastewater Systems, Health and the Environment, Appropriate and Non-Conventional Wastewater Systems, Strategic Management of Water, which attempt to cover all aspects of the water cycle. The track Wastewater Treatment includes sessions pertinent to anaerobic digestion, biosolids and sludge management and odours and volatile emissions among others. There have been received over 1700 submissions in total. Visit www.iwa2006beijing.com for more extensive information on the World Water Congress 2006

NATO Advanced Research Workshop on **Urban Runoff Quality**, fall 2006, Gdansk, Poland – an application for a NATO grant will be submitted and if successful, the event will be held in the fall. If you wish to register your preliminary interest, please contact Jiri Marsalek at: jiri.marsalek@ec.gc.ca.

7th International workshop on Precipitation in Urban Areas, with sub-themes extreme precipitation, multi-source data measurement and uncertainty, will be held in St. Moritz, Switzerland, Dec. 7-10, 2006. The goal of the workshop is improve the knowledge of extreme precipitation events, their observation and modelling, and the evaluation of the uncertainties. For more information, visit the GUR website at: www.kuleuven.be/hydr/gur or www.einfalt.de/GUR

2nd International IWA Conference on Sewer Operation and Maintenance, SOM 06, Vienna, Austria, Oct. 26-28, 2006. To protect public health and urban populations against flooding, and improve the water quality in receiving waters, there is an increasing need for a more rational and scientifically based operation and maintenance of sewer systems. SOM 06 is a follow up conference to SOM 02 that was held in Bradford, UK, in 2002, and is sponsored by IWA and the SS&PWG of the Joint Committee on Urban Drainage. The conference should be attended by researchers and practitioners in sewer operation and maintenance, plant operators, and other professionals. Deadlines: extended abstracts or full papers, by Feb. 28, 2006, early registration, by July 31, 2006. For more information visit <http://som06.boku.ac.at>

NOVATECH'2007 - 6th international conference on sustainable techniques and strategies in urban water management, Lyon, France, June 25-28, 2007. The 6th event in this highly acclaimed series is expected to welcome more than 500 delegates from all over the world. The general theme of the conference is the design, implementation and operation of sustainable solutions for wet-weather flow in urban and suburban areas. The main topics are: (a) Integrated strategies and approaches for urban water management, (b) Innovative technologies for stormwater management, and (c) Assessment and control of urban wet weather effluents and their impacts on receiving waters. Important dates: Call for papers -

February 2006, Abstracts - June 15, 2006, and Final papers: November 15, 2006.

Contact & information: GRAIE - Novatech General Secretariat, <http://www.novatech.graie.org>, email: novatech@graie.org, Phone: 33 4 72 43 83 68.

The XXXII IAHR Congress will be held in Venice, Italy, July 1-6, 2007. The conference themes are as follows:

THEME A: Engineering and Management of Endangered Fresh Water Systems (water flow resources, quality, biology water and sediment),

THEME B: Data Acquisition and Processing For Scientific Knowledge and Public Awareness (Hydrology and Meteorology; Statistics and Informatics),

THEME C: Fluid Mechanics and Applied Hydraulics for Social and Economical Development (Fluid Mechanics; Hydraulics of Water Works), and

THEME D: Maritime and Coastal Research and Engineering Processes (Inland Processes and Offshore Processes).

Deadline for paper submissions: Dec. 15, 2006. Contacts: Congress Secretariat, CORILA San Marco 2847, 30124 VENEZIA; Ph. 39.041.2402511, Fax: 39.041.2402512, e-mail: iahr2007@corila.it, website: www.iahr2007.corila.it

The 11th International Conference on Urban Drainage, the Edinburgh International Conference Centre, Edinburgh, UK, August 31 – September 5, 2008. The conference will be organised by the UK community of urban drainage specialists. Please add these dates to your diary. More details will be available in the next newsletter, or from Prof R. Ashley (r.ashley@sheffield.ac.uk)

10. RECENT PUBLICATIONS OF INTEREST

For a comprehensive listing of IWA publications, see Section 6 (News from IWA Publishing). Additional entries appear here.

A new comprehensive encyclopaedia of hydrologic sciences has just been published. It contains a number of chapters of direct interest to urban drainage and water management specialists, and also contains some contributions by the members of our community:

Anderson, M. (Ed.) (2006). Encyclopedia of Hydrologic Sciences. J Wiley & Sons Ltd, ISBN: 0-471-49103-9, €1,642, 3456 pages

Includes the following articles of relevance to urban drainage: Volume 3. Part 8. Water Quality & Biogeochemistry (93. Effects of Human Activity on Water Quality, 94. Point and Non-Point Source Pollution, 97. Urban Water Quality (written by J B Ellis, J Marsalek and B Chocat), 98. Pathogens (R Pitt), 101. Water Quality Modelling (R Falconer).

Volume 3. Part 10. Rainfall-Runoff Processes (117. Land Use and Land Use Effects: Urban & Suburban Development)

Volume 3. Land Use and Water Management (188. Land Use and Water Quality).

11. WORKING GROUP CONTACTS

Int. Working Group on Data & Models (IWGDM) Web site: http://iswr.eng.monash.edu.au/iwgdm	
<i>Chairman:</i> Dr L. Fuchs Institut für Technische und Wissenschaftliche Hydrologie Engelbosteler Damm 22 30167 Hannover GERMANY Ph.: 49-511-971-9321, Fax: 49-511-971-9377 E-mail: L.Fuchs@itwh.de	Dr Ana Deletic Institute for Sustainable Water Resources Dept. of Civil Engineering, Building 60 Monash University Clayton, Vic 3800 AUSTRALIA Ph: 61 3 9905 2940, Fax: 61 3 9905 4944 E-mail: ana.deletic@eng.monash.edu.au
Real-Time Control of Urban Drainage Systems (RTCUSD) Web site: http://web.tiscali.it/RTCUSD/	
<i>Chairman:</i> Dr H. Colas BPR-CSO 5100, Sherbrooke St. E., Suite 400 Montreal, Quebec H1V 3R9 CANADA Ph.: +001 514 257 2439, Fax: +001 514 257 2414 E-mail: hcolas@bpr-cso.com	<i>Secretary:</i> Dr. A. Campisano Dept. Civil and Environmental Engineering University of Catania, Viale Andrea Doria 6 95125 Catania ITALY Ph: 39(0)95 738 2711, Fax: 39(0)95 738 2748 E-mail: acampisa@dica.unict.it
Sewer Systems and Processes Working Group (SS&PWG) Web Site: http://www.sspwg.civil.auc.dk	
<i>Chairman:</i> Prof J. Saldanha Matos Architecture and Civil Eng. Department Technical Superior Institute, University of Lisbon Av. Rovisco Pais 1049-001 Lisboa PORTUGAL Ph.: 351 21 841 8371, Fax: 351 21 849 8371 E-mail: jsm@civil.ist.utl.pt	<i>Secretary:</i> Prof Francois Clemens Faculty of Civil Engineering and Geoscience Delft Technical University Stevinweg 1, Postbus 5048 2600 GA Delft The Netherlands Ph: 31 15 278 5450, Fax: 31 15 278 4918 E-mail: F.H.L.R.Clemens@CiTG.TUdelft.nl
Working Group on Source Control for Stormwater Management (SOCOMA)	
<i>Chairman:</i> Gilles Rivard Aquapraaxis Inc. 948 Donat-Belisle LAVAL (Qc), CANADA H7X3W5 Ph: 001-450-689-2967, Fax: 001-450-689-2969 E-mail: GRivard@aquapraaxis.com	<i>Secretary:</i> Carstens Dierkes Hydrocon Hefe Hof 25 31785 Hameln GERMANY Ph.: 49 5151 100 295, Fax: 49 5151 100 296 E-mail: dierkes@hydrocon.de
Working Group on Urban Rainfall (GUR) Web Site: http://www.kuleuven.ac.be/hydr/gur	
<i>Chairman:</i> Dr Guido Vaes HydroScan Tiensevest 26/4 B 3000 Leuven BELGIUM Ph.: +32-16-240501, Fax: +32-16-240509 E-mail: guido.vaes@hydroscan.be	<i>Secretary:</i> Dr Thomas Einfalt Einfalt & Hydrotec GbR Breite Str. 6-8 D-23552 Lübeck GERMANY Ph.: 49-451-7027333, Fax: 49-451-7027339 E-mail: thomas@einfalt.de

Technology Exchange, Transfer and Training (TETTWG) - operation temporarily suspended.	
Urban Drainage in Cold Climate Working Group	
<p><i>Chair:</i> Dr Maria Viklander Div. of Sanitary Engineering Lulea University of Technology S-971 87 Lulea SWEDEN Ph.: 46 920 491 634, Fax: 46 920 491 493 E-mail: Maria.Viklander@sb.luth.se</p>	<p><i>Secretary:</i> Dr John J. Sansalone Civil and Environmental Engineering Rm. 3510 CEBA Bldg Louisiana State University Baton Rouge, LA 70803-6405 USA Ph.: 001-225-578-6047, Fax: 001-225-578-8652 Email: jsansal@lsu.edu</p>
Water Sensitive Urban Design	
<p><i>Convener:</i> Dr Tony Wong Ecological Engineering PO Box 453 Prahran, Victoria 3181 Australia Ph: 61 3 9533 8445; Fax: 61 3 9533 7781 Email: tony@ecoeng.com.au)</p>	



**International
Water Association**

Alliance House 12 Caxton Street London SW1H 0QS · UK
Tel: +44 (0)20 7654 5500 · Fax: +44 (0)20 7654 5555
Email: water@iwahq.org.uk · Web: www.iwahq.org.uk
Company registered in England No. 3597005
Registered Charity (England) No. 1076690