



IAHR/IWA Joint Specialist Group on URBAN DRAINAGE



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2. CHAIRMAN'S THOUGHTS

Dear colleagues,

The 9th International Conference on Urban Drainage (ICUD) was once again a huge success. About 350 full-week and an additional 100-plus daily participants attended the conference, held in Portland, Oregon, USA. Eric Strecker and Wayne Huber, whose enthusiastic work was the cornerstone for the conference's success, jointly chaired the conference.

After my election to the position of Chairman, I addressed the conference participants by introducing myself and also presenting some thoughts on future activities of the Joint Committee (JC). In the following I reiterate my views, as expressed in that address.

When I first came across the urban drainage field while studying civil engineering at the Swiss Federal Institute of Technology in the early 1980s, I regarded this topic as rather boring. At that time the curriculum was mostly concerned with the rational formula and pipe sizing, and the interesting theories already pursued elsewhere had not found their way into the 'civil engineering' lecture halls. Consequently, I quickly turned away from the field (and also from the university) to follow one of the many career opportunities in practice. And even when I eventually found my way back into science and the urban water field I started from a very different angle: with a Ph.D. on a groundwater problem.

It was only then – during the last days of my Ph.D. at the University of Innsbruck in Austria – that I came across the proceedings of the early international conferences of urban storm water drainage. In these papers all kinds of new and interesting ideas had been presented. At that time, these ideas were unknown to me as well as the civil engineering community in Austria. Consequently, I immediately turned away from groundwater research and engaged myself in the 'hot topic' of integrated modelling of the whole urban water cycle.

But even more fascinating were the amount and the intensity of research done in the field of urban drainage worldwide. This gave me an opportunity to move for several years to one of the leading scientific centres in the field, the Department of Environmental Science and Engineering (now known as Energy and Resources) at the Danish Technical University. It was there that I was not only able to get to know some of the heroes from the conference proceedings on my bookshelves, but I also could work with one of them, Poul Harremoës. And although in the meantime my career has led me – through other stations – back to Austria, I regard the years spent in Denmark as the most fascinating and inspiring period of my life.

The venue of the 10th ICUD will be in Copenhagen, and Poul Harremoës together with our colleagues Thorkild Hvitved-Jacobsen and Peter-Steen Mikkelsen will organise it. It will be therefore a very moving moment of my career to stand there as the Chairman of the IAHR/IWA Joint Committee on Urban Drainage, with the knowledge that I can contribute to the success of that event.

After this personal note let me also briefly address some thoughts on the future activities of the JC. Some days ago one of our colleagues suggested terminating the activities of the JC (and also the conference series) after the 10th conference in 2005. The argument was that we have achieved what was the original goal (the investigation of the pressing problems of urban drainage) and that we should stop our activities before starting to re-invent the wheel and pursuing details of secondary importance. Although I immediately rejected this proposal, an argument as such still needs to be considered carefully. I talked to many people at the conference on this subject and formulated my own thoughts into four questions:

1. Do we still qualify as a Joint Committee between IAHR and IWA, meaning are we still trying to bridge the gap between water quantity and water quality issues in our field?
2. Do we attract all researchers and stakeholders in the field worldwide; that is, do we have a sufficient regional representation?
3. Are we inspirational enough to attract young students to engage themselves in the field and do we give them the proper platform to present and publish their work?
4. Do we really pursue the most pressing problems in the field or are we re-iterating old questions?

The understanding I got from all my talks was very positive: yes, we do and this conference was a perfect example of our efforts. However, we might do even better and hence I would like to address some of the issues above in more detail.

Yes, we are still representing a joint research effort between hydraulics/hydrology and water quality issues and the fact that Forrest Holly – the president of IAHR – gave a welcome address here at the conference, underlines this. Yet, over the past decade there was a gradual shift in our activities and we are – at present – seemingly more linked to, and represented within, IWA. The 30th IAHR Congress in Thessaloniki, Greece, in August 2003 will be a perfect platform to strengthen our links with this community and to present the importance and also the special characteristics of our field to our parental organisation. Our past chairman, Wolfgang Schilling will give a keynote address there and the Joint Committee offered to support several sessions. I therefore invite all of you to participate in this event.

The question of worldwide representation is an old one and has been addressed repeatedly before. A count of the people attending this conference quickly outlines the imbalance: less than 10 representatives are from developing countries. What we see is a general pattern: the majority of engineers are trying to solve the problems of a minority of the world's population. I do not have a good answer to this problem other than we have to continue our efforts to get more attendees from developing countries. A first step would be to improve travel funding support and I am glad to learn that there are efforts underway for the Copenhagen conference in this direction.

On the issue of attracting young researchers and providing them with a proper publication outlet there are several points to consider: First of all, the interest of students towards specific fields is a matter of job opportunities, public perception, salaries, etc., and hence engineering student numbers tend to reveal a cyclic pattern. At least in Europe we do see at the moment a rapid decline in numbers of civil and environmental engineers. There is not much we can do about it, other than creating public awareness and be inspiring teachers.

Secondly, do we give young researchers a platform to present their results, to discuss ideas and methods in a friendly, yet competitive atmosphere? We certainly do, but maybe we could create an even more inspiring atmosphere if we reconsider the presentation format. One idea would be to provide – as an addition to the traditional format – a track of discussion sessions, where – with or without the helping hand of seniors – certain emerging issues and dilemmas are discussed. The final result of each such a session would then be a synthesis paper, assembled and finished afterwards.

The last point is about publications and our past chairman Bernard Chocat has already addressed this problem. In short: we write, but we do not cite. There is an ever-increasing amount of papers on the issue of urban drainage; yet, the impression is that before searching and reading the existing literature we rather tend to re-invent the wheel. Unfortunately this is becoming a problem for our scientific standing and representation. I was quite shocked to learn recently that urban drainage papers are among the least cited within the water-related engineering journals. Irrespective of the value of such a performance indicator, the citation number is the benchmark of journals for weighing the impacts of the individual papers. If this number is low we will inevitably lose influence in determining the scope and direction of top-class journals. Fortunately there is an easy solution to this problem and it has been already brought up by Bernard Chocat: if all of us would go back to the standard procedure of scientific writing, then we are bound to review the recent literature in the field and cite it.

The last of the questions I posed was whether we really pursued the most important problems? What about developing countries, privatisation, sewer-less drainage, etc.? Does the urban drainage field need a redirection? If that is the case, are we able to provide the new direction? I am not sure whether we should apply here the 'tongue-in-cheek' definition of sustainability: 'Sustainability is to leave enough problems for the future generation.'

In my understanding we have a need to address these questions. I therefore would like to invite all of you to contribute to the development of visionary concepts and their analysis. The formation of a working group under the umbrella of the Joint Committee would be an excellent vehicle for such efforts. And I am also sure that we could provide a session track at the Copenhagen conference for the outcome.

Lastly, I would like to express my thanks, on behalf of both the Joint Committee and myself. First, to the outgoing members of the Committee: James Ball, Larry Roesner, Carlos Tucci, Evzen Zeman and to our outgoing Chairman Bernard Chocat. I hope I can live up to his inspiring example. Thanks are also due to Jiri Marsalek who agreed to stay on as the secretary of the Joint Committee and support me in my new function. But most importantly I would like to thank Wayne Huber and Eric Strecker, together with their co-workers, for organising the 9th ICUD conference. Although the event was emotionally burdened with the anniversary of the September 11th, it was a full success and will remain in our memory as one of the outstanding conferences. Thanks to all of you and see you in Copenhagen—at the latest.

Wolfgang Rauch
Chairman of the Joint Committee

3. FROM THE SECRETARY'S DESK

3.1 Committee Newsletter – We will continue to publish the Joint Committee's annual newsletter in a format similar to this issue. The main purpose of the newsletter is to facilitate communications and interactions among specialists in our field, rather than presenting detailed information. Please keep this in mind when submitting contributions.

Both IWA and IAHR now distribute their newsletters only electronically. Both associations place our newsletter on their web site, and IAHR also distributes some excerpts from our newsletter in their Newsflash. Furthermore, thanks to the continuing efforts of Mr M. Zaizen, our newsletter is translated into Japanese and 200 hard copies are distributed in Japan.

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.

3.2 Joint Committee Activities – the Committee met in Portland, Oregon, USA on 8 September 2002, with 26 members and guests in attendance. Excerpts from the meeting minutes follow.

Membership issues – the new JC chairman, Wolfgang Rauch, was officially introduced at the meeting, as were the new members of the Committee: Roumen Arsov (absent), Jean-Luc Bertrand-Krajewski, Eric Strecker and Tony Wong. The Committee now has 10 members (see page 2), assisted by the secretary (an appointed administrative position).

A brief report on the 9th ICUD was presented by Eric Strecker. Just before the conference start, there were 350 full-week registrations and an additional 120–130 daily registrations were expected. The programme comprised 65 sessions with about 4 papers each; the distribution of US/international participants was about 60/40. Post-conference publication of selected papers was discussed at some length; paper selection is still ongoing.

Wolfgang Rauch reported on the IWA publication strategy, which is now influenced by citation counts. Urban drainage papers are *among the least cited* (bottom one quarter) and this affects our chances of getting *Water Science and Technology* issues devoted to urban drainage, etc. Consequently, we are losing graduate students and audiences, because of the lack of journal publications. A lengthy discussion followed about publishing conference proceedings on paper or CD-ROM, targeting other journals (*American Society of Chemical Engineers Journal*, *Urban Water*, and the *Journal of Hydraulics Research*), and the bias introduced by self-citations. *The JC is appealing hereby to our community to include in their paper sections on previous research and the relevant references*, as well as to use appropriate references in result discussion. Proper review and referencing of previous research will be considered by the Committee in future reviews of papers offered to various JC events.

Urban Water Journal – as reported by Dave Butler, Elsevier has decided to discontinue publishing *Urban Water* at the end of 2002, because of a 'lack of commercial success' resulting from insufficient library subscriptions. Dave Butler and Cedo Maksimovic are finalising new arrangement for continuing journal publication by Imperial College Press and IAHR.

Forrest Holly, the President of IAHR, addressed the meeting and described IAHR activities. Following recent changes, IAHR is now posed to play a bigger role in international water activities. In IAHR plans, urban drainage is very important; it may represent the largest and most active group. This IAHR support for JC was reflected by assistance in continuing the publication of *Urban Water*. The most important forthcoming IAHR activity is the XXXth Congress in Thessaloniki (24–29 August 2003).

News from IWA – Wolfgang Schilling has been elected to the IWA Strategic Council, which met in Venice, in November 2002. The news from that meeting will be forthcoming.

Bernard Chocat addressed the collaboration between the JC and American Society of Chemical Engineers. It is important to strengthen our links with the USA. Some means for such collaboration were discussed – e.g., holding joint conferences, and ensuring that meetings of UWRRC (Urban Water Resources Research Council) of ASCE and JC are attended by reps of the other group.

Progress on Urban Drainage Glossary – a final English version exists; further work is progressing on German, French and Japanese versions (done by IWA). A completion in early 2003 is expected.

Special issue of the *Journal of Hydrology* will be co-ordinated by Bernard Chocat. It will contain about 15–20 papers.

Urban drainage position paper has been prepared under Bernard Chocat's leadership. At present, Bernard is examining two publication versions and venues: the *Journal of Environmental Planning and Management* (full version), and the *Scientific American* (some abbreviated form).

Dave Butler reported on the Urban Drainage e-mail list, which started in 1997. There are about 400+ people from 50 countries (mostly Europe and USA) on the list. In discussions, technical questions are raised, but there is no compendium of replies. Most frequently, Dave Butler and Manfred Schuetze moderate discussions. On average, there are 5–7 messages per month.

Future JC membership – in nominating and electing future JC members, emphasis will be placed on membership in IAHR and candidates from developing countries (under-represented regions).

Future JC meetings – Thessaloniki, Greece, 24 August 2003 (during the IAHR congress); Lyon, France, 6–10 June 2004 (during the NOVATECH conference); and Copenhagen, Denmark, 2005 (during the 10th ICUD).

3.3 Call for Proposals to Organise the 11th International Conference on Urban Drainage in 2008

Traditionally, the Joint Committee provides minimal specifications for ICUD proposals to encourage the creativity of proponents. We will continue this tradition with this call for proposals to organise the 11th ICUD in 2008. The mandatory requirements for proposals:

The proposal should be prepared and submitted in an electronic form for easy distribution. Preference should be given to common, widely available software. Keep the size of respective files small by judicious and limited use of graphics, and by providing Internet links where appropriate (e.g., to document the location or venue of the event). The proposal should cover the following points:

- The proponent team qualifications – names, affiliations and qualifications of the conference chair and/or co-chair, and institutional support/backing available.
- Location and venue (capacity, access, indication of costs)
- Conference topics and/or subtopics, program organisation, paper selection
- Indication of registration fees, conference budget (available/secured sponsorship)

Optional information - any 'added' features, which may enhance the proposal.

All proposals should be submitted electronically to the JC secretary by 31 March 2003 (address: jiri.marsalek@ec.gc.ca).

*Jiri Marsalek,
Joint Committee Secretary*

3.4 Personal Department – Special Award to Jiri Marsalek

During the 9th ICUD a special award was given to Jiri Marsalek ‘in appreciation of his long-standing contributions to the activities of the JCUD and the improvement of urban stormwater management around the world.’

As the former chairman of the JCUD, I had the pleasure to give the award and to make the following presentation:

‘Some months ago, Larry Roesner told me that the organizing committee of the 9th ICUD wanted to give a special award to a person who gave a special impetus to the Joint Committee on Urban drainage and asked me to propose a name. After a very short discussion within the Joint Committee, we unanimously agreed on the name of Jiri Marsalek.

Jiri has been involved in the activities of the Joint Committee since its formation in 1978. He has been member of the Committee from 1987 to 1993, and chaired the Committee between 1989 and 1993. He organized the 6th ICUSD in Niagara Falls in 1993, and since this date he has been our very efficient secretary. The only distinction he misses is the title of iron man of Urban Drainage conferences, since he missed one of the nine Conferences held so far.

I must also confess today that he is also the person who makes most of you think that I speak fluent English, by spending a lot of time correcting my speeches and other statements.

Above all, Jiri is one of the most reliable, smartest and nicest people I ever met, and he fully deserves this special award.’

Bernard Chocat

Past Chairman of the Joint Committee

4. WORKING GROUP REPORTS

4.1. International Working Group on Data and Models (IWGDM) (Chairman: Dr. Lothar Fuchs, ITWH, Engelbosteler Damm 22, 30167 Hannover, Germany; Phone: +49-511-971-9321, Fax: +49-511-971-9377, E-mail: L.Fuchs@itwh.de).

Lothar Fuchs reported that he took over the group from Cedo Maksimovic and would like to reactivate it. The group is not very active, but it is looking for new members. The group is planning to hold another UDM (Urban Drainage Modelling) conference, most likely in Dresden, Germany, in 2004. For further information, contact Lothar Fuchs.

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 H4V 3R9, Canada; Phone: 001 514 257 2439, Fax: 001 514 257 2414, E-mail: hcolas@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://web.tiscali.it/RTCUSD/>

The RTCUDS group follows its work plan developed in Lyon, in 2001. At the 9th ICUD in Portland, the group held a workshop chaired by Hubert Colas and attended by 30 participants. The workshop covered RTC hardware, software, control strategies, and economics. The group sponsored two sessions at the 9th ICUD and presented a position paper on RTC. Future work plans include developing a new web site, compiling a list of RTC references (to be listed on the web site), and preparing a PowerPoint presentation for the promotion of RTC. The 16th Junior Scientist workshop was held in Agriturismo Valle dei Margi / Grammichele, Catania, Italy, 7–10 November 2002, as reported later in Section 7. The group is actively seeking new members.

4.3. Sewer Systems and Processes Working Group (SS&PWG) (Chairman: Dr Jean-Luc Bertrand-Krajewski, URGC Hydrologie Urbaine, INSA de Lyon, 34 avenue des Arts, F-69621 Villeurbanne Cedex, France; Phone: +33 4 72 43 81 80, Fax: +33 4 72 43 85 21, E-mail: jlbk@urgc-hu.insa-lyon.fr. Vice-chairman and secretary: 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. Web site: <http://www.sspwg.civil.auc.dk/>).

The SS&PWG report was presented by Thorkild Hvitved-Jacobsen. The aim of the group is to disseminate information about sewerage systems, and to co-ordinate research and development activities relating to physical aspects (structure and layout), physical processes (hydraulics and transport of solids), chemical and microbial processes (pollutant occurrence, transformations and interactions), and interactions with sources and destinations such as the environment (via overflows) and treatment plants. Activities are related to system design, operation, rehabilitation/renovation, maintenance and control. The group provides focus for (in-sewer) process activities.

The group organised a 3-day conference on sewer processes in Paris, in April 2002. The conference was attended by 85 people and selected papers will appear in *Water Science and Technology* (all papers are on the web). The fourth conference in this series will be held in 2004. Richard Ashley organised a conference on sewer operation and maintenance in Bradford, UK, 26–28 November 2002 (see Section 7). The Scientific and Technical Report on sewer solids is nearing completion and should be published in early 2003. For further information, please see Section 6 or contact Prof. Richard Ashley: r.ashley@bradford.ac.uk

There are plans to hold a junior scientist workshop in Aalborg, Denmark, in 2004 (to be decided at the Group's next meeting). At the 10 September 2002 meeting, Jean-Luc Bertrand-Krajewski took over as the new group Chair, and Jose Matos became a Vice-Chair (he will succeed Jean-Luc in three years).

4.4. Working Group on Source Control for Stormwater Management (SOCOMA) (Chairman: Georges Raimbault, L.C.P.C., BP 4129, 44341 BOUGENAIS Cedex, France; Phone: +33 02 40 84 58 63, Fax: +02 40 84 59 98, E-mail: georges.raimbault@lcpce.fr), vice-chairman: Gilles Rivard, Aquapraxis Inc, 827, rue Pierre, LAVAL (Qc), Canada H7X3T3; Phone: 001-450-689-2967, Fax: 001-450-689-2969, E-mail: GRivard@aquapraxis.com; 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 deals with source control techniques defined as all measures concerning stormwater before it enters a sewer system or a surface water body. Its objective is to facilitate the development of these techniques, by conducting research and experiments, and disseminating information. The group met during the 9th ICUD (Portland, Oregon, 10 September 2002) and decided on its future activities.

To reduce the gap between technicians and planners involved in Source Control Management, a small team managed by Govert Geldof (govert.geldof@planet.nl) is preparing a workshop (September 2003) and a proposal to organise a session on 'urban water and society' at the Novatech Conference in 2004.

The SOCOMA working group wishes to facilitate the collection, reporting and analysis of water quantity and quality measurements in Best Management Practice (BMP) projects. The EPA–ASCE project 'Urban Stormwater BMP Performance Monitoring' appears to be an interesting tool for that. The correspondent for this project is Marcus Quigley (mquigley@geosyntec.com).

A Junior Scientist Workshop will be organised by Carsten Dierkes in Germany, to promote exchange among young researchers. The workshop will bring together new young researchers, and if feasible, the participants from a previous related workshop.

Sylvie Barraud (barraud@urgc-hu.insa-lyon.fr) leads a new activity aimed at developing a list of source control manuals.

4.5. Working Group on Urban Rainfall (GUR) (Chairman: Dr Guido Vaes, Hydraulics Laboratory, University of Leuven, Kasteelpark Arenberg 40, B-3001 Heverlee, Belgium; Phone: 32 16 32 16 58, Fax: 32 16 32 19 89, e-mail: guido.vaes@bwk.kuleuven.ac.be. Secretary: Dr Thomas Einfalt, Einfalt & Hydrotec GbR, Wakenitzmauer 33, D-23552 Lübeck, Germany. Ph: +49-451-7027333 Fax: +49-451-7027339, E-mail: thomas@einfalt.de. Group's web site: <http://www.einfalt.de/GUR>).

Preparations for the 6th International Workshop on Precipitation in Urban Areas (in Pontresina, December 2003) have just begun. The workshop committee was established and the First Call for Papers has been issued (to receive a copy, contact the group's chairman or secretary). For more information, visit the web site <http://www.ihw.ethz.ch/hydrologie/Pontresina03/index.html>, or check Section 9 of this newsletter. The workshop will be sponsored by ETH Zurich (the main sponsor) and led by Drs Burlando, Einfalt, Schmidt, Sevruk and Vieux.

4.6. Technology Exchange, Transfer and Training Working Group (TETTWG) (Chairman: Dr Jozsef Gayer, VIKUTI Rt, P.O. Box 27, Budapest H-1453, Hungary; Phone: +361 215 61 40, Fax: +361 216 15 14, E-mail: gayer@vituki.hu; Secretary: Dr Jonathan Parkinson, Brazilian Association of Environmental and Sanitary Engineers, Goias Office, Avenida 2a Radial N. 440 Quadra 119 Lote 10, Setor Pedro Ludovico, 74934-590 Goiânia-Goiás, Brazil, Tel/Fax. +55 62 281 2954, E-mail: parkinsonj@bigfoot.com; Group's website: <http://www.datanet.hu/hydroinfo/vituki/int/tett.htm>

MAIN ACTIVITIES AND ACHIEVEMENTS

International Conference on Urban Hydrology for the 21st Century, 14–18 October 2002 was held at the Humid Tropics Hydrology and Water Resources Centre for Southeast Asia and the Pacific (HTC Kuala Lumpur) in collaboration with UNESCO. The main theme of the conference was 'Induced Problems in Urban Environment Requiring Holistic Solutions for the New Millennium'. The aims of the conference were to foster better coordination and information exchange; encourage public participation to create opportunity for concrete actions that address local problems; promote continued interaction between scientists and managers; and create networking/co-ordination among organisations working in the sector. For more information, see <http://htc.moa.my/htc/icuh2002/background.html> or contact: Dr Mohd nor. Hj. Mohd. Desa (jps33@pop.moa.my).

Bio-Ecological Drainage System (BIOECODS)—Malaysia

The second phase of BIOECODS, which involves the development of an ecological pond comprising a wet pond, a wetland, and a wading river, was expected to be completed by the end of 2002 and a national launching of BIOECODS was made at Engineering Campus in December 2002. For more details about the BIOECODS project, contact Assoc. Prof. Dr. Aminuddin Ab. Ghani, Deputy Director, River Engineering and Urban Drainage Research Centre (REDAC), Universiti Sains Malaysia, Penang, Malaysia; Tel: +604-5941035; Fax: +604-5941036;

E-mail: redac02@eng.usm.my/redacamin@yahoo.com; URL:<http://www1.eng.usm.my/redac>

***Waterlines Journal* – April 2001 Issue – Urban stormwater management in developing countries**

The April 2001 issue of *Waterlines* (published by Intermediate Technology Development Group) focused on urban stormwater management in developing countries. The April issue included the following papers: Urban Drainage in Developing Countries – challenges and opportunities (by Jonathan Parkinson); Flood Control and Urban Management in Brazil (Carlos Tucci); Environmental Management Plans for the Communities of Lucknow (Shaleen Singhal and Amit Kapur); Waiting for a swim – handling wastewater in Asia (Ole Mark, Nguyen Quang Hung, and Birgitte Helwich); How not to grow mosquitoes in African Towns (Jo Lines).

The journal also includes a technical brief which provides guidance on evaluating and improving the operational performance of surface water drainage systems, and a resources guide to obtain more information about all aspects of urban drainage systems and stormwater management. For more information, see www.itdgpublishing.org.uk/waterlines.htm or contact the TETT secretary.

ONGOING AND FUTURE ACTIVITIES

Three day international course on ‘Global Developments in Urban Drainage Management’

5–7 February 2003 at IIT, Bombay, India

The aim of this course is to present the latest global developments and techniques in the area of urban drainage management by key international and national experts. Target participants are officers and engineers working in municipalities, city development authorities, government transport organisations and consulting companies engaged in the analysis, design, planning, construction, operation and maintenance of urban drainage works. The aim of the course is to familiarise the participants with the recent global developments and international state-of-the art techniques in urban drainage management. At the end of the course, the participants would be in a position to identify and adapt appropriate strategies for their local conditions and implement measures to improve the drainage and reduce overflows and the consequent damage. The course is scientifically sponsored by the Joint Committee and its working group on Technology Exchange Transfer and Training (TETT) involving worldwide experts in this field. Financial support for the course is expected from UNESCO, the WSSCC (Water Supply and Sanitation Collaborative Council) and IWA. For further information contact Dr Kamil Gupta (kgupta@civil.iitb.ac.in), IIT Bombay.

Modelling and Mitigation of Storm Runoff Pollution in Kampala, Uganda

The Department of Civil Engineering, Makerere University, in collaboration with the Norwegian University of Science and Technology (NTNU) under the NUFU project, is to undertake research on storm runoff pollution control in Kampala, Uganda. The long-term objective of the project is to build research capacity at Makerere University. For further information contact Dr Mai Nalubega at Makerere University or Prof Wolfgang Schilling at NTNU (Phone: +47-7359-4754, Fax: +47-7359-1298, E-mail: wolfgang.schilling@bygg.ntnu.no)

Dual management of water quality and flooding in the Nam Pasak Channel in Vientiane, Laos

A new project managed from the Asian Institute of Technology aims to find a solution to the problems associated with poor sanitation facilities and an inadequate drainage system in Vientiane. The project aims to improve drainage and conserve the balance of the ecological system in the wetlands. Contact: Dr Ole Mark, Asian Institute of Technology (Tel + 66 2 524 5564, Fax: + 66 2 524 2564, E-mail: Mark@ait.ac.th).

A scoping study of sustainable urban drainage systems (SUDS) in low-income countries

In collaboration with the Water, Engineering, and Development Centre (WEDC) at Loughborough University, GHK is undertaking a literature review for a DFID-funded research project on ‘Sustainable urban drainage in low-income countries’. The 6-month project will involve a literature review, and liaison with researchers and practitioners, and consultation workshops in Brazil and Uganda and Vietnam. For further information, contact Brian Reed at WEDC (e-mail: b.j.reed@lboro.ac.uk Tel: +44 (0)1509 228307 Fax: +44 (0)1509 211079) or Dr Jonathan Parkinson (TETT Secretary).

Publication of IWA ‘Guidance Manual for Urban Drainage and Stormwater Management in Developing Countries’

Initial contact has been made with IWA Publishing in connection with the proposed development and publication of a ‘Guidance Manual for Urban Drainage and Stormwater Management in Developing Countries’. The main objective of the guidance manual is to provide urban planners and engineers with important information, which would assist them in the planning, design, and operation of urban stormwater drainage systems. In addition, it is proposed that the manual will be disseminated at future training courses organised by the Technology Exchange, Transfer and Training (TETT) working group.

Other TETT related activities included collaboration in setting up an UNESCO centre for urban hydrology in Tehran, Iran (see: <http://www.rcuwm.org.ir/news6.htm>), and assistance in publication of a handbook on Environmentally Sound Technology for Wastewater and Stormwater Management (see IWA Publishing website <http://www.iwapublishing.com>). Information re Reactivation of the IRTCUD Network is available from Ljiljana Jankovic at irtcud@hikom.grf.bg.ac.yu

SANICON Stormwater Management and Urban Drainage in Developing Countries – contains references to 35 publications and 9 Internet sites. If you wish to contribute to this site, contact the TETT secretary (Dr Jonathan Parkinson).

5. NEWS FROM IAHR AND IWA

IAHR News

IAHR has completed its move of Secretariat to a new location, in Madrid, Spain: IAHR Secretariat, 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

IAHR Executive Director, Dr Christopher George (christopher.george@iahr.org) reports on the forthcoming IAHR Biennial (30th Congress) to be held in Thessaloniki, Greece, 24–29 August 2003. The LOC has set up a smart, new website for the Congress at <http://iahr2003.internet.gr/> with full information. As you well know the IAHR Biennial Congress is *the* opportunity for all our different specialist disciplines to meet—and your presence is invaluable/vital for stimulating and organising our future activities. Section Meetings will be arranged during the congress; normally those are scheduled for the Sunday—the first day of the Congress (24 August 2003; the JC is scheduled to meet on that day).

Chris visited Thessaloniki last September, and was impressed by the Congress venue—the University has a campus site in the centre of the city. It offers an excellent location for our Congress! The Airport at Thessaloniki has good connections with many European cities – especially in Germany and Switzerland – and of course with Athens. There are some good airfares available with Swiss Air, at the moment, from various European capitals. There are also many charter flights operating into Thessaloniki from Northern Europe and feeding into the Haldikiki Peninsula – near to the city – which is a major tourist destination. Also note that some low-cost airlines, e.g., Easy Jet (www.easyjet.com) and Ryan Air (www.ryanair.com) fly to Greece.

Several interesting items are covered in IAHR Newsletter 3, including Hydroinformatics for teaching (use of CFD modelling in applied fluid mechanics), 10th joint ERCOFTAC–IAHR–QNET/CFD Workshop on Refined Turbulence Modelling (held in Poitiers, France, 10–11 October 2002), report on the IAHR–EGW short course on Multi-Phase Flow, Transport and Bioremediation in the Subsurface (held in Stuttgart, Germany, 11–15 March 2002), and a list of ‘grey’ literature sources (including Delft Hydraulics, HR Wallingford, Spanish CEDEX, UK WRC—e.g., offering a sewer rehabilitation manual, Russian VNIIG, and the University of Queensland, Australia). The newsletter features excerpts from

W.J.R. Alexander report on Floods, droughts, poverty and science. The *Journal of Hydraulics Research* Vol. 40, Issue 3, contains at least two papers of potential interest to drainage specialists: 'Combined-free flow over weirs and below gates' and 'Scour at culvert outlets as influenced by the turbulent flow structure'.

Finally, please note that IAHR membership renewals are now due, for details, contact the IAHR Secretariat.

IWA News

IWA Governance Structure – the Association is in the throes of a major strategic realignment of its governance structure, aiming to replace the current dual-chamber management with a single, Strategic Council. This will break down the previous barriers between the scientific–technical leadership and the regular governance. It will also be created to provide diverse constituents with opportunities to contribute to the direction of the Association. This will give groups like regulators and the younger members better representation than they have enjoyed up to now. On the leadership front, Michael Rouse will replace Professor Norihito Tambo in the President's role at the Board Meeting in March 2003. David Garman, Director of CRC for Waste Management and Pollution Control, will remain on the IWA Executive until the 2006 Congress, which will take place in Beijing. Ali Fassi Fihri replaces David Garman in the Congress President's role until the Marrakech Congress in September 2004. The latest information on IWA activities can be obtained on the IWA home page (<http://www.iwahq.org.uk>). If you know of any sites that you feel would be of interest to IWA members, please send details to Keith Robertson (keith.robertson@iwahq.org.uk) at the Secretariat.

Message from the IWA Executive Director, Paul Reiter – Membership renewal letters have now been sent to all IWA members. You can easily renew your membership in the following ways: on-line, using the link on the IWA homepage to the on-line renewal form, and by fax or post, using the membership renewal form that has been posted to you.

Check the IWA website – www.iwahq.org.uk – for the latest information and activities of IWA, including: improvements in service to Members in 2002; plans for 2003; conference programme, publications and journals, as well as other news.

Remember to update your contact details, particularly your e-mail address, so that we can easily get in touch with you. IWA looks forward to continued collaboration with you in 2003.

6. NEWS FROM IWA PUBLISHING

Titles in urban drainage and sewerage

Innovative Technologies in Urban Drainage (NOVATECH'2001)

Selected proceedings of Novatech'2001, 4th International Conference on Innovative Technologies in Urban Drainage, held in Lyon-Villeurbanne, France, 25–27 June 2001

Editors: E. Brelot, B. Chocat, M. Desbordes

2002 · ISBN: 1843394138

IWA Members Price: £100.50/US\$161/€161

Non Members Price: £134/US\$214/€214

2nd World Water Congress: Integrated Water Resources Management

Selected Proceedings of the 2nd World Water Congress of the International Water Association, held in Berlin, Germany, 15-19 October 2001

Editor(s): IWA Programme Committee

2002 · ISBN: 1843394243

IWA Members Price: £201/\$322/€322

Non Members Price: £268/\$428/€428

Instrumentation, Control and Automation VIII

Selected Proceedings of the 1st IWA International Conference on Instrumentation, Control and Automation in Malmö, Sweden, June 3-7, 2001

Editor(s): G Olsson, U Jeppsson, C Rosen

2002 · ISBN: 1843394103

IWA Members Price: £201/\$322/€322

Non Members Price: £268/\$428/€428

INTERURBA II Interactions between Sewers, Treatment Plants and Receiving Waters

Selected proceedings of the 2nd International Conference on Interactions Between Sewers, Treatment Plants and Receiving Waters in Urban Areas – INTERURBA II, held in Lisbon, Portugal, 19 – 22 February, 2001

Editor(s): JS Matos

2002 · ISBN: 1900222922

IWA Members Price: £100.50/US\$161/€161

Non Members Price: £134/US\$214/€214

Rainfall in Urban Areas

Selected Proceedings of the Fifth International Workshop on Rainfall in Urban Areas held in December 2000 in Pontresina, Switzerland

Editor(s): P Burlando

2002 · ISBN: 1843394111

IWA Members Price: £100.50/US\$161/€161

Non Members Price: £134/US\$214/€214

Sewer Processes and Networks, Selected Proceedings of the 3rd International Conference on Sewer Processes and Networks, held in Paris, France, 15–17 April 2002, Editors: J-L Bertrand-Krajewski, G Chebbo, 2003 · ISBN: 1843394367, IWA Members Price: £100.50/US\$161/€161, Non-Members Price: £134/US\$214/€214.

Solids in Sewers, Author: The Sewer Systems and Processes Working Group of the IWA/IAHR Joint Committee on Urban Drainage, July 2003 · ISBN: 1900222914, IWA Members Price: £39.75/US\$64/€64.00, Non-Members Price: £53/US\$85/€85.00.

Environmentally Sound Technology for Wastewater and Stormwater Management: An International Source Book, Authors: UNEP International Environmental Technology Centre, April 2002 · ISBN: 1 843390 086, IWA Members Price: £63.75/US\$102/€102, Non-Members Price: £85/US\$136/€136.

Urban Rivers — Our Inheritance and Future, Editors: G. Petts, J. Heathcote, D. Martin, April 2002 · ISBN: 1 900222 221, IWA Members Price: £15/US\$24/€24, Non-Members Price: £20/US\$32/€32.

Dictionary of Water and Waste Management, Authors: PG Smith, JS Scott, March 2002 · ISBN: 1 843390 159, IWA Members Price: £26.25/US\$42/€42, Non-Members Price: £35/US\$56/€56.

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7. REPORTS ON CONFERENCES

The 3rd IWA International Conference on ‘Sewer Processes & Networks’ (SPN), was held in Paris, France, 15–17 April 2002. The conference was organised by the Sewer Systems & Processes Working Group of the JC, with Drs J.-L. Bertrand-Krajewski and G. Chebbo serving as co-chairmen. The conference focused on sewer systems behaviour and functioning, with regard to physical, chemical and biological processes, and structural aspects. The conference was attended by about 85 participants; all papers are on the group’s web site (see Section 4.3) and selected papers will appear in *Water Science and Technology*. Full conference materials (proceedings, Microsoft PowerPoint presentations, posters, and some photos) are available on CD-ROM, which can be ordered for approx. €20 at graie@urgc-hu.insa-lyon.fr. These materials can also be downloaded from the SS&PWG (Sewer Systems and Processes Working Group) website, at <http://www.sspwg.civil.auc.dk/spn/>.

9th International Conference on Urban Drainage (9th ICUD), Portland, 8–13 September 2002. Wayne Huber and Eric Strecker report that the conference comprised 65 sessions with 260 presentations, including 5 sessions on urban streams and 15 on Best Management Practices (BMPs). The total attendance was 657 registrants from 36 countries around the world (see below). Other highlights were the 5 keynote speakers, including Eric Sten, Portland City Commissioner, and Mary Wahl, Bureau of Environmental Services, the Ben T. Chow award to and lecture by Jacques Delleur, special keynote presentations by Shoichi Fujita (Japan) and Hans Brombach (Germany), and a tribute to Ben Yen, former Joint Committee and Council Member. Much input and help was provided by JC members, especially by James Ball, the 8th ICUD Conference co-chair. A list of the reviewers, including many JC members, is also provided below; their help has been much appreciated by Wayne and Eric.

9th ICUD Attendance Summary

Country	Count	Country	Count	Country	Count
Australia	27	India	2	Scotland	5
Austria	2	Israel	1	Singapore	2
Belgium	3	Italy	5	Slovenia	1
Brazil	3	Japan	57	South Africa	1
Canada	28	Mexico	1	Spain	4
Chile	2	The Netherlands	11	Sri Lanka	5
Czech Rep.	5	Netherlands Antilles	1	Sweden	14
Denmark	10	New Zealand	1	Switzerland	2
England	18	Nigeria	2	Thailand	2
France	10	Norway	2	Turkey	1
Germany	31	Poland	1	Ukraine	2
Ghana	2	Portugal	4	United States	387
				Unknown Coutry/State	2

The proceedings are available at <http://www.pubs.asce.org/BOOKdisplay.cgi?9991413>. IWA and IAHR members should be able to get the proceedings at member rates by contacting ASCE directly via e-mail.

Conference Paper Reviewers (thank you!):

John Argue	Tim Fletcher	Tom Langan	Charles Rowney
Richard Ashley	Lothar Fuchs	Eric Loucks	Steven Roy
James Ball	Shoichi Fujita	Peter Mangarella	John Sansalone
Thomas Barnwell	Kathi Futornick	Ole Mark	Adrian Saul
Michael Barrett	Wolfgang Geiger	Jiri Marsalek	Rick Schaefer
Phil Bedient	Ganesh Gopalakrishnan	Habib Matin	Wolfgang Schilling
Jill Bicknell	Jim Gracie	Richard McCuen	Michael Schmidt
Michael Boyd	Frank Groznik	George McMahon	Earl Shaver
Robert Brashear	James Heaney	Peter Mikkelsen	Phil Smith
Ted Brown	Mitchell Heineman	Gary Minton	Mike Stenstrom
Bernard Chocat	Ed Herricks	Fernando Miralles	Mary Stinson
Mike Clar	Wayne Huber	Rob Montgomery	Eric Strecker
Hubert Colas	Arata Ichikawa	Wan Nawang	Sveinn Thorolfsson
Kevin Coulton	William James	Van-Thanh-Van Nguyen	Ben Urbonas
John Doerfer	Mogens Jensen	Thomas O'Connor	Adrian Verwey
Andrew Earles	Ian Joliffe	Geoff O'Loughlin	Baxter Vieux
Thomas Einfalt	Masoud Kayhanian	Marcus Quigley	Neil Weinstein
Bryan Ellis	Scott Kenner	Ramesh Raghunathan	Paul Wisner
Chi-Yuan Fan	Lisa Klapper	Georges Raimbault	Tony Wong
Richard Field	John Kosco	Sri Rangarajan	David Wood
		Larry Roesner	Mitsuyoshi Zaizen

The First OTHU Technical and Scientific Conference, Lyon, France, 25 September 2002 – The OTHU (Observatoire de Terrain en Hydrologie Urbaine: Field Observatory on Urban Drainage) programme in Greater Lyon organised the first OTHU technical and scientific conference, on 25 September 2002. This was a unique opportunity for presenting and disseminating the operational and transferable research results after 5 years of study. The OTHU will organise in 2003 a European scientific seminar to discuss and validate the research direction of this programme. Further information and documents are available at <http://www.graie.org/othu/>.

16th European Junior Scientist Workshop on Real Time Control and Measurement in Urban Drainage Systems was held at Agriturismo Valle dei Margi/Grammichele, Catania, Italy, 7–10 November 2002. The workshop followed the already proven format of these events. Eighteen young researchers participated, mostly from Central and Southern Europe (Germany, Italy, and Switzerland), and presented papers focusing mainly on various aspects of real-time control and measurement in urban drainage systems. Additional round-table discussions complemented the regular sessions. The final paper review process is currently underway and the workshop proceedings will become available in early 2003, on a CD-ROM. Full conference materials (PowerPoint presentations, and some photos) will be available on the RTC WG website. For more information, contact Alberto Campisano (acampisa@dica.unict.it).

IWA Leading Edge Conference on Sustainability in the Water Sector, Venice, Italy, 25–26 November 2002 (reported by Jiri Marsalek). The conference brought together almost 100 participants from 22 countries. The programme comprised platform presentations, posters, and breakout discussion sessions aiming to develop the IWA programme in this field. The reporter made two general observations. 1. The papers presented at the conference indicated the lack of agreement/rigour when it comes to defining sustainability. Most authors were comfortable with calling any approach/technology, contributing partly (sometime perhaps marginally) to sustainability, as sustainable. From papers and discussions, one would be tempted to define water-sector sustainability as a long-term innovative approach addressing societal, environmental and economic needs, for water, without creating or increasing future risks, liabilities and costs. 2. Sustainability concerns both new technology and changing human/corporate behaviour. IWA is well positioned to address the technology issues, but it will need to strengthen the representation and contributions of social scientists. Conference recommendations will be available in mid-January 2003. The most important conclusion – IWA is committed to leading future activities in this field, and this leadership will be provided mostly through Specialist Groups, including the Urban Drainage SG.

Sewer Operation and Maintenance Conference, Bradford, UK, 26–28 November 2002. The conference attracted some 70 attendees and was well focused on issues about sewer asset management. Some 16 countries were represented, including India and South Korea. About half of the refereed and presented 34 papers were on non-technical issues and included economics and decision-support systems as well as professional and public attitudes. Keynote presentations were made by Adrian Rees of the UK economic regulator, OFWAT; by Alejo Molinari of the regulatory agency in Argentina, ETOSS; and by Dr Charles Rowney of CDM, USA. In the first presentation, the scope and approach to the next UK price review of water charges was presented, whereas the transposition of the UK's privatised approach to Argentina was shown to be inappropriate and costly in the second presentation. In the third keynote, Charles Rowney was keen to promote new ways of thinking in the way in which professionals manage wastewater systems, with more explicit and honest consideration of risk and uncertainty. Owing to the excess number of papers being published at present by IWA, these papers will only be available at a small cost via the SEWNET website [www.sewnet.org] where other details about the conference can be found.

8. NEWS FROM AROUND THE WORLD

Australia (reported by Dr Tony Wong)

An Australian Senate Inquiry on Australia's Urban Water Management was recently completed and called for a national approach to achieving sustainable urban water management coordinating and integrating initiatives in research, monitoring and reporting, planning, water conservation and quality improvement rating schemes and formulation of best practice guidelines for stormwater management, and

utilisation of alternative water sources such as stormwater, greywater and treated wastewater (http://www.aph.gov.au/senate/committee/ecita_cte/reports/index.htm). The release of this report is timely as many parts of Australia are currently experiencing severe drought conditions and some cities are currently under water restriction. There is significant community awareness about the current inadequacy in the way we manage the urban water cycle. Initiatives to supplement potable water as the sole source of urban water supply and to match appropriately the quality of water to its usage have seen several state governments providing financial subsidies for domestic storage tanks for harvesting and reuse of roof runoff and greywater. These measures have significant beneficial environmental outcomes as reduced stormwater runoff and wastewater discharge from urban areas.

Stormwater pollution is the result of non-point sources, and structural and non-structural intervention measures need to involve local government and the land development industry. There are several 'Capacity Building' initiatives directed at the stormwater industry and funded by State-based Environment Protection Agencies, to facilitate technology transfer in urban stormwater quality management and Water Sensitive Urban Design (WSUD), and to raise awareness among local government officers and the community with respect to the impacts of urban stormwater pollution on the environmental values of receiving waters. These initiatives are funded by State Environment Protection Agencies. In addition to this, a scheme to allow land developers (especially 'in-fill' developers with limited treatment opportunities in built-up catchments) to contribute to regional and precinct stormwater quality treatment schemes in lieu of some (but not all) required on-site works would be consistent with the integrated catchment management philosophy in urban stormwater management. Investigation into the feasibility of a scheme for 'trading' of stormwater quality improvement credits or 'off-sets' for environmental management of urban stormwater is one of many efforts by local and state government departments in the state of Victoria in an effort to formulate a more integrated regulatory framework for WSUD. For more information, contact Tony Wong – tony@ecoeng.com.au.

Efforts to integrate social sciences with the traditional physical sciences of urban stormwater management are the next logical step for the stormwater industry after recent successes in integrating stormwater engineering with ecological sciences and urban planning and design. A recent workshop held at the University of Wollongong (ref. Andrea Schafer – schaefer@uow.edu.au) in the state of New South Wales is a first attempt at integrating social sciences with traditional approaches to total urban water cycle management. Social scientists and urban water cycle managers met to examine collaboratively research gaps that would advance sustainable urban water management at this workshop. The workshop clearly highlighted the vast opportunities for synergistic inter-disciplinary collaboration but also exposed the significant differences in philosophical approaches of the two disciplines to addressing the issues of integrated urban water cycle management. A second workshop is being planned for the middle of 2003 to be held at the University of New South Wales (ref. Rebekah Brown – r.brown@unsw.edu.au).

The 28th International Hydrology and Water Resources Symposium (<http://www.hwrs2003.org.au>), scheduled for 10–13 November 2003 in Wollongong, New South Wales, will have a strong urban water cycle management theme. This conference series is organised by the Institution of Engineers, Australia, on an 18-month cycle, with very strong Australian and overseas following (ref. James Ball – j.ball@unsw.edu.au).

Austria (reported by Prof W. Rauch)

Dr I. Ertl from the University of Agricultural Sciences, Institute for Water Provision, Water Ecology and Waste Management, reports a training system for sewer systems maintenance, which was developed for skilled workers, and applied under the auspices of the Austrian Water and Waste Association. Besides completing the training courses, workers will have to keep the obtained knowledge up to date and will have opportunities for further specialisation. Towards this end, 'neighbourhoods of sewerage systems' will be implemented by having local operators to organise 1-day meetings of the personnel, with the aim of sharing experiences and discussing problems. It is hoped that all these measures will improve sewer maintenance and operation, and thereby preserve water pollution control assets.

Dr Gruber reports on online measurements of spill loads at CSO structures, addressed under an inter-university research project financed by the local government and jointly initiated by Graz University of Technologies, Vienna University of Technology and Vienna University of Agricultural Sciences. The main goal of this project is to develop a modular monitoring station based on novel technologies and suitable for continuous operation in sewers, wastewater treatment plants (WWTPs) and surface water bodies. These monitoring stations serve as the backbone of a pilot water-quality network that is currently tested at different locations in Austria. The network also includes a central database server, where the collected data are processed in a consistent way and stored in a standard format. The water quality network design shows new perspectives with respect to continuous and consistent water data collection and processing, which is a prerequisite for rational decision making in water quality management. Under this project, Graz University of Technology works on quantification of spill loads at a combined sewer overflow (CSO) in Graz (102 ha, 13,000 inhabitants). Trial runs of the station in Graz started in October 2002 and for the next year, operation of a second CSO measurement station is planned in Vienna. For more information contact Günter Gruber (gruber@sww.tu-graz.ac.at and <http://www.sww.tu-graz.ac.at/imw>).

At the University Innsbruck, Institute of Environmental Engineering, current research activities led by Prof Rauch focus on two projects:

(1) Project CD4WC, dealing with optimising the efficiency of the urban wastewater system with regard to impacts on natural water bodies and the capital and operational costs. The European Water Framework Directive sets the ultimate water management goal as 'good water quality', and the required performance of the wastewater system must be derived from this goal. In this water-quality based approach, the design of the systems is not pre-determined and the options to meet the goals become much more widespread compared with the common approach, in which the design of the wastewater system is prescribed. Further, interactions between the subsystems, including sewer system, wastewater treatment plant and receiving water, may result in synergy effects. This synergy potential will be systematically evaluated and the cost benefits will be quantified, to give wastewater managers guidance for efficient development of their systems. CD4WC represents collaboration of four universities and four water companies, as end-users, and is funded by the EU Fifth Framework Program.

(2) The project KAREN aims to develop a software platform for determining the relevant parameters for CSO abatement according to Austrian regulations. The key issue of this research is the lack of simple planning tools that can establish a clear cause-effect relationship between the control measures and the impact on the receiving water. KAREN has been developed to close this gap for the Austrian situation. The CSO impact on the receiving water system is computed by means of long-term simulations and expressed by the percentage of annual precipitation that appears as CSOs (as required by the regulations). The software development is done in collaboration with the Technical University of Vienna.

Canada (reported by Dr Jiri Marsalek)

The City of Toronto, working with five engineering companies, has completed the Wet-Weather Flow Management Master Plan Study (October 2002). The study was based on four fundamental principles: (a) recognise rainwater and snowmelt as a valuable resource and manage rainwater where it falls; (b) manage wet weather flow on a watershed basis using an ecosystem approach; (c) implement a hierarchy of wet weather flow-control practices progressing from source controls, to conveyance controls and finally the end-of-pipe solutions; and (d) inform and educate Toronto's communities about wet weather flow issues and involve the public in developing solutions. The ultimate goal of this program is to reduce and eventually eliminate the adverse effects of wet weather flow on the built and natural environment in a timely and sustainable manner, and achieve a measurable improvement in ecosystem health of the watershed. Full implementation of the plan will take 25 years. Further information on these projects can be obtained from Sandra Kok (Great Lakes Sustainability Fund, Environment Canada, Fax: 001-905-336-6272; E-mail: sandra.kok@ec.gc.ca).

Drs J. Marsalek (National Water Research Institute, Burlington, Ontario, Canada) and D. Sztruhar (Slovak Technical University, Bratislava, Slovakia) won a NATO grant to organise an Advanced Research Workshop on Enhancing Urban Environment by Environmental Upgrading of Municipal Pollution Control Facilities and Restoration of Urban Waters. The workshop will be held in Rome, Italy, 6–9 November, 2003. For further information, please contact Jiri Marsalek at jiri.marsalek@ec.gc.ca

France (reported by Dr Jean-Luc Bertrand-Krajewski)

Use of integrated modelling as a tool for diagnosis, optimisation and decision support for operation of the sewer system in Saint Malo, France. Saint Malo is situated in France, on the north coast of Brittany. It is a town of 50,000–120,000 inhabitants, depending on the season. The sewer system overflows and the WWTP effluent are discharged into a small channelled river Routhouan, which drains into the sea. Saint-Malo is a picturesque tourist town; thus water quality is the main concern for the local authority and managers of the sewer system, which is operated in a RTC mode to limit flooding problems. The aim of this project is to build first a sewer network model (hydraulics and RTC are finished, and the water quality model is being calibrated), a WWTP model (under construction), and finally a receiving water model (in 2003/2004). The current (incomplete) model version is used (and will be even more so after completion) to diagnose the system operation, test new RTC scenarios (e.g., by using quality measurements) before the final implementation on the site, and will be used to build new operational tools for the management of the system (decision support, etc.). Contact: mathieu.zug@generale-des-eaux.net.

Pollutant load models: comparison, calibration and validation. Three research institutions (Cereve in Paris, INSA in Lyon, and University 2 in Montpellier) started a 4-year project in 2000, funded by the RGCU (French National Programme on Civil and Urban Engineering), on the simulation of pollutant loads in sewer systems during wet weather. This project deals with many aspects: investigations of the actual use of and needs for such models by practitioners (private and public consulting companies, municipalities, etc.), improved calibration techniques accounting for data and parameters uncertainties, case studies for comparison of various models, and recommendations for practical use. The programme will finish in 2004. For further information, please contact Ghassan Chebbo at Cereve (gassan.chebbo@cereve.enpc.fr) or Jean-Luc Bertrand-Krajewski at INSA (jlbk@urgc-hu.insa-lyon.fr).

ZABR - The Rhone Basin Long-Term Environmental Research Project. This consists of the development of monitoring and/or experimental sites. It supports of multidisciplinary research programs that will provide the means for public decision-making in the field of sustainable management of rivers and watersheds. Its goal is to provide to the decision makers a methodology, which can be used to measure the effects of watershed rehabilitation or restoration on river hydrosystems (in terms of biodiversity), sustainability (lasting effects), and potential uses, including the impact of urban drainage and urban water management based on the OTHU. For more information, contact graie@urgc-hu.insa-lyon.fr.

Germany (Reported by Prof Peter Krebs)

In the recent past, and especially during 2002, innovative and alternative approaches in urban drainage and wastewater disposal – such as sustainable urban drainage, alternative approaches in a holistic wastewater disposal, real-time control, and systems integration – have been increasingly discussed. This is indicated by the facts that those topics are presented more and more at national conferences, represent the agenda of the working groups of the German Association for Water Management, Wastewater and Solid Waste (ATV-DVWK), and the topics of PhD studies carried out at various universities.

ATV-DVWK Working Group on sustainable urban drainage published a first working report on the methods of systems assessment and the options of alternative technologies. Further, another Working Group aimed at harmonizing the fundamentals of the design procedures of sewer and storage construction on one hand, and of the WWTP on the other hand. Variables such as the average and peak sewage flow rate are now consistently defined on a statistical basis and moreover, the maximum wet-weather loading of the treatment plants is handled more flexibly, which has significant effects on the operation of the sewer system. The respective guideline A198 is out in a preliminary version for discussion.

Some cities in Germany, mainly in the eastern part, intensify their efforts to install real-time control (RTC) systems, with the goals of sewage and sewer sediments management, in addition to the CSO reduction. RTC was a topic at some conferences, one of which was held in March in Dresden. It was fully dedicated to RTC and brought together people from science and practice, active in both the strategy development and implementation.

Infiltration and exfiltration to and from sewer systems is a topic that is currently investigated in some studies and it was also discussed at conferences. Besides the efforts to estimate the inflow of parasitic water by means of balancing, German institutions are partners in European projects, which aim to improve measurement methods. Special problems have been identified in a region in western Germany where, owing to geology, the groundwater level is rising. The leaky sewers serve as a drainage system and receive enormous amounts of parasitic water, but, on the other hand, prevent sub-catchments from being flooded. To install a separate drainage system would be by far more expensive than dealing with the current situation. This conflict in water management has to be resolved in the near future.

Some PhD studies dealing with integration of the sewer system, WWTP and receiving water – mostly on the basis of numerical modelling – were finished in 2002. Among other findings, it was shown in those studies that the transport and conversion processes taking place in the sewer are most important for: (i) the stability of the processes in the treatment plant; (ii) the ability of the WWTP to treat combined water inflow beyond of what is currently common; (iii) the receiving water impact; and (iv) the sensitivity of integrated models. In general, all these criteria are system and case dependent, i.e. there is no such thing as a best system approach, where the integrated system runs on optimal on static operation rules.

Japan (reported by Mitsuyoshi Zaizen)

National Project on Sewerage Works ‘SPIRIT 21’ launched. In March 2002, the Ministry of Land, Infrastructure and Transport, Government of Japan, embarked on a new research and development project for the purpose of promoting new sewerage technologies for practical use. The project is named ‘Sewerage Project Integrated and Revolutionary Technology for the 21st century: SPIRIT 21’, in short. This project aims to bring about and improve new sewerage technologies developed by private companies, through field investigations. Actual sites for this research will be offered by local public bodies. The Project Committee has been established and comprises experts from universities, governments and local public bodies. The Japan Institute of Wastewater Engineering Technologies (JIWET) acts as an organising committee for the project.

The Ministry of Land, Infrastructure and Transport chose ‘Technologies for CSO Problems’ as the first theme of the project. JIWET held an explanatory meeting of the project in June 2002 to invite private companies to apply technologies relevant to this theme. Many private companies submitted their proposals to the committee. After the screening by the Project Committee in July 2002, 24 technologies have been adopted, and 13 local public bodies have offered to provide actual study sites. Those technologies are mainly divided into five sections, i.e., Removal of impurities in sewer systems - 8 technologies, Disinfection - 7, High-Rate Filtration - 5, Measuring and Monitoring - 2, Cohesion and Separation - 2. The Ministry is planning to research and develop those technologies intensively in next three years, but it wants to implement the most promising technologies as soon as possible, regardless of the three-year research period.

CSO Seminars. A series of seminars on CSO problems has been held at the University of Tokyo. The seminars are moderated by Professor Furumai at the University of Tokyo and aimed at disseminating and discussing information on CSOs, and creating effective control measures for CSO problems. These seminars were held in January, April and October 2002, with inviting speakers who work on CSOs in various sectors, including universities, administrative departments and consulting firms. The titles of lectures presented in the seminars are ‘Analysis of Wet-Weather Pollution Loads in Combined Sewer Systems,’ ‘The Current State and Prospects of CSO problems in Japan,’ ‘Control Measures for the CSO Problems in Tokyo,’ and so on.

The seminars were held on weekdays, from 6:30 p.m. to 8.00 p.m., and were typically attended by about 100 enthusiastic participants from various fields. This also demonstrates the fact that the CSO problems are recognised as one of the most important problems that cities need to solve. The series of CSO seminars will be completed in January 2003, and Professor Furumai is planning to hold a new series of seminars with respect to another theme in the near future.

Luxembourg (reported by Drs André Weidenhaupt and Gemma Manache)

In the framework of the program ‘EAU’ launched and sponsored by the National Research Fund (FNR) in Luxembourg, the Resource Centre for Environmental Technologies, a department of the Public Research Centre Henri Tudor (CRTE/CRPHT), is currently conducting several research activities in the field of urban drainage and water management.

Modelling the sewer system around the lake ‘Haute Sûre’, one of the research projects, is related to the application of modelling as a support tool for the management of the combined sewer system and the downstream wastewater treatment plant. The main aim is to optimise the operation of the system through the implementation of real-time control strategies based on the simulations, thus reducing pollution impact on the receiving waters that are used as the main source of drinking water in Luxembourg. InforWorks software is used for modelling the network that consists of a mixture of partly full pipes, rising mains (about 25 pumping stations are included) and several storage basins with combined sewer overflows. For more information, contact Emmanuel Henry (emmanuel.henry@tudor.lu) or Dr Gemma Manache (gemma.manache@tudor.lu).

In addition to the sewer network and wastewater treatment modelling projects, a project aiming at an efficient water management in the river basin through the assessment of material flows in the Alzette river basin is being done within the program ‘EAU’. A close analysis of contaminants such as pesticides, endocrine disrupters, nutrients and heavy metals regarding their local sources, pathways, transportation and degradation is essential to prevent possible future risks. Special attention is given to the material flow input of combined sewer overflows into the river Alzette with respect to the selected pollutants. A simulation program (SIMBOX) is applied to describe the relevant anthropogenic changes in the regional material flows and to assess decision-making for the regulation of man-made substance flows. For more information, contact Joëlle Welfring (joelle.welfring@tudor.lu) or Tom Gallé (tom.galle@tudor.lu). For more information on the program ‘EAU’, visit the website: <http://www.fnr.lu>; Section: Activités/Programmes pluriannuels/Programme Eau/Liste des projets en cours.

Malaysia (reported by W. Mokhtar Nawang)

In Malaysia, modern urban drainage/stormwater management theory/vision was first widely discussed in conjunction with the International Symposium on Urban Planning and Stormwater Management held in Kuala Lumpur in 1990. This symposium, which should be considered among pioneering events in developing countries, brought together leading world experts and local practitioners and researchers. It initiated discussions on integrated stormwater management practices that culminated in the preparation of the Urban Stormwater Management Manual for Malaysia that was completed in 2000 (JPS Malaysia 2000). The Manual covers both stormwater quantity and quality management, which was mandated for practical use in January 2001.

The manual, with over 1300 pages and 400 figures, is printed in 20 small volumes containing 48 chapters, further divided into 9 parts. The first three parts contain background information on environmental process and stormwater management, administration aspects and planning processes. The remaining parts contain detailed information on hydrology and hydraulics, runoff quantity control and conveyance, structural and non-structural water quality controls, water quality controls during construction, vegetation and watercourse management, and special drainage applications.

The Manual promotes integrated stormwater management practices that will materially improve the quality of life in Malaysia over the next 10 years and far beyond. It is recognised that the Manual sets a new benchmark for integrated stormwater management for other countries in South East Asia. The Manual is one of the most comprehensive documents available today globally, and it is potentially applicable in both developed and developing countries.

W. Mokhtar served as the principal author/editor of the Manual, and his total time spent on this project was about 2000 hrs. Reviewers of the Manual included L. Roesner, B. Urbonas, J. Marsalek and B. Phillips. An early proposal to develop the Manual was prepared in late 1993 after the Niagara Falls ICUD conference, with input received from several JC committee members at that time. For more details about the Manual visit: <http://agrolink.moa.my/did/river/stormwater/index.html>.

Since completion of the Manual, efforts to promote SWM have made significant progress in Malaysia in both R&D and research practices. The numbers of interested parties and individuals involved in this process have increased exponentially, compared with the period before 2001.

Among ongoing and near future stormwater projects of national importance, one can list the following:

- National Stormwater Management Strategic Plan Study (by Zaaba Consulting Engineers and W Mokhtar Consulting in JV).
- A New Stormwater Management Plan Preparation for the City of Kuala Lumpur (by W Mokhtar Consulting).
- Detailed Design and Construction of Pilot Integrated Stormwater Management Project in Kota Bahru (by W Mokhtar Consulting).

Stormwater management implementation in new housing estate developments is also being initiated in Malaysia. For R&D activities, several agencies are actively involved, including:

- University Science Malaysia (USM), with BIOECOD application (see Section 4.6).
- National Hydraulic Research Institute of Malaysia (NAHRIM), on on-site detention and stormwater reuse.
- Universiti Putra Malaysia (UPM), on stormwater quality management.

Early stormwater research efforts were started in Malaysia in 1988, at Universiti Teknologi Malaysia. The program was spearheaded by W. Mokhtar and included studies on runoff control for small residential catchments, stormwater reuse, highway runoff pollution characterisation, and laboratory investigations of runoff control using porous pavement.

South Africa (reported by Prof D. Stephenson)

In South Africa the Water Research Commission has awarded several contracts in the field of urban drainage. The latest one was on the impact of stormwater and groundwater ingress into sanitary sewers, to the Water Systems Research Group at Wits University. South Africa is looking at alternatives to the one-pipe and two-pipe drainage systems. The third system is the sullage drainage option, applicable to poorer townships. Roads convey stormwater and tankers convey sewage.

Other research topics in progress include Asset Management in the Water Service Industry, and Benchmarking. A new project on Vulnerability of Water Services is out to tender. The bi-annual Graduate Course on Urban Drainage will be held at Wits University in September 2003. This supplements the series of courses given internationally on Water Management. The other courses are

Water Supply Management, Integrated Water Resources Management and Urban Water Supply. Some of these courses are also given in Germany and Japan now. And experience with remote teaching of these courses by Internet has taken giant leaps in 2002. On the Municipal side many local authorities are looking for compensation by developers who increase runoff volumes. Modelling of catchments is performed to assess the extent of increase in runoff and the developer has the option of managing the runoff or passing it into the Municipal system at a cost.

United Kingdom (reported by Prof R. Ashley)

New research projects in the UK. The UK Engineering and Physical Sciences Research Council (EPSRC), with the water industry, has recently awarded some major new grants for urban drainage and related research over the next four years. These are outlined below. It is apparent that each of these projects has important overlaps and synergistic opportunities.

Whole Life Cost of Sewerage Systems. This project has a budget of almost €700,000 and will derive a tool to minimise the whole life costs of sewerage systems based on constrained service delivery targets. It aims to:

- Develop appropriate criteria and integrated performance models for new, existing and unsewered systems.
- Establish a framework that allows the impact of management decisions for sewerage to reflect the holistic costs and link these to performance (the cost driver).
- Develop a methodology to define in what circumstances first time sewerage is viable.
- Provide an approach for the assessment of existing and new sewerage systems in terms of management options thereby contributing to an assessment of the sustainability of these sewerage systems.

Implicit in these aims is the need to incorporate the linkages between decision-making and the economic, social and environmental aspects of system performance and operation in real value terms. The project is led by Professor Adrian Saul of the Pennine Water Group in partnership with Professor Dragan Savic of the School of Software Engineering and Computer Science at Exeter University and also includes Professor Richard Ashley. There are several English water company partners. This project has some similarities to the EU 5th Framework project CARE-S (see Citynet website). Further information may be obtained from Professor Adrian Saul at A.J.Saul@sheffield.ac.uk.

Adapting existing drainage systems to cope with the effects of climate change—AUDACIOUS. Adaptable Urban Drainage - Addressing Change in Intensity, Occurrence and Uncertainty of Stormwater (AUDACIOUS), has a similar budget at around €800,000, and in addition to EPSRC and the UK water industry, is also funded by UK Climate Impacts Programme and the Environment Agency. The project is part of a large group of urban life studies dealing with the impacts of climate change and has the objective to investigate key aspects of the effects of climate change on existing drainage in urban areas and provide tools for drainage managers and operators to adapt to uncertain future scenarios. This plugs a gap in current UK drainage related research, in that it is proposed to establish a rational framework for problem-oriented, cost-efficient, adaptable and sustainable decision-making for those owning and being responsible for managing, operating, regulating and developing urban drainage systems to mitigate likely future problems arising as a result of climate change. Key outputs will include stakeholder sensitive forms of media. The outputs will be provided in such a way as to be accessible by all levels of stakeholders from householders to professionals and policy makers.

The project is led by Prof Richard Ashley of the Pennine Water Group in partnership with Prof Adrian Saul, together with Professor Cedo Maksimovic (Imperial College), John Packman (Centre for Environment and Hydrology), Dr Lynn Jack (Heriot-Watt University) and Prof David Kay of

Aberystwyth University. The latter will be dealing with the public health implications using the WHO methodology, and other researchers in the team include social scientists and economists from the Pennine Water Group. There are several water companies involved, with the environmental regulator and also the Association of British Insurers. Further information may be obtained from the project manager, John Blanksby at J.R.Blanksby@bradford.ac.uk. The outputs from a recent one-day seminar on sewer flooding are available on the SEWNET website [www.sewnet.org].

Water Cycle Management for New Developments: WaND. This is the largest project reported. The total budget is some €4.48M, and involves a wide range of diverse and multi-disciplinary researchers and collaborators. The objective is to support the delivery of integrated, sustainable water management for new developments by provision of tools and guidelines for project design, implementation and management. The seven more detailed project objectives are specified below.

WaND Core Project objectives – Outline of work packages

- Identify, prioritise and support the application of sustainable water systems for all three major urban water flows (potable water, wastewater and drainage).
- Identify and quantify key environmental, health, social and economic factors affecting sustainable water systems.
- Investigate and quantify the interactions and transformations of the three water flows within the framework of sustainable water management for new development.
- Develop a toolbox to aid the integrated, development-specific planning and design of sustainable water systems in new developments.
- Evaluate alternative development and water management scenarios against an agreed set of environmental, health, social and economic criteria, and to propose more sustainable water management strategies at a development scale and demonstrate this through specific case studies.
- Identify the potential implications of the new development and water management scenarios on the existing infrastructure, the environment at a catchment's scale and the user from an engineering, environmental, economic and social point of view.
- Identify any legal, institutional and regulatory barriers to implementation of more sustainable water management solutions and provide recommendations to overcome them.

In addition, WaND has a further 7 'plus' projects to enhance the core studies as outlined below.

WaND Plus Project objectives – Outline of work packages

- On-site water and solid waste treatment options for new developments: technologies, economics and management. The central objective of this project is to generate 'deployment envelopes' for new development based water treatment and reuse systems at varying scales of application.
- Flexible frameworks to include sustainable perspectives into urban water decision-making systems. It is intended to develop a flexible framework of computer and actor-based processes and procedures to facilitate the evaluation of the relative sustainability of water management arrangements for water systems across a range of cultural and institutional settings.
- Advanced Decision Support Toolbox. The new tool will use input from several decision-support related packages cutting across Wand and other consortia to support the planning of integrated sustainable urban resource management practices under future scenarios.
- SUDS performance at Development Scale – interactions with rainfall and groundwater. The primary goal is to develop the scientific understanding from which sustainable urban drainage system performance may be predicted, environmental benefits quantified, and models for design and analysis developed.
- Strategic project and planning guidance on cross-sectoral and scale-up issues for sustainable development. The broad aim is to describe, and where possible evaluate, areas of potential conflict and synergy between different sectoral and spatial dimensions of sustainable development.

- Household Data for Water and Land Management. It is intended to produce a robust and flexible forecast model of household water use characteristics capable at operating at a range of time horizons and spatial scales and providing water demand forecasts at these scales.
- Risks and innovations. The aim here is to develop a clear understanding of how water use and waste disposal interact with existing beliefs and practices that govern everyday behaviour, and thus to identify communication and management strategies to minimise the risk of adverse user behaviour.

The project is led by Profs David Butler of Imperial College and Adrian McDonald of the University of Leeds. There will be an industrial project manager, Dr David Balmforth of Montgomery Watson Harza, who will keep the academics in line. Major partners include Prof Richard Ashley and Dr Liz Sharp of the Pennine Water Group, Professor David Kay of the University of Aberystwyth, and John Packman of the UK Centre for Environment and Hydrology. Other academic partners include Dr Paul Jeffery from Cranfield University and Prof Dragan Savic of Exeter University. There are 23 industrial collaborators in the core project and more in the 'plus' projects. Formal collaborative links also exist with the Swedish urban water project, the EU 5th framework DayWater team and the Austrian sustainable rural wastewater management project. Further information may be obtained from Prof David Butler at D.Butler@ic.ac.uk.

USA (reported by Eric Strecker and Jill Bicknell, UWRRRC of ASCE)

Urban Water Resources Research UWRRRC, 2002 Annual Meeting Highlights. The American Society of Civil Engineers (ASCE) Urban Water Resources Research UWRRRC (UWRRRC) held its annual meeting on 8 September 2002 at the 9th International Conference on Urban Drainage in Portland, Oregon. The UWRRRC discussed accomplishments and activities of its Task Committees over the past year, formed several new Task Committees, and discussed participation in and sponsorship of future technical conferences. The UWRRRC also re-elected its slate of officers for another one-year term and admitted six new members. Highlights of the meeting included the following.

EPA BMP Database and Removal Efficiency Project. Eric Strecker provided background and a status report on the BMP database project. The purpose of the project is to collect good quality data on how well BMPs have been performing and why, and make the data available to others. The initial database (June 1999) contained data from 71 BMP studies nationwide. There are now more than 200 studies in the database. EPA has recently provided an additional \$50,000 to add new studies. The project team has just completed a BMP monitoring guidance document, available from EPA (Jesse Pritts) on CD and on the website. They are also re-evaluating the expansion of the database and how to evaluate performance data. The biggest conclusion so far on performance is that the study team has recommended that performance be judged by (1) how much stormwater is prevented; (2) of the runoff that occurs, how much is treated and not; and (3) of the runoff that is treated, what is the water quality (effluent quality). The research team believes that percentage removal is an erroneous way to characterise performance of BMPs, even though it is still the most 'popular' in the literature.

The database website (www.bmpdatabase.org) can be used to access the data and reports, and has had a lot of visitors (2,000–4,000 extended hits per month). The database is getting publicity at workshops and conferences, and the project team is conducting outreach to universities and international organisations. Peter Stahre commented that there is strong interest internationally but the language barrier is a problem. Mike Barrett mentioned that another barrier is the difficulty in downloading the database, and users need to upgrade to a new version of Access to view it. The Council discussed the ideas of offering training classes on the Database and BMP Monitoring. The Council also discussed reaching out to outside US BMP researchers to get their BMP information into the database and to consider consideration of the protocols. This was partially done through the 9th ICUD conference where CD versions of the Monitoring Guidance were distributed as well as through contact of individuals.

Linking Stormwater BMP Designs and Performance to Receiving Water Impacts Mitigation, Snowmass, CO, 19–24 August 2001. Ben Urbonas reported that this was a very successful conference in terms of attendance (more than 140), technical content, and financing. The proceedings are now available from ASCE (www.ASCE.org).

Third International Workshop Watershed Management, Chinese Taiwan. Shaw Yu reported that the workshop was held in December 2001 and was a success. Several UWRRC members participated in the presentations. There was a conference only pre-publication of proceedings. The final proceedings will be published soon by ASCE (to date still not published).

UWRRC History Task Committee. Rich Field reported on behalf of HTC Chair Jon Jones that Jon was putting together abstracts of about 40 UWRRC technical memoranda and other documents. Jon envisions that the final product will consist of a history of the UWRRC and its key contributions and accomplishments, followed by multiple documents that represent the ‘best of’ the UWRRC. The Technical Committee (TC) is also putting together a compilation of the 5 best papers from each of the EFC conference proceedings. Charles Rowney suggested that the TC investigate whether there are copyright limitations (especially with EPA documents). Rich added that during the ASCE 150th Anniversary Conference/Exposition in Washington, DC, 4–6 November 2002, there will be two sessions on the UWRRC history. Jon and Shaw Yu will speak about the early documents, and Ben Urbonas and Larry Roesner will present more recent publications.

CSO/SSO Task Committee. As background, Rich Field reported that EPA’s National CSO Control Policy included 9 minimum control measures for municipalities, and that these municipalities have to develop long term programs. EPA is also about to publish rules for long-term maintenance and capacity. As a result, Rich stated that he and Dennis Lai are developing a scope of work for the TC that includes 1) investigating what has been done by cities for CSO control and how things are working; and 2) coming up with new methods (e.g., low impact retrofits).

Update of ASCE Manual of Practice (MOP) #77, ‘Design and Construction of Urban Stormwater Management Systems’ (1992). The Council discussed the need for updating this MOP and the funding organisation(s). Jim Heaney expressed his and Jon Jones’ concerns about the length of time required for the last update (12 years) and the fact that the authors do not get credit for their contributions (he suggested giving credits by chapter next time). They are talking with ASCE about a co-operative agreement with EPA and WEF. Tasks that need to be done include deciding what needs to be updated and the format for publication, selecting the authors and determining funding and payment for the authors. Larry Roesner said he would be contacting WEF to see if they will be one of the sponsors. Others suggested that a joint venture with a private publisher might be explored. Ben Urbonas commented that in the past, authors did work as a gift to the profession, and there was extensive review of each chapter (one committee for each). He also felt that the MOP should be kept within ASCE/WEF to maintain credibility. A TC to review the current MOPs and determine the need to update them and/or create new manuals was formed and includes Charles Rowney (Chair), Ed Herricks, Andrew Earles, Marcus Quigley, and Mike Clar, and advisors Larry Roesner and Jon Jones.

Engineering Foundation Conference in 2004. Charles Rowney presented the idea for a joint EFC/Novatech conference in 2004 (see also Section 8). Eric Strecker and Ed Herricks suggested that the topic be Integrated Drainage Master Planning. Further information will be provided by Charles Rowney.

Council Officers for 2002–03. The following were selected as the Council Officers for the coming year: Jim Heaney (Heaney@spot.colorado.edu), Chair; Charles Rowney (Rowneyac@cdm.com), Vice Chair; and Scott Kenner (Skenner@taz.sdsmt.edu), Secretary.

The next meeting of the UWRRC will be held on 2 June 2003 in Philadelphia, Pennsylvania (before the EWRI World Water Congress). Anyone interested is welcome! For more information about the UWRRC, contact Scott Kenner at Skenner@taz.sdsmt.edu, the new Council Secretary.

9. FUTURE MEETINGS AND CONFERENCES

The 3rd World Water Forum, Kyoto, Shiga and Osaka, Japan, 16–23 March 2003.

The 3rd World Water Forum consists of three fundamental elements: the Forum, Ministerial Conference, and Water Fair & Festival (Mizu-En). At the Forum, sessions will be held on major themes, controversial topics, special programmes and major groups. Sessions intend to encourage the sharing of experience with actions. Ministers in charge of water resources will meet in Kyoto to discuss the solutions proposed to global water issues. The Dialogue between the Forum Participants and Ministers will be held to link the Forum outcomes and the Ministerial Conference. The Water Fair & Festival (Mizu-En), consisting of a series of water-related events, will take place during the whole week to raise awareness and interest among the general public. For further information, please see the Forum web-site (<http://www.worldwaterforum.org/eng/index.html>).

Urban Drainage and Highway Runoff in Cold Climate conference will be held in Riksgården, Sweden, 25–27 March 2003 (sponsored by IWA, IAHR and Lulea University of Technology). The conference will deal with urban and highway drainage issues in cold climate (cold climate trends, hydrological cycle, snow and snowmelt, runoff processes – methods and models, urban water quality issues, technical solution – control facilities, snow handling and storage, problems solutions – innovations, and climate change). Deadline for abstract submission: 15 November 2002, full papers by 31 January 2003. For further information, contact Karin Reinosdotter at karin.reinosdotter@sb.luth.se.

30th IAHR Congress will be held in Thessaloniki, Greece, from 24–29 August 2003, with emphasis on Water Engineering and Research in a Learning Society. Deadline for paper submissions – 30 November 2002. Wolfgang Schilling will present a keynote paper. Another feature – J.F. Kennedy student paper competition. For further information, contact <http://iahr2003.internet.gr/> The Joint Committee is planning a meeting in Thessaloniki, during the Congress, on 24 August 2003.

6th International Workshop on Precipitation in Urban Areas, Pontresina, Switzerland, December 2003. The workshop will provide a forum for exchanging ideas and information serving to bridge the gaps between scientific and operational hydrology. Abstracts and pre-registration are due by 15 April 2003; full papers are due by 31 August 2003. Additional information, including the First Announcement, can be obtained at <http://www.ihw.ethz.ch/hydrologie/Pontresina03/index.html>, or from Drs Vaes and Einfalt (see page 31).

NOVATECH 2004, the 5th international conference on sustainable techniques and strategies in urban water management, will be organised in Lyon, France, 6–10 June 2004. The general conference theme is alternative solutions to traditional stormwater drainage and combined sewerage systems, sustainable technologies, strategies for and approaches to the management of wet-weather flows in urban and suburban areas, and highway corridors. Abstracts and applications for exhibition space have to be submitted by 15 March 2003. For further information contact infos@graie.org; www.graie.org/novatech.

UDM 04 (Urban Drainage Modelling) Conference, Dresden, Germany, September–October 2004 (tentative). Further information will become available from Dr. L. Fuchs (L.Fuchs@itwh.de).

4th Sewer Processes and Networks Conference, Madeira, Portugal, late October 2004. Further information will become available in the near future from Prof. J. S. Matos (jsm@civil.ist.utl.pt).

31st IAHR Congress will be held in South Korea in 2005. The organisers would like to attract some papers dealing with urban drainage, but without interfering with the 10th ICUD. Joint Committee will work with Congress organisers to minimise disruptions of either event, by judicious division of topics between both conferences.

10th ICUD conference will be held in Copenhagen, in 2005. Organisers plan to hold special sessions on the Fifth Frame Research projects, about 50 papers. They would like to hold some smaller workshops and devote one day to the European initiatives in this field. There will be rigorous reviews of papers, using web-based technology. The conference will be held in late August 2005; the actual dates will be coordinated with the Stockholm Symposium. Some findings from the IAHR Korean Congress could be presented in Copenhagen. The organisers will work now on the second announcement.

10. RECENT PUBLICATIONS OF INTEREST

PhD Theses

Biljana Radojevic presented her PhD thesis on 3 December 2002, prepared jointly at INSA de Lyon and Cemagref de Lyon, France, on the topic of *An assessment method of the urban influence on the flood regime of a medium size (130 sq. km) and mixed land use catchment*.

The aim of this research consists of evaluating the influence of urban development in particular, and of the modification of soil use in general, on the flood regime. The study relates to the catchment of Yzeron, a medium size catchment (130 km²), located west of Lyon, the second largest city in France, where a fast and heterogeneous suburban development can be observed. This development generally starts at the edge of Lyon and extends westwards in the form of small urban centres around old villages, and structures itself along the main transport corridors. We worked on two well-defined states of land use; the state in 'the 1970s', and the state in 'the 1990s'. For this specific study site, it seems that the observed increase in floods is due to a combination of causes, which affect floods in the same way (stronger rainfall in the 1990s than in the 1970s, and changes in the land cover), with neither of these causes being sufficient to explain fully the observed phenomenon.

On the methodological level, two major lessons can be learnt from this research:

- The use of a simulation model correctly calibrated on a series of good quality measurements allows, to a certain extent, removal of bias caused by the inter-annual fluctuations of the rainfall and the isolation of the influence of urbanisation on flood conditions.
- The analysis of differences between flood characteristic curves by means of statistical tests has the advantage of allowing the comparison of statistical properties of the series of floods while being free (at least partly) of the difficulties due to differences between measurements and results of simulation.

Claire Oms presented her PhD thesis on 6 January 2003, prepared at Cereve in Marne-laVallée, France, on the topic of *Localisation, nature and dynamic of the water-sediment interface in combined sewer systems*.

Sediment transport and erosion of deposits in combined sewer systems play an important role in the pollution of urban wet weather discharges. Several studies have shown that the contribution of sewer sediment deposits to wet-weather flow pollution is linked to the erosion of organic materials situated at the water-sediment interface. To determine where this layer develops in combined sewers, what its nature is, and how it evolves during dry and wet weather, two approaches have been developed to observe the sediment-sewage interface:

- A protocol based on an endoscope permits to observe, in a non-destructive manner, the water-sediment interface and so, to localise the organic material layer in a sewer. This system was applied in Le Marais catchment (Paris), and in the main collectors in Dundee (UK) and Hildesheim (Germany). In Le Marais, the organic layer situated at water-sediment interface was identified as an immobile organic layer. It was observed in the zones where mean sewer flow velocity is very low, concrete bed slope is very low, and bed sediment creates pools, at the upstream part of the collectors. Moreover, the presence of a 'creamy' layer was observed in zones where the flow decelerates. In Dundee and Hildesheim, the organic stock was identified as 'near bed solids' moving above the sediment bed.
- An off-line photographic system has been placed inside a box, which embedded in the sewer wall to obtain pictures of the interface at regular time steps. The system was installed in a collector of Le Marais. The pictures collected showed that the organic layer represents heterogeneous materials with biological activities. The layer depth is stable during dry weather and it quick builds up after random disruptive phenomena. During flow increases, the organic layer is partly eroded and it is transported with bed-load as well as in suspension.

11. IWA DUBLIN AWARDS SCHEME

The Programme and Organising Committees for the forthcoming IWA International Diffuse Pollution Conference in Dublin, 17–22 August 2003, are pleased to announce a new Awards scheme for assisted places at the conference. The generous provision of funds is gratefully acknowledged, from the IWA Diffuse Pollution Specialist Group, matched by funds from the IWA itself, and from the conference Organising Committee. This initial scheme is a pilot for a broader IWA awards scheme, for which sponsors are currently being sought.

Aims of the Awards

The new scheme aims to enable more people to actively participate in the work of IWA and its members, by attending this conference, where unparalleled networking opportunities combine with an excellent programme of platform and poster presentations, to provide a major learning and information exchange opportunity. The scheme also aims to identify and encourage potential issue champions in countries where diffuse pollution problems are significant; by promoting the importance of the work they are undertaking. Thirdly, the awards seek to encourage high levels of commitment and high standards of work.

The Awards

Three levels of awards may be offered, at the discretion of the programme committee or their agreed representatives:

1. Gold awards will fully fund attendance at the conference, providing reimbursement of costs including economy class travel, conference fee and accommodation during the conference.
2. Silver Awards will cover the conference fee plus accommodation.
3. Travel awards will reimburse the costs of economy class travel to and from the conference.

Assessment Criteria

Evidence of the following needs to be provided by applicants for IWA Dublin Conference Awards

- Credibility as an issue champion at home and potentially wider.
- Scientific value /merit of the work in which the applicant is involved
- Potential delegates must provide a poster paper or have submitted an abstract for a platform presentation.
- Credibility as an IWA ambassador and advocate (applicants should, ideally, include a letter of recommendation from a colleague).

- Applicants should be members of IWA, or include an IWA membership application form together with their application for an award.

Assessment of these criteria will be based on the paper or poster paper submitted by the applicant, together with a written proposal detailing how the applicant's work will benefit from attending the conference, his/her professional development objectives whilst there, and how he/she can disseminate the technical information gained. The proposal must also detail how the applicant plans to achieve his outputs on return from the conference.

Further details are available from the conference organisers, at kirvine@tcd.ie or on the website: <http://www.ucd.ie/~dipcon/dipcon.htm>

Applications

Applicants should mark their proposals "IWA Dublin Awards" and should attach a resume of their career together with any other information that may help the assessment of their proposal. A supporting letter from a professional colleague/s will be an advantage. Applications electronically are acceptable and should be sent to kirvine@tcd.ie under the subject "DiPCon 2003 Awards" alternatively in writing to IWA Conference Secretariat (Awards), c/o Dr Ken Irvine, Centre for Water Resources Research, Civil Engineering Department, University College Dublin, Earlsfort Terrace, Dublin 2, Ireland.

Deadline for Applications

The deadline for applications is 31 May 2003. Although the deadline for submitting a platform presentation will have passed on 31 January, poster paper proposals linked to an application for an award place may be accepted. Applicants who have already submitted an abstract for a platform paper but who anticipate difficulties with costs may apply now for an award. Subject to exhibition space remaining, unsuccessful applicants may still be invited to attend at their own expense, where they have a poster paper of sufficient standard.

12. WORKING GROUP CONTACTS

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