



International
Water Association

IAHR/IWA Joint Specialist Group on URBAN DRAINAGE

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For updated information, please regularly visit our websites at:

http://www.iwahq.org/Home/Networks/Specialist_groups/List_of_groups/Urban_Drainage/ and
<http://www.jcud.org>

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2. CHAIRMAN'S THOUGHTS

Exeter, January 2013

Dear friends and colleagues,

It is that time of year again when we reflect a little on the year past and look forward to the years ahead. As usual, it has been a busy year and I take this opportunity to reflect on my own part in JCUD life for 2012.

I was able to attend two key conferences as JCUD chair in 2012. The first was the 9th UDM conference held in Belgrade in early September and the second was the IWA World Water Congress held later in the same month in Busan, South Korea. I thought UDM was a great success – a good venue, excellent organisation and a top-notch technical programme. Congratulations to Dusan Prodanovic and his team! Somehow, amongst the busy programme we were able to fit in a JCUD management meeting and I will share some of the outcomes from that later in this note. Busan was a much larger scale conference, attended by many thousands of people with multiple parallel sessions and despite the attentions of super-typhoon Sanba, was also interesting and worthwhile. While in Busan I was able to both lead a lunch-time Urban Drainage Information Session and attend a post-conference meeting for Specialist Group leaders. We are a very strong and sustained specialist group, and continuing representation and involvement with IWA is important both for the association and our place within it.

Further to this, IWA is encouraging the formation of clusters of specialist groups around specific, cross-cutting topics. Again, it is important that our group becomes as involved and influential in these clusters as possible. So far, we have got ‘a foot in the door’ in three such clusters: Learning from the past for future urban water systems, smart networks and smart water. These are young and still developing (including their names!), but I believe the urban drainage community has a lot to contribute to all three. We are also consolidating our relationship with IAHR. I had the pleasure of meeting the current president Professor Roger Falconer last year and he and I both agreed that our group needed a higher profile in the association despite being one of the largest and most active. To that end I will deliver a keynote at the forthcoming 35th IAHR congress in Chengdu, China, in September 2013 and I would encourage you to attend and make your presence felt!

Looking ahead to 2013 our next major JCUD-sponsored conference is NOVATECH, which will be held as usual in Lyon, France from 23–27 June. This year will see some innovations including a new paper category – case studies, reducing the efforts needed for paper preparation in the case of practitioners, and indeed a greater emphasis on some practitioner categories such as landscape architects. Also this year will be the Sewer Process and Network 7th conference planned for Sheffield, UK on 28–30 August, and the International Conference on Flood Resilience to be held in Exeter, UK on 5–7 September. Of course, we are also looking forward to our flagship conference in 2014: the 13th ICUD ‘Urban Drainage in the Context of Integrated Urban Water Management: A Bridge Between Developed and Developing Countries’. This will be held in Kuching, Sarawak, Malaysian Borneo, on 7–11 September, 2014 and will be organised by past JCUD member Prof. Ir. Dr. Mohammed Nor. Finally, I am very pleased to announce that the 14th ICUD will be held in

September 2017 in Prague, Czech Republic, organised by David Stransky and colleagues. More details of all of these conferences can be found later in the newsletter.

A sign of a healthy group is that new ideas bubble up and old ones simmer down. So, I'm particularly pleased to report that we have approved the formation of a new working group on Urban Storm Water Harvesting, led by Alberto Campisano. There is a growing interest in this topic, and although a specialist group on rainwater harvesting currently exists in IWA, the emphasis of this WG is on the multi-functional role of this technology, including stormwater management and flood protection.

The Joint committee will meet again this year in Lyon. As part of our policy to renew and refresh membership on a regular basis there will be changes this year also. We say goodbye and thank you very much to three members who have now served their terms: Alberto Campisano (Italy), Mohammed Nor (Malaysia) and Maria Viklander (Sweden). This means there are three openings on the committee and in section 4 on page 6 of the newsletter you will see a call for new members. Please do consider putting yourself forward for election if you are active in the field, are willing to contribute fully and can attend meetings once a year. We only allow one member per country on the committee at any one time, but we are anxious to have as wide a global representation as possible. Also, there is no gender or age limit! Please feel free to contact me or JCUD Secretary, Jiri Marsalek, if you have any questions.

So I look forward to hearing from those of you interested in a leadership role within JCUD and meeting many more of you at one of our events over the coming year.

David Butler
Chair of the IAHR/IWA Joint Committee on Urban Drainage

3. FROM THE SECRETARY'S DESK

Committee Newsletter – our annual newsletter is published to serve the international urban drainage community and meet the requirements of our parental organisations. The main purpose of the newsletter is to facilitate communications and interactions among specialists in our field, rather than to present detailed information. The most recent newsletter can be found on our website <http://www.jcud.org>.

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

Please share your electronic newsletter copy (or the link to our website) with colleagues, or refer them to the IAHR, IWA and Joint Committee websites. Your comments on this issue and contributions to future newsletters are most welcome.

Joint Committee Activities – The annual Committee meeting was held during the 9th UDM conference in Belgrade, Serbia, on 11 September 2012. The minutes of the meeting can be found on our website (thanks to Alberto Campisano), highlights follow.

Changes in membership: second terms of Alberto Campisano, Mohamed Nor and Maria Viklander ended, two new members, Jeroen Langeveld (The Netherlands) Karsten Arnbjerg-Nielsen (Denmark) joined the Committee. The committee has now three openings, as advertised in Section 4 on page 6. A newly proposed WG on Urban Storm Water Harvesting (USWH WG) was presented by Alberto Campisano, with Tim Fletcher's endorsement. The group will focus on stormwater harvesting for flood protection.

Bids for the 2017 ICUD: two bids were received, one from Czech Republic (CR) and the other one from the Republic of South Africa (RSA). Both proposals were discussed in detail at the meeting, with no proponents or their representatives present. It was concluded that: both proposals supported the JC objectives for triennial conferences well. Some aspects of the proposals concerning financial responsibilities were unclear and the proponents were asked for clarifications. Following the withdrawal of the RSA bid, the Committee voted on and accepted the Czech proposal.

Involvement in IWA Affairs: reported on by Jean-Luc Bertrand-Krajewski. Among the important Strategic Council activities, Jean-Luc emphasized: (a) creation of unified terminology for Specialist Groups, Working Groups, Task Groups, Task Forces, Clusters, etc., and (b) the need to enhance collaboration among the specialist groups. The first activity has been recently concluded by IWA (after the meeting): for further information, contact Hong Li at the IWA headquarters. The second item is particularly important and was to be addressed at the IWA congress in Busan (after the meeting). There are many examples of SG groups that worked well together, and JC has been recognized in that regard. However, IWA still expects more of our involvement in the biennials.

Future JC meetings: 23 June 2013 in Lyon, France, in conjunction with the 8th NOVATECH conference, and in 2014, at the 13th ICUD in Sarawak, Malaysia (7–11 September 2014). Please note that the JC meetings are public – all are welcome.

Jiri Marsalek
JC Secretary

4. JCUD MANAGEMENT COMMITTEE: CALL FOR NEW MEMBER NOMINATIONS

The Management Committee of the IWA/IAHR Joint Committee on Urban Drainage (JCUD) has now potentially three vacancies and we are looking for new members as a part of continuous revitalization of the Committee. Details follow below.

Job description: all members operate in their own way and contribute accordingly. Typical contributions include proposing to organize workshops/conferences and training courses (usually in collaboration with our working groups), organizing or contributing to publications (monographs, or journal review papers), contributing news from their country or region to the Committee's annual newsletter, participating in email discussions, attending JC meetings held annually in conjunction with drainage conferences, and promoting JC activities and visibility in general.

Qualifications: we are looking for colleagues actively involved in any aspect and sector of urban drainage. However, perhaps the most important qualification is having some time to devote to the committee activities and personal initiative in proposing and implementing new activities. One reason why our Committee has been successful in its more than 30 years of operation is our ability to attract highly motivated members to serve on the Committee. The elected candidates must be (or become) members of one of the parental organizations (IAHR or IWA), and our statutes allow only one member per country; if your country is already represented on the committee, you may have to wait till there is a vacancy, or even better, simply join in the meantime one of our working groups and start contributing to our efforts that way. The information on Joint Committee and the current membership can be found on our website: www.jcud.org.

Application procedure: you can either nominate yourself for JCUD membership, or you can nominate another person (ideally after establishing their willingness to serve, otherwise this will have to be done by JCUD), and submit electronically the following two documents to the current JC Chairman, Prof David Butler (d.butler@exeter.ac.uk), copied to JC secretary Dr Jiri Marsalek (jiri.marsalek@ec.gc.ca): (a) A brief CV, and (b) a statement of activities you would like to contribute to the JC programme. Neither document must exceed one page, using a 10-point font or larger.

Deadline: May 31, 2013. The applications received will be distributed to the JCUD members for assessment and voting; the results will be announced no later than in July 2013.

5. WORKING GROUP REPORTS

5.1. International Working Group on Data and Models (IWGDM) (Chairman: Prof Simon Tait, Pennine Water Group, School of Engineering Design and Technology, University of Bradford, Bradford, West Yorkshire, BD7 1DP, UK, Phone: +44 1274 233 878, E-mail: s.tait@bradford.ac.uk); Secretary: Dr. David McCarthy, Institute for Sustainable Water Resources, Department of Civil Engineering, Building 60, Monash University, Clayton, Vic 3800, Australia, Phone: 61 3 9905 2940, Fax: 61 3 9905 4944, E-mail: David.McCarthy@monash.edu).
Web site: <http://iswr.eng.monash.edu.au/iwgdm>

The group has organized the highly successful 9th International Conference on Urban Drainage Modelling (9UDM) in Belgrade, Serbia, 3–7 September 2012. The conference was dedicated to honouring Prof Cedo Maksimovic's contributions to urban drainage modelling. Cedo started the group about 25 years ago and the 9th UDM presented a great opportunity to celebrate his service to our profession. The conference chair, Prof Dusan Prodanovic, the Belgrade University, deserves full credit for a well-run conference with high attendance.

5.2. The Real-Time Control of Urban Drainage Systems (RTCUDS) Working Group (Chairman: Dr M. Pleau, BPR-CSO, 5100 Sherbrooke St. E., Suite 400, Montreal, Quebec H1V 3R9, Canada; Phone: 001-418-871-8151, Fax: 001-418-871-9569, E-mail: Martin.Pleau@bpr-cso.com), Secretary: Prof. Dirk Muschalla, Graz University of Technology, Institute of Urban Water Management and Landscape Water Engineering, Stremayrgasse 10/I, 8010 Graz, Austria; Phone: +43-(0)316-873-8370, Fax: +43-(0)316-873-8376, E-mail: muschalla@sww.tugraz.at, Web: <http://www.sww.tugraz.at>) Martin.Pleau@bpr-cso.com. WG Web Site: <http://www.rtcwg.org>

5.3. Sewer Systems and Processes Working Group (SS&PWG) (Chairman: Dr Zhiguo Yuan, The University of Queensland, Sta. Lucia, QLD 4072, Australia, Phone: + 61 733 654 374, Fax: +61 733 654 726, E-mail: zhiguo@awmc.uq.edu.au; Secretary: Dr. Jeroen Langeveld, Delft University of Technology, Stevinweg 1, 2628 CN Delft, the Netherlands. Phone: +31 6 22409565. E-mail: j.g.langeveld@tudelft.nl; WG Website: <http://www.sspwg.org> (Webmaster: Assoc Prof A.H. Nielsen, Aalborg University, ahn@bio.aau.dk)

The 7th International Conference on Sewer Processes and Networks (SPN 7) will be held in Sheffield, UK, on 28–30 August 2013. It will be chaired and organized by Simon Tait on behalf of the Pennine Water Group. The conference will use a single session format, run for 3 days, and will aim to enhance interactions and discussions between scientists and engineers working on sewer processes and networks. The conference themes include sewer system impacts, in sewer processes, design and operational aspects, monitoring and new technologies and emerging issues. For further information, contact the conference chair, Professor Simon Tait, Pennine Water Group, School of Engineering Design and Technology, University of Bradford, Bradford, West Yorkshire, BD7 1DP, UK, Phone: +44 1274 233 878, E-mail: s.tait@bradford.ac.uk), or visit the conference website: <http://www.sheffield.ac.uk/spn7>

The 20th Junior Scientist Workshop on sewer processes and networks will be organized by Günter Gruber, 9–12 April 2013, Graz, Austria. For more information, email EJSW-2013@sww.tugraz.at, or gruber@sww.tugraz.at).

A new edition of the Scientific and Technical Report on Sewer Solids is planned for publication in 2013, edited by Jean-Luc Bertrand-Krajewski, Simon Tait, Jeroen Langeveld and Adrian Saul.

5.4. Working Group on Source Control for Stormwater Management (SOCOMA)
(Chairman: Gilles Rivard, Genivar Inc, 2525, blvd Daniel-Johnson, 525, LAVAL (PQ), Canada H7T 1S9; Phone: 001-450-686-8839, Fax: 001-450-689-2969, E-mail: gilles.rivard@genivar.com ; Vice-chair & Secretary: Sylvie Barraud, INSA Lyon - LGCIE - Bâtiment Coulomb, 34 Avenue des Arts, F-69621 Villeurbanne Cedex. Phone: 04 72 43 83 88; Fax: 04 72 43 85 21; E-mail: sylvie.barraud@insa-lyon.fr); Secretary: Tim Fletcher, Melbourne School of Land & Environment, The University of Melbourne, 221 Bouverie St, Parkville, Vic, 3010, Australia. Tel: +61 3 8344 0621, E-mail: tim.fletcher@unimelb.edu.au).

Working Group Report

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

Compared with the WSUD (Water Sensitive Urban Design) working group, which has related interests but in a more holistic and institutional outlook, SOCOMA focuses more on technical aspects related to source control technologies as applied to urban drainage. The activities and participation at workshops would therefore be more oriented to provide a forum for exchanging technical details of design and implementation or research results and approaches of source control mechanisms or best management practices (BMPs).

No specific meeting was held in 2012 at a given conference. A summary of the activities follows:

- Terminology paper. Tim Fletcher, Peter Steen Mikkelsen, Sylvie Barraud, Gilles Rivard and other members of SOCOMA and the JCUD more broadly have initiated this paper which has as the main objective to allow newcomers to the stormwater management field to understand the history and context of current terminology and approaches. The field has seen many different acronyms, names and conceptual approaches over the years and the JCUD thus considers it useful to present some historical background for the integrated urban stormwater management. Under the coordination of Tim Fletcher as the main author, a first draft of the paper has been developed during 2012. Contributions to the paper will come from both groups (SOCOMA and WSUD) and from other JCUD members and the urban drainage community.
- Other possible papers, which have been discussed at the Novatech Conference in 2010, were not initiated in 2012, but are still under discussion. Topics include: Hydrologic performance of source control for low-flow and high-flow restoration; Modelling source control techniques; Water quality performance unit processes in source control measures; Targets for source control: review and rationale. Some of these topics could be addressed by SOCOMA members in 2013.

- The SOCOMA web site (<http://graie.org/SOCOMA>) has been updated and other references and documents will be added in 2013. Proceedings from the different Workshops held by the group can be downloaded from the site. Contributions from members of the group are welcomed.

Forthcoming meeting/conferences

As a new provincial Stormwater Management Guide has been officially published in 2011 for the Province of Quebec (Canada) (<http://www.mddep.gouv.qc.ca/eau/pluviales/guide.htm>), it is possible that a Workshop will be organized in 2013, with invited guest speakers. The Workshop would be held in Montreal (Canada), probably in September or October 2013 and it could be organized jointly with the CWRA (Canadian Water Resources Association), with participation from Quebec ministries (Environment and Urban Affairs).

In 2013, the Novatech Conference will hold its 6th edition, from 23 to 27 June. A SOCOMA workshop will be organized during this event, jointly with the Urban Storm Water Harvesting Working Group. The program will be finalized in the following weeks but should cover the following topics: Multi-criteria analysis for stormwater source control and harvesting strategies (a morning session) and Modelling catchment-scale consequences of stormwater source control & harvesting strategies (an afternoon session). The SOCOMA Group members will also participate in specific source control sessions at Novatech. A SOCOMA meeting will be held at Novatech.

SOCOMA members will also be called to participate in a survey for stormwater financing during 2013. The survey has been initiated by a French Ministry and has as an objective to examine the approaches used in different countries to finance stormwater management projects.

The participation of SOCOMA at the next ICUD Conference in 2014 in Malaysia has also been discussed with Prof. Ir. Dr. Mohd Nor bin Mohd Desa (<http://www.13icud2014.com/>). A Workshop or organization of specific sessions on source controls at this conference will be planned during 2013.

Other future activities

Members of the SOCOMA group are encouraged to provide relevant documents, references and sites for the web site so that it can become more useful for the community. Another item that was discussed previously was to develop a Wikipedia-type of glossary that could be put on-line and provide basic technical information on topics associated with source control and stormwater management measures. This has yet to be implemented.

Also, some Canadian members of SOCOMA have expressed interest in having a closer relationship with the Cold Climate Group. Some joint activities could therefore be developed in 2013 between the two groups, along with the other on-going collaborative efforts with WSUD and Storm Water Harvesting.

The next SOCOMA meeting will be at Novatech in 2013.

5.5. International Working Group on Urban Rainfall (IGUR) (Chairman: Dr. Patrick Willems, Katholieke Universiteit Leuven, Hydraulics Division, Kasteelpark Arenberg 40, B-3001 Leuven, Belgium; Phone: +32-16-321658, Fax: +32-16-321989, e-mail: Patrick.Willems@bwk.kuleuven.be. Secretary: Dr. Thomas Einfalt, hydro & meteo GmbH & Co. KG, Breite Strasse 6-8, D-23552 Lübeck, Germany. Phone: +49-451-7027333 Fax: +49-451-7027339, e-mail: einfalt@hydrometeo.de.
Group's web site: <http://www.kuleuven.be/hydr/gur>

Working Group Report (December 2012)

- The IGUR wrote a book on “Impacts of climate change on rainfall extremes and urban drainage”. Seven IGUR members were involved in its preparation. The book has been published very recently by IWA Publishing:

Willems, P., Olsson, J., Arnbjerg-Nielsen, K., Beecham, S., Pathirana, A., Bülow Gregersen, I., Madsen, H., Nguyen, V-T-V. (2012), 'Impacts of climate change on rainfall extremes and urban drainage', IWA Publishing, 252 pages, Paperback Print ISBN 9781780401256; Ebook ISBN 9781780401263

<http://www.iwapublishing.com/template.cfm?name=isbn9781780401256>

The book also has an electronic supplement, which is published as an IWA Water Wiki page:

<http://www.iwawaterwiki.org/xwiki/bin/view/Articles/ICCREUDS>

- The IGUR delivered a contribution to the recently published IWA publication “Global Trends & Challenges in Water Science, Research and Management — A compendium of hot topics and features from IWA Specialist Groups”:

Willems, P., Einfalt, T. (2012), 'Rainfall extremes and urban drainage', In: “Global Trends & Challenges in Water Science, Research and Management — A compendium of hot topics and features from IWA Specialist Groups” (ed. Hong Li), International Water Association, London, 83-85; ISBN 9781780401065

- The IGUR was involved in the organization of the UrbanRain12 workshop: 9th International Workshop on Precipitation in Urban Areas, St Moritz, Switzerland, 6–9 December 2012, <http://www.ifu.ethz.ch/urbanrain/>. Several IGUR members took part in the organizing and scientific committees. The IGUR also helped in the review of abstracts. In total, 77 abstracts were received. The workshop was attended by 75 participants, had 36 presentations, 27 posters and overall 57 short papers in the proceedings. The 2012 annual meeting of the IGUR was held at that workshop.
- IGUR members were involved in the review of abstracts dealing with the rainfall topic for the 9th UDM conference, Belgrade, 3–7 September 2012, and currently for the Novatech2013 conference, Lyon, 23–27 June 2013. For Novatech2013, a workshop on “Impacts of climate change on rainfall extremes and urban drainage systems” is proposed by the IGUR and is currently being considered by the conference organizers. It is planned for Sunday 23 June, 10.00 am – 4.00 pm.

- IGUR member Karsten Arnbjerg-Nielsen attended the IWA Congress in September 2012 at Busan, Korea. He organized and chaired at that conference a session on “The coming urban drainage challenge—friend, foe or both? Managing urban flood risks to cities in the context of a changing climate and an expanded set of community objectives for livable cities”.

The most recent information related to IGUR activities as well as the meeting reports can be found on the IGUR website which is regularly updated, see www.kuleuven.be/hydr/gur.

5.6 Urban Drainage in Cold Climate Working Group (UDCCWG) (Chair: Prof Maria Viklander, Dept. of Civil, Mining and Environmental Engineering, Lulea University of Technology, S-971 87 Lulea, Sweden, Ph. +46 920 491 634, Fax: +46 920 491 493, Email: Maria.Viklander@sb.luth.se).

5.7 Working Group on Water Sensitive Urban Design (Chair: Dr Rebekah Brown, Monash University, Faculty of Arts, Menzies Building, Victoria 3800, Australia, tel +61 3 9905 9992; fax +61 3 9905 2948; E-mail: Rebekah.Brown@arts.monash.edu.au; Secretary: Prof Richard M. Ashley, Pennine Water Group, Dept. of Civil and Structural Engineering, University of Sheffield, Sir Frederick Mappin Building, Mappin Street, Sheffield S1 3JD, UK, Phone: +44 (0)114 222 5766, Fax: +44 (0)114 222 5700, E-mail: r.ashley@sheffield.ac.uk).

5.8 Working Group on Urban Streams (USWG) - (Chair: Dr Ivana Kabelkova, Department of Sanitary and Ecological Engineering, Faculty of Civil Engineering, Czech Technical University in Prague, Thakurova 7, 166 29 Prague 6, Czech Republic, Phone: +42 (0)2 24321292, e-mail: kabelkova@fsv.cvut.cz.)

USWG is still in the process of formation. The next meeting is planned during the Novatech conference in Lyon in June 2013.

5.9 Working Group on Urban Storm Water Harvesting – (Chair: Dr. Alberto Campisano, Dept. Civil and Environmental Engineering, University of Catania, Viale Andrea Doria 6, 95125 Catania, ITALY; Phone: +39 (0)95 7382730, Fax: +39 (0)95 7382748, e-mail: acampisa@dica.unict.it).

The group has been newly established in September 2012, with the focus of promoting the appropriate and beneficial use of storm water harvesting (SWH) in urban drainage systems. Further details follow.

Objectives

Harvested rain water represents a simple solution to supplement the freshwater needs of many communities all over the world. As SWH techniques are normally storage-based, they are also a way to reduce storm water peak flows in sewer systems and receiving waters, with benefits both in terms of ecosystem protection and the mitigation of urban flooding. The main objectives of the WG are to disseminate information about methodologies and procedures, to coordinate research, to develop activities related to SWH system design, operation, rehabilitation, maintenance and control, and to stimulate bottom-up discussion on social and economic benefits of such systems. The intention of the group is to bridge the gap between researchers, professionals, water agencies and citizens to promote, also together with other IWA groups, initiatives showing technical and social benefits of SWH and to provide scientific support to the development of national and international regulations.

Motivation

In recent years, SWH is getting more and more attention at JCUD sponsored or co-sponsored conferences, with many researchers working on the topic. Despite this growing interest, the degree of international collaboration remains poor, with almost all papers presented having authorship teams within single nations or regions. Given the different approaches used in different parts of the world, there is great potential to accelerate the development and optimisation of storm water harvesting technologies and approaches, through the sharing of lessons (both positive and negative). The WG will be open to all who actively work on some aspects of Storm Water Harvesting.

The first official **WG meeting will be in Lyon during the Novatech 2013 Conference**. On that occasion the first activities discussed by email will be started.

As a “flying-start” activity the WG is organising a **pre-conference workshop** in Lyon (the day before the Novatech conference) on “Multi-criteria analysis and Modelling catchment-scale consequences for storm water source control & harvesting strategies”. The workshop will be organised jointly with the SOCOMA WG.

6. NEWS FROM IAHR AND IWA

6.1 IAHR News

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

Note that the 2013 membership fees are now due (for more information, visit the IAHR website). Since 2005, IAHR offers an “electronic” membership, which includes all normal membership benefits except the printed Journal of Hydraulic Research. Electronic access to the *Journal of River Basin Management* and the subscription to the *Urban Water Journal* are offered at a special reduced rate for IAHR members.

For information on the 35th IAHR Congress in Chengdu, China, see Section 9 on pages 38 and 40.

6.2 IWA News

The IWA Water, Climate and Energy (WCE) programme addresses the interlinked challenges of urban water, climate and energy which are critical for cities of the future to prosper. The programme covers both adaptation and mitigation aspects of climate change through exploring pathways to achieving energy neutrality while adapting to changing water availability. The adaptation component of the programme focuses on strategies for urban water storage and drainage as well as how cities need to adapt and diversify water supplies.

Upcoming events relevant to the Urban Drainage SG, which also contribute to the Water Climate and Energy Programme include:

- IWA Conference on Alternative Water Resources Management and Integrated Technologies for Sustainable Urban Water System - Qingdao, China, 25–28 June 2013:
<http://www.cda-apdwr2009.com/en/index.asp>
- Amsterdam - International Water Week 2013, Amsterdam, 4–8 November 2013:
www.internationalwaterweek.com
- IWA Development Congress 2013, Nairobi, Kenya, 14–17 October 2013:
<http://www.iwa2013nairobi.org/>

Urban Drainage Specialist Group Members are invited to contribute to the Water Climate and Energy Programme, specifically through:

- Providing strategic guidance and input to develop a framework document for building resilience of water and wastewater utilities in the face of climate change;
- Providing case studies that demonstrate innovative approaches to urban storage and drainage that can increase climate resilience in cities. This includes highlighting what are the steps that have been undertaken and how can they be replicated.

For more information, please contact **Katharine Cross, Programmes Coordinator:**
katharine.cross@iwahq.org

Making the most out of our legacy systems and optimizing future systems – The IWA Networks Cluster

The Networks Cluster (NC) is a new cluster that so far spans eight IWA Specialist Groups and other experts to form a collaborative platform to consider and act on how to manage and make the most of the current systems and apply those experiences to the design and management of future systems to have smart, multipurpose and flexible by design networks for the whole water cycle.

NC will organize workshops at key conferences to bring together the broad spectrum of disciplines required to work together in building and operating our future networks. To keep informed on the NC please visit the IWA WaterWiki group page:

<http://www.iwawaterwiki.org/xwiki/bin/view/Articles/IWASmartNetworksClusterSNC>

New from IWA – the IWA Water Wiki!

Invitation to Participate



www.iwawaterwiki.org

The **WaterWiki** is a website providing a place for the water community to interact, share knowledge and disseminate information online.

Since the site was launched, we have been working with IWA Specialist Groups, offering them the opportunity to set up their own group work spaces on the WaterWiki – we now have over **20** Groups using the site to communicate and network online.

Want to get involved? We would like to invite members of the **Urban Drainage** Specialist Group to share information and materials using a [dedicated Group Space on the WaterWiki](#).

WaterWiki Group Spaces – Why participate?

A Group Space on the WaterWiki is an excellent way to share information within your group. You can:

- Include contact details of key members in the group
- Upload PDFS, Word documents, presentations, etc.
- Circulate minutes from meetings, events, conferences, etc.
- Plan upcoming events and webinars
- Discuss research developments and group activities

Once you have established your group space on the Wiki, members can add, remove, or edit content at anytime – and we have a dedicated support team on hand to answer any technical queries.

If you are a member of the **Urban Drainage** IWA Specialist Group and would like more information on creating and using a dedicated Group Space on the WaterWiki, please contact Chloe Parker (cparker@iwap.co.uk).

New Contributions

Feel free to use the wiki as your online reference point for all things water-related! Some of the material that may be of interest to you can be found here:

[Sustainable Urban Drainage System](#), [Recent Papers on Urban Hydrology](#), [Stormwater Treatment, Reuse: Urban, Residential, Commercial and Municipal](#), [Transmission Main Water Loss Reduction in Urban Centers](#), [Urban Hydroinformatics](#), etc.

We are always looking to add new material to the WaterWiki in your subject area. If you are able to write on any of the above subjects (about 600–1000 words), please do submit an article.

To see how other IWA Specialist Groups have been using the wiki, visit the [Specialist Groups home page](#).

Chloe Parker, **IWA WaterWiki Community Manager** (cparker@iwap.co.uk)



Project
Innovation
Awards
Development



Make a splash.

2013 Project Innovation Awards - Development

Celebrating excellence and innovation in water and sanitation projects in low and middle income countries

The **IWA Project Innovation Awards - Development** is a global awards programme aimed at recognising and celebrating excellence and innovation in water and sanitation projects in low and middle income countries. Launched in 2011, the PIA-Development reflects the belief within the International Water Association that the challenges in providing safe water supply and sustainable sanitation in developing countries can be met through the uptake of innovation and best practices.

Into its 2nd edition, the 2013 **PIA-Development** is now open for project submissions. Visit www.iwa-pia.org to submit your project NOW!

SCOPE OF THE AWARDS

- The scope of the Awards covers water supply and sanitation in low and middle income countries, in urban and peri-urban situations;
- Projects can focus in hardware, (physical infrastructure) or on software (advocacy, outreach, public educational campaigns, publicity efforts, etc.) or on applied research;
- Projects should demonstrate innovation and sustainability;
- Project entries must be operational for a minimum of 6 months, but no older than 2 years.

RATIONALE FOR THE AWARDS

- To support processes of fostering innovation in service delivery in developing countries, and placing effort in embedding innovative practices amongst practitioners;
- To develop a more diverse IWA Project Innovation Awards series, including projects drawn from low and middle income countries, currently lacking in the main Awards;
- To provide recognition for new solutions to existing challenges in support of international efforts to achieve the Millennium Development Goals (MDGs);

SUBMISSION CATEGORIES

- Entries may be submitted under one of two primary categories;
- Drinking Water Supply;
 - Sanitation and Wastewater

Within each category, projects which fall within one or more of the following sub-categories will be eligible for consideration:

- **Applied Research**
- **Hardware**
- **Software**

One winner and one honour awardee will be allocated per primary award category (thus, a maximum of 12 awards will be recognised).

AWARDS PRESENTATION CEREMONY

Winners of the 2013 PIA-Development will be honoured in an awards reception to be held at the occasion of the 3rd IWA Development Congress and Exhibition in Nairobi, Kenya. Held from 14-17 October 2013, the 3rd IWA Development Congress provides a unique opportunity to signpost best practices, applied research and enabling policies to meet the water and sanitation challenges of today and tomorrow in an increasingly urbanised world.

Submit your project by 15 May 2013 to compete in this prestigious global competition

For further information,
please visit the PIA website: www.iwa-pia.org or contact: PiaDevelopment@iwahq.org

6. NEW FROM IWA PUBLISHING

Water Footprinting in the Urban Water Sector



Kylie Hyde

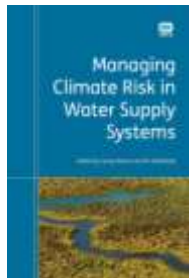
ISBN: 9781780404806 • February 2013 • 166 pages • eBook only

<http://www.iwapublishing.com/template.cfm?name=isbn9781780404806&type=category>

The term **Water Footprinting** can be used to describe an emerging set of tools that can be applied to obtain information about the consumption and degradation of fresh water over a defined period of time. The impact that the consumption and degradation of fresh water resources has on the environment and society can be assessed using a number of tools.

Water Footprinting tools have predominantly been applied within the agricultural and industrial sectors. The approaches are being increasingly utilised, in particular by corporations in the food and beverage industries. Limited applications involving the urban water system are evident to date.

Managing Climate Risk in Water Supply Systems



Casey Brown and M. Neil Ward

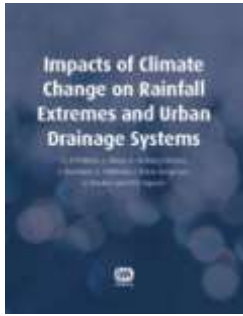
ISBN: 781780400587 • February 2013 • 168 Pages • Paperback
IWA members' price: £ 59.25 / US\$ 106.65 / € 79.99

<http://www.iwapublishing.com/template.cfm?name=isbn9781780400587&type=category>

Water resources systems provide multiple services and, if managed properly, can contribute significantly to social well-being and economic growth. However, extreme or unexpected hydroclimatic conditions, such as droughts and floods, can adversely affect or even completely interrupt these services. This manual seeks to provide knowledge, resources and techniques for water resources professionals to manage the risks and opportunities arising from hydroclimatic variability and change.

Managing Climate Risk in Water Supply Systems provides materials and tools designed to empower technical professionals to better understand the key issues in water supply systems. These materials are part of a suite of resources that are developed to share climate risk knowledge related to a range of sectors and climate-related problems.

Impacts of Climate Change on Rainfall Extremes and Urban Drainage Systems



Patrick Willems, Jonas Olsson, Karsten Arnbjerg-Nielsen, Simon Beecham, Assela Pathirana, Ida Bulow Gregersen, Henrik Madsen, Van-Thanh-Van Nguyen

ISBN: 9781780401256 • September 2012 • 238 pages • Paperback
IWA members' price: £ 66.75 / US\$ 120.15 / € 90.11

<http://www.iwapublishing.com/template.cfm?name=isbn9781780401256&type=category>

Impacts of Climate Change on Rainfall Extremes and Urban Drainage Systems provides a state-of-the-art overview of existing methodologies and relevant results related to the assessment of the climate change impacts on urban rainfall extremes as well as on urban hydrology and hydraulics. This overview focuses mainly on several difficulties and limitations regarding the current methods and discusses various issues and challenges facing the research community in dealing with the climate change impact assessment and adaptation for urban drainage infrastructure design and management.

Flood Risk

Planning, Design and Management of Flood Defence Infrastructure



P.B. Sayers

ISBN: 9781780404561 • July 2012 • 352 pages • Hardback
IWA members' price: £ 56.25 / US\$ 101.25 / € 75.94

<http://www.iwapublishing.com/template.cfm?name=isbn9781780404561&type=category>

Flood Risk: Planning, Design and Management of Flood Defence Infrastructure is the definitive practical handbook on design and maintenance of flood defences, providing a coherent and focused reference for best practice. This book is the first port of call for practising engineers working in the areas of flood risk management and drainage and includes contributions from experts in the field and real-life case studies.

It covers the design of fluvial, coastal and urban flood defences, as well as guidance on relevant legislation, lessons learned from past disasters and means of improving the environment while managing flood risk.

The intended audience is practising (graduate to senior level) engineers, hydrologists and project managers working on flood defence projects, mainly in consultancies but also in the Environment Agency and Local Authorities.

Water, Wastewater and Stormwater Infrastructure Management

Second Edition



Neil S. Grigg

ISBN: 9781780400334 • July 2012 • 358 pages • Hardback

IWA members' price: £ 56.25 / US\$ 101.25 / € 75.94

<http://www.iwapublishing.com/template.cfm?name=isbn9781780400334&type=category>

Urban water services are building blocks for healthy cities, and they require complex and expensive infrastructure systems. Most of the infrastructure is out of sight and tends to be taken for granted, but an infrastructure financing crisis looms in the United States because the systems are aging and falling behind on maintenance. A road map for public works and utility professionals, **Water, Wastewater, and Stormwater Infrastructure Management, Second Edition** provides clear and practical guidance for life-cycle management of water infrastructure systems.

Grounded in solid engineering and business principles, the book explains how to plan, budget, design, construct, and manage the physical infrastructure of urban water systems. It blends knowledge from management fields such as facilities, finance, and maintenance with information about the unique technical attributes of water, wastewater, and stormwater systems.

SELECTED RESEARCH REPORTS

Automatic Vacuum Flushing Technology for Combined Sewer Solids

WERF Report INFR7SG09

Author(s): Qizhong (George) Guo

Publication Date: 31 Mar 2013 • ISBN: 9781780400471

Pages: 60

Available as an eBook only

<http://www.iwapublishing.com/template.cfm?name=isbn9781780400471&type=category>

The Effect of Wet Weather Driven Dissolved Oxygen Sags on Fishes in Urban Systems

WERF Report U3R09

Author(s): John R. Wolfe

Publication Date: 15 Nov 2012 • ISBN: 9781780401270

Pages: 120

Available as an eBook only

<http://www.iwapublishing.com/template.cfm?name=isbn9781780401270&type=category>

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8. NEWS FROM AROUND THE WORLD

AUSTRALIA (REPORTED BY TIM FLETCHER)

Integration of stormwater management into the broader context of integrated urban water management has taken several important steps in 2012 within Australia. A good example is the creation of the Office for Living Victoria (OLV; www.olv.vic.gov.au). OLV has been established by the Victorian Government to promote “a smart and resilient water system for a liveable, sustainable, productive Victoria”. According to its website, OLV has established three strategic objectives to underpin delivery of this goal:

- integrating urban planning and water cycle management planning at a city/regional scale;
- embedding integrated water cycle management (IWCM) in the design and construction of Victoria's precincts and buildings; and
- delivering an informed and common understanding of IWCM principles and practices across all key organisations and communities.

An important part of OLV's work will be the development of an IWCM strategy for Melbourne, for integration into the overall metropolitan planning strategy for the city. Perhaps the most important impediment to the success of this objective is contradictory policy directions. OLV will therefore work with all relevant agencies to incorporate IWCM principles into planning and building controls. They have set up the A\$50 million “Living Victoria Fund”, which will support demonstrations of IWCM (see www.water.vic.gov.au/olv/living-victoria-fund).

Further evidence of the evolution of stormwater management is the current review of the “Best Practice Environmental Management Guidelines: Urban Stormwater”. These were some of the first environmentally-focussed stormwater management guidelines in Australia and have been adapted from their original development in Victoria, for application in other parts of Australia. The Environment Protection Authority, in partnership with Melbourne Water, is seeking to revise these, to:

- i. better integrate flow regime objectives
- ii. incorporate a broader range of pollutant types (the current guidelines are based only on TSS, TP, TN and litter); the new guidelines are likely to incorporate some heavy metals, toxicants and microbiological indicators
- iii. encourage the use of stormwater as a resource, and for delivery of multiple benefits.

Melbourne Water, in partnership with South East Water and Knox City Council, has recently established the Dobsons Creek project (www.sewl.com.au/SiteCollectionDocuments/CurrentProjects/Projects/Dobsons_Creek_Fact_Sheet.pdf). This project is funding the installation of rainwater harvesting systems on private properties, with the aim of reducing the impact of stormwater on the creek. The project builds on the Little Stringybark Creek project (www.urbanstreams.unimelb.edu.au), which has now installed rainwater harvesting and stormwater infiltration systems in many properties, with a similar aim of reducing stormwater impacts.

The Cooperative Research Centre for Water Sensitive Cities (www.watersensitivecities.org.au) is now fully operational. The CRC, led by Prof. Tony Wong, has three research programs (Society (led by Prof. Rebekah Brown), Water Sensitive Urbanism (led by Prof. Peter Davies), Future Technologies (led by Prof. Ana Deletic)), with a communication program (Adoption Pathways) to support uptake of the research findings by industry. In a recent newsletter, Prof. Wong described the CRC's goals: "Our CRC sets out to revolutionise urban water management and deliver the socio-technical urban water management solutions, education and training programs, and industry engagement to transform Australian towns and cities into water sensitive cities. The revolution is in the inter-disciplinary approach that we adopt in our research and our effective engagement of the multiple industry sectors. Our impacts throughout and beyond the life of this CRC may be assessed in four aspects:- (i) the generation and dissemination of contemporary knowledge, concepts and ideas; (ii) the adoption and increased capacity of the multi-sectoral actors to implement and innovate, and the receptivity of beneficiaries to the holistic approach to urban water system planning; (iii) the development of policies that are underpinned by our proof-of-concept and scientific evidence; and (iv) the 'works-on-the-ground' in terms of urban planning and development, and water infrastructure projects that are based on the previous three objectives". The CRC's Ana Deletic recently won the Victoria Prize for her contributions to stormwater research in Victoria.

Other active stormwater research includes that being led by Ian Brodie (University of Southern Queensland), on stormwater harvesting and treatment, and interactions with floodplain management, and Terry Lucke (University of the Sunshine Coast), whose work is particularly focussed on permeable pavements.

The eWater Cooperative Research Centre, which has been a major player in urban water research, ceased operation as a Cooperative Research Centre, and has now transitioned to a publically owned not-for-profit partnership. One of their prime objectives is the ongoing development and support of the Source Modelling Community (www.ewater.com.au/products/ewater-source/), along with the eWater Toolkit (www.ewater.com.au/products/ewater-toolkit/), which includes the Model for Urban Stormwater Improvement Conceptualisation.

Stormwater harvesting has received major investment in Australia within the last 12 months. The national government allocated more than \$42 million to deliver nine large-scale stormwater harvesting projects across Australia, bringing to more than \$200 million the funding allocated within the last 3 years. Several of these were in South Australia, which has a target to harvest 75 GL of stormwater per year by 2050. Within South Australia, the City of Salisbury is particularly active, having a long history of constructing large-scale stormwater harvesting, with the water injected into aquifers for later recapture (aquifer storage and recovery). Other major projects include the Brisbane City Stormwater harvesting project (capturing 185 ML/year) and the Gawler stormwater reuse project, harvesting some 800 ML/year.

BENELUX (BELGIUM, THE NETHERLANDS AND LUXEMBOURG)
(REPORTED BY PATRICK WILLEMS, JEROEN LANGEVELD and MARIO REGNERI)

In a new **Interreg NWE IVB project RAINGAIN**, urban drainage experts from The Netherlands, Belgium, France and the UK cooperate on the topic of “fine-scale rainfall estimation and nowcasting for enhanced street scale urban surface flood prediction, warning and risk management”. X-band and super resolution C-band radars will be installed/applied for the case-studies Leuven (BE), London (UK), Paris (FR) and Rotterdam (NL). After a workshop held in April 2012 at Leuven, a review report on “Methods and experiences in radar based fine scale rainfall estimation” has been prepared. More information is available at <http://www.raingain.eu/en/raingain>

In Flanders, Belgium, new **urban drainage design guidelines** have been approved by the Minister. They consider an update of the design rainfall, taking climate change into account, among which an increase of the design return period from 5 years to 20 years is considered. Also more focus is given to source control and upstream storage and infiltration of rain water, both in public areas and private gardens. More information is available at <http://www.integraalwaterbeleid.be/nl/publicaties/code-goede-praktijk-rioleringsystemen>

A new project funded by the Belgian Science Policy, **PLURISK on “forecasting and management of extreme rainfall induced risks in the urban environment”** will develop methodologies and software for nowcasting of fine-scale extreme rainfall, two-dimensional fine-scale modelling, mapping and nowcasting of inundations in urban areas, socio-economic urban flood risk quantification, urban flood risk communication and warning, and new sustainable urban flood management strategies (green - blue water; landscape architecture; ecotechnologies). The project considers three Belgian cities as case-studies and aims to support local authorities, which typically have low capacity in setting up risk quantification, forecasting, control and management systems. More information is available at <http://www.kuleuven.be/hydr/plurisk>
Related to this topic, the SMARTesT project, a EU Seventh Framework Project ‘Smart Resilience Technology, Systems and Tools’ focused on increasing flood resilience in urban areas. More information is available at <http://www.floodresilience.eu/>.

In the Netherlands, **the urban drainage research program**, funded and supported by the Dutch urban drainage sector, covers four themes (j.g.langeveld@tudelft.nl):

Theme 1 Asset management. The research within this theme focuses on alternative sources of information (or ways of working) in order to organize the asset management in such a way that sewer system performance (serviceability) will be maintained at the desired level. Nikola Stanic and Wouter van Riel are working together on this topic.

Theme 2. Operation and maintenance. The research projects within this theme will provide knowledge on the relation between the operation and maintenance strategy applied and the overall system performance. This topic is dealt with by Johan Post. In addition, Marco van Bijnen is doing research in the municipality of Utrecht on the relation between the condition of the sewer system in terms of root intrusion and sediment beds and hydraulic performance.

Theme 3. Dynamics of sewer systems. Continuous monitoring of hydraulics and wastewater quality is applied at a number of locations in the Netherlands. These data open an enormous opportunity to study the dynamics of sewer systems itself and in relation with WWTPs and receiving waters and to enhance the knowledge on in sewer processes. Petra van Daal-Rombouts works on this topic, using the extensive database of Waterboard De Dommel developed within the KALLISTO project.

Theme 4. Sustainable urban water cycle. Theme 4 focuses on research on new concepts for the urban water cycle enabling energy recovery and reuse of materials. The main issues to be dealt with are the conveyance of separated flows (black water, yellow water, grey water) and the lack of a sound methodology to objectively compare sanitation concepts. This theme will be launched in 2013.

The partners of the research program are (in alphabetical order):

ARCADIS, DHV, Gemeente Almere, Gemeente Breda, Gemeente's-Gravenhage, Gemeentewerken Rotterdam, Gemeente Utrecht, GMB Riolerings technieken, Grontmij, KWR Watercycle Research Institute, Royal Haskoning, Stichting RIONED, STOWA, Tauw, Vandervalk & De Groot, Waterboard De Dommel, Platform Water Vallei & Eem, and Waternet en Witteveen+Bos.

The Dutch KALLISTO project (<http://www.samenslimschoon.nl>) is based on an integral approach in cost effective and efficient water management of the catchment area of Eindhoven. The involved municipalities, water boards and universities developed innovative solutions for a new approach in integral water management, based on integrated modelling, large scale continuous monitoring and pilot plants for physical-chemical storm water treatment. A combination of RTC measures, river aeration and WWTP optimisation have resulted in a cost effective solution complying with the integrated water resources management approaches required by the EU Water Framework Directive.

The ongoing Luxembourg based research project **FUZZYSURE - Fuzzy-based multi-objective optimization for the Haute-Sûre wastewater system** investigates the integrated control of rural sewer networks with central wastewater treatment. These systems are often characterized by widespread trunk sewer networks and wastewater treatment plants (WWTP) of rather small sizes. Case study is the Haute-Sûre wastewater system in the North of Luxembourg where intensive measurement campaigns both in the sewer network and the WWTP were done for detailed model calibration. The use of fuzzy decision making is tested to (I) respect expert knowledge in the process

of multi-criteria optimization and (II) take intrinsic uncertainties of the integrated model for real-time control into account. The objective functions for optimization thereby consider (a) the minimization of effluent loads at the WWTP, (b) the minimization of combined sewer overflows and (c) the minimization of treatment costs both at the WWTP and in the sewer network (pumping costs). See also: <http://tudor.lu/en/thesis/fuzzysure>

CANADA (REPORTED BY JIRI MARSALEK)

Water Balance Model and Related Activities. The Water Balance Model promotes a watershed-based approach that manages the natural environment and the built environment as integrated components of the same watershed (<http://www.waterbalance.ca/>). The model is described as public domain tool promoting rainwater management and green development policies, and is undergoing continual development and refinement. For the latest, please visit the above website which features many innovative activities taking place in British Columbia, Canada.

The Sustainable Technologies Evaluation Program (STEP) is a multi-agency program based in Ontario (Canada) and led by the Toronto and Region Conservation Authority (TRCA) (<http://www.sustainabletechnologies.ca/>). The program was developed to provide the data and analytical tools necessary to support broader implementation of sustainable technologies and practices within a Canadian context. Its main objectives are to:

- Monitor and evaluate sustainable technologies in the areas of water and air
- Assess potential barriers to implementing sustainable technologies
- Provide recommendations for guideline and policy development, and
- Disseminate study results and recommendations and promote the use of effective technologies at a broader scale through education and advocacy.

The STEP website is continually updated and certainly worthwhile to visit.

The latest project of interest to the international community of urban drainage professionals is the completion of a project to develop a testing protocol for (hydrodynamic) oil and grit separators. The protocol builds on similar documents produced in the USA and its main objectives are: (a) Quantify the mass, by particle class, of sediment particles trapped by a device under different flow rates, (b) Present and analyze data to show device efficiency as a function of particle size and flow rate, and to propose scaling relationships for predicting the efficiency of untested devices in the same product category, and (c) Assess the mass of sediment scoured from separators at high flow rates across a range of particles sizes and fraction. It is expected that the protocol will be released in April 2013.

The federal government program dealing with water management in the Lake Simcoe watershed keeps generating interest in a specific aspect of stormwater management – control of nutrients. The first call for proposals was issued and responses from researchers are now expected.

CZECH REPUBLIC

(REPORTED BY IVANA KABELKOVA, DAVID STRANSKY AND VOJTECH BARES)

Situation in the water management sector in the Czech Republic was marked by an approaching end of intensive support of the development of the water management infrastructure of water supply and sewer systems as well as of WWTPs in 2013 (598 water supply systems and 620 sewer systems – totally 7.8 billion CZK - were financed by the Ministry of agriculture in the years 2008-11). Further financial support will target agglomerations below 2000 PE. However, financing of the sectors remains quite unclear (also in the context of the continuing financial crisis). Pressure towards self-financing of the water management infrastructure increases, which causes fears of unfavourable economical and thus political consequences. For these reasons, implementation of sustainable urban drainage systems slowed down. Very conservative revision of the Water Distribution and Drainage Act was adopted in 2012 (current exemptions from stormwater fees remained unchanged diminishing thus the motivation for the sustainable stormwater management). Also the process of the creation and adoption of technical standards for the design and construction of SUDS slowed down due to the fear of new approaches and increased financial burdens.

Research activities

Two projects concerning combined sewer overflows (CSOs) are addressed at the Czech Technical University (CTU) in Prague under the support of the Technology Agency of the Czech Republic (TACR). In the first project CTU and DHI Czech Republic create an information system for storing data on CSOs and data concerning the assessment of their impacts on rivers, which will enable classification of CSOs as to the seriousness of their impacts and will assist in setting priorities of measures for the fulfilment of the Water Framework Directive requirements. In the second project CTU and Hobas carry applied research of selected structures in order to increase their quantitative and qualitative efficiency. Newly a grant was given by TACR to CTU and ATEKO to start a project “Heat recovery from wastewater in combined sewer systems” in 2013. The goal of the project is to identify theoretical and realizable potential of the wastewater in the sewer system of the pilot catchment for the heating and combination of heating and cooling of buildings and to develop a functional sample of the heat exchanger for the sewer system including recommendations for its installation, operation and maintenance.

CTU in Prague and EAWAG, Switzerland are cooperating on the application of the microwave link rainfall (MWL) estimation approach. CTU in Prague has signed an agreement with T-Mobile, Czech Republic on MWL data retrieval and implementation of on-time data mining application running at MWL network. A virtual numerical study to assess the employment of MWL data in urban drainage modelling application was processed in a selected catchment of Prague. The project is supported by Veolia, Czech Republic and the City of Prague.

New CTU research and development center UCEEB (WP: Architecture and environment) is developing an experimental site for monitoring of near-surface fluxes of water, energy and momentum in the soil-vegetation-atmosphere system, as well as above artificial structural surfaces. The experiments are related to microclimatic conditions in urban areas and SUDS measures.

Brno University of Technology is the coordinator of the Visegrad Fund project “Sustainable rainwater management in the V4 countries”. The objective of this project is to support and

strengthen the cohesion of the four Visegrad countries (Czech Republic, Slovakia, Poland and Hungary) in the achieving a sustainable water future in urban areas. In Brno also two TACR projects are underway: “Energetic demand of WWTPs and sewer systems” having the goal to develop a methodical guidance for auditing and assessment of WWTPs and sewer systems from the structural and energetic point of view and a project addressing the design of the technology for use of grey water and stormwater in buildings.

Conferences

The 12th Conference Urban Water covered a variety of technical, legislative and ecological topics.

Finally, Czech water professionals from the Czech Technical University and the Czech Water Association were delighted to learn that their proposal to organize the ICUD 2017 in Prague had been accepted by the Joint Committee.

DENMARK (REPORTED BY KARSTEN ARNBJERG-NIELSEN)

Urban water research is booming these years due to increased availability of funding and awareness due to an unusually high frequency of extreme rainfall. A number of research projects have been established under the Danish Strategic Research Council with focus on urban drainage and/or climate change impact estimation and adaptation. Most of these projects were discussed last year, so here is a brief list including links:

- Black, Blue and Green, www.2bg.dk
- Storm and Wastewater Informatics, www.swi.env.dtu.dk
- Centre for Regional Change in the Earth System, www.cres-centre.dk
- RiskChange, www.riskchange.dhigroup.com
- Partnership Water in Urban Areas, www.vandibyer.dk/english

Approximately 25 of the PhD students participating in these projects work primarily within an urban drainage context. The oldest projects are ending now, and the most recent ones will end around 2015.

A recent change of government has resulted in a change of legislation that affects the urban drainage community a lot. The objective is to start accounting for observed and anticipated climate change impacts as well as to allow for multi-purpose spaces where both urban drainage and other livability objectives are met. Setting up blue and green infrastructure will be easier to establish as well as areas with primarily amenity purposes. Skater fields, and water playgrounds are among the pilot projects.

The new government will also change the funding structure of research and innovation to enhance the focus on clean- and greentech technologies. The concrete actions are still not clear, but it seems that a number of large innovation projects with a clear focus on technologies will emerge. Two of the four pilot projects have elements of urban drainage, one on water reuse, and one on climate change adaptation, so it seems that the sector will remain in focus for the years to come.

FRANCE (REPORTED BY JEAN-LUC BERTRAND-KRAJEWSKI)

OTHU - Research and monitoring to provide better knowledge, understanding and prediction of Urban Water Systems and their impacts on receiving bodies

In 1999, 12 research laboratories from Lyon (France) decided to develop a long-term field-observatory (named OTHU) with the help of the Greater Lyon council. This observatory gathers a multidisciplinary team with competencies in climatology, hydrology, fluid mechanics, geography, soil sciences, chemistry, biology, microbiology, social and economics sciences.

This observatory is dedicated to the study of a wide range of phenomena associated with urban drainage. OTHU undertakes intense continuous monitoring of climatic parameters, water flows and pollutant loads at four experimental sites, in addition to regular and specific monitoring campaigns. More than ten other sites are also monitored but in a less intense way.

In the 2010–2014 research programme (2010–2014), new topics were launched or intensified:

- Improvement of continuous measurement (micro-sensors, different coupling processes, development of bio-indicators)
- Impact of global change
- Reflection on which pollutants and contaminants have to be monitored in connection with urban practices and new legal requirements
- Impact on health in particular study of microbial contaminants and ecotoxicity in stormwater system management
- Integration of social dimension (social acceptance of technology shifts, quality of service, nature in the cities, ...).

Some recent PhDs completed in 2012:

1. Sarrazin B. (2012). Spatial imagery and multi-scale approach for modelling of hydrological regime of medium sized peri-urban catchments, IRSTEA Lyon / ISARA. France.
2. Gonzalez Merchan C. (2012). knowledge Improvement of clogging evolution of large infiltration systems, INSA Lyon, France, [Link](#)
3. Petit S. (2012). Ecology and danger of *Pseudomonas aeruginosa* in small urban aquatic water courses, VetAgroSup, Lyon
4. Lepot M. (2012). Advanced continuous monitoring of pollutant loads (TSS, COD) in sewers, INSA Lyon, France, [Link](#)

For more information: OTHU website: <http://www.othu.org>; OTHU contacts: Sylvie Barraud (director, Sylvie.barraud@insa-lyon.fr), Laetitia Bacot (general secretary, laetitia.bacot@graie.org)

Novatech 2013

Since 1992, GRAIE has organised the ‘Novatech conferences’ once every three years in Lyon, with the support of the JCUD. These conferences are among the key international scientific and technical symposia on urban water management, with a particular reference to wet-weather conditions. The 8th edition of Novatech will be held from 23 to 27 June 2013 in the prestigious Lyon Congress Centre in the heart of Lyon, between the Rhône River and the wonderful “Parc de la Tête d’Or” (as in 2010). Novatech 2013 will be co-chaired by Jean-Luc Bertrand-Krajewski, INSA Lyon, France, and Tim D. Fletcher, University of Melbourne and Monash University, Australia.

The Novatech conference focuses on sustainable solutions for management of wet-weather flows in developed areas (i.e., in urban and suburban areas). It covers both stormwater management and CSOs. It will deal with three complementary dimensions of urban and suburban water management under wet-weather conditions:

- Integrated approaches for urban planning and operation
- Innovative technologies, and
- Integrated approaches for the protection and enhancement of receiving water bodies

Preview of Novatech 2013:

- 600 participants are expected: one-third scientists, one-third local authorities and one-third private firms
- Specialised workshops on Sunday 22 June, organised by the JCUD working groups
- A prestigious plenary opening conference: an event in itself
- A 3-day conference, with three parallel break-out sessions
- Around 200 communications, distributed between oral and posters presentations, results of research and experience feedbacks, representative of the state of the art in the world (30 countries represented):
- exhibition of scientific and technical posters
- technical tours on Thursday 28 June;
- French/English simultaneous translation during all sessions and technical tours.

Key Dates:

February 2013: preliminary programme

March 2013: registration opening

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<http://www.graie.org/novatech/>

GERMANY (REPORTED BY MANFRED SCHÜTZE, GERMANY)

As in previous years, 2012 has also been a year with many interesting ongoing research and application projects in Germany. Furthermore, several exciting conferences and events were held, of which only three will be mentioned here.

A large part of the modelling community gathered for the 6th International Congress on Environmental Modelling and Software (iEMSs) in Leipzig. More than 400 participants from 35 countries presented more than 370 papers. More information can be found at <http://www.iemss.org/sites/iemss2012>.

Covering a wide range of research into Integrated Water Resources Management, the IWRM Conference was held in Karlsruhe in November (<http://www.iwrm-karlsruhe.com>). This conference attracted more than 450 participants. Presentations included the work of German and international researchers of several projects (e.g. in Jordan, Mongolia, Vietnam and Southern Africa) within the IWRM research programme of the German Ministry of Education and Research (BMBF).

New concepts for water infrastructure in urban planning was the topic of an event run by the German Association for Water, Wastewater and Waste (DWA) in November. At this conference, held at the headquarters of GIZ, alternative sanitation systems were presented and practical experiences demonstrated.

However, 2013 also has some events to look forward to:

- **“Water Berlin”**: a small technical exhibition, also with an international accompanying programme, held in Berlin, 23–26 April 2013 (see <http://www.wasser-berlin.de>).
- **“Future Megacities in Action - Innovative Solutions for Energy- and Climate-Efficient Urbanisation”**, held in Hamburg, 13–16 May 2013 (www.future-megacities-2013.org). This conference will present some findings and outcomes of nine projects focussing on future megacities around the globe, including water and wastewater in Lima/Peru, urban agriculture in Casablanca/Morocco, urban flooding in Ho-Chi-Minh City/Vietnam and others.
- 2014 will see again the **IFAT trade fair** (the world’s largest trade fair on water, wastewater and waste). It will be held in Munich, 5–9 May 2014 (<http://www.ifat.de/en/Home>).

Let’s look forward into 2013 and embark on the many tasks ahead of all of us!

New Residents’ Act in Germany entered into force in August. Although stays in Germany as a researcher have been facilitated in the past as well, this now has become easier. Also for engineers, mathematicians and natural scientists not working in research, the regulations to obtain visa and work permits have become easier.

Looking for a Master’s Degree in Germany? The German Academic Exchange Service (DAAD) offers a wide range of scholarships (www.daad.de). For young professionals from developing countries, the DAAD programme of “Postgraduate Courses for Professionals with Relevance to Developing Countries” might be of particular interest. Full scholarships are available for selected Master’s courses. As most of these are taught in English, proficiency in English is required. The application deadline is likely to be 15 June 2013. For full details, see:

<http://www.daad.de/entwicklung/hochschulen/zusammenarbeit/ast/08079.en.html>

JAPAN (REPORTED BY HIROYUKI SHIGEMURA AND FUMIYUKI NAKAJIMA)

New policy for tsunami-resistant design of sewage systems

The Great East Japan Earthquake occurred on 11 March 2011 and measured 9.0 (M_w) on the Richter scale. A large number of sewage facilities (e.g. treatment plants and pump stations) were severely damaged by the tsunami caused by the massive earthquake.

In sewerage system design, there was no policy against tsunamis. Thus, new policies were developed to protect sewerage systems against the assumed scenario-tsunami in the future. The following new policy for sewage system managers was therefore proposed on 8 March, 2012 by the Ministry of Land, Infrastructure, Transport and Tourism, Japan (MLIT), which consists of three chapters for tsunami-resistant countermeasures.

(1) Scenario tsunami

A “scenario tsunami” should be determined by each prefecture according to the Act on Regional Development for Tsunami Disaster Mitigation established in December 2011. Sewage facilities should be designed to resist the supposed worst-case tsunami to prevent sanitary problems from sewage overflow and any secondary damage such as flood damage even after such disaster. Each local government is currently reconsidering a specific scenario-tsunami height in the area and implementing to design tsunami-resistant sewage facilities on the basis of it.

(2) Required capability against tsunami in sewage systems

A sewerage system is generally composed of pipe lines, pump stations and treatment plants. Protection and restoration measures against tsunami should be planned for each component according to its functional category.

The overall functions of the sewerage system are generally divided into two categories: essential functions that must be maintained even during the disaster, and the other functions. The other functions are further divided into two sub-categories based on the priority of restoration: functions that should be restored immediately, and functions that should be restored at an early date although temporary suspension is acceptable for the worst-case scenario tsunami.

(3) Countermeasures for sewage systems

Countermeasures against tsunami should be considered in terms of proper risk management. Protection levels were proposed according to the functional importance, cost-effectiveness, and feasibility. These protection levels are grouped into risk avoidance, risk reduction, and risk retention.

Based on the final report of study committee for earthquake and tsunami countermeasure techniques in sewerage systems, the newly developed guideline for earthquake-resistant design, including tsunami-resistant design, is being revised.

[Press Release (in Japanese): The tsunami-resistant design]

http://www.mlit.go.jp/report/press/mizukokudo13_hh_000154.html

X-band Multi Parameter Radars

The Ministry of Land, Infrastructure, Transport and Tourism, Japan (MLIT) built the observation network of X-band Multi Parameter (XMP) radars, called XRAIN, for monitoring of severe storm and for flood forecasting. XRAIN composed of 27 XMP radars covers 11 regions such as major cities and the areas that experienced storm damage in recent years. MLIT is planning to deploy additional 8 XMP radars including the disaster area of the Great East Japan Earthquake. The rainfall information by XRAIN is available on the website (<http://www.river.go.jp/xbandradar/index.html>). The rainfall information shows radar image at spatial resolution of 250 m grid cell, updated every one minute with delay of less than one minute. The rainfall value observed by XRAIN corresponds well to rain gauge data, and is more accurate than the existing conventional C-band or X-band radars. MLIT is conducting a social experiment to distribute the numerical data of rainfall observed by XRAIN to various institutes, engineering consultants, railroad companies and broadcasting companies.

The Japan Institute of Wastewater Engineering Technology (JIWET) is carrying out joint research with 11 non-government organizations to utilize XRAIN in sewage system operation. One of the ongoing studies since September 2012 is the method development in data reception and data processing for flood and combined sewer overflow control.

Meetings of stormwater engineers at the annual conference of Japan Sewage Works Association

Four sessions of stormwater management (23 presentations) and a special session of extreme rainfalls (five presentations) were held within the 49th annual conference of Japan Sewage Works Association (24–26 July 2012, Kobe City). In addition to those regular sessions, about 50 stormwater engineers had an open meeting for information exchange on stormwater management practices and technical development. Mr. H. Fujimoto (Kumamoto City) introduced the history of stormwater management in Kumamoto City, including the recent experience of the extreme storm event (957.1 year of return period) in July 2012. Mr. M. Ito (JIWET) presented the result of hydraulic experiments for the stormwater facilities in Kumamoto City. Information on stormwater related conferences, including ICUD, NOVATECH and UDM, were provided by Dr. F. Nakajima (University of Tokyo).

NEW ZEALAND (Reported by Elizabeth Fassman)

The National Institute of Water and Atmospheric Research (NIWA) is leading the development of an urban runoff quality information system to hold and report information gathered by various government, research and other agencies around New Zealand. The system is being developed in collaboration with the University of Auckland and Auckland Council and aims to provide stormwater managers, regulators, environmental consultants and researchers with access to locally-relevant and meaningful stormwater quality data. Data contributions are currently being sought. NIWA plans to provide free online access to the database by the end of June 2013. More information is available by contacting Jonathan Moores (Jonathan.Moores@niwa.co.nz) or Annette Davies (Annette.Davies@niwa.co.nz).

Thirty academic researchers and practitioners representing New Zealand, the USA, Malaysia, China, and Australia participated in a “Greening of Cities” workshop in Auckland in Dec. 2012. Sponsored by the USA’s National Science Foundation, and coordinated by Dr. Carol Boyle (Univ. of Auckland), Dr. Franco Montalto (Drexel Univ.), and Dr. Patrick Miller (Virginia Tech Univ.), delegates examined issues such as pathways towards mainstreaming green infrastructure in cities, challenges in assigning economic value to non-tangible outcomes, and the current knowledge of technologies and evaluation tools. In many cities in the USA, it appears that addressing combined sewer overflows from stormwater runoff is a significant driver for green infrastructure implementation. A publically-accessible [“greening of cities” website](#) will be maintained for at least two years.

Stormwater technology development remains a significant focus of research for Dr. Elizabeth Fassman (University of Auckland). Field research into floating treatment wetlands (FTW) has produced a robust data set, including runoff sampling during storm-events, dry weather water column characterization, sediment and plant analysis. The PhD to be completed in 2013 evaluates the potential of these systems to improve stormwater quality treatment over a conventional retention pond (monitored concurrently at the same site), and is investigating the physico-chemical characteristics induced by the FTW. The research has been supported by the New Zealand Transport Agency, Auckland Council, and Kauri Park/Water Clean Technologies. Working collaboratively with Dr. Robyn Simcock (Landcare Research), outcomes of living (green) roof research in the past year have identified that roof size does matter with respect to peak flow mitigation, and have created hypotheses linking growing media chemistry to runoff water quality. Collaborative work on bioretention has been aimed at using non-proprietary components to develop mixes resilient to poor construction technique (namely over-compaction), while providing adequate water quality treatment. Several papers were published in 2012, or are currently under review for *Ecological Engineering*, *Journal of Hydrology*, and *Journal of Environmental Engineering*, while technical reports should be freely available from [Auckland Council’s Technical Reports website](#) hopefully later in 2013.

Dr. Sam Trowsdale at the University of Auckland, School of Environment has continued research on field applications of bioretention. His team is also working on Hydrochory (seed dispersal by water) and Urban Water Cultures (behavioural responses to urban water infrastructure). At the end of 2012, Sam spent 5 months at Melbourne and Monash University working with the Melbourne urban water teams.

Dr Aisling O’Sullivan and Dr Tom Cochrane of the HydroEco group (www.hydroeco.info) at the University of Canterbury have been conducting stormwater research in the Christchurch area since 2006, first investigating the quality of air-conditioning discharge into the local waterways. Since then, their research, along with Post-Doc fellow Dr Daniel Wicke, has investigated contributions of atmospheric deposition on stormwater quality in different land use catchments and modelling stormwater contaminant transport and behaviour. They have also investigated the role of pH in stormwater infiltration systems, life cycle assessment of stormwater treatment systems and more recently are developing a full hydrological budget for modular green roof systems in a relatively dry part of New Zealand. A number of papers have been published by the research team in 2011–12 in the *Journal of Environmental Management*, *Water Science and Technology*, *Environmental Science and Pollution Research*, and the *Journal of Environmental Monitoring*.

Initiatives in 2012 from two major cities within New Zealand to promote Low Impact Development (LID) include the 2012 'Auckland Plan' and 'Christchurch City Centre Plan.' Both plans reflect strong community support for green infrastructure, in particular the role of vegetation to maximise aesthetic values and minimise impact of stormwater runoff. The Christchurch Central City Plan, developed to guide the city's rebuild following devastating earthquakes in 2010-11, has proposed living roofs on several government buildings and 'eco-streets' using bio-swales / bioretention to reduce discharges to the highly prized recreational waters of the Avon River, which the new city will now face. In Auckland, the mayor seeks to create the 'world's most liveable city', in part by redeveloping key roads as 'linear parks' to connect green spaces. The Wynyard Quarter redevelopment is a high-profile example of this approach, winning national and international awards: the NZ [2012 Urban Design Awards](#) for Built Project and the first ever [World Architecture Urban Regeneration Award](#) (Completed Category). On the northern side Auckland, LID is being extensively applied in a new 160 hectare residential subdivision called Long Bay, which aims to accommodate 2000 dwellings and 5000 people. The controversial development is relying on LID as a means to address significant concerns over stormwater runoff's potential effects on a marine sanctuary at the development's outfalls.

For those interested to see and hear about some of New Zealand's advances in stormwater first-hand, Water New Zealand's [8th South Pacific Stormwater Conference](#) will be held at the Rendez-Vous Hotel in Auckland on 8-10 May 2013. The conference is organized by the Water New Zealand Stormwater Special Interest Group, in conjunction with the Water New Zealand Modelling Special Interest Group and the Rivers Group.

REPUBLIC OF SOUTH AFRICA (REPORTED BY NEIL ARMITAGE)

Regrettably, urban stormwater management in South Africa is still largely dominated by the old-fashioned approach of channelling runoff from non-pervious areas via road kerbs, catch-pits, pipes and canals to the nearest watercourse. Whilst the larger cities are liberally provided with stormwater detention ponds to reduce the flood peaks, little is done to improve water quality other than the occasional, often dysfunctional, gross pollutant trap. Sewage systems are notionally separate from the stormwater systems, but even where sewerage is provided, inadequate capacity, poor maintenance, vandalism and power cuts frequently result in sewage ending up in the streams and wetlands. Meanwhile millions of people live in informal settlements / shanty-towns where there is no formal stormwater drainage and minimal sanitation resulting in highly polluted runoff. In the northern part of the country, acid drainage from South Africa's numerous mines make matters worse. Everywhere, gross pollutants (i.e. urban litter such as plastic packets) are a huge problem as solid waste management is often wanting.

On the bright side, water research in South Africa is relatively well-funded by the Water Research Commission of South Africa (WRC). Completed research reports are available free of charge from their website: <http://www.wrc.org.za>. Follow the links to Knowledge Hub, Research Report. Recently completed research funded by the WRC in the area of urban drainage includes:

Influence of catchment development on peak urban runoff (University of Pretoria). Research Report No. 1752/1/12.

The current trend amongst the relatively small middle class in South Africa is towards “gated communities” and/or homes surrounded by high impermeable walls as perceived protection against “crime and grime”. These walls have the unintended – but positive – consequence of reducing peak runoffs by temporarily storing stormwater on site and possibly increasing local infiltration. In this project, the researchers attempted to measure the flows emanating from three typical urban sub-catchments in an attempt to quantify the impact of the changes in development patterns.

Greywater reuse for toilet flushing in high-density urban buildings in South Africa: A pilot study (University of the Witwatersrand and University of Johannesburg). Research Report No. K5/1821/1/11.

Greywater reuse for e.g. toilet flushing is frequently touted as way of reducing the potable water demand – an increasingly important objective in water-stressed countries like South Africa. This study involved the installation of greywater re-use systems in an office block and a student residence at the two universities involved and the monitoring of their operation and maintenance requirements. It found that there were considerable obstacles to overcome to ensure acceptance and that the payback period was unacceptably long, but there is some potential for this type of intervention.

Piloting and testing the pour-flush latrine technology for its applicability in South Africa (Partners in Development). Research Report No. K51887/1/12.

There is an increasing acceptance that high-density low-income areas are unsuitable for many – if not all – of the low-cost dry sanitation systems commonly touted for developing countries. There is little social acceptance – leading to frequent abuse, they need space that is often unavailable, they have to be emptied from time to time, and they create a greywater disposal problem. On the other hand, water is at a premium. This study investigated the possibilities for modifying pour-flush latrines that are used extensively throughout Asia for South African conditions which include, *inter alia*, the near universal demand for pedestals in preference to squat pans. A modified design was successfully piloted over an 18 month period in a number of typical situations. With proper use, the toilets could operate with as little as one litre of water per flush.

The following projects are complete and will be published shortly:

Sewer master planning tools and guidelines (University of Stellenbosch in collaboration with GLS Consulting).

This project aimed to develop tools to aid municipal staff and consultants in sewer master planning. This includes the identification and quantification of the most economical infrastructure interventions to ensure that uninterrupted development can proceed without sacrificing the agreed level of service or risking damage to the environment. The research took into account the general low level of technical skills in almost all of the smaller towns and cities of South Africa.

Alternative technology for stormwater management

(University of Cape Town in collaboration with the Municipalities of Cape Town, eThekweni, Johannesburg and Tshwane, SRK Consulting and IDS).

This project sought to identify and develop new, appropriate, practical and affordable alternative stormwater management technologies for South Africa in line with Sustainable Drainage System (SuDS) and Water Sensitive Urban Design (WSUD) principles. User-friendly guidelines together with an Excel-based tool for cost comparisons were developed for the South African market. The final versions of the guidelines and costing tool will probably be made publicly available on a website early in 2013.

Improving sewerage for South Africa

(University of Cape Town in collaboration with the Municipalities of Cape Town and eThekweni).

Almost all sewerage in South Africa has been installed according to very conservative, relatively expensive, guidelines largely “inherited” from the UK many years ago. Given the great need to provide sewerage services for millions of poor people in the very high density urban settlements, this project aimed to investigate the possibility of alternative sewerage systems such as shallow sewerage, settled sewerage, vacuum sewerage and pressure sewerage through the study of three pilot projects in Cape Town. It quickly became apparent that most significant obstacles to successful implementation were not technical but social and institutional. There is considerable resistance by residents to anything they consider “sub-standard”, and a general lack of capacity on the side of the municipality to engage with the residents around the selection and implementation of sanitation systems – and to adequately operate and maintain them after their installation. The project thus focused on the development of procedures to manage the delivery of sewerage projects in high density urban informal settlements.

The following research projects started recently:

Investigation into pumps and pressurised flow in separate sewer systems

(Stellenbosch University and University of Johannesburg)

This study is motivated by the general lack of published applied research into pressurised flow in separate sewer systems, combined with the urgent need for such information during the modelling, optimisation, design, operations and maintenance phases of the infrastructure elements. The study sets out to address a number of pertinent issues with regards to pumps, pump stations, rising mains, and other elements in the sewer system where pressurised flow occurs in separate sewer systems. It is due for completion in 2013.

Water Sensitive Urban Design (WSUD) or Low Impact Design (LID) for improving water resource protection/conservation and reuse in urban landscapes

(University of Cape Town in collaboration with the Universities of Stellenbosch, Western Cape and Witwatersrand and the Municipalities of Cape Town, eThekweni, Johannesburg and Tshwane)

This project has been designed to follow-on from the SuDS project described previously (Alternative technology for stormwater management) – linking SuDS to the larger issues of water management through guidelines on water resource protection, conservation and reuse using WSUD/LID at a catchment level. It aims to: develop a strategic framework for sustainable urban water management / WSUD; carry out an institutional, legal and policy issue review with a view to

identifying obstacles to WSUD and providing recommendations on how they may be overcome; develop WSUD guidelines for South Africa; and identify appropriate modelling tools for WSUD in South Africa.

Evaluation of the user acceptance and functioning of mobile communal sanitation facilities – a case study of Cape Town (Cape Peninsula University of Technology)

Frequently the only way local authorities can provide acceptable sanitation in the rapidly growing high-density informal settlements that surround most major towns and cities in South Africa is through the provision of communal sanitation facilities (public toilets). Furthermore, uncertainty of tenure often requires that such facilities be ‘temporary’ – even though many informal settlements have been in existence for over 20 years. As a consequence, local authorities are increasingly looking to the provision of pre-fabricated ‘mobile’ units. However, whilst the technical design of such units is quite well understood, less is known about the operational and maintenance requirements – and how to ensure that they are ‘accepted’ by the residents. This is the focus of this study.

An investigation into technical sanitation solutions for informal areas

(Cape Peninsula University of Technology)

In view of the on-going sanitation crisis in the informal settlements of South Africa, this study looks at identifying the elements that make for success from a largely technical point of view.

Constraints on providing sewerage in South African informal settlements: a study of social and institutional management concerns (University of Cape Town)

It has become apparent that when it comes to the provision of public ablution facilities in informal settlements in South Africa, the technology choice is far less significant than the social processes that underlie a) the provision and management of such systems; and b) officials’, residents’ and users’ responses to public facilities. Given further the government’s promise of free basic services, there is an expectation from residents that public facilities should be fully subsidised and serviced by the local authority – including the provision of free toilet paper and a janitorial service – something that has now been promised by the City of Cape Town. This study looks into how this can best be implemented.

SWEDEN (REPORTED BY MARIA VIKLANDER)

In the North of Sweden, a unique community transformation is currently taking place in Malmfälten (Gällivare and Kiruna councils). Mining of iron ore has led to cracks in the bedrock which means that large parts of central MalMBERGET in Gällivare and the city of Kiruna must be relocated. At Luleå University of Technology, two large projects called Attract (focusing on innovation and applied science) and Al-ice (focusing on basic research) have been initiated by the Urban Water Research group in order to create attractive new communities with sustainable infrastructure where urban water issues take an important part in. Attract intends to stimulate new and innovative socio-technical measures for the transition to a sustainable and resilient urban society in sub-arctic climate.

In March, Föreningen Vatten (Swedish Water Association) and Peter Stahres Scholarship invited to an International Conference on Sustainable City Planning “Urban Flooding – Planning for a Blue and Green City” in Malmö that aimed to continue and encourage efforts to contribute to the development of a good environment and a sustainable city.

At the annual Water Association autumn meeting, Antje Backhaus was awarded the Peter Stahre prize 2012 for her publication Urban Stormwater Landscapes – Values and Design.

In November 2012, a two day conference on Management of pollutants in stormwater: International experiences and Swedish challenges was organized in Stockholm by the Swedish Water and Wastewater Association SWWA in close collaboration with the cluster Stormwater & Sewers at Luleå University of Technology, IWA Sweden and Föreningen Vatten (Water Association). Leading researchers from Canada, England and Sweden, including Jiri Marsalek, Lian Lundy and Godecke Blecken among others gave a historical overview of the developments in stormwater research and presented the state-of-the-art in this field today. Furthermore, the PhD students in Stormwater & Sewers presented their projects.

On 20 December 2012, Annicka Cettner defended her thesis “Overcoming inertia to sustainable stormwater management practice” at Luleå university of Technology, Sweden. In Sweden, there is growing receptivity to a change towards more sustainable stormwater management practices using green infrastructure approaches. These approaches can have multiple benefits as enhance the quality of urban space including flood control and pollutant removal. However, the change towards non-piped systems is facing many challenges: the traditional use of piped systems; lack of public, political and organisational support, all of which hinder the integration of sustainable stormwater management into practice. These challenges, among others, are discussed in this thesis aimed at understanding of how to accelerate the use of alternative stormwater systems.

UNITED KINGDOM (REPORTED BY DAVID BUTLER)

Delivering and Evaluating Multiple Flood Risk Benefits in Blue-Green Cities

A consortium of eight UK universities have come together to develop and evaluate the multiple flood risk benefits of Blue-Green Cities. The project will provide a rigorous and detailed analysis of blue (urban floodways, waterways, and defined flow paths) and green (open space, parks and vegetated sustainable urban drainage) concepts to define the true benefits and risks of emerging water sensitive urban design. The flood risk management assessment will be extended to quantify non-flood benefits, providing a holistic analysis of Blue-Green City benefits and risk analysis. The project started in January 2013 for 3 years. For further details please contact **Dr Dick Fenner at the University of Cambridge, raf37@cam.ac.uk**.

As part of this project, Heriot-Watt University’s novel sediment and debris movement research will provide analysis of source-pathway-receptor modelling. Using innovative sediment and debris trace methods, quantitative analysis of Blue-Green City design elements will identify the benefits relating to each system component and to the integrated design as a whole. The pathway efficiency and transportation dynamics will be incorporated into hydrodynamic and flood risk modelling to show

connectivity and pinch points within the design. For more information on this aspect contact Deonie Allen (D.Allen@hw.ac.uk).

Green roof research

The green roof experiment at Barking Riverside in greater London continues with work on biodiversity and water attenuation monitoring. Results are also being fed into the development of SuDS guidance documents for the London Boroughs of Newham and Tower Hamlets. Funding has been obtained through the EU FP7 programme TURAS – Transitioning Towards Urban Resilience and Sustainability (<http://www.turas-cities.org/>) to develop a second research facility which will look at the hydrodynamics and biodiversity benefits of wetland roofs. In addition to this, UEL's Sustainability Research Institute (SRI) has partnered with Thames Water plc to develop a rainfall runoff gauge suitable for retrofitting on in situ green roof systems. The SRI is now using the gauges to work with the Museum of London, The Greater London Authority and Transport for London to monitor the rainfall attenuation performance of a series of green roof installations as part of the GLA's Drain London urban stormwater management programme. For further details please contact: **Dr Martin Marriott at the University of East London, m.j.marriott@uel.ac.uk**

Safe & SuRe – towards a new vision for water management.

Professor David Butler of the Centre for Water Systems, University of Exeter UK (d.butler@exeter.ac.uk) has been awarded a prestigious 5-year fellowship by the UK Engineering & Physical Sciences Research Council. This fellowship aims to meet emerging challenges and global uncertainties by developing a new approach to water management in UK cities. The starting point is a new vision that is: Safe & SuRe. In a sense, existing water systems are all about safety goals: public health, flood management and environmental protection. These are important and still need to be respected, but are NOT sufficient to rise to the coming challenges. In the new world of rapid and uncertain change, water systems in cities must also be Sustainable and Resilient. Only a 'Safe & SuRe' system can be moulded, adapted and changed to face the emerging threats and resulting impacts. A comprehensive, quantitative evaluation framework will be developed to test in detail what options or strategies can contribute towards a Safe & SuRe water future, focusing on the challenges of water scarcity, urban flooding and river pollution. Recommendations and best practice guidance will be developed in conjunction with key stakeholders.

The **Centre for Water Systems (CWS)** is also coordinating the EU FP7 project CORFU – Collaborative research on flood resilience in urban areas (www.corfu7.eu), an interdisciplinary consortium that involves seventeen partners from Asia and Europe. Work is progressing with formulating development and climate change scenarios in case study areas and assessing flood impacts for current and future states. A novel model for assessment of health impacts of flooding based on 2D simulation of transport and mixing of pollutants on urban surface and calculating exposure has been developed by project partner DHI and is now being tested in one of the CORFU case study areas. A number of presentations have been made on various aspects of the project at conferences held in 2012 including APEC Typhoon Symposium in Taipei, UDM in Belgrade, FLOODrisk in Rotterdam, IWM Users Conference in Dhaka and others.

The final report of the CREW (Community Resilience to Extreme Weather) project is now available on http://www.extreme-weather-impacts.net/twiki/pub/Main/WebHome/CREW_Final_Report.pdf . This project was established to develop a set of tools for improving the capacity for resilience of urban communities to the impacts of current and future extreme weather events, including flooding, subsidence, heath waves, winds and water resource drought. CWS’s role in this project was to develop a novel approach for flood risk assessment (based on 2D simulation of long rainfall series) involving flood hazard numbers aggregated across post code areas, which was deemed adequate for looking at combined hazards from different extreme weather events.

Several PhD degrees on urban drainage and flooding topics were awarded at Exeter in 2012, including: **Istvan Galambos** (now Senior Hydraulic Modeller at Mott MacDonald in Cambridge) with thesis “Improved under-standing of performance of local controls linking the above and below ground components of urban flood flows”; **Michelle Woodward** (now working for HR Wallingford) with thesis “The use of Real Options and Multi-Objective Optimisation in Flood Risk Management” and **Maryam Astaraie-Imani**, thesis title: “Modelling the performance of an integrated urban wastewater system under future conditions”.

9. FUTURE MEETINGS AND CONFERENCES

A table listing the proposed JC and WG conferences and workshops (as of February 2013) appears below; additional information on some events is also presented. All information about conferences, seminars, workshops, summer schools, etc. dealing with urban drainage is welcome and will be added to this table. Please send such information to Jiri Marsalek or David Butler. You should also use this table when proposing new events - to avoid overlaps in dates and topics. Even though we strive for accuracy, please always check the primary sources of information for possible updates.

Year	JCUD	Sewer Systems & Processes WG
	David Butler J.-L. Bertrand-Krajewski & Tim Fletcher	Z. Yuan G. Langeveld
2013	NOVATECH, Lyon, France, June 23–27, 2013 35th IAHR World Congress, Chengdu, China Sep. 8-13, 2013	Junior Scientists Workshop on sewer processes and networks, Graz, Austria, April 9–12, 2013 7th International Conference on Sewer Processes and Networks (SPN7), Sheffield, UK, August 28–30, 2013
2014	13th International Conference on Urban Drainage (ICUD), Kuching, Sarawak, Malaysia, September 7–11, 2014 IWA World Water Congress, Lisbon, Portugal, September 21–26, 2014	
2017	14th International Conference on Urban Drainage (ICUD), Prague, Czech Republic	

The 20th Junior Scientist Workshop on sewer processes and networks will be organized by Günter Gruber, Apr. 9-12, 2013, Graz, Austria. For more information, email EJSW-2013@sww.tugraz.at, or gruber@sww.tugraz.at).

2013 World Environmental and Water Resources Congress, Cincinnati, Ohio, May 19-23: Showcasing the Future (<http://content.asce.org/conferences/ewri2013/>)

VII International Short Course on Advances in Knowledge of Urban Drainage, University of Calabria, Rende, Italy, June 13, 2012

This is already the eighth edition of the one-day urban drainage courses organized by Prof. Patrizia Piro. The courses are held at an excellent facility of the University of Calabria, are well attended and feature a strong programme. For further information, contact Prof. Piro, Dipartimento di Difesa del Suolo “V. Marone”, Università della Calabria, Ponte Pietro Bucci, Cubo 42/b, 87036 Arcavacata di Rende (CS), Ph. +039 0984 496546 / 47; Email: patrizia.piro@unical.it)

International Workshop Interurba III: Modeling the Urban Water Cycle as Part of the City, June 16–18, 2013, Obergurgl, Tyrol in Austria.

This interactive research workshop is organized by Prof. Wolfgang Rauch and the University of Innsbruck, Austria, with the main objective of bringing together a limited number of participants (not more than 40) to examine the current state-of-the-art in modelling the urban water cycle and propose the way forward. In this process, the following main topics will be addressed: Urban development, Socio-economics, Linking and coupling of models, and (model) Calibration, validation and uncertainty. The workshop will be conducted in English and its discussions and findings will be published in the form of a monograph. It will be held at a spectacular location in the Tyrolean Alps (<http://www.uz-obergurgl.at>). Registration is "first come, first served" until Apr. 15, 2013.

For details, visit <http://www.uibk.ac.at/umwelttechnik/unit/events/interurba3.html> and to receive a registration invoice, email umwelttechnik@uibk.ac.at

2013 NOVATECH

The 8th edition of Novatech will be held from June 23rd to 27th, 2013 in Lyon Congress Centre (as in 2010), Lyon, France, co-chaired by Jean-Luc Bertrand- Krajewski, INSA Lyon, France and Tim D. Fletcher, University of Melbourne and Monash University, Australia. The conference will focus on sustainable solutions for managing wet-weather flows in urban and suburban areas, and will address both stormwater and combined sewer overflows (CSOs). It will deal with three complementary dimensions of wet-weather flow management: (a) Integrated approaches to urban planning and operation, (b) Innovative technologies, and (c) Integrated approaches to the protection and enhancement of receiving water bodies. The organizers expect about 600 participants. The conference will feature specialised workshops on Sunday 22nd June, a prestigious plenary opening conference (an event in itself), a 3-day program with 3 parallel sessions with about 200 communications, display of scientific and technical posters, 2 technical tours (on Thursday, June 28th), and simultaneous French / English translation during all sessions and technical tours. **Key Dates:** Preliminary programme, February 2013, opening of registration: March 2013.

Novatech secretariat:

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2013 International Low Impact Development Symposium, Saint Paul, Minnesota, Aug. 18-21, 2013.

(<http://www.cce.umn.edu/2013-International-Low-Impact-Development-Symposium/index.html>)

The 7th International Conference on Sewer Processes and Networks (SPN 7), Sheffield, UK, 28–30 August 2013, chaired and organized by Simon Tait on behalf of the Pennine Water Group. The conference themes will include sewer system impacts, in-sewer processes, design and operational aspects, monitoring and new technologies and emerging issues. For further information, contact Prof Simon Tait, Pennine Water Group, School of Engineering Design and Technology, University of Bradford, Bradford, West Yorkshire, BD7 1DP, UK (telephone: +44 1274 233 878, E-mail: s.tait@bradford.ac.uk), and/or visit the conference website: <http://www.sheffield.ac.uk/spn7>

12th International Conference on Computing and Control for the Water Industry, Perugia, Italy, 2-4 September 2013, <http://www.water-system.org/ccwi2013/>.

ICFR 2013: International Conference on Flood Resilience: Experiences in Asia and Europe, 5–7 September 2013, Exeter, United Kingdom. The conference is organised by the [Centre for Water Systems](#), University of Exeter. It will be held in Exeter, United Kingdom, 5–7 September 2013. The aim of this event is to gather professionals to present and discuss the latest research advances and practices in the development and implementation of resilience measures and flood management plans. The focus on cities in Asia and Europe is motivated by the approach applied within the EU-funded FP7 project [CORFU](#) that investigates differences in flooding problems and solutions in a number of case studies in these two continents. The wider objective is to enable the broadening of horizons and better joining of people, ideas and methodologies. ICFR 2013 welcomes submissions from all technical and non-technical areas with relevance to flood resilience.

Information: Email: icfr@exeter.ac.uk , Web: www.icfr2013.org ,

Download leaflet: <http://icfr2013.ex.ac.uk/ICFR2013-announcement.pdf>

For updated information, on the above events, please regularly visit conference websites, or our site at:

http://www.iwahq.org/templates/ld_templates/layout_633184.aspx?ObjectId=633912,

or www.jcud.org

35th IAHR World Congress in Chengdu, China, 8–13 September 2013. This premiere event will address six themes: A, Water engineering and civilization. B, Hydro-Environment. C, Fluvial hydraulics and river management. D, Maritime hydraulics and coastal engineering. E, Water resources and hydroinformatics. F, Climate change and hazard mitigation. For details, go to: www.iahr2013.org/index.htm

10. RECENT PUBLICATIONS OF INTEREST

For a comprehensive listing of IWA publications, see Section 7 (New from IWA Publishing) on page 15; one of such publications is described in more detail below.

Low Impact Development Stormwater Management Planning and Design Guide Version 1.0 2011

The Low Impact Development (LID) Stormwater Management Guide is a joint initiative of the Toronto and Region and Credit Valley Conservation Authorities that has been developed in consultation with representatives from the Ministry of the Environment, Fisheries and Oceans Canada, GTA municipalities and the development industry.

Both TRCA and CVC have been involved in integrated watershed-wide environmental monitoring and modelling activities for several years, and the results of this work have revealed that the environmental health of many watersheds continues to decline with increased urbanization. This deterioration has occurred despite widespread adoption of the conventional stormwater management planning and design practices described in provincial and conservation authority policy documents. Documents such as the CVC's Credit River Water Management Strategy Update and the TRCA's Watershed Plans for the Rouge (2007), Humber (2008) and Don (2009) Rivers have concluded that a shift away from conventional approaches and towards low impact development is essential to protecting watershed health, and improving watershed resiliency to some of the hydrologic impacts of climate change.

The guide was developed to provide engineers, ecologists and planners with up-to-date information and direction on landscape-based stormwater management planning and low impact development stormwater management practices, and thereby help ensure the continued health of the streams, rivers, lakes, fisheries and terrestrial habitats in the CVC and TRCA watersheds. It is also intended to help streamline and focus the design and review process, as well as ensure that the goals, objectives and targets outlined in watershed and subwatershed studies are being met.

Available free of charge online: <http://www.creditvalleyca.ca/low-impact-development/low-impact-development-support/stormwater-management-lid-guidance-documents/low-impact-development-stormwater-management-planning-and-design-guide/>

11. WORKING GROUP CONTACTS

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