

EDITORIAL

Dear reader,

The Kompetenzzentrum Wasser Berlin looks back at a successful year 2012. We worked on 35 research projects, more than ever before in our 10-year history. Our effective performance on such a large number of projects was made possible by the strong commitment of our team and the additional support of many student assistants. At times the number of KWB employees reached more than 50.

The successful acquisition of several EU and BMBF projects is due, in particular, to the financial support which KWB receives from its associates Veolia, Berliner Wasserbetriebe and TSB Technologiestiftung Berlin. This support provides an indispensable contribution to the basic infrastructure required for the realisation of this type of project. The innovative proposals of our project partners also benefit indirectly from this support, since it would not be possible to carry out most of the projects initiated by KWB without this financial contribution. The five large-scale projects approved this year have led to a 16-fold leverage effect: By means of the basic support of 1 million € provided by our associates, a project volume of 16 million € in total has been developed together with our regional, national and international partners. We are very proud of our achievements.

On behalf of the KWB team, I wish you a peaceful Christmastime and a good start in a successful 2013.

Andreas Hartmann

Kompetenzzentrum Wasser Berlin, Managing Director



content

- 1 Editorial
- 1 Latest News
- 2 News
- 2 Interview
- 3 Water Research in Berlin
- 4 Events
- 4 Focus
- 4 About us

LATEST NEWS



Decentralised Treatment of Roadway Runoffs

Within the next 3 years the Technische Universität Berlin (Department of Urban Water Management), the Berlin Centre of Competence for Water and Ingenieurgesellschaft Prof. Dr. Sieker mbH will analyse the efficiency of decentralised treatment systems for polluted rainwater. Cooperation partners are the Berlin public companies for water and wastewater services as well as municipal cleaning (BWB and BSR). Approximately half of all impervious surfaces in Germany are traffic areas. In contrast to roof surface runoffs, storm water runoffs from roadways are highly polluted. For this reason, action is needed. The project will close the gaps of knowledge in the fields of design, application and operating behaviour of selected decentralised storm water treatment units. The project is supported by the Berlin UEP 2 programme, part-financed by the Berlin Senate and the European Union.

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Treatment of Emerging Trace Organic Contaminants in Water and Wastewater

EU Joint Research Project DEMEAU to Test Promising Technologies

The DEMEAU research and demonstration project is financed by the EU, its consortium consists of 17 well-known European research institutions and companies of the water sector.



The aim of the project consortium coordinated by KWR Watercycle Research Institute (NL) is to further develop and demonstrate technologies which are suitable to eliminate trace organics from both surface waters and wastewaters and to analyse their performance. The investigated technologies are: managed groundwater recharge (MAR), hybrid ceramic mem-

Continues on page 4 >>

NEWS FROM THE KWB NETWORK OFFICE

In October, KWB together with German Water Partnership took part in the "German American Water Technology Exchange Days".

The "German American Water Technology Exchange Days" event was organised by the German-American Chamber of Com-

merce (AHK) and took place in St. Louis and Chicago, with specialist contributions from America and Germany. The programme for the research and environmental sector included questions relating to water management in cities and conurbations. The contribution by KWB on the special

challenges facing water management in the German capital city region met with considerable interest. A delegation trip has been planned for water experts from the USA to the WASSER BERLIN 2013 congress and trade fair.

● www.gaccomm.org

GROUNDWATER AS A GEO-RESOURCE



Interview with Prof. Michael Schneider, new head of the Hydrogeology Group at the Free University Berlin

Michael Schneider, could you first give us a short overview of your scientific career?

After graduating in geology, I worked from 1982 to 1986 in the SFB 69 research group "Geoscientific problems in arid areas" at the TU Berlin, concentrating on the groundwater situation in Southern Egypt. This was also the topic of my doctoral thesis. Later I worked on the hydrogeology of Somalia, again as part of the SFB 69 research group. Over the past 30 years my research has concentrated primarily on arid regions and questions relating to environmental hydrogeology. In 1999 I obtained my *venia legendi* at the Free University Berlin and was authorised to teach hydrogeology. Throughout my career I have concentrated on applied research, and in addition to my scientific research I also worked for about 20 years as a hydrogeological consultant.

If I may follow with a more personal question: You have succeeded the highly esteemed Professor Asaf Pekdeger, who unfortunately passed away last year. Wasn't it very difficult for you under the circumstances to ensure continuity in the group?

No it wasn't, and there were two main reasons for this. The first reason was Asaf Pekdeger himself. The Hydrogeology Group was very dear to his heart and he did everything he could in order to ensure its long-term future. Among other things, my move from Munich to Berlin in 2006 had something to do with this. He transferred most of the leadership tasks to me, and I also took on his teaching responsibilities. We got on very well, and the cooperation worked very smoothly. His work was excellent, even under difficult circumstances and given the limitations of poor health. The second reason lies in the excellent team that he had built up. In 2009, an evaluation by an international commission rated it as one of the

leading hydrogeological working groups in Germany. The good cooperation within the group and the respect which all the co-workers had for Asaf Pekdeger established the foundations for the continuation of the work as he would have wanted.

What teaching responsibilities does your Group have?

Traditionally, the teaching provided for students is strongly influenced by the applied orientation of most of our research activities – our Group has one of the highest levels of third-party funding at the FU Berlin. We are able to cover virtually all special fields in hydrogeology. Usually between 20 and 30 students are working on BSc and MSc dissertations at any one time, mostly linked to the various research projects, which means that the students are in an ideal position to prepare themselves for their future career.

Do you undertake special activities in the Berlin-Brandenburg region? Are there special topics you want to work on here in the future?

Yes, we have been carrying out research in the Berlin region for more than 20 years and a topic of special importance has been the interaction between groundwater and surface waters. Currently we are active in several cooperation projects such as ElaN, INKA BB, and WellMa which are working on possibilities for the utilisation of treated wastewater, the reactions of the natural systems to climate change, and on questions relating to the optimisation of well management. In addition, we are investigating the problem of sulphate pollution and levels of anthropogenic organic trace substances in the urban water cycle. We will continue to work in depth on the water cycle and material balances in the urban and peri-urban areas. Special attention will be on the effects of rising temperatures on water resources and the changes to precipitation patterns.

Do you have special forms of cooperation

with other research institutions; in particular also in the Berlin-Brandenburg research landscape?

Given the complex tasks we are faced with today in water research in a wider sense, it is only natural that large research associations are formed with cooperation partners from various special fields. Cooperation agreements then follow almost automatically. For example, in the Berlin-Brandenburg region we cooperate with the Technical University Berlin, the Leibniz Institutes IGB in Berlin, and ZALF in Müncheberg, and also GFZ in Potsdam. A good example of our international cooperation is the networking with the Anna University in Chennai, India in the Saph-Pani Project.

The cooperation between your Group and KWB has a near ten-year tradition. How would you describe the cooperation with KWB? Is it different from that with other research partners?

I would say that our cooperation in the past has been very constructive and extremely successful, and I am sure that this was also the opinion of Asaf Pekdeger. I think that the basis for this success is the direct, open, and uncomplicated exchange between the co-workers of KWB and our Group. There is a good working atmosphere and mutual trust, which for me are the key prerequisites for successful project work. For future cooperation I would like to see KWB placing more emphasis once again on its remit of establishing networks and acting as mediator between researchers and those active in the practical field. The research institutions in the Berlin-Brandenburg region, with their considerable capabilities, must be integrated in an appropriate form. In my view this would be the recipe for successful positioning on the national and international research markets.

Thank you very much.

Bodo Weigert asked the questions. ●

Source: Wannenmacher

WATER RESEARCH IN BERLIN AND BRANDENBURG



SEMA – Condition Diagnostics of Sewer Systems

In the last 30 years, most cities have rather invested in sewer system expansion and treatment plant upgrade than to target preservation measures for the existing sewer system. Here we have got a backlog demand. New tools providing for diagnostics and assessment of sewer systems will contribute to limit upcoming rehabilitation costs.

The models already available on the market can assist sewer system operators with simulating and predicting the development of the sewers condition. Based on the results achieved, condition diagnostics and rehabilitation measures can be planned. In the scope of the SEMA project, sewer sections in the cities of Brunswick and Montbéliard will be analysed to determine to what extent these models are suitable to accurately detect and predict sewer deterioration. The input parameters and technical specifications currently used will be tested to determine whether they are applicable to these models. The project is carried out in close cooperation with the engineering company 3S Consult GmbH (3SC) and is financed by Veolia Eau. ●

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Is Nitrogen Limitation in Freshwaters Ecologically Meaningful and Economically Feasible?

Measures for the reduction of nitrogen inputs from wastewater treatment plants or agricultural lands are much more expensive than those for reduction of phosphorus inputs. The question of whether these actions are ecologically effective cannot be answered at present because the necessary information about the origin, turnover and effects of nitrogen is lacking.

On the occasion of the Berlin Water Workshop held last October, first results of the research activities currently being performed in the scope of the BMBF joint research project NITROLIMIT were presented.

The interdisciplinary project is supposed to find out whether the reduction of nitrogen inputs into freshwaters is ecologically meaningful and economically feasible. The scientists involved communicated and discussed the results related to the ecological impact of nitrogen on different types of freshwater. Furthermore, a catalogue of potential measures for nitrogen reduction in urban waters including the associated impacts and costs was presented. Finally, the benefits of a good ecological status of the freshwaters in the Berlin and Brandenburg region were explained. Further results will be presented on the next NITROLIMIT status seminar to be held in Berlin in May 2013. ●

www.nitrolimit.de

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NITROLIMIT

Photos: KWB/BTU-Cottbus

Efficient Water Management in the Chemical Industry

Water challenges such as scarce fresh water resources, quality reduction etc. – are on the top of the European and international agenda. The chemical industry being both a major water user and a solutions provider, it provides considerable potential for increasing eco-efficiency in industrial water management.

The EU FP7 project “E4Water“ will address crucial process industry needs over a period of four years to overcome bottlenecks and barriers for an integrated, cost and energy-efficient water management. The objective is to develop, test and validate integrated approaches, methods and process technologies for the efficient and sustainable use of water in the chemical industry. Beside the German partners DECHEMA as coordinator and the TU Berlin, the project unites in its 19 member consortium European partners from large chemical industries, leading water sector companies and innovative RTD centers and universities. E4Water aims to achieve an expected reduction of 20-40% in water use, 30-70% in wastewater production and 15-40% in energy use. At the same time, E4 water aims to increase the direct economic benefits by up to 60%. Not only the chemical industry will benefit from the anticipated results, cross-fertilization possibilities to other industrial sectors are also expected. Integrated modeling of

the selected Chemical industry sites and modeling of the wastewater treatment and recycling processes are the core tasks of TU Berlin. www.e4water.eu ●

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E4WATER
Economically and Ecologically Efficient Water Management
in the European Chemical Industry

53 Parameters to Describe Well Ageing Phenomena

A specific iron bacteria-oxygen ratio in groundwater causes rapid well ageing. This is the key result of the WELLMA research project.

Clogging is the most problematic process of well ageing: the well filter pipes installed in the groundwater gradually become overgrown by ferruginous biofilms. The research activities performed in the scope of the WELLMA project have confirmed that the complex interaction of several factors accelerates the occurrence of clogging. In this regard, elementary dissolved iron and atmospheric oxygen are the key factors, the latter advancing the growth of iron bacteria. The interaction of all mentioned factors within a certain constellation leads to the well-known iron deposits (clogging) on the well filter pipes. The operating status of a well can now exactly be described by means of 53 parameters, thus creating a system which facilitates targeted planning and assessment of maintenance measures. The project consortium consisted of KWB, Technische Universität Berlin, Freie Universität Berlin and pigadi GmbH. WELLMA was financed by the environmental services Veolia and Berliner Wasserbetriebe. ●

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WELLMA

Photo: KWB



>> continuation of page 1 (DEMEAU)

brane filtration systems, hybrid advanced oxidation methods and bioassays. The scope of KWB's research activities primarily involves water management issues focussing on managed aquifer recharge (MAR) and Life Cycle Assessment (LCA). In addition, KWB will provide support to the overall project management.

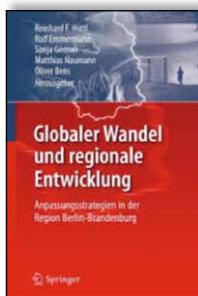
The investigations on MAR will mobilise the experience obtained from MAR system operation at different sites throughout Europe. The main objective is to facilitate the authorisation of new MAR sites taking into account the requirements of the European Water Framework Directive as well as of the European Groundwater Directive. In addition, the project addresses the infiltration of treated wastewater and the possible risks associated to emerging trace organic contaminants.

The cooperation with water utilities that have committed to act as launching customers for the selected technologies is essential in the project approach. These demonstration sites act as transfer points for the technologies and will generate market opportunities for SME's involved. ●

www.demeau-fp7.eu

FOCUS

Global Change and Regional Development



Adaptation Strategies in the Berlin-Brandenburg Region

Editors: Reinhard F. Hüttl, Rolf Emmermann, Oliver Bens, Sonja Germer, Matthias Naumann

2011, 200 pages (German), Springer Verlag, Berlin

ISBN-13: 9783642194771

This book presents essential results about global change issues a scientist team commissioned by the Berlin-Brandenburg Academy of Sciences and Humanities has compiled since 2008 for three years. The publication can be considered as an introduction to the regional dimensions of global change impacts and as a contribution to the discussion about the adaptation measures to be implemented in this region. The book's main focus is on future challenges related to the landscape water balance and land use in the Land Branden-

EVENTS

21-22 January 2013

MBR Asia 2013 – 3rd International Conference on Membrane Bioreactors for Wastewater Treatment

Organiser: TechnoBiz
Venue: Bangkok, Thailand
www.3w-expo.com



4-7 March 2013

5th IWA Specialized Conference on Odors and Air Emissions Jointly Held with 10th Conference on Biofiltration for Air Pollution Control

IWA
Venue: San Francisco, California, USA
www.iwahq.org/1ss/events/iwa-events/2013/odours-air-emissions.html

23-26 April 2013

Wasser Berlin International – Trade Fair and Congress for Water and Wastewater

www.wasser-berlin.com



24 April 2013

Trends and Innovations in Wastewater Treatment – Trace Organics Removal and Recovery of Energy and Nutrients

Organiser: Kompetenzzentrum Wasser Berlin and Wasser Berlin International
Venue: Fair Grounds Berlin
<http://www.wasser-berlin.de/Kongresse-UndEvents>

23-27 June 2013

NOVATECH, 8th International conference on Planning & technologies for sustainable urban water management

Organiser: GRAIE (Rhône-Alps Research Group on Infrastructure and Water)
Venue: Lyon, Frankreich
www.novatech.graie.org



25-28 June 2013

13th World Congress on Anaerobic Digestion: Recovering (bio) Resources for the World

Organiser: University of Santiago de Compostela, IWA
Venue: Santiago de Compostela, Spain
www.ad13.org

burg. Issues of urban water management, in particular for the Berlin metropolis, play only a minor part. According to the authors, the facts and figures presented are intended for professionals and stakeholders from politics, administrative bodies and associations. ●

18-23 August 2013

16th International Conference on Diffuse Pollution and Eutrophication

Organiser: RCEES, CAS, IWA
Venue: Beijing, China
<http://dipcon.rcees.ac.cn>

28.-30. August 2013

SPN7 – 7th International Conference on Sewer Processes & Networks

Organiser: Pennine Water group, IWA
Venue: The Edge Conference Centre, Sheffield
www.shef.ac.uk/spn7/home



4-5 November 2013

DWA Seminar Water-ReUse

Organiser: German Association for Water, Wastewater and Waste
Venue: Brunswick, Germany
www.dwa.de

6-7 November 2013

4th International Symposium Re-Water Brunswick

Organiser: SE|BS Stadtentwässerung Braunschweig GmbH, together with the Institute for Urban Water Management of TU Braunschweig, Kompetenzzentrum Wasser Berlin and Wastewater Association Brunswick
Venue: Municipal Hall Brunswick, Germany
www.se-bs.de

about us

The Berlin Centre of Competence for Water (Kompetenzzentrum Wasser Berlin, KWB) is a public-private partnership company. Its associates are the TSB Technologiestiftung Berlin, the Berliner Wasserbetriebe, the Berlinwasser Holding and VeoliaWasser. The KWB stands as a network node to strengthen the position of Berlin as an international centre in the field of water economy and technology. Partners and actors are scientific facilities, public institutions, companies as well as multipliers from public and private sectors.

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