

EDITORIAL

For more than 12 years now, we have been developing and conducting research projects together with our partners. Our fields of expertise are groundwater management, drainage systems, and wastewater treatment. Our goal is to contribute to finding sustainable solutions for problems in the field of water and wastewater management. In order to achieve this, our shareholders make sure that we always take the practical needs of the water industry into consideration when selecting and working on research projects. We are proud to have realised more than 60 research projects with a total funding volume of more than EUR 31 million. Our interdisciplinary team can build on the knowledge and experience in research coordination which we have accumulated over the years to ensure continuity in water research.

The complex challenges of water management require careful consideration of both scientific interests and practical concerns in the water industry. Thanks to our many years of participation in national and international research networks, we are able to guarantee that we will regularly be able to bring together the appropriate research partners for new projects and that this will lead to fruitful cooperation.

We attach importance to organising expert workshops, conferences, and discussion meetings, as well as reporting on research findings to the specialist community and to the broader public, not least through the publication of this newsletter.

We hope you enjoy reading this issue,

Andreas Hartmann

Kompetenzentrum Wasser Berlin, Managing Director



LATEST NEWS

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Kick-off of INIS initiative in Berlin

INIS stands for “Intelligent and multifunctional infrastructure systems for sustainable water and wastewater management” and it is funded by the Federal Ministry of Education and Research. To kick-off the recently started initiative, representatives of all the 13 associated projects were invited to Berlin in October to discuss their fields of expertise and to identify areas of common interest. The Environment Forum Berlin provided a particularly appropriate venue and the efficient organisation also helped to stimulate networking between some 150 participants from research and industry. It was agreed that there should be regular coordination meetings in future. Within the INIS initiative, KWB has scientific leadership of the **KURAS** associated project.

www.bmbf.nawam-inis.de

NaWaM
Nachhaltiges Wassermanagement

INIS
Intelligente und multifunktionale
Infrastruktursysteme für eine nachhaltige
Wasserwirtschaft und Wasserwirtschaft

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EU aims to promote the recycling of phosphorus from wastewater



Following an invitation from the Czech Water Association and the EU research project P-REX, which is coordinated by KWB, scientists, practitioners and decision-makers from the European wastewater management and fertilizer sectors gathered in Poděbrady to discuss ways and means of marketing phosphorus retrieved from wastewater as a fertilizer.

Phosphorus is essential not only for the growth of plants, and a key constituent of fertilisers. However, Europe’s production of plant fertiliser (and with it all of Europe’s agriculture) is nearly 90 per cent dependent on imports of rock phosphates. The delicacy of this market situation became apparent only this year, when a Czech producer of fertiliser was forced to close down production when the delivery of rock phosphates from Russia suddenly broke off.

Continues on page 4 >>

NEWS FROM THE KWB NETWORK OFFICE

Berlin partners profit from the successful acquisition of third-party funds by KWB

KWB continues to be successful in the acquisition of funding. Overall, a total of EUR 8 million has been acquired for research. In addition, EUR 12.6 million has gone to Berlin partners. Funding bodies are the EU Life

Programme (2 projects), the EU Research Programmes FP6 and FP7 (8 projects), the Berlin Environmental Relief programme (4 projects), the German Federal Ministry of Education and Research (4 projects), and the Federal

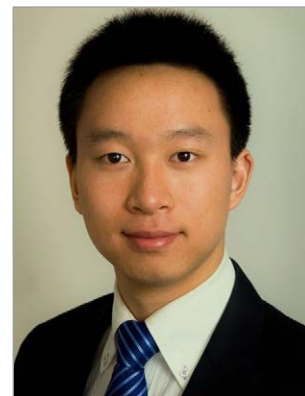
Environmental Agency (Ufoplan, 1 project). KWB has been responsible for the coordination of eight projects to date. Some of these projects will be continuing until 2016. ●

[Information brochure of KWB as download](#)

PHOSPHORUS RECYCLING FROM WASTEWATER

CHINESE SCHOLARSHIP WINNER ON FOUR YEAR SECONDMENT TO KWB

Since October 2013, Kuangxin Zhou (23) has been a scientific co-worker at the Berlin Centre of Competence for Water. He has recently completed his scientific training at the Technical University Berlin with a master's degree in environmental engineering. His four-year research secondment at KWB, with the objective of gaining a PhD at TU Berlin in the field of settlement water management (under Prof Barjenbruch) will be funded by the Chinese Education Ministry through its China Scholarship Council (CSC) programme.



©Photo: private

INTERVIEW WITH KUANGXIN ZHOU, NEW SCIENTIFIC CO-WORKER AT BERLIN CENTRE OF COMPETENCE FOR WATER (KWB)

Kuangxin, you have just completed your master's degree course in environmental engineering. Would you study for the same degree again if you had another choice?

I have been in Germany since October 2008 and at first studied for a BSc in chemistry and environmental engineering at the Merseburg University of Applied Sciences. Then I came to the TU Berlin to study environmental engineering. This was a very easy decision for me to take. In an era of globalisation, attention has come to concentrate in particular on environmental issues, and many problems should be solved with relevant environmental considerations in mind. I am proud that in this way I can do something for the environment.

Your master thesis, which was given a "very good" grade, covers work you carried out at KWB on the treatment of sewage sludge. How did you come to choose this topic?

Sewage sludge is regarded as a sink for pollutants from wastewater treatment. For a long time, the treatment and recycling of sewage sludge has been a dominating topic of discussion in China. At the end of 2010, China's urban sewage treatment had an annual capacity of 34.3 billion cubic metres and produced more than 22 million tonnes of sludge. In accordance with the 12th Chinese Five Year Plan, the focus has moved from sewage handling to sewage sludge treatment. This is where I would like to make a contribution in future.

Your research secondment to KWB is fully funded by a scholarship from your Chinese homeland. This is something new for us. Are you expected to comply with certain conditions?

"If I am walking with two other men, each of them will serve as my teacher. I will pick out the good points of the one and imitate them and the bad points of the other and correct them in myself." Like Confucius said 2500 years ago, you should learn from the strong points of others, and also from their weak points so that you can improve yourself. The CSC scholarship offers an opportunity to work in an excellent research setting and to receive financial support. The excellent young researchers are selected in order to provide them with training at outstanding foreign research institutions. In order to expand good cooperation at the levels of research and technology between China and other countries, the scholars are expected to return to work in China for two years after obtaining their PhD.

What research topics will you be working on over the next four years?

Sewage sludge not only contains harmful substances but also considerable amounts of plant nutrients. The future challenge of sludge treatment is to separate out the pollutants and at the same time to recycle the nutrients, e.g. phosphorus, and to return these to the soil in order to achieve a closed material cycle. I will be specialising on "Phosphorus

recycling from sewage sludge". Under the supervision of Prof Barjenbruch (TU Berlin), Dr Kabbe and Mr Lesjean (KWB) my focus will be on applied research on the options for effective phosphate management and phosphate recycling. In addition I will also be working in the EU project P-REX, which is coordinated by KWB.

Let me finish off with a personal question. You have got to know Berlin well during your university studies. What do you like in particular about the city? And is there anything negative that has struck you?

As the Mayor Klaus Wowereit said: "Berlin is poor, but sexy". "Poor" means a favourable cost of living and "Sexy" that it offers us a colourful, varied life. Wilhelm von Humboldt says that "Only if you know the past will you have a future!" And what I particularly like is that there are more than 170 museums in Berlin covering all sorts of topics, which gives me a convenient way to learn about history. After Berlin's Hertha BSC football team is now playing in the top league again this season, my next hope is that the Berlin-Brandenburg airport will reach completion. ●

Thank you very much. Bodo Weigert asked the questions

Background image: Digester at sewage plant Langewiese, Eschach, Ravensburg

WATER RESEARCH IN BERLIN AND BRANDENBURG



©Photo: Veolia

Reuse of Wastewater in Braunschweig

Reuse of Treated Wastewater for Agricultural Purposes

In the scope of the UFOPLAN 2013 programme the Federal Environment Agency has commissioned KWB to perform a study together with the partners Leibniz Centre for Agricultural Landscape Research (Prof. Lischeid), the Department of Wastewater Technology of Technische Universität Darmstadt (Prof. Cornell) and the Institute for Ecopreneurship of the University of Applied Sciences and Arts Northwestern Switzerland (Prof. Wintgens).



Bundesministerium
für Umwelt, Naturschutz
und Reaktorsicherheit

On behalf of the Federal Environment Agency KWB together with the mentioned partners will evaluate the current scientific knowledge on the risks and opportunities regarding the reuse of treated wastewater for agricultural purposes until 2015. The analysis of reference sites will deliver the necessary information for the development of recommendations applying to the basic conditions and minimum standards for the irrigation of agricultural land as well as for managed aquifer recharge. The aim is to establish standardised guidelines which mainly address the situation in Germany. Experience gained at the European and international level will complete the study, thus creating a sound technical basis for the German position within the European initiatives towards water reuse. The German Association for Water, Wastewater and Waste (DWA), the Wastewater Association Braunschweig (AVB), the Wastewater Association Wolfsburg (AVW) and the Oehneland Agrar GmbH (Brandenburg) have confirmed their support as associated partners. ●

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HTC for energy-efficient treatment of sewage sludge?

Hydrothermal carbonisation (HTC) can be used for the thermal treatment of dewatered sewage sludge and organic waste, converting this to 'bio-coal', which can then be used as a regenerative fuel in power stations.

KWB has been commissioned by Veolia to conduct theoretical energy and greenhouse gas audits for various process chains for the disposal of municipal sewage sludge. Conventional methods for the energetic disposal of sludge with and without digestion were compared with HTC in order to determine possible overall energetic benefits of HTC, taking into account all processes which are directly and indirectly impacted at the WWTP. The study was based on real data gathered from a pilot plant for the hydrothermal carbonisation of sewage sludge. The results show that HTC can indeed offer energetic advantages over the treatment of digested sludge, in particular if the process can be operated completely with available waste heat from a central heat and power plant. The results of the study were presented to an expert audience at a workshop. The presentations are available as a [download](#). ●

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©Photo: Veolia

Knowledge transfer from the ANTIOCKER project for water-well management

The formation of iron deposits in the filter zone of wells can affect their productivity. This represents a considerable potential technical and financial burden for the operators of water wells.

Within the framework of the ANTIOCKER research project funded by the German Federal Ministry of Education and Research, scientists and users have been working for nearly three years to understand the causes of slime formation and iron and manganese deposits in water wells and water piping, as well as proposing possible counter-measures. The close cooperation between research and industry has generated interest in applying the knowledge acquired at locations in the Berlin region to well sites in the Rhenish lignite open-cast mining area. RWE Power AG, one of the industrial partners in the project, operates some 1500 wells there to lower groundwater levels. KWB was commissioned by RWE Power AG to monitor the planning, implementation and evaluation of a trial programme for the optimisation of the installation and operation of drainage pumps over a period of one year. ●

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>> continuation of page 1 (P-REX)

In mid-September, stakeholders from eleven European countries came together in Poděbrady (Czech Republic) in order to consider how such market dependencies could be prevented or at least mitigated in future by recycling phosphorus from wastewater.

As the on-going P-REX project has investigated, there are already very promising technologies on the market for recycling phosphorus, and these could be implemented profitably. The workshop participants have recommended that the European wastewater utilities and fertiliser manufacturers should be supported by appropriate measures so that these available recycling technologies can be implemented on a significant scale. The results of the workshop will be published in January 2014 within the framework of a report on the marketing of recovered phosphorus products and will be available for download from the project website. Furthermore the P-REX consortium just published a short-film, which is available at vimeo.com/78539404.

www.p-rex.eu



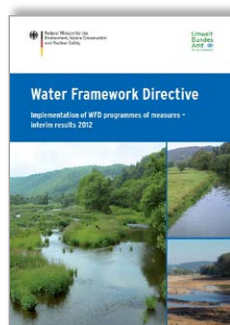
P-REX Workshop in Poděbrady

©Photo: KWB

FOCUS

Water Framework Directive – Implementation of WFD programmes of measures – Interim results 2012

→ Download



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the Environment,
Nature Conservation
and Nuclear Safety
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EVENTS

Meet us at the following upcoming events:

21 November 2013

EIP Water Conference – 1st Action Group Call Finalized

Organiser: European Commission

Venue: Brussels, Belgium

<http://ec.europa.eu/environment/water/innovationpartnership/>

20–21 November 2013

Two-day training course on constructed wetlands for wastewater treatment and reuse

Organiser: IIT Mumbai (India)

Venue: IITB Campus, Adi Shankaracharya Marg, Powai, Mumbai, Maharashtra 400076, Indien

Registration: asolekar@iitb.ac.in

22 November 2013

WssTP Working Groups Workshop & H2020 Brokerage Event

Organiser: WssTP

Venue: Brussels, Belgium www.wsstp.eu

22–23 November 2013

European Water Policy: Challenges for Hydrogeologists

Organiser: EFG Panel of Experts on Hydrogeology, in cooperation with IAH, WssTP, EuroGeoSurvey

Venue: Royal Belgian Institute of Natural Sciences, Brussels, Belgium

5 December 2013

34. Berliner Wasserwerkstatt “Biokohle aus Klärschlamm und Bioabfällen“

Organiser: KWB

Venue: Berlin, Germany

www.kompetenz-wasser.de

5 December 2013

Utility Workshop on Managed Aquifer Recharge (MAR)

Organiser: KWB, Ecologic, Berliner Wasserbetriebe

Venue: Wasserwerk Tegel, Berlin

Information: gesche.gruetzmacher@kompetenz-wasser.de

5-6 December 2013

ManuREsource International Conference on Manure Management and Valorization

Venue: Bruges, Belgium

www.manuresource2013.org

21–23 January 2014

Adaptation Solutions for Water Utilities – Demonstrating practical approaches to climate change in urban areas

Organiser: FP7 project PREPARED, Aarhusvand (DK)

Venue: Aarhus, DK, Radisson BLU Scandinavia Hotel, Margrethepladsen 1, 8000 Aarhus C, Denmark

Registration: www.aarhusvand.dk/conference

28–29 January 2014

Opportunities for Phosphorus Recovery from Wastewater

Organiser: Bundesanstalt für Materialprüfung (BAM), Umweltbundesamt

Venue: Berlin, Germany, Federal Institute for Materials Research and Testing (BAM), Unter den Eichen 87

Registration: oliver.krueger@bam.de

12–13 March 2014

Strategic Workshop on Water Safety Plans (WSP) for Europe

Organiser: UBA and WHO in cooperation with KWB, IWA, DVGW, EUREAU

Venue: Berlin

5–9 May 2014

IFAT 2014, Trade fair for Water, sewage, Waste and Raw Materials Management

KWB at joint stand “Berlin-Brandenburg”

www.ifat.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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In December 2012, a report was submitted to the European Commission on the implementation status of the programme of WFD measures for Germany's ten river basins. This pamphlet describes the domains in which improvement measures have been undertaken and what has been accomplished during the first three years of the programmes of measures.

A number of measures have indeed been successfully implemented, but further efforts are necessary in order to achieve the ambitious goals. More intensive cooperation is required between the responsible authorities at all levels and the various interest groups and user groups.