

## EDITORIAL

The nomination for the German Sustainability Award 2014 in the Research category is a great honour for us. The jury has selected our application with the project "CARISMO", because this has been the first demonstration in pilot tests that the chemical energy contained in waste water can be exploited in order to generate enough power for waste water treatment. There is even a surplus of energy! If higher demands will be made in future on an even more efficient treatment, this surplus could be used for the operation of additional technology. In modern waste water treatment plants 50 to 70 percent of the necessary energy are recovered, biogas is won from sewage sludge and power and heat is generated from it in a cogeneration plant. The idea of the CARISMO project consists essentially in replacing the power-guzzling activated sludge process by precipitation, flocculation and filtration. In this way the entire power demand can be reduced by 50 percent. At the same time methane generation is increased by 80 percent, because more biomass is available. Cities and municipalities, which are in charge of waste water treatment, can save a noteworthy part of the power consumption for their citizens and make a contribution to the "Green Economy". Moreover, there is a further considerable potential to improve the efficiency of this innovative process. This is what we are working on!

Andreas Hartmann  
Berlin Centre of Competence for Water, Managing Director



Photo © Eltschig

## LATEST NEWS



Photo © Donath



## CARISMO

### CARISMO Nominated for the German Sustainability Award 2014

**From a wastewater plant to a power station – the exploitation of wastewater as a renewable energy source**

Within the framework of the project CARISMO a new concept for wastewater treatment has been developed and tested at the Kompetenzzentrum Wasser Berlin (KWB) in cooperation with Veolia and Berliner Wasserbetriebe with the goal of tapping the full energy potential in wastewater and generate an energy gain from its organic substances. Through a novel filtration scheme the high-energy organic substances are already withdrawn from the wastewater in the inflow of the waste water treatment plant and are directly transferred to sludge digestion where power is generated via biogas recovery. More information on the → [CARISMO project you will find on our website kompetenz-wasser.de](http://www.kompetenz-wasser.de).

The → [public online voting](#) for the German Sustainability Award is open now and runs until 20 November 2014. You would make us very happy if you cast your vote to our project CARISMO!

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## European-Indian Research Initiative Saph Pani Successfully Completed with an International Conference in Delhi



*Saph Pani addressed the improvement of natural water treatment systems such as river bank filtration (RBF), managed aquifer recharge (MAR) and artificial wetlands in India building on a combination of local and international expertise. The project aimed at enhancing water resources and water supply particularly in water stressed urban and peri-urban areas in different parts of the sub-continent.*

On 17<sup>th</sup> and 18<sup>th</sup> of September the final conference of Saph Pani was held at the Indian Habitat Centre in New Delhi. As a great honour Sushri Uma Bharati, Union Minister for Water Resources (WR), River and Development (RD) and Ganga Rejuvenation (GR) opened the conference in the inauguration session followed by Amarjit Singh, Additional Secretary of Water Resources, Thomas Wintgens, Project Coordinator, R. D. Singh, Director of

*Continues on page 4 >>*

## NEWS FROM THE KWB NETWORK OFFICE

KWB with [Watershare®](#) at the World Water Congress & Exhibition in Lisboa

As a member of Watershare®, the principal sponsor of the IWA World Water Congress in Lisbon, KWB was on the spot at the Watershare® stand.

Watershare® is a new initiative of the Dutch KWR Watercycle Research Institute

designated to build a network of not-for-profit water research institutes, sharing their expert-knowledge by means of practical tools. In doing so, the needs of the end users in the water sector are served. ●

→ [www.kwrwater.nl/watershare/home](http://www.kwrwater.nl/watershare/home)



Photo © KWR

## RESEARCH FOR RESOURCE-EFFICIENT AND CLIMATE-ADAPTED CITIES



Photo © Difu

INTERVIEW WITH JENS LIBBE (52) – RESEARCH ASSOCIATE AT THE GERMAN INSTITUTE FOR URBANISM (DIFU), BERLIN

*Mr Libbe, You are a trained national and social economist and have been working for many years intensively on transformation processes in municipal infrastructures. Can you describe these activities in more detail?*

The focus is on the transformation of the urban infrastructures into smart and, more particularly, minimum CO<sub>2</sub> structures. At Difu we are not only interested in technical or economic issues but above all in the institutional prerequisites which are necessary for this transformation as well as the necessary co-ordination processes in the municipalities. The number of supply options increases and it is necessary to find solutions which are adapted to the different urban space types. Organising this, is a new task for the cities and we support them with our work in their efforts.

*Your name is associated in professional circles with the research initiative netWORKS. You examined the adaptability of the German water management in residential areas to changing framework conditions over a longer period of time. What was that exactly about?*

netWORKS is a research co-operation which has existed for more than 10 years. Initiated by Difu and ISOE (Institute for Social-Ecological Research) based in Frankfurt am Main, the research group is supported by changing partners. Our goal is the development of innovative and sustainable solutions in the field of water supply and waste water disposal. Together with our partners from practice we have developed a proposal for strategic infrastructure planning. Based on that, we were able to demonstrate in another project that an increase in energy efficiency and an improved exploitation of resources through the installation of novel sanitary systems will pay off in the long-term for the city as a

whole. Since May 2013 we have, therefore, been tracking the constructional implementation. Our model regions are Frankfurt am Main and Hamburg. Our projects have been supported by the German Federal Ministry of Research.

*Within the framework of remunicipalisation efforts the question is discussed whether private or public organisational forums facilitate transformation processes. What has been your experience?*

First of all I am of the opinion that the issue of transformation is not necessarily linked to the organisational form. However, I consider transformation to be a major opportunity for municipal corporations, i.e. in particular public utilities. As local service providers, which as a rule are more familiar with the local structures than suppliers and disposal companies operating on a supra-regional level, they are so-to-speak the natural partners for municipalities in transforming the cities in view of climate neutrality. This pre-supposes, however, that the public utilities implement their corporate strategies consistently as a service provider which interlinks decentralised and centralised solutions and thinks, more particularly, in a cross-sectoral manner. The energy turnaround on site will only be successful if all energy potentials from solar energy to the exploitation of waste water or waste are utilised for energy supplies.

*For more than a year you have been leading in a team with DWA and DVGW the scientific support of the research focus INIS supported by BMBF<sup>1</sup>. Several large groups of researchers are working on projects for sustainable water infrastructure systems. Are there already first signs of results?*

In a series of projects, integrated concepts for water, waste water and energy are

developed in respect of which the novel sanitary systems have a major importance. In this connection partly very concrete constructional measures are executed, e.g. in the projects KREIS or netWORKS 3. In other projects adaptation and optimisation strategies of urban drainage play an important role; this includes the project KURAS co-ordinated, amongst others, by KWB in Berlin. Processes for water treatment and conceptual brainstorming to secure water supplies against the backdrop of climatic change are covered by further projects. We are currently still in the first half of the support term. First results will be presented to the interested public at a BMBF status seminar in Hamburg on January 20, 2015.

*Which measures ensure within INIS that the research results will also find their way to the users?*

As a networking and co-ordination project we consider that our task consists not least in informing the different users from municipalities, the water industry, the housing industry etc. about the different implementation-oriented solutions provided by INIS. Apart from the ongoing development of different publication and event formats, we have set ourselves the goal of submitting the results and products time and again to a critical reflection by practice. Furthermore, we use of course the intermediary possibilities of Difu, DWA (German Association for Water, Wastewater and Waste) and DVGW (German Technical and Scientific Association for Gas and Water). Furthermore, the steering group of the support measure includes different representatives from practice who accompany us in an attentive manner. ●

*Thank you very much for this interview. Bodo Weigert asked the questions*

## WATER RESEARCH IN BERLIN AND BRANDENBURG



Photo © KWB



### Options for Trace Organic Compound Removal at Lake Tegel

*The ongoing progress in water analysis enables the detection of more and more anthropogenic trace organic compounds in the water cycle including surface waters like Lake Tegel. In the joint project ASKURIS options for the removal of trace organic compounds originating from wastewater are tested and evaluated.*

The activities of the KWB have focused on the comparison of downstream filters following the ozonation process and on process evaluation (activated carbon and ozonation) by means of LCA. The pilot trials demonstrated that a biological activated carbon filter or a dual media filter are equally suitable for further treatment after the ozonation step. The life cycle assessments revealed that implementing trace organic compound removal would lead to a significant increase in CO<sub>2</sub> emissions. The more stringent the environmental objectives are defined, the higher are the required doses of activated carbon or ozone leading also to higher CO<sub>2</sub> emissions. An information session on 11 July 2014 presented the preliminary results in a surface water treatment plant. ●

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More information available  
→ [on the ASKURIS website](http://www.kompetenz-wasser.de)

### HTC-Berlin – A New Option for Sewage Sludge Treatment in Berlin?

*In Berlin, 250.000 t of dewatered sewage sludge are generated every year. For an energy efficient incineration of this sludge, its water content should be minimized. The project HTC-Berlin will investigate if the new process of hydrothermal carbonisation (HTC) is suitable to improve the energy and greenhouse gas balance of sewage sludge disposal in Berlin.*

In the HTC process, dewatered sewage sludge is treated at high temperature (160 up to 220°C) and can subsequently be dewatered again to very low water content (<30%), resulting in an energy-efficient disposal in incineration. At the same time, HTC produces a filtrate highly loaded with organics and nutrients that can be returned to the digester for biogas production, but that also contains refractory substances which will have an impact on the effluent quality of the wastewater treatment plant. In this project, KWB will test different sewage sludges from Berlin in HTC lab trials in cooperation with Berliner Wasserbetriebe and transfer the results into a holistic energy and greenhouse gas balance to estimate potentials and barriers for HTC in Berlin. The project is financed under Berlin's Environmental Relief Programme (UEPII) of the Berlin city (Administration for urban development and environment) and co-financed by the European Union (European Regional Development Fund - ERDF). ●

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Senatsverwaltung  
für Stadtentwicklung  
und Umwelt



### KWB at International Conference on Urban Drainage in Malaysia

*Early September the 13<sup>th</sup> International Conference on Urban Drainage took place in Kuching, Malaysia. The event was organised by NRE Malaysia, DID Malaysia, IWA and IAHR.*

More than 500 participants presented their research activities on all issues related to urban drainage focusing on integrated water management in urban areas. KWB presented four papers: Monitoring of trace organic compounds in storm water runoffs (OgRe project), concepts for urban storm-water management (KURAS project), influence of local calibration for online monitoring (MIA-CSO project) and Berlin's strategy towards the reduction of combined sewer overflows (MIME project). KWB is very proud of the nomination of Nicolas Caradot, one of our project scientists, for the Poul Harremoës Award. This award is given to young scientists not older than 35 years for the presentation of novel ideas relating to developments in urban drainage. ●

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*l. to r.*  
Peter Marcus BACH, Monash University, Clayton, Australia  
Martin FENCL, Czech Technical University, Prague, Czech Republic  
Nicolas CARADOT, Berlin Center of Competence for Water, Germany



Photo © KWB

>> continuation of page 1 (Saph Pani)

NIH and Rajendra Prasad, Andhra University.

The two days of the conference were filled with informative presentations on the outcomes of Saph Pani with focus on a set of case study areas in India covering various regional, climatic, and hydro-geological conditions as well as different treatment technologies.

Valuable recommendations could be given to senior-level policy and decision makers and networking was done extensively during the breaks. Additionally three other EU-India projects with a focus on natural treatment systems were presented, namely SWINGS, Saraswati and NaWa-Tech. KWB was mainly involved in a case study in New Delhi with the objective to compare the current technique of river bank filtration coupled with an extensive post-treatment for ammonium removal. Besides the comprehensive conference programme, a poster session was held where students could present their work setup and results within Saph Pani.

Around 100 participants in addition to the Saph Pani consortium attended the conference. ●

→ [www.saphpani.eu](http://www.saphpani.eu)



Photo © Saph Pani



## FOCUS

### Environmental Impacts of Fracking Related to Exploration and Exploitation of Unconventional Natural Gas Deposits

Authors: Uwe Dannwolf et al.

Published by Federal Environment Agency (Germany)

Texte 53/2014 (in German only)

In several individual contributions current environmental issues related to shale gas exploitation are examined: Development of a groundwater monitoring concept, evaluation of a possible nationwide list of hydraulic fracturing chemicals, evaluation of an environmentally sound flowback disposal, analysis of the state of research on the emissions associated with shale gas production and the carbon footprint related to it, investigations regarding the hazards and risks associated with induced seismicity, identification and evaluation

of the spatial and space-related aspects as well as the impact on the natural environment, landscape and biodiversity.

The aim of the study is the technical and scientific assessment of the aspects listed above, as well as of the accompanying risks. In addition, the open questions and knowledge gaps are identified and possible solutions are discussed. The report (currently available only in German) can be downloaded from the website of the Federal Environment Agency. ●

→ [Download](#)

## EVENTS

### Meet us at the following upcoming events:

12-16 October 2014

#### IWA 14<sup>th</sup> Internat. Conference on Wetland Systems for Water Pollution Control (ICWS)

Organiser: Tongji University, Shanghai, Chongqing University, Chongqing, China, Venue: Shanghai, China  
→ [www.iwawetland2014.org](http://www.iwawetland2014.org)

23-24 October 2014

#### Aqua Urbanica 2014

Organiser: Eawag-ETH Zurich, TU Graz, TU Kaiserslautern, Universität Innsbruck, Universität Stuttgart, DWA, ÖWAV and VSA Venue: Innsbruck, Austria  
→ [www.aqua-urbanica.org](http://www.aqua-urbanica.org)

3 November 2014

#### Bioenergy and Bioeconomy — The Boom in Agriculture Regardless of the Consequences for Water

Organiser: GRÜNE LIGA, NABU, Koordinierungsbüro Normungsarbeit der Umweltverbände (KNU) u. Ak Wasser im BBU Venue: NABU Managing Office, Wollankstr. 4, Berlin, Germany  
→ [www.nabu.de/nabu/veranstaltungen/17106.html](http://www.nabu.de/nabu/veranstaltungen/17106.html)

4 November 2014, 17:00

#### Exhibition opening "Ecological Building Systems"

Organiser: Senate Department of Urban Development and the Environment Venue: Am Köllnischen Park 3, 10179 Berlin

5-6 November 2014

#### EIP Water Conference 2014

Organiser: EIP Water Sekretariat / EU Commission | Venue: Barcelona, Spain  
→ [www.eip-water.eu/eip-water-conference-2014-draft-programme](http://www.eip-water.eu/eip-water-conference-2014-draft-programme)

12-13 November 2014

#### DWA Inspektions- und Sanierungstage

Organiser: DWA | Venue: Dortmund, Germany  
→ <http://de.dwa.de/inspektions-und-sanierungstage.html>

18 November 2014

#### Green Economy Conference 2014

Organizer: BMBF und BMU Venue: Hotel Radisson Blu Berlin  
→ <https://www.fona.de/en/17532>

26-27 November 2014

#### WssTP Members' Horizon 2020 Brokerage Event

Organiser: WssTP Venue: Brussels, Belgium  
→ [wsttp.eu/events/](http://wsttp.eu/events/)

27-28 November 2014

#### German Congress on Sustainability

Organiser: Stiftung Deutscher Nachhaltigkeitspreis e.V. Venue: Maritim Hotel, Düsseldorf, Germany  
→ [www.nachhaltigkeitspreis.de/home/kongress/aktueller-kongress/#programm](http://www.nachhaltigkeitspreis.de/home/kongress/aktueller-kongress/#programm)

10-11 February 2015

#### RISKWA Final Workshop

Organiser: PTKA, DECHEMA Venue: e-werk, Berlin, Germany  
→ [www.bmbf.riskwa.de/de/Berlin2015.php](http://www.bmbf.riskwa.de/de/Berlin2015.php)

5-6 March 2015

#### European Sustainable Phosphorus Conference 2015

Organiser: European Sustainable Phosphorus Platform Venue: Scandic Hotel Postdamer Platz, Berlin, Germany  
→ [www.phosphorusplatform.eu/conference/esp2015.html](http://www.phosphorusplatform.eu/conference/esp2015.html)



Our annual report in the web.

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## 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 Veolia Wasser. 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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