WATER RESEARCH IN BERLIN

KOMPETENZZENTRUM WasserBerlin

newsletter 46 edition 3 / 2016

EDITORIAL

Photo © Janette Dobrindt

Since September 1, 2016, the Berlin Centre of Competence for Water (KWB) has been working with a new shareholder structure. Berliner Wasserbetriebe, Berlinwasser Holding and Technologiestiftung Berlin have taken over the shares previously held by Veolia and herewith demonstrated their strong interest in the continuity of our work.
Most sincerely I would like to thank our long-time chief partner Veolia for the fruitful cooperation and the support the company has provided to us from the very beginning on our pathway to a renowned research facility.
We are now focussing on new interesting challenges. In order to develop future-proof solutions and to implement the smart city approach, urban water management facilities will have to increase the consideration of digital technologies and the linkage of different fields of public services. KWB has already started out to realign its activities according to these new tasks. In the scope of our local, national and international copperations we will address the emerging issues.

We are glad that the new agreement of the Berlin coalition attaches great importance to topics like resources and environment protection and has explicitly budgeted the implementation of the results of the project KURAS in which KWB has played an active role. The project has delivered holistic concepts for urban stormwater management.
During the past few weeks, several projects have been launched in which KWB is involved. More information is given on the following pages.

Edith Rossbach
Kompetenzzentrum Wasser Berlin, Managing Director

LATEST NEWS

Photos © Donath

KURAS shows: Rain can be a boon

Three years ago a research consortium of 15 partners started to work on the development of tools that enable the simulation and scoring of urban storm- and wastewater management measures from tip to toe. Kuras was finalized end of October by a well-attended full-day workshop. A variety of presentations, panel discussions, poster sessions and one-on-one interviews with project partners enabled a lively communication.
Ultimately Kuras has demonstrated that holistic stormwater and wastewater-management can improve not only water quality, wastewater discharge and urban climate but also the quality of life in cities.
The coalition agreement of the recently elected Berlin government has explicitly included the implementation and further development of the KURAS results.

Keep on reading on page 3 >>

→http://www.kuras-projekt.de/downloads/praesentationen-abschlussveranstaltung/

kuras NaWaM INIS Bundesministerium für Bildung und Forschung

contents

Resilient Networks (netWORKS 4) started

Federal Ministry of Education and Research (BMBF) to fund new joint project creating the basis for the development of climate just cities

The design of a climate just city requires an integrated urban development and infrastructure planning. The Resilient netWORKS project ("Contributions to Urban Supply Systems for Climate Justice") aims at initiating a comprehensive discussion on the future design of urban water infrastructures.
In the scope of a geared transformation management for specific urban transformation areas, definite implementation measures will be designed and advanced in cooperation with municipal policy makers. To this end, grey, green and blue infrastructures (technical infrastructure, green urban areas and water bodies) will be taken into consideration. Their clever interconnection will generate a potential of synergies leading to improved

Bundesministerium für Bildung und Forschung FONA Social-Ecological Research BMBF

Continues on page 4 >>

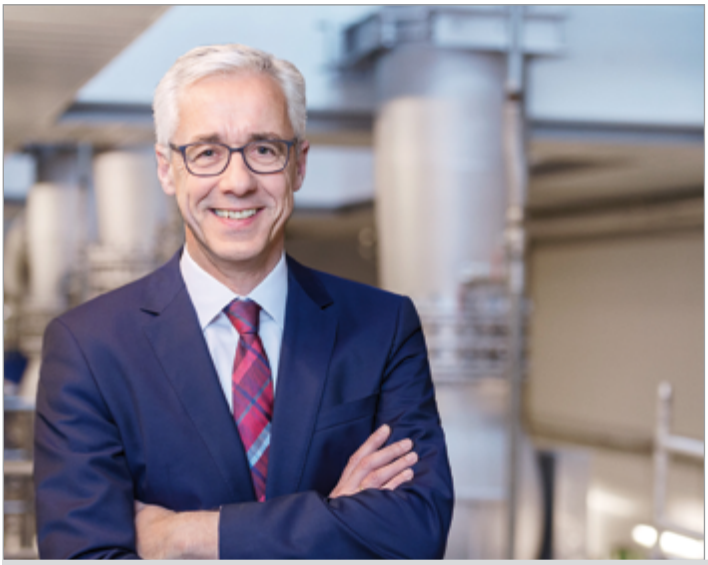

Photo © Die Hoffotografen GmbH Berlin

BERLINER WASSERBETRIEBE AND TECHNOLOGIESTIFTUNG BERLIN REINFORCE THEIR COMMITMENT TO THE BERLIN CENTRE OF COMPETENCE FOR WATER (KWB)

INTERVIEW WITH JÖRG SIMON, CHAIRMAN OF THE BOARD OF BERLINER WASSERBETRIEBE

We were very pleased when on 1 September of this year, Berliner Wasserbetriebe/Berlinwasser Holding and Technologiestiftung Berlin took over Veolia's shares in KWB in equal parts. What are your expectations regarding the future role of KWB against this background?

KWB has acquired an excellent reputation at the national and international level and, as a consequence, has contributed to the fact that today Berlin is a prominent place for professional water expertise. Even though it appears that Berlin gives priority to the mobility, health, media and energy clusters, the water and environment sector has succeeded in making a name for itself through the fruitful cooperation between Berlin's universities, KWB, the enterprises merged under the umbrella of Aquanet Berlin-Brandenburg and of course with us. But we still need to get the existing expertise across to Berlin's politicians to make urban development smarter and more sustainable. Of course, KWB shall continue its research topics, many of them are being performed in close cooperation with the colleagues from our company.

Berlin is developing rapidly. After a period of stagnation, the number of inhabitants is rising again. What are the challenges Berliner Wasserbetriebe will face? Which issues should be addressed in this context?

Above all, we want to secure the comparatively closed water cycle of Berlin and keep it in good working order. As a result of this, a number of tasks will have to be tackled since our broad rivers Spree and Havel lead us to believe in a water surplus that in fact does not exist. This includes, for example, a better understanding of the trends in the field of trace organic compounds and, if necessary, to counteract them. We will spare no effort to keep our resources in a good condition in order to ensure water quantity and quality in case that Berlin's population will exceed the four million mark in the medium term.

On the subject of climate change: This summer brought along some extreme stormwater events which will certainly enter the Berlin rain statistics. The retention constructions planned to be completed by 2020 will probably not be sufficient to comprehensively solve the water quality problems caused by combined sewer overflows. The KURAS project has shown that positive effects can be achieved by coupling decentralized measures and smart sewer system control. Should further research be carried out in this field?

Absolutely. The current storage tank program is already a great success for many areas, but halving the previous overflow volumes is only the first hurdle. We will need new rehabilitation objectives for the decades after 2020, since the space for storage tanks is running low. Smart stormwater management has become an overall social issue, and of course the water industry yields important contributions to its settlement. For this reason, the results of KURAS must be implemented by us as well as and the public and private owners of land and real estate, accompanied by our scientific supervision. There is a huge potential, especially for areas to be covered with buildings in the near future.

Terms such as „Smart City" and „Digitization" are indispensable for the Future Debate in Berlin. In addition, the term „water 4.0" circulates among water professionals. Do you have any recommendations on how KWB could contribute to the debate with its expertise?

We are on the road: The KURAS project, heat generation from wastewater and smart metering are topics which can be titled by these buzzwords, but we have not labelled them so far. „Water 4.0", „Smart City" and „Digitization" overlap and are developing rapidly into hot topics also in our line of business. In this regard, we at Berliner Wasserbetriebe want to be pioneers, and KWB is in the position to provide us with important approaches. The resulting solutions, and consequently the expertise of KWB, will of course be of interest to third parties.

These new and smart solutions require above all much more data to better understand the interactions in our increasingly complex systems, and to facilitate targeted investments. For example, data concerning stormwater quantities and their load, precipitation intensity and the receiving waters. Which reactions are triggered off? It is also desirable to learn more about our sewer systems: How to make them more durable, how substances can disseminate in it and how to prevent this. On the basis of this information, we can invest more sustainably and react faster and more accurately in the event of an accident or attack. The prerequisites for collecting this information however, are sensor technology and IT which deliver the data for models and simulations. ●

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

WATER RESEARCH IN BERLIN AND BRANDENBURG


Foto © Süss


Foto © KWB


Foto © KWB

Scientists call for reduction of nitrogen entries to obtain better water quality

Despite huge investments, most inland waters in Germany will not meet the good ecological status stipulated in the EU Water Framework Directive. It was found that nitrogen is one of the primary determinants of water quality.

In the scope of the NITROLIMIT project which was funded by the Federal Ministry of Education and Research (BMBF), it has been proven that not only phosphorus but also nitrogen is a crucial control variable for many surface waters. The reduction of nitrogen input into surface waters is therefore ecologically meaningful. In order to support governmental decision-making about management procedures, target values for N- and P-concentrations were identified. For individual water bodies in Berlin it was proven that measures for nutrient reduction are indeed successful but are still not sufficient.
Scientists from the NITROLIMIT project consortium have therefore recommended to integrate suitable nitrogen reduction strategies into the nutrient reduction concepts of the federal states and to push their implementation. The focus should be on a further improvement of the treatment performance of sewage plants and, in particular, on the reduction of nitrogen entries from agricultural areas. To this end, the general conditions for participating in agri-environment measures of particularly large farms have to be improved.
The project consortium was headed by the BTU Cottbus–Senftenberg. KWB has contributed to the ecosystem modeling and was responsible for the quantification of the environmental impacts of stormwater management strategies by means of Life Cycle Assessment. ●

www.nitrolimit.de

Contact:
→ Pascale.Rouault@kompetenz-wasser.de
→ wiedner@b-tu.de

PHORWÄRTS – LCA study to compare fertilizer production from rock phosphate with P-recovery from the wastewater stream

By means of the LCA methodology, the PHORWÄRTS project compares conventional fertilizer production from rock phosphate with selected methods of phosphorus recovery from the wastewater path.

Since the informative value of the parameter toxicity is rather limited in LCA, the project PHORWÄRTS provides a comparative contaminant risk assessment for different fertilizers. In accordance with their application field, the impacts on soil organisms, groundwater and human health are examined. In this context, the contamination with heavy metals and organic pollutants is spotlighted. This comparison will be completed by a cost estimate of the various production methods.
PHORWÄRTS will create a new data situation covering different possibilities of fertilizer production from both fossil and renewable sources and their practical evaluation in ecological and economic terms. The project is financed by the Federal Environment Agency (UBA) in the scope of the Environmental Research Plan (UFOPLAN FKZ 3716 31 330 0) issued by the Federal Ministry for the Environment (BMUB). ●

Contact:
→ christian.kabbe@kompetenz-wasser.de

KURAS – Integrated planning for stormwater and wastewater management

The three year collaborative project KURAS (Concepts for urban stormwater management and sewage systems) was terminated by a final workshop end of October. Several case studies performed in the scope of the project have demonstrated that urban climate and liveability can be improved by means of smart stromwater and wastewater management.

Efficient wastewater and stormwater management in urban areas requires appropriate concepts providing for safe sewage disposal on the one hand. On the other hand, these concepts are to deliver solutions to environmental problems such as groundwater and surface pollution resulting from the existing urban hydrological situation. The development of strategies for adapting urban infrastructures to climate change is well under way. However, further investigations in terms of their effectiveness and optimization as well as of the efficiency of holistic measures were still lacking.
For this reason, the project KURAS has developed a methodology that allows integrated and comprehensive planning for stormwater and wastewater management for entire districts.
This holistic approach brings along great potential for the protection of surface waters and improves urban climate, especially by prevention of heat islands.
KURAS has been funded within the programme "Smart and Multifunctional Infrastructural Systems for Sustainable Water Supply, Sanitation and Stormwater Management (INIS)" issued by the Federal Ministry of Education and Research (BMBF) in the scope of its FONA (Research for Sustainable Development) programme; Berliner Wasserbetriebe and Veolia have provided additional financing. Measure profiles and guidelines informing on the tools developed will be published on the KURAS website. ●

www.kuras-projekt.de

Contact:
→pascale.rouault@kompetenz-wasser.de
→andreas.matzinger@kompetenz-wasser.de

kuras

NaWaM INIS

Bundesministerium für Bildung und Forschung

Bundesministerium für Bildung und Forschung

>> continuation of page 1

climate resilience of the according schemes. Intense precipitation or longer dry periods are representative examples for the climate impacts to be coped with.
Together with the cities of Berlin and Norderstedt suitable approaches to the future water infrastructure design will be developed and verified. The measures suggested for the linkage of grey, green and blue infrastructure will be tested and reviewed within the respective transformation areas. Parallel modelling and the accompanying reflection and synthesis will illustrate the impacts and consequences for the urban land-use planning.
The project was developed in cooperation with the Institute for Social-Ecological Research (ISOE), the German Institute for Urban Affairs (Difu) and other partners. Kompetenzzentrum Wasser Berlin is responsible for the work package „Scientific-Technical Assessment". One objective is to simplify the assessment methods of stormwater management strategies developed in the BMBF-funded project KURAS and to verify their advancement by a quantitative resilience analysis. In addition, KWB will contribute to concrete planning activities to be performed at Berlin sites (by Berliner Wasserbetriebe, supported by the Berlin Senate Administration for Urban Development and the Environment) in terms of measure selection and assessment.
The project is being funded for three years by the Federal Ministry of Education and Research (BMBF) in the scope of its programme „Sustainable Transformation of Urban Areas" ●

Contact:
→ clibbe@difu.de

FOCUS

Natural Water Treatment Systems for Safe and Sustainable Water Supply in the Indian Context (Saph Pani)

Editors:
Thomas Wintgens, Anders Nättorp, Lakshmanan Elango, Shyam R. Asolekar
IWA Publishing 2016

→ http://www.saphpani.eu/.

The publication delivers deeper insight into the great project Saph Pani, which was co-founded by the EU and was finalized in 2014. The project dealt with one of the greatest ecological and social problems of present and future times: the increasing water shortage in India.

An interdisciplinary research team consisting of researchers out of eight different countries spent three years on evaluating the effect of natural water systems on the local hydrological balance. Bank filtration, retention dams, constructed wetlands and managed aquifer recharge were tested and evaluated in different climatic and geographic regions (North-, Central, West- and South India) with regard to their impact on water availability.
The report covers comprehensive research-results. The methods presented as well as practical examples can be transferred to other countries. The book can be downloaded free of charge. ●

EVENTS

Meet us at the following upcoming events

21–24 October 2016

2016 Beijing International Environmental Technology Conference
Venue: Beijing, VR China

26 October 2016

Final workshop of BMBF Joint Project KURAS "Concepts for urban stormwater management and sewage systems"
Venue: EUREF-Campus Berlin, Germany
→ www.kompetenz-wasser.de

23–25 November 2016

Final Workshop of EU-Project DEMOWARE
Venue: Puy-de-Fou, France
→ www.demoware.eu

12 December 2016

20th Technical Conference „Wastewater Balance Brandenburg"
Organiser: INFRANEU | Venue: Zentrum für Luft- und Raumfahrt III | Wildau, Germany
→ http://www.infraneu.de/de/veranstaltungen_de/kalender_de.html

12–13 January 2017

47th International Symposium on Hydraulic Engineering Aachen (IWASA): Living Rivers - News from Practice and Research
Organiser: IWW RWTH Aachen
Venue: Aachen, Germany
→ http://www.iww.rwth-aachen.de/index.php?lang=de&cat=symposium&sec=next_iwasa&page=next_iwasa

25–26 January 2017

ReWaM Status Conference Regional Water Resources Management for Sustainable Protection of Waters in Germany
Venue: International Congress Centre Dresden, Germany
→ https://bmbf.nawam-rewam.de/veranstaltungen/rewam-statuskonferenz/

15–16 February 2017

Lower Saxony Groundwater Colloquium 2017
Organiser: Norddeutsches Wasserzentrum NWZ, TU Berlin, LBEG, BS/Energy und FUGRO | Venue: Brunswick, Germany
→ http://www.n-w-z.de/de/grundwasserkolloquium

16 – 17 March 2017

Symposium "Bauchemie und Wasserqualität"
Organiser: Gesellschafter Deutscher Chemiker | Venue: TU Berlin
→ www.gdch.de/bauundwasser2017

28– 31 March 2017

WASSER BERLIN INTERNATIONAL Trade Fair and Congress
Venue: Berlin, Germany
→ www.wasser-berlin.de

30 March 2017

"Innovation treibt Praxis, Praxis treibt Forschung"; Technical Symposium at WASSER BERLIN INTERNATIONAL
Organiser: Congress WASSER BERLIN
Venue: Berlin, Germany
→ www.wasser-berlin.de

20–22 June 2017

World Green Infrastructure Congress WGIC 2017
Organiser: Fachvereinigung Bauwerksbegrünung e.V. (FBB), World Green Infrastructure Network e.V. (WGIN), Europäische Föderation der Bauwerksbegrünungsverbände e.V. (EFB) | Venue: Berlin, Germany
→ http://www.gebaeudegruen.info/aktuelles/seminare-veranstaltungen-messen/alle-veranstaltungen/wgic-worldcongress-2017/

about us

The Berlin Centre of Competence for Water (Kompetenzzentrum Wasser Berlin, KWB) is a public-private partnership company. Its associates are the Technologiestiftung Berlin, the Berliner Wasserbetriebe and the Berlinwasser Holding. Through its network activities, the KWB strengthens Berlin's position 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.

Publisher
Kompetenzzentrum Wasser Berlin gGmbH
Cicerostr. 24 • 10709 Berlin, Germany
Tel. +49 (0) 30 536 53 800
Fax +49 (0) 30 536 53 888
Email info@kompetenz-wasser.de
Homepage www.kompetenz-wasser.de

Editorial staff
Dr Bodo Weigert

Translation
M. Jäckh

Layout
Monica Freise

Print
Laserline, Berlin

Current Issue
November 2016

Number printed
100 Ger. | 100 Engl.