WATER RESEARCH IN BERLIN

KOMPETENZZENTRUM WasserBerlin

newsletter 39 edition 2 / 2014

EDITORIAL

In the year 1900 the average life expectancy in Germany was only 45 years. One hundred years later it was approximately 80 years. This enormous growth of around 35 years of life expectancy is not only attributable – as might be assumed – to medical progress. It is primarily a success of the municipalities and their engineers who have succeeded with an enormous effort in securing central water supplies, in technically implementing a sewer system and in treating waste water. This has created prerequisites which are today indispensable for an improved urban hygiene. Apart from the infrastructure for mobility, the branched distribution systems for water supplies and sewers are amongst the most valuable assets of cities and municipalities. It is, therefore, necessary to pay special attention to the preservation and careful handling of these assets. In the amended German Water Management Act of 2010 it is stipulated that records about the condition, working order, operation etc. of mains systems are prepared, kept and submitted on request to the competent authorities. These data on the condition have been collected for years. However, how can these huge amounts of data be used within the meaning of the best possible preservation of condition and function? These are issues we currently also review at KWB. Within the framework of Project SEMA we have succeeded for the first time in making precise forecasts on the basis of aging models and verifying these via CTV data. In this way it is possible to make an essential contribution in order to be able to plan necessary measures to preserve the value of sewers in advance. Further information is provided on page 3 of this Newsletter and on the project website.

Andreas Hartmann
Berlin Centre of Competence for Water, Managing Director

LATEST NEWS

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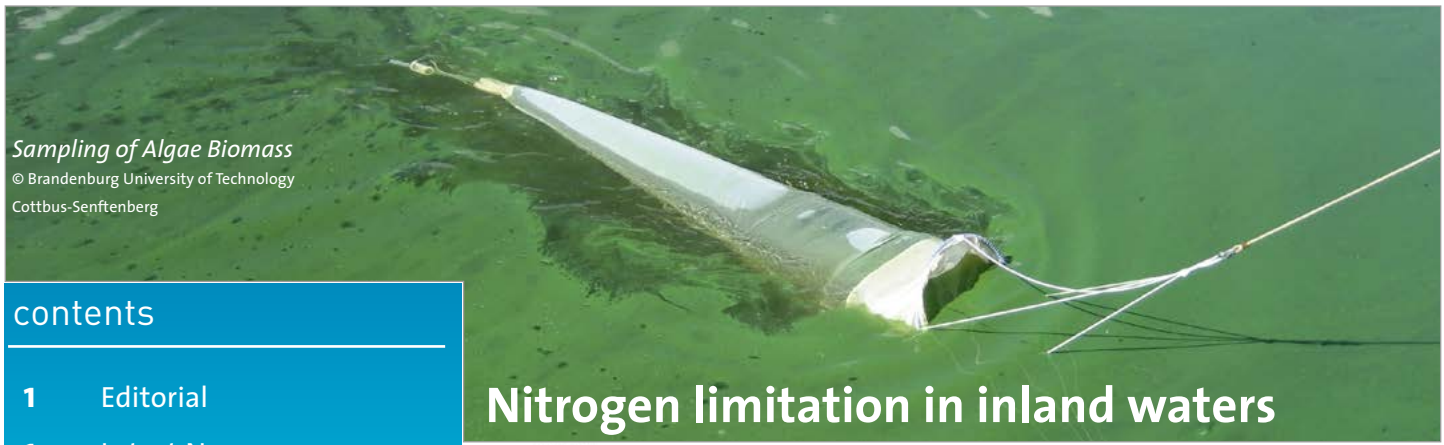
European Strategic Workshop participants

European Strategic Workshop on WATER-SAFETY-PLANNING in Berlin

In March 2014, the WHO, the German UBA and IWA invited water professionals from all over Europe to Berlin in order to discuss the lessons learned from the last ten years of the WHO concept of Water Safety Plans (WSP). In fact, 60 water professionals from more than 20 European countries joined this event. The workshop was a perfect platform to present the individual country's perspectives and to identify regional similarities and differences. The event was held in cooperation with EUREAU, DVGW (German Technical and Scientific Association for Gas and Water) and KWB and took place in the head office of Berlin's water utility Berliner Wasserbetriebe.

→ Download programme and presentations



Sampling of Algae Biomass
© Brandenburg University of Technology Cottbus-Senftenberg

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Nitrogen limitation in inland waters

Bundesministerium für Bildung und Forschung

The integrated research project NITROLIMIT has been promoted since May 2014 for another two years by BMBF *(Federal Ministry for Education and Research)*

In a large part the German inland waters will not reach the good ecological condition according to the EU Water Framework Directive despite major investments by 2015. So far it has been assumed that the water quality is determined by phosphorus (P) so that decontamination strategies targeted the reduction of P.

NITROLIMIT

NITROLIMIT I demonstrated that nitrogen (N) likewise represents a relevant control parameter for water quality. Consequently, not only P but also N reduction makes ecological sense.

Continues on page 4 >>

NEWS FROM THE KWB NETWORK OFFICE

Nine-member board supervises KWB' activities

The KWB is supervised by a nine-member board, which elects a chairman from among its members. New chair is Nicolas Zimmer, CEO of TSB Technologiestiftung Berlin. The KWB shareholders' agreement stipulates that, besides the shareholders representatives, also the players of Berlin's research landscape, local economy and administration participate in this body. The board members are: Frank Bruckmann (Berliner Wasserbetriebe), Reinhold Hüls (Veolia), Jean-Marc Philipot (Veolia), Prof. Dr. Heiko Sieker (Verein zur Förderung des Wasserwesens VFW e.V.), Jörg Simon (Berliner Wasserbetriebe), Hervé Suty (Veolia), Prof. Dr.-Ing. Paul Uwe Thamsen (Technische Universität Berlin), Jürgen Wituschek (Senate Department for Economics, Technology and Research, Berlin), Nicolas Zimmer (Berlin Technology Foundation). ●

© Photo: Berlin Technology Foundation

TECHNOLOGY FOUNDATION BERLIN (TSB) TAKES OVER CHAIR OF THE SUPERVISORY BOARD AT KWB

INTERVIEW WITH NICOLAS ZIMMER, CHAIRMAN OF THE EXECUTIVE BOARD OF TECHNOLOGY FOUNDATION BERLIN (TSB).

Until November 2012 he was Undersecretary of State with the Berlin Senate Administration for Economic Affairs, Technology and Research and from 1998 – 2011 he was a member of the House of Representatives of Berlin. Mr Zimmer worked as an attorney at law until he was appointed Undersecretary of State.

Mr Zimmer, the Technology Foundation Berlin (TSB) works at the interface between science, industry, politics and public administration. At the beginning of this year the Technology Foundation was repositioned. What are its missions and goals?

We will work in future on annual programmes encompassing certain topics of which we believe that they should be strategically developed in Berlin. Technologies provide opportunities. They can contribute towards solving problems which result, for instance, from the increasing scarcity of fossil energy sources or demographic changes. We identify such topics, deal with them, issue recommendations for action and work on their implementation.

One example is the topic "Smart City Berlin". In a study we have taken stock of the current situation and elaborated recommendations for action to further develop this theme in and for Berlin. We were able to demonstrate that Berlin is already smart in many areas and that this must be an incentive to further enhance its strengths and become the leading Smart City in Europe.

Water supply and disposal is, by the way, an important topic in this connection. The work on the study has triggered first developments. A working group has been set up, initiated by us and Berlin Partners, which will make operational proposals. A focus is also placed on this topic by politics, and at the beginning of the year it was decided to turn Berlin into the leading European Smart City.

There are further topics of this quality for Berlin on which we are currently working: we have demonstrated at the beginning of this year the effect it can have if Berlin handles its data openly and makes them available for further utilisation and processing – with both a community and economic impact. We will show how technologies in Berlin can contribute towards allowing the growing population segment of 65+ to live for as long as possible autonomously and be able to move around the city.

Let's come back to the Smart City. You have mentioned the relevance of the water topic for a Smart City Berlin. Can you tell us more about this?

Water supply and disposal is an important topic within the framework of a smart infrastructure. We organised the press conference during which we presented our study together with the Senator for Economic Affairs and the Senator for Urban Development in the pumping station of Berliner Wasserbetriebe in Holzmarktstraße. We introduced the smart pump control which permits a sustainable handling of storm and waste water and prevents a strong contamination of the River Spree and the lakes.

This example shows the proximity of the environmental and water industry to the Smart City topic. The pumping station is a benchmark project which is visited by international delegations. We must enhance these strengths in a more targeted manner.

The Technology Foundation Berlin (TSB) is a founding member of the Kompetenzzentrum Wasser Berlin and has also been one of its shareholders. You have just been elected Chairman of the Supervisory Board. What are the future tasks for KWB in your view?

The Technology Foundation Berlin (TSB) commits itself to transferring research and development results rapidly to the fields of application. This has been the reason for our commitment to KWB. KWB has launched some very innovative projects in order to render waste water treatment plants essentially more energy-efficient.

The proximity to the Smart City topic has already been explained above. Consequently, this is a theme which is important for the work of the Technology Foundation, so that we will continue to advance it. The Berlin water industry is innovative and very successful on the international level. I commit myself to highlight these strengths further and to implement projects which stand for an innovative, smart Berlin.

For that reason I also believe that future projects at KWB will include energy and recycling management, since these will be closely related to the water management issues of the future.

The Technology Foundation observes the Berlin innovation developments very closely. It just presented an innovation monitoring for Berlin. What renders Berlin so innovative?

Berlin has by now its own unmistakeable profile. This includes the small and medium sized enterprises with a workforce of up to 49 people that are more active, for instance, in research and development than comparable companies in the rest of Germany. They co-operate more closely and have in this way turned the special Berlin structure into an asset. All Berlin-based companies generate particularly high revenues with innovations. Berlin is above all leading in the field of technology-driven services.

This development was possible because Berlin has a very strong research environment and because people have above average qualifications and skills in this city. It is also the result of a good innovation policy, which builds on these very strengths and has enhanced them consistently.

Thank you very much. Bodo Weigert asked the questions

WATER RESEARCH IN BERLIN AND BRANDENBURG

Test ditch for nutrients retention in the Ic watershed (Bretagne, France)
Photo © KWB

AQUISAFE finalised – mitigation zones for surface water protection

Fertilizers and pesticides from agriculture pollute surface waters and impair drinking water production. The project Aquisafe investigated the potential of mitigation zones to reduce diffuse pollution. The mitigation zones investigated at the test site of the Umweltbundesamt (UBA) have turned out to be highly efficient with regard to the retention of nitrate (up to 80%), the herbicide atrazine (up to 70%) and the pesticide isoproturon (40%). Additional field research conducted in the Ic watershed (France) and Upper White River (USA) confirmed these results. Guidelines relating to the design and operation of such schemes were developed.

→ Download Reports

Protection of groundwater resources and "Hydraulic Fracturing" – KWB-study COSMA completed

The project COSMA is dealing with risks emerging from subsurface technologies (geological CO_2-storage, deep geothermal systems, shale gas exploration/ fracking) to shallow groundwater used for drinking water production. In 2013, at KWB a risk assessment matrix and best practices for monitoring have been compiled, while the research partners from GFZ Potsdam and Freie Universität Berlin have developed a methodology to couple a deep geological model with an overlying quaternary aquifer model, and to simulate the impacts of CO_2 injection on pore pressures. The project was completed in June 2014 with a stakeholder workshop.

→ Download Reports

Pilot plant of GFZ in Ketzin
Photo © GFZ

Sewer condition evaluation and prediction

In the last 30 years, most cities have invested in sewer system expansion and treatment plant upgrade but a relatively small component has been allocated to the improvement of sewer system condition. Models already available on the market can be used by sewer operators to simulate the condition of sewers and forecast the evolution of the system. SEMA aims to assess the suitability of sewer deterioration models to predict sewer condition state and to set the relevant specifications of models and input data in respect to a successful utilization. Tools for the preparation, translation and evaluation of sewer inspection data have been developed. First model tests have been performed using the extensive inspection dataset of the Brunswick wastewater utilities (SE|BS).

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→ Informations on Website

Inspection of a trunk sewer in Prague
Photo © Veolia

>> continuation of page 1 (NITROLIMIT)

As a decision aid for the implementation of measures, specific target values by water type for N and P concentrations were determined in view of reaching a good ecological condition. (→ NITROLIMIT dicussion papers in German).
In NITROLIMIT II the elaborated target values for N and P concentrations for lakes and rivers are verified, knowledge gaps on N and P conversion processes within the waters are closed, costs and the efficiency of reduction measures are further clarified and the readiness of farmers to participate in agricultural environmental measures is determined. Together with partners from practice, concepts are prepared for the improvement of water quality which take both N and P into consideration, for instance for a partial catchment area of the River Dahme, which has a major influence on the quality of the river Spree in Berlin. In a synergy phase recommendations are to be elaborated for water management in urban and rural areas which are ecologically useful and ensure a sustainable and economically reasonable management of the waters. KWB supports the project team in ecosystem modelling. Furthermore amongst others the environmetal impact of rainwater management measures will be balanced by life cycle assessment (LCA).
NITROLIMIT is led by Brandenburg University of Technology Cottbus-Senftenberg, water protection chair and carried out with the Federal Institute for Water Science Koblenz, the Leibniz Institute for Water Ecology and Freshwater Fishery, Berlin, the Kompetenzzentrum Wasser Berlin as well as the Technical Universities of Berlin and Dresden. ●
More information on
→ www.nitrolimit.de

EVENTS

Meet us at the following upcoming events:

23-25 June 2014
EcoSTP 2014 Conference: "Eco-Technologies for Sewage Treatment Plants"
Organiser: IWA in cooperation with EU-COST Action Water2020
Venue: Verona, Italy
→ www.ecostp.org

25-26 June 2014
Water Innovation Europe "Water: green tape or blue gold?"
Organiser: WssTP
Location: Brussels, Belgium
→ www.waterinnovationeurope.eu

1-2 July 2014
Central Europe Annual Conference 2014
Organiser: EU Central Europe Programme
Venue: Vienna, Austria
→ www.central2013.eu

17-21 August 2014
HIC 2014 – 11th International Conference on Hydroinformatics
Organiser: IAHR, IWA, TU Tech, IAHS, The City College of New York
Venue: The City College of New York, New York, USA
→ http://hic2014.org

12-17 September
ICUD 2014 International Conference on Urban Drainage
Organiser: NRE Malaysia, DID Malaysia, IWA, IAHR
Venue: Borneo Convention Centre Kuching, Sarawak, Malaysian Borneo
→ www.13icud2014.com

22-25 September 2014
IWA World Water Congress and Exhibition
Organiser: IWA
Venue: Lisbon, Portugal
→ www.iwa2014lisbon.org

1-2 October 2014
Water Utility Event on Managed Aquifer Recharge
Organisers: Amphos21, CetAqua
Venue: Barcelona
→ http://demeau-fp7.eu

12-16 October 2014
IWA 14th International Conference on Wetland Systems for Water Pollution Control (ICWS)
Organiser: Tongji University, Shanghai, Chongqing University, Chongqing, China,
Venue: Shanghai, China
→ 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

Our annual report in the web.

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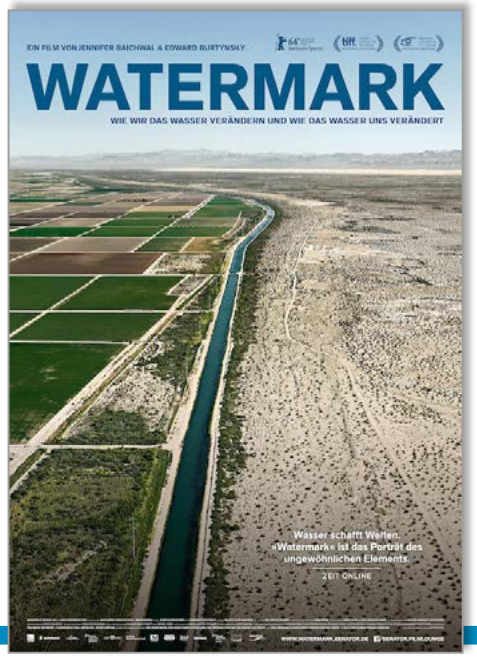

Watermark – A documentary on how water shapes humanity

Directors: Jennifer Baichwal and Edward Burtynsky, Kanada 2013
Release date: 15 May 2014

Watermark is a feature documentary film that brings together 20 stories from 10 countries around the globe about the vital necessity and beauty of water. Full of soaring aerial perspectives, the film traces a narrative arc from the construction site of the biggest arch dam in the world, the Chines Xiluodu to the barren desert delta where the mighty Colorado River no longer reaches the ocean. We witness how humans are drawn to water, from the U.S. Open of Surfing in Huntington Beach to the Kumbh Mela in Allahabad, where thirty million people gather for a sacred bath in the Ganges at the same time. ●

→ Information

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 publicandprivate sectors.

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Layout
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Print
Laserline, Berlin

Current Issue
June 2014

Number printed
150 Ger. | 150 Engl.