WATERBOARDS TACKLING THE CIRCULAR ECONOMY IN GERMANY

Prof. Dr. Uli Paetzel, German Water Association and CEO Emschergenossenschaft / Lippeverband
Phos4You Final Conference
22.09.2021
ABOUT DWA

Historie

• 1948 Foundation of ATV
• 1978 Foundation of DVWK
• 2000 Merger: ATV-DVWK
• 2004 Rebranding: DWA

DWA in figures

• 14,000 members (8,500 personal memberships, 5,500 supporting members)
• 2,600 voluntary experts in 350 committees
• about 150 employees

Headquarters in Hennef and seven regional associations

Schleswig-Holstein, Niedersachsen, Hamburg, Bremen

Mecklenburg-Vorpommern, Sachsen-Anhalt, Brandenburg, Berlin
## TASKS OF DWA

<table>
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<tr>
<th>Development and update of the DWA-manuals</th>
<th>Promotion of young professionals</th>
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<td>Planning and organisation of seminars</td>
<td>Research transfer</td>
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<td>Cooperation with other (international) organisations in the water sector</td>
<td>Public Affairs for the water sector</td>
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Our aim is to make experts meet.
EMSCHERGENOSSENSCHAFT / LIPPEVERBAND
Public water associations for more than a hundred years
WATER BOARDS IN NORTH RHINE-WESTPHALIA

- Emschergenossenschaft
- Lippeverband
- Ruhrverband
- Wupperverband
- Lineg
- Niersverband
- Erftverband
- Aggerverband
- Bergisch-Rheinischer Wasserverband
- Wahnbachtalsperrenverband
- Wasserverband Eifel-Rur
- Borders of North Rhine-Westphalia
OUR CATCHMENT AREAS

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<th>Area</th>
<th>Area (km²)</th>
<th>Population (mill.)</th>
<th>Inhabitants/km²</th>
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<tr>
<td>Lippeverband</td>
<td>3,280</td>
<td>1.4</td>
<td>427</td>
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<td>Emschergenossenschaft</td>
<td>865</td>
<td>2.2</td>
<td>2,546</td>
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- Streams
- Drainage pumping station
- Wastewater treatment plant
- Pumping station
INTEGRATED WATER MANAGEMENT
AROUND THE WATER CYCLE

- Renaturation
- Flood protection
- Stormwater management
- Waste disposal
- Waste water treatment
- Climate change adaption
- River maintenance
- Water discharge
- Polder management
- Climate change adaption
CLIMATE CHANGE AND CLIMATE CHANGE ADAPTATION

Temperatures in Germany

- Change in average temperatures measurable
- Extreme weather events (drought / heavy rainfall) increase
- Taking climate justice seriously
Flooding raises awareness for a different approach to water in the city

- Initial estimates assume direct damage of at least 7.5 billion euros. Federal and state governments provide 30 billion euros.
- How should cities be built in future and where can they be built?
INCREASING LEGAL REQUIREMENTS

- Improved wastewater treatment
- Wastewater levy
- Urban Wastewater treatment directive
WATER MANAGEMENT MUST PLAY AN ACTIVE ROLE
LINKINGS TO THE WATER SECTOR

Climate Change Adaption

Reduce Carbon Footprint

Circular Economy
REDUCING THE CARBON FOOTPRINT

Energy Efficiency

Process Innovation

Green Energy Production
INCREASING THE ENERGY EFFICIENCY OF WASTEWATER TREATMENT PLANTS

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Special effect because of warm and dry weather
ENERGY MANAGEMENT ON WASTEWATER TREATMENT PLANTS

Overall consumption has been reduced – self-generated energy share of about 63%
SOLAR-THERMAL SLUDGE DRYING

TOTAL INVESTMENT OF 79 MILLION €
CO2-REDUCTION: 70,000 TONS PER YEAR
CLIMATE CHANGE ADAPTION WITH THE MUNICIPALITIES IN OUR REGION

- Project "Climate-resilient region with international appeal"
- Target by 2040: 25% decoupling of paved areas and 10% points more evaporation
- Funding currently around 250 million euros until 2030
CIRCULAR ECONOMY

Water management is a circular economy

Waste water as a resource

Water Reuse
REORGANISATION OF SEWAGE SLUDGE DISPOSAL

Pilot projects for phosphorus recycling at the KLEM and Bottrop wastewater treatment plants

- Phos4You (2017 - 2022)
  LV Leadpartner
  11,1 Mio. € budget
  60 % EU-funding

- AMPHORE (2019 – 2025)
  EG Leadpartner
  11,6 Mio. € budget
  61 % funding from the Federal Ministry for Education and Research (BMBF)
TRACK COVID-19 OUTBREAKS IN REAL TIME

Wastewater monitoring as an early warning system

- particularly contagious before the onset of symptoms
- Medical tests can only provide a limited picture of the course of infection
- Area-wide recording in wastewater
- Combination with computer models
- Gene screening at the Emscher-Mündung wastewater treatment plant

VIRUSES IN WASTEWATER CORRELATE WITH INFECTED PERSONS IN THE CATCHMENT AREA
EUROPEAN ENVIRONMENTAL LAW

High level of ambition at European level
Challenges for national policymakers

- Restructuring energy law
- Understand and promote adaptation to climate impacts as a task of equal importance to climate protection
- Tapping the innovation potential of wastewater treatment plants
THANK YOU FOR YOUR ATTENTION!