

An aerial photograph of a large-scale wastewater treatment plant during the 'golden hour' of sunset. The facility is composed of numerous rectangular concrete basins filled with water, some of which show signs of aeration. A network of white pipes and blue metal walkways crisscrosses the site. In the background, three large, spherical storage tanks are visible against the bright orange and yellow sky. A tall red construction crane stands on the left side of the image. The overall scene conveys a sense of industrial scale and environmental management.

# 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



Development and update of the DWA-manuals

Promotion of young professionals

Planning and organisation of seminars

Research transfer

Cooperation with other (international) organisations in the water sector

Public Affairs for the water sector

→ Our aim is to make experts meet. ←

# EMSCHERGENOSSENSCHAFT / LIPPEVERBAND

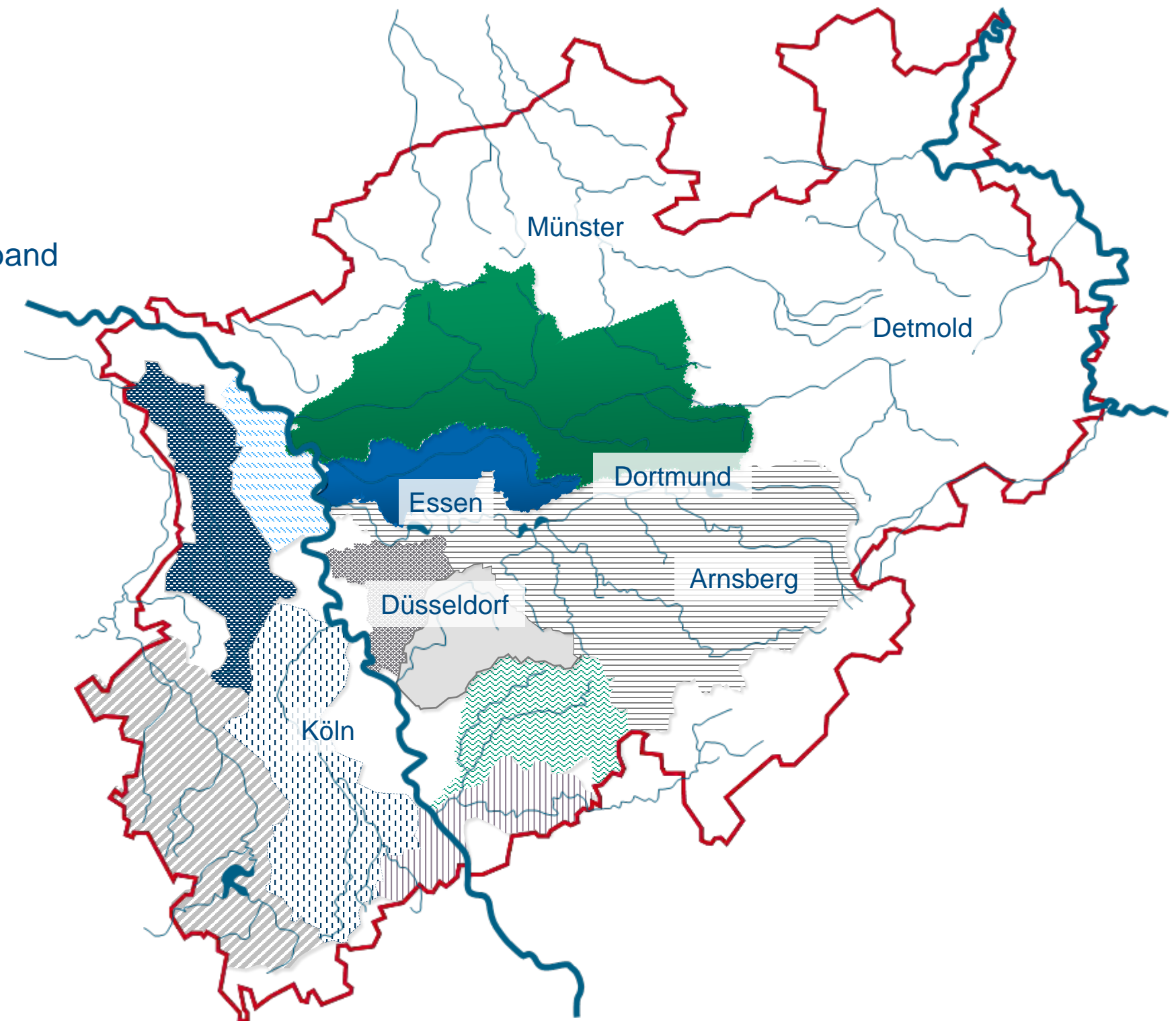
Public water associations for more than a hundred years

**EMSCHER** **LIPPE**  
GENOSSENSCHAFT EGLV.DE VERBAND

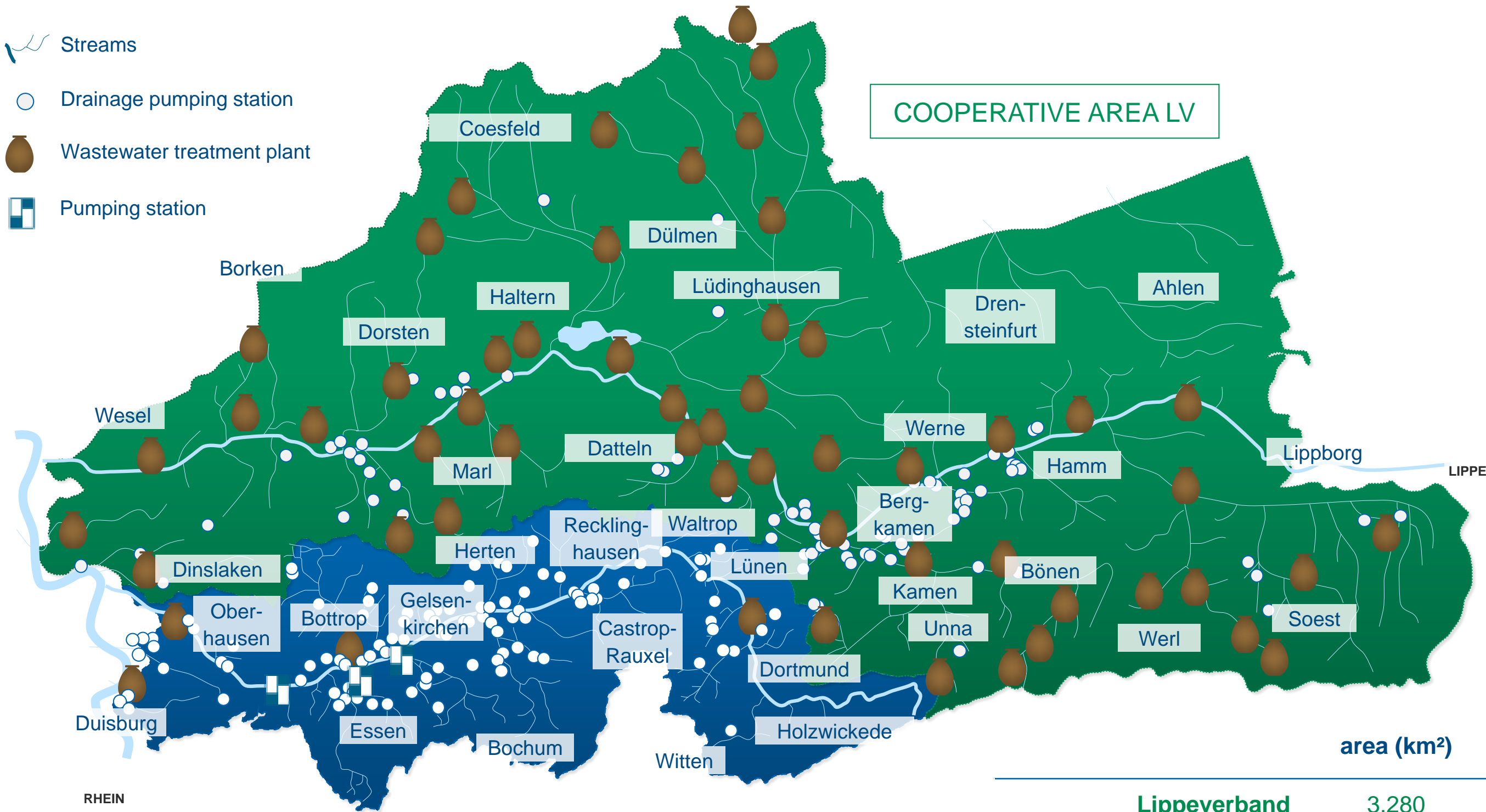




# WATER BOARDS IN NORTH RHINE-WESTPHALIA



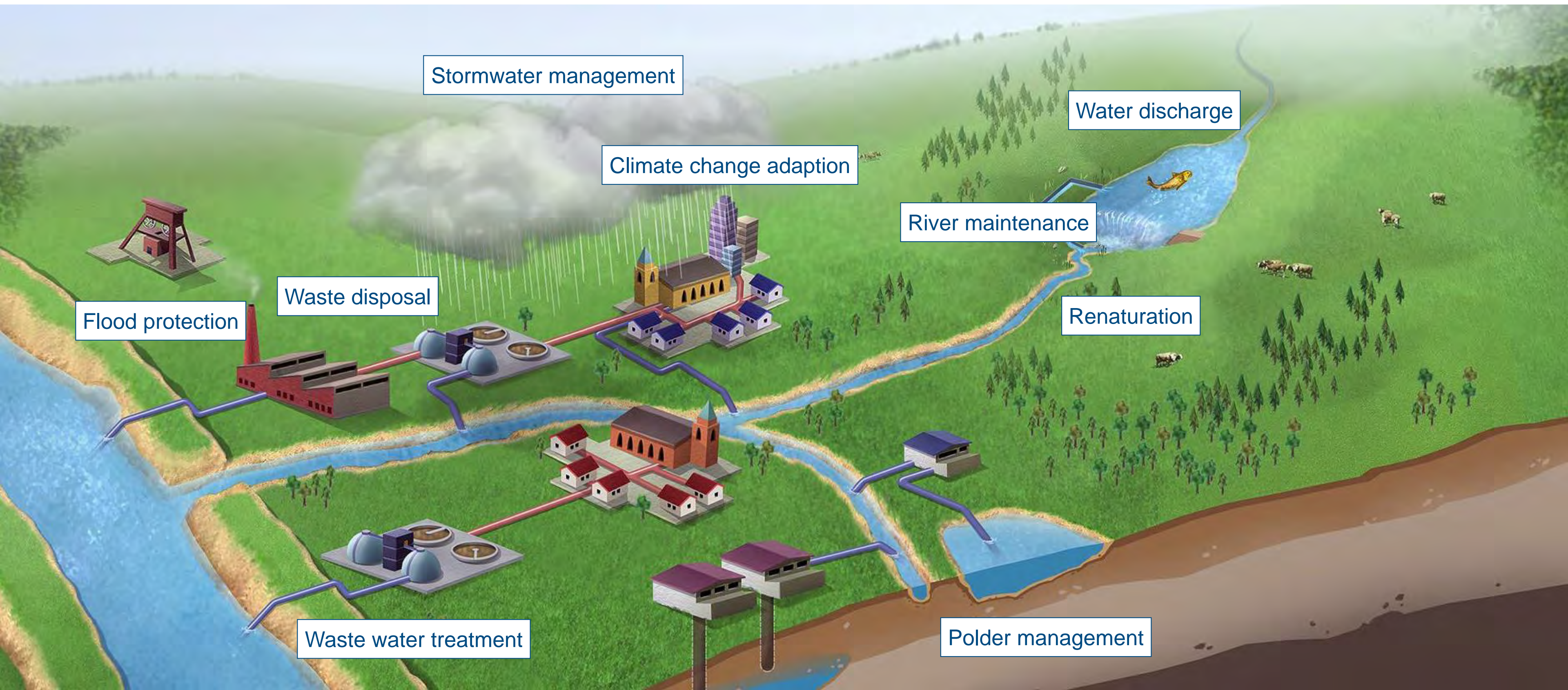
# OUR CATCHMENT AREAS



	area (km <sup>2</sup> )	population (mill.)	inhabitants/ km <sup>2</sup>
Lippeverband	3,280	1.4	427
Emschergenossenschaft	865	2.2	2,546



# INTEGRATED WATER MANAGEMENT AROUND THE WATER CYCLE





# FUTURE CHALLENGES IN THE WATER SECTOR

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# CLIMATE CHANGE AND CLIMATE CHANGE ADAPTATION

## Temperatures in Germany

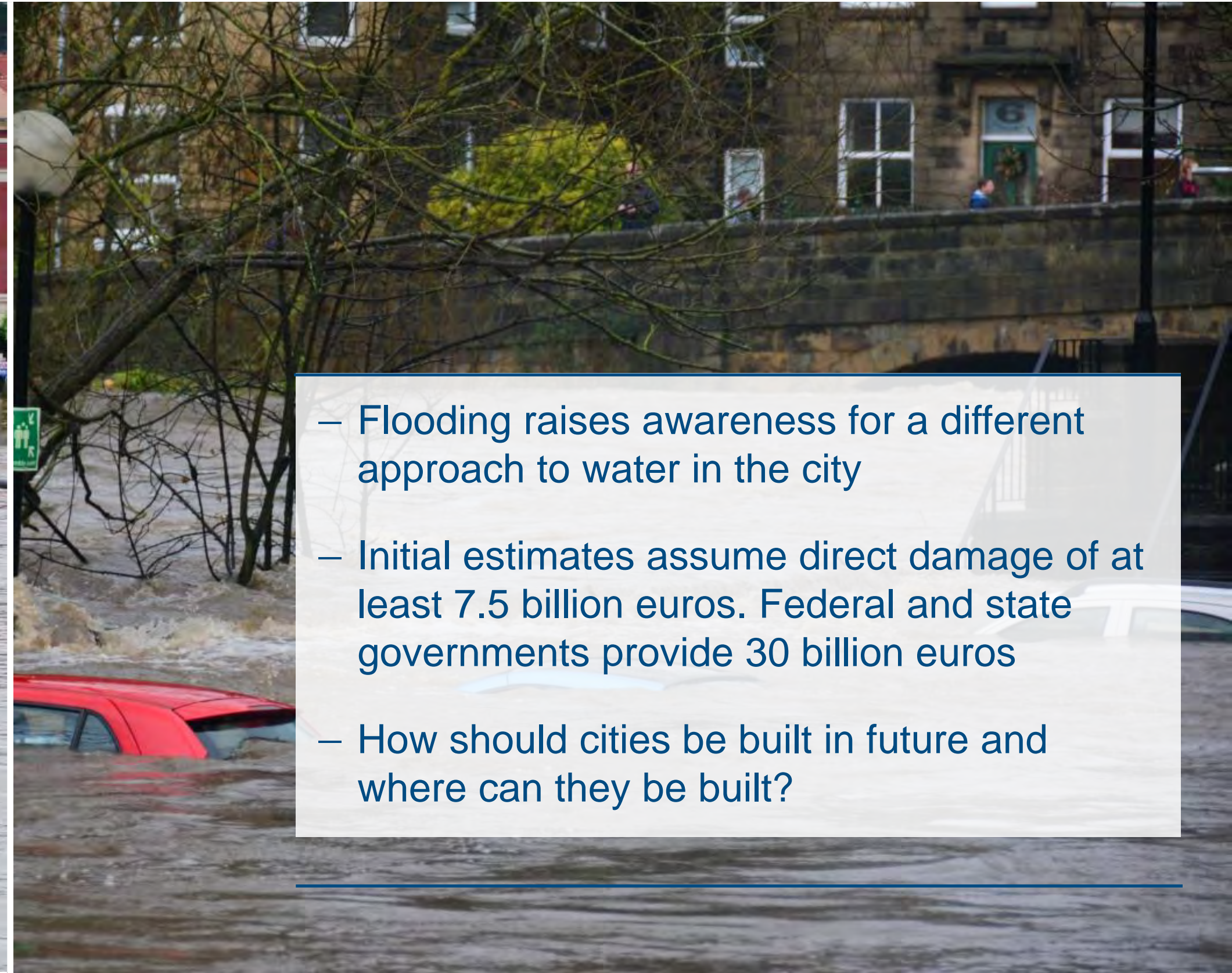
- Change in average temperatures measurable
- Extreme weather events (drought / heavy rainfall) increase
- Taking climate justice seriously

Warming Stripe for Germany: Deviations from the average annual mean temperature (1881-2017)



# STORMWATER AND FLOODS

Floods on july 2021 showed the immediate threat



- 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

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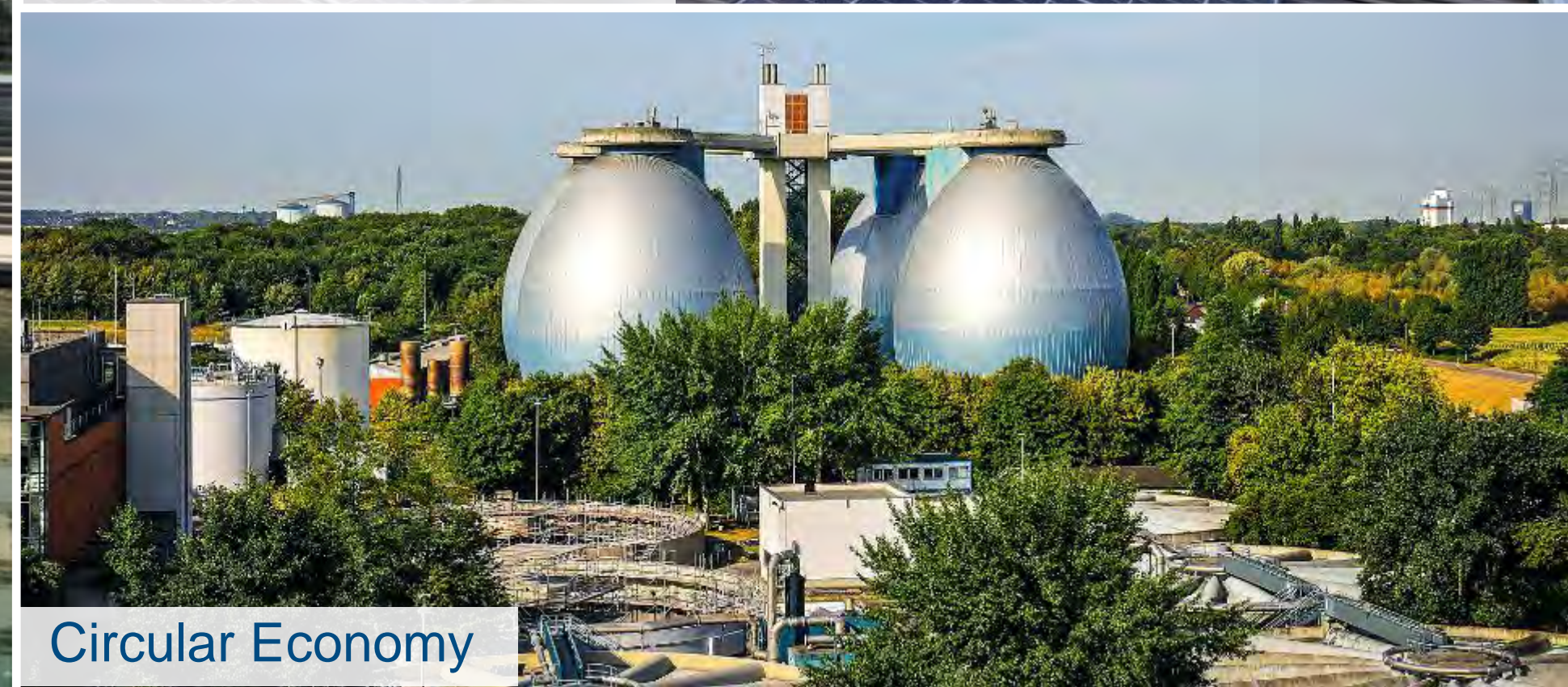
# LINKINGS TO THE WATER SECTOR



Climate Change Adaption



Reduce Carbon Footprint



Circular Economy

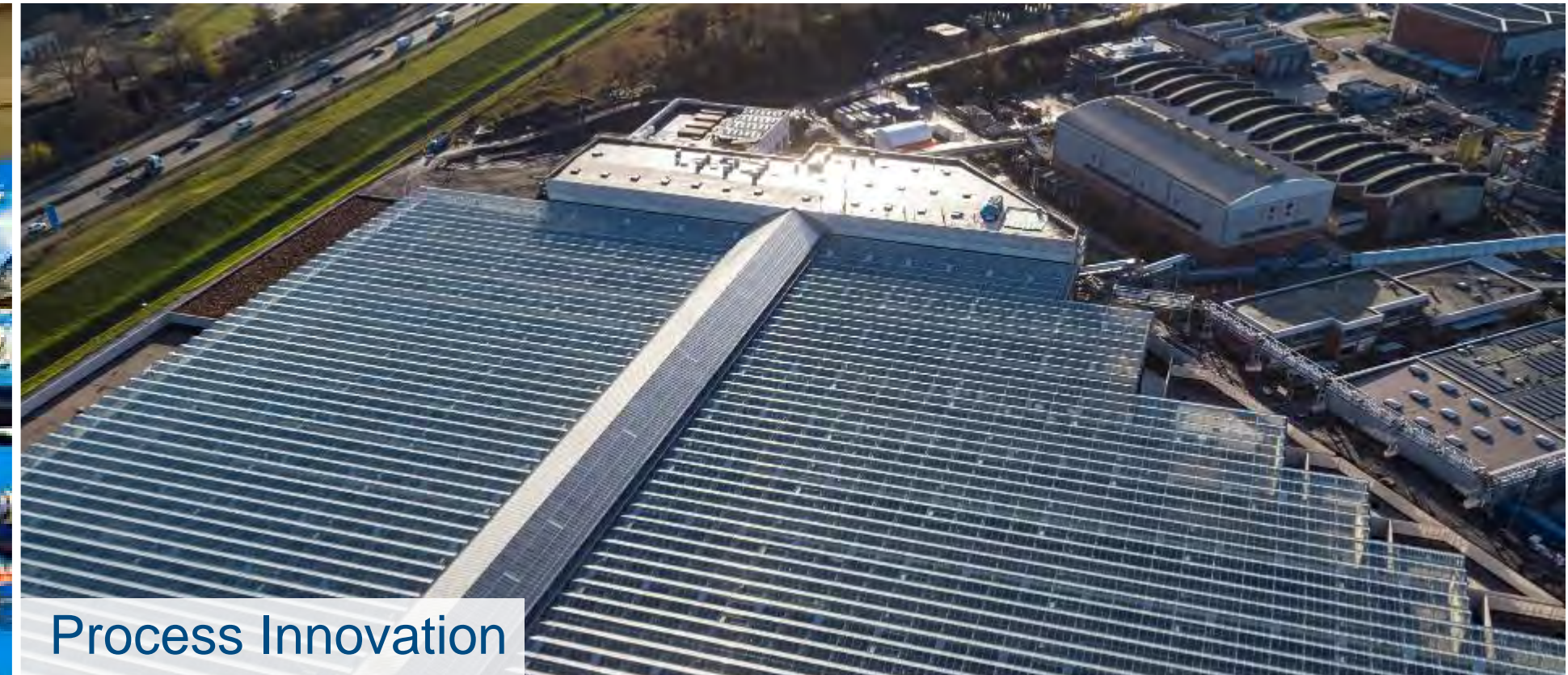




# REDUCING THE CARBON FOOTPRINT



Energy Efficiency



Process Innovation

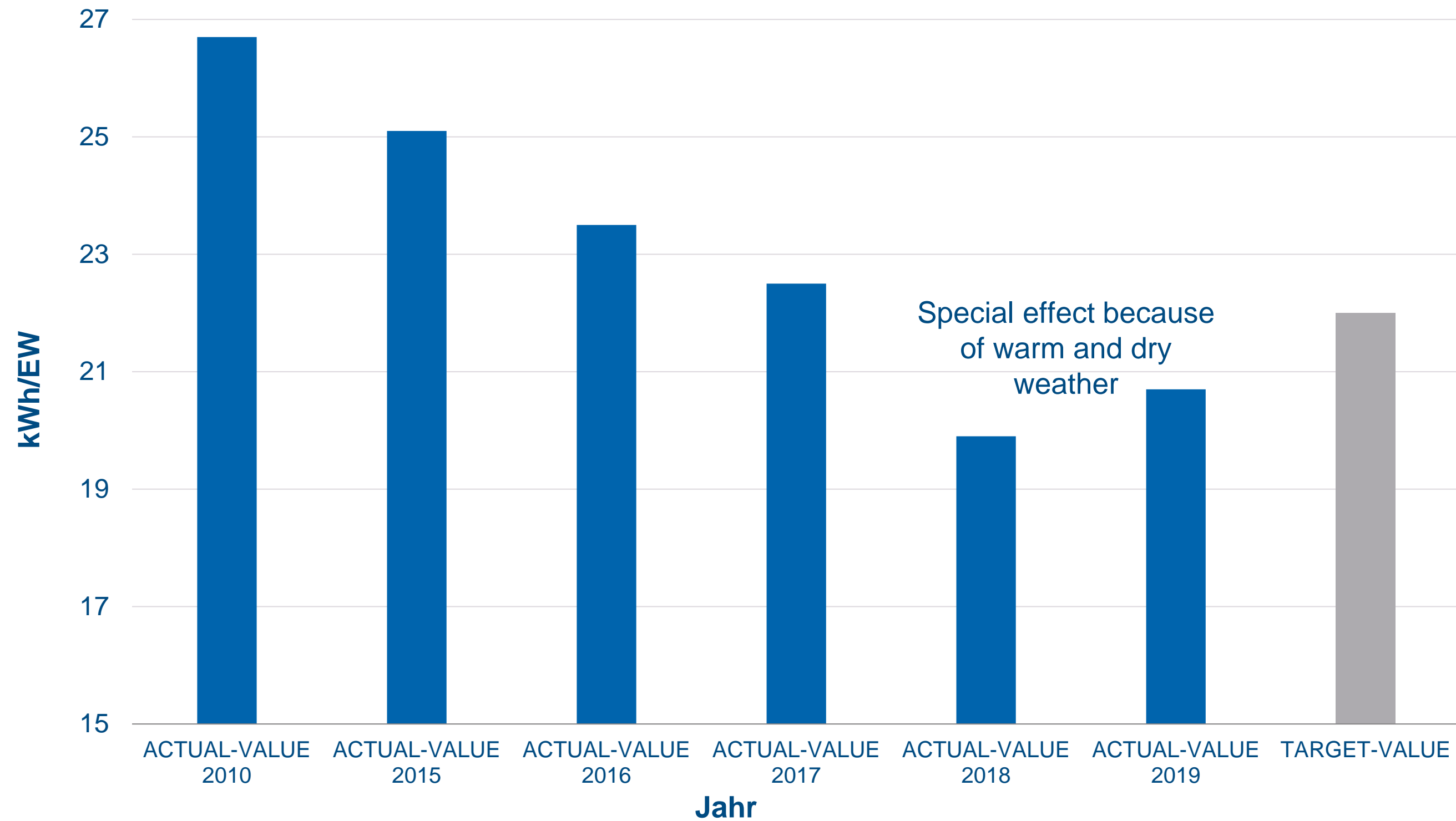


Green Energy Production





# INCREASING THE ENERGY EFFICIENCY OF WASTEWATER TREATMENT PLANTS

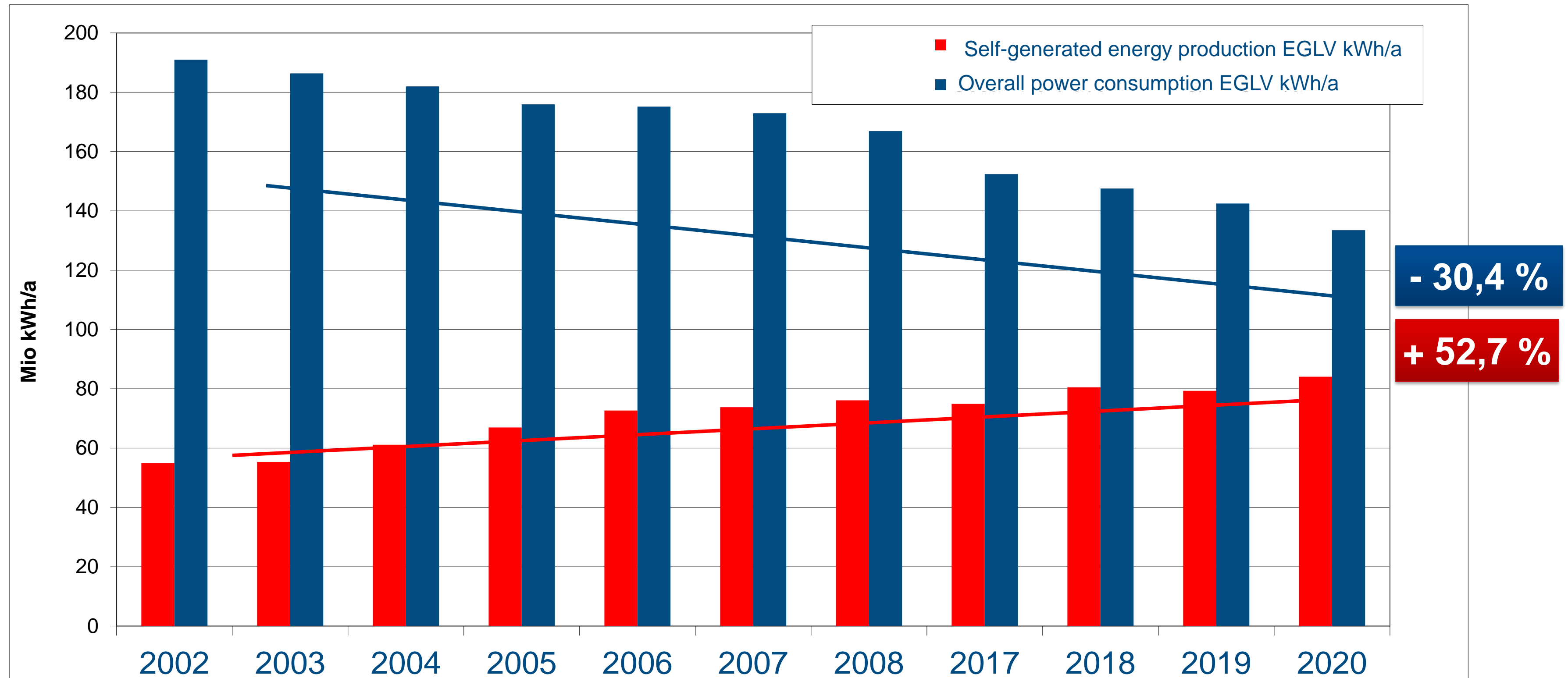






# ENERGY MANAGEMENT ON WASTEWATER TREATMENT PLANTS

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


 dortmund.de

**WASSER**   
IN DER STADT VON MORGEN



15. Februar 2019 in Dortmund

**4. Dezernententreffen der ZI „Wasser in der Stadt von morgen“**

Wir gestalten die Zukunft der Region 

**Vereinbarungen / Commitment: Was soll Realität werden...**

*(Wir sind eine) klimaresiliente Region mit internationaler Strahlkraft!*  
*Wir schaffen einen regionalen organisatorischen Rahmen! -*

*Wir setzen einen regionalen organisatorischen Rahmen mit der Emschergenossenschaft und allen Wasserverbänden*

*Transformation & Kooperation*  
*Ressourcen* } Rahmenbedingungen  
*Ansprechpartner für ministerielle Seite*  
*Klima-Fonds-Kurz*  
*Standards vereinbaren*  
*Modellprojekte aus jeder Stadt benennen*  
*erste Vorhabensskizze bis 31.03.*

*Organisation  
Struktur*

*Bestehen können verein-  
barten - flexibel in der  
rechtlichen Umsetzung bleiben*

*gerechte Allokation  
Bericht IBA*



- 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

Forschungsinstitut für  
Wasser- und Abfallwirtschaft  
an der RWTH Aachen e. V.







# EUROPEAN ENVIRONMENTAL LAW

High level of ambition at European level







# NATIONAL ENVIRONMENTAL LAW

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!