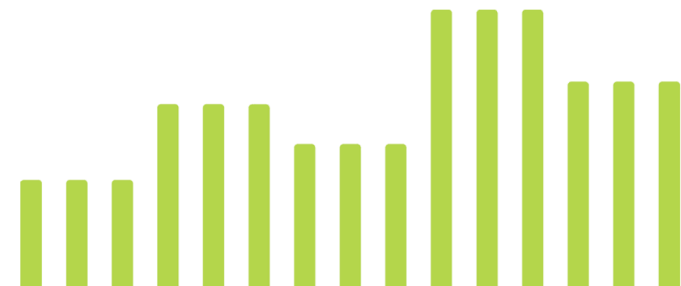




# The role of a multi utility in creating sustainable and livable cities

Jes Clauson-Kaas,  
*Chief Consultant, HOFOR - Greater Copenhagen Utility*

DTU Ballerup, 20. April 2026



# HOFOR

## Greater Copenhagen multi utility

- Denmark's largest utility company
- 1,700 employees
- One million customers





WATER



WASTEWATER



DISTRICT HEATING



DISTRICT COOLING



TOWN GAS



RENEWABLE ENERGY



ENERGY PRODUCTION

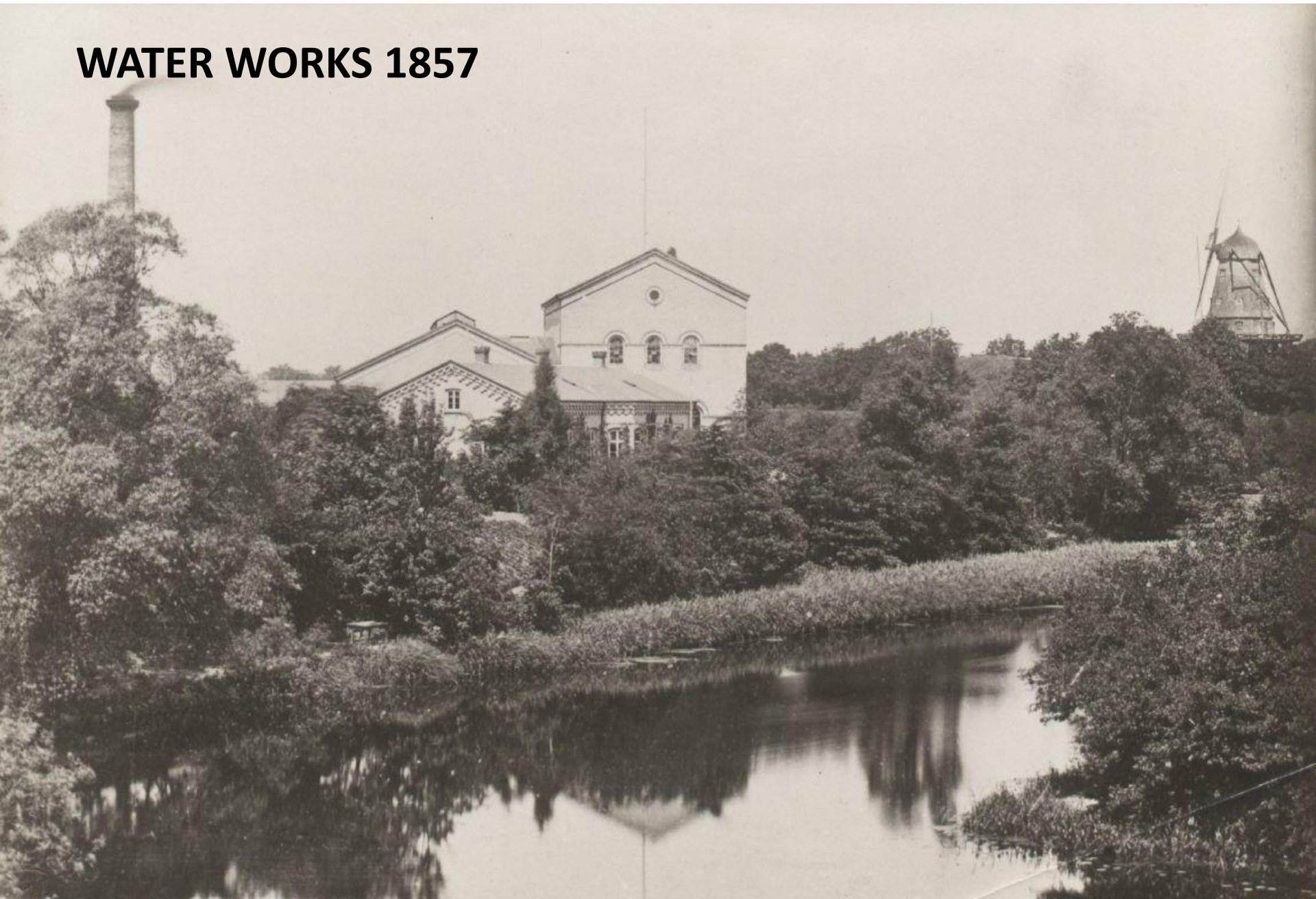
# Issues adressed

- Climate change adaptation to changing rainwater pattern
- Bathing water
- Protecting public health
  
- Planning
  - Hydraulic modelling, verification!
  - Digital surface maps
  - Cooperation Municipality and Water utility
- Financing
- Implementing
- Involving citizens
- Operation and maintenance

# Cholera epidemic 1853



**WATER WORKS 1857**



# Sewering of Copenhagen 1863



# SWIMMING IN THE HARBOR 1905



# COPENHAGEN HARBOUR 1925



# NO MORE BATHING 1952







# RECEIVING WATER QUALITY 1970-2000

- Wastewater masterplan 1976
- Retention tanks
- Closing many overflow to the harbor.
- Three advanced wastewater treatment plants

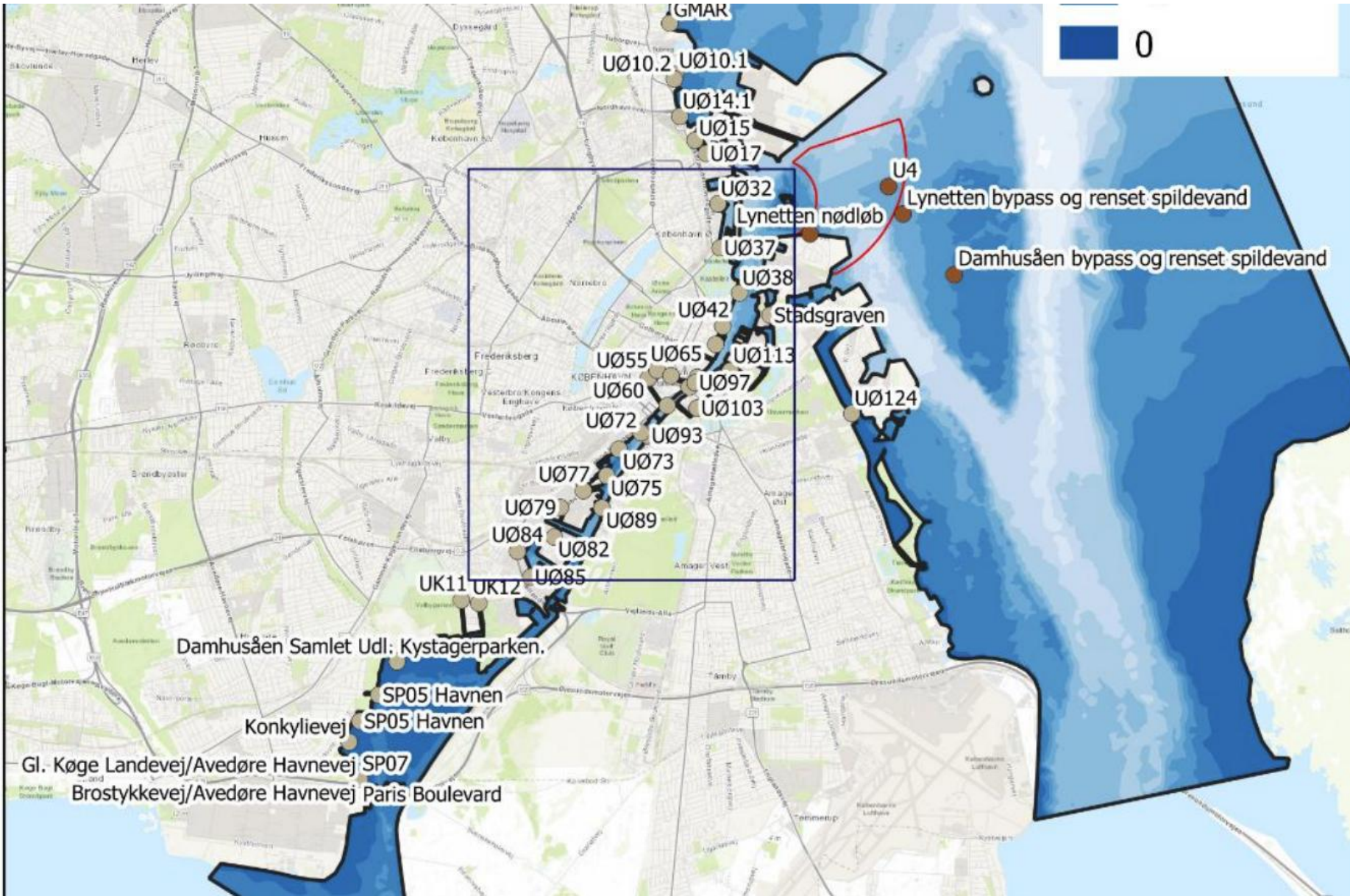
# COLOSEUM RETENTION TANK



# THE HARBOR BATH 2002



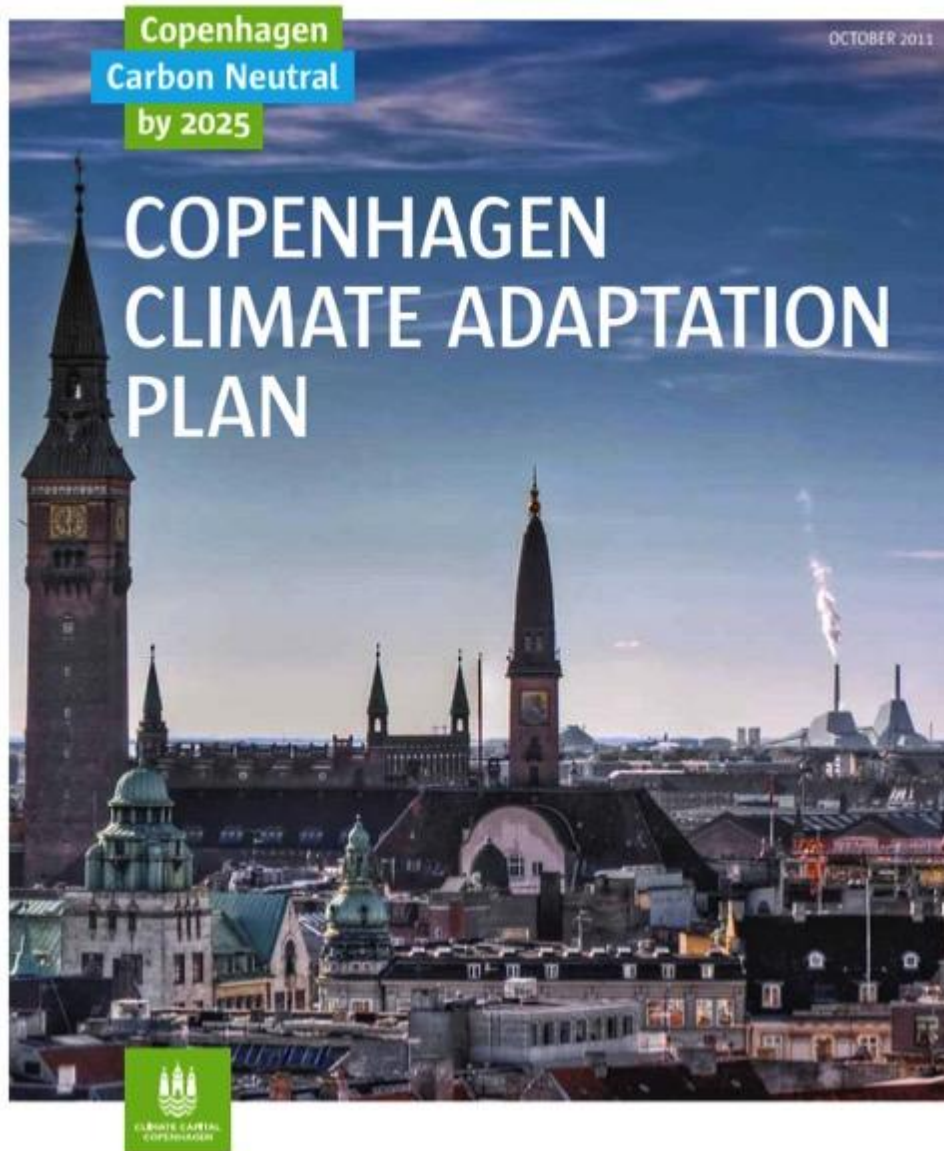
# Combined sewer overflows



# FISHING AGAIN 2005



# THE DRIVERS FOR CLIMATE ADAPTATION



More and heavier rainfall



Rising sea levels



Warmer weather







# THE VISUAL MOTIVATION



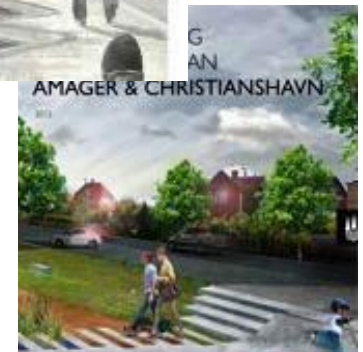
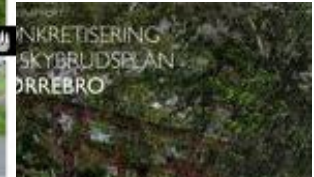
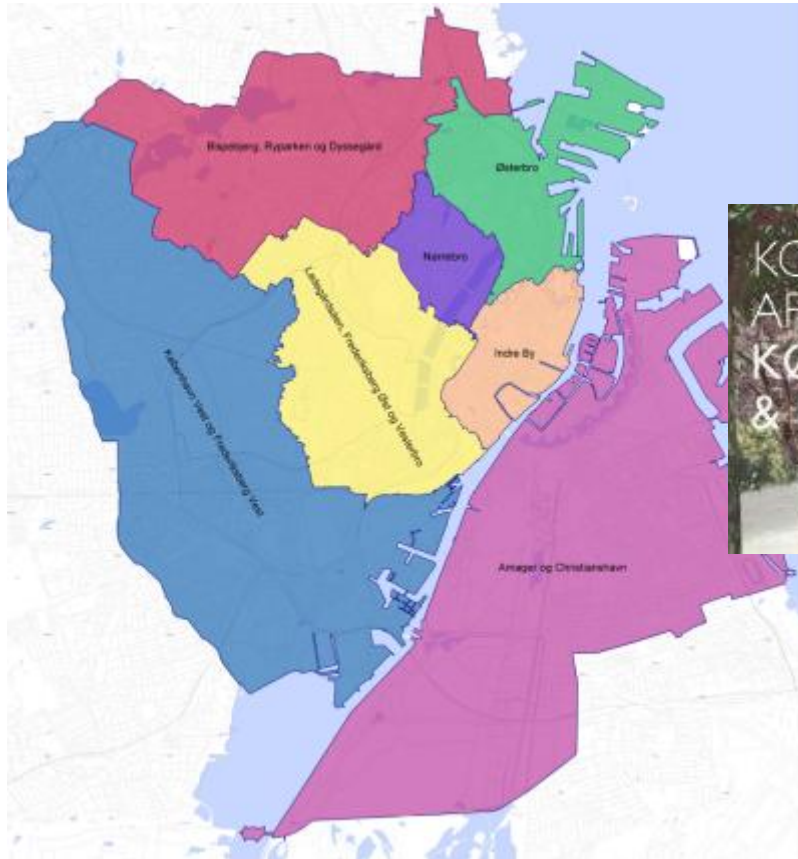
# FLOODED STREETS



# THE PLAN

Initial screening

Conceptual solutions



# FINANCING

**With changes in L&R, Water Utility companies can contribute to the cloudburst management through:**

- **Maintaining hydraulic overview over the entire water system**
- **Sub-surface (traditional) solutions**
  - Pipes, basins, tunnels etc.
- **Surface (blue/green) solutions**
  - Co-finance municipal and private projects
  - Pay for transport and storage of water
- **Include these costs in the water price**



# THE SOLUTIONS



350 individual projects

Implementation period of 20-30 years

Total cost  
EUR 1.6 bill.

Utility: EUR 1.15 bill.

# THE SOLUTIONS

## Typologies

- Cloudburst boulevards
- Retention boulevards
- Retention squares
- Green roads

Traditional subsurface installations



# BLUE AND GREEN SOLUTIONS



# PROTECT YOUR BUILDING



**Helle Kay**  
Prosjektchef, HOFOR

Du husker nok skybruddet i 2011.

THANK YOU FOR YOUR  
ATTENTION

