

Public - Private
Partnership

Public

Private

Government



**MINISTRY OF FOREIGN
AFFAIRS OF DENMARK**



Danish Ministry
of Energy, Utilities
and Climate



**Ministry of Environment
and Food of Denmark**



**MINISTRY OF INDUSTRY, BUSINESS
AND FINANCIAL AFFAIRS**

Business organisations



**DANISH
ENERGY**
Representing 60 Danish
energy companies



DI
Confederation of Danish Industry
Voice of 10,000
Danish companies



**DANISH WIND
INDUSTRY ASSOCIATION**
Representing 200 companies
in wind energy



**Danish Agriculture
& Food Council**
Representing 186,000 employees in
the farming and food industry

Corporate sponsors



Vestas
Sustainable wind power
solutions



Danfoss
Sustainable energy
technologies



RAMBØLL
Engineering sustainable
constructions



FAGLIGT FÆLLES FORBUND
Largest trade union,
representing 280,000 employees



Ørsted
Leading green
energy utility



GRUNDFOS
#1 in energy efficient pumps



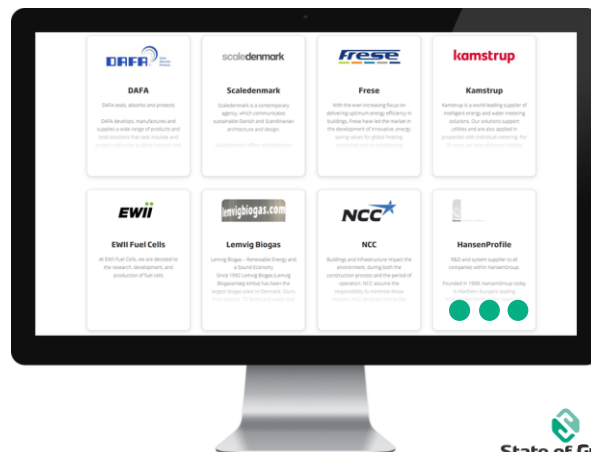
ROCKWOOL
World leader in stone
based insulation



INDUSTRI
Trade union for
230,000 workers



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180
delegations
each year

We create connections



across the globe



50
countries
each year





What we do

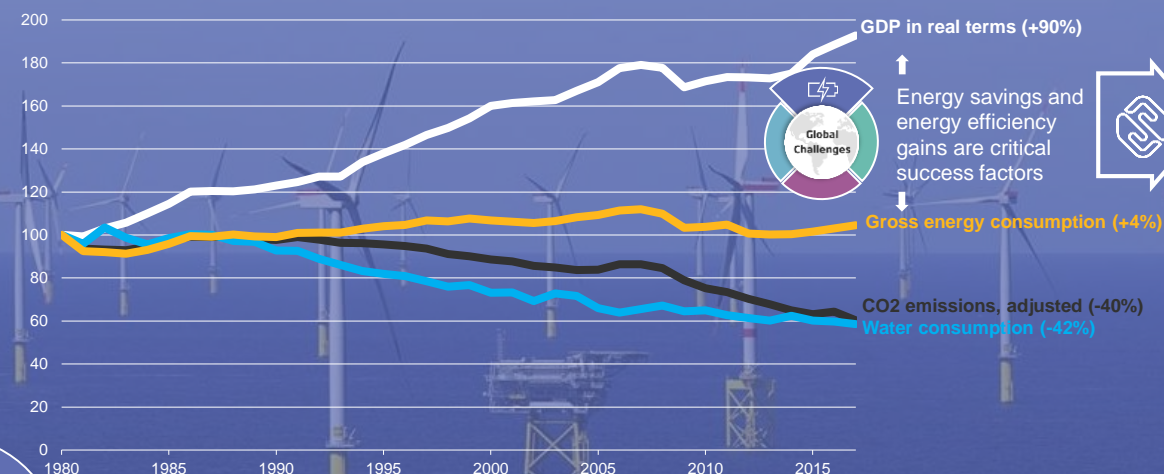
How we do it



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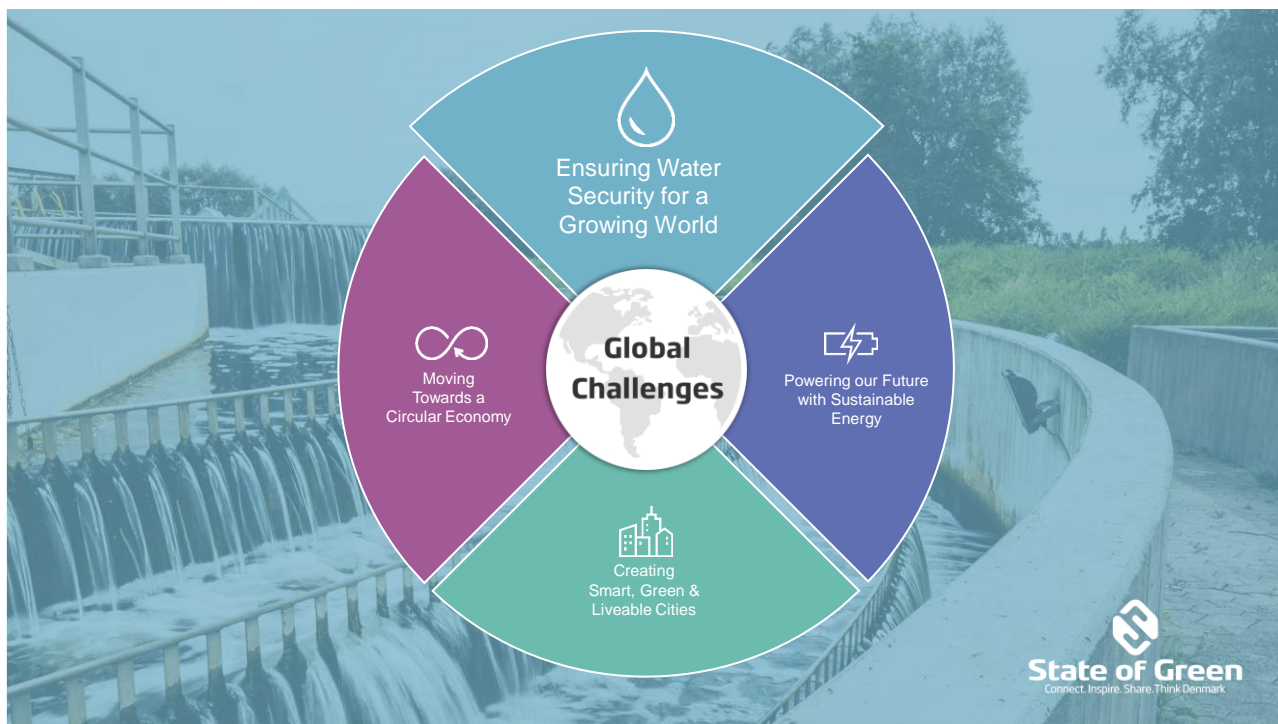
Growth with reduced water consumption and CO2 emissions is possible

1980 = INDEX 100



Source: Statistics Denmark, the Danish Energy Agency and DANVA

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Water supply in Denmark

Decentralised abstraction and distribution

Combination of approx. 170 municipal waterworks, 2500 private cooperatives and 50,000 private wells or bores

100% based on groundwater abstraction

- Stable and sustainable source of high-quality water
- Requires less treatment than surface water

Very low levels of non-revenue water

- Average of just 8% compared to 25-50% of total water distributed globally

Non-profit water utilities

- All profits made by water utilities must be reinvested or returned to the customers (lower prices)

High water price (avg. 8 euros per m³) – but reflects actual costs

- Covers water abstraction, distribution, wastewater treatment, groundwater protection and various taxes



Danish water prices

- Water price is set by each utility
 - Either fixed fee + charged per consumed m^3
 - Or charge per consumption
- Reflects actual costs
- Same fixed price for both consumers and industry
- Average water price in DK is approx. EURO 8.5 per m^3
- Water accounts for 1.4% of a typical Danish household's annual budget (electricity accounts for 2.3%)



Wastewater treatment in Denmark today

Almost 900 WWTPs in Denmark: Discharge approx. 700 million m^3 of purified wastewater annually

Discharge requirements vary from treatment plant to treatment plant (depends on the vulnerability of the receiving environment)

Tax on each kilogram of discharged nutrients: Encourages companies to clean wastewater more effectively than stipulated for each treatment plant under discharge requirements

Trend: Danish treatment plants generally clean sewage much better than required by law (Outlet concentration: only 20-70% of allowed discharged material in 2014)

Result: Save millions in taxes and ensure clean water in local community



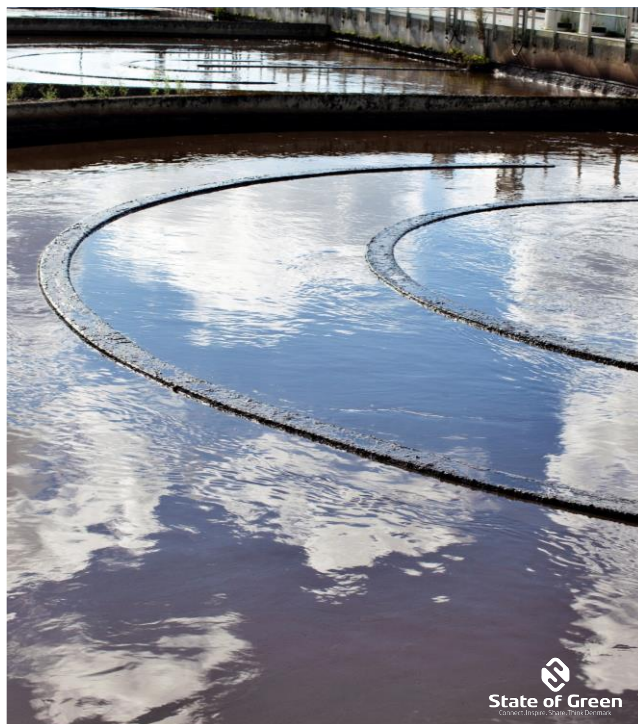
Wastewater as a valuable resource

Increased focus on **energy efficiency** and **energy recovery**

- 3% of Denmark's energy consumption relates to wastewater treatment
- 1st goal: Become energy neutral
- 2nd goal: Sell excess energy to electricity/district heating companies

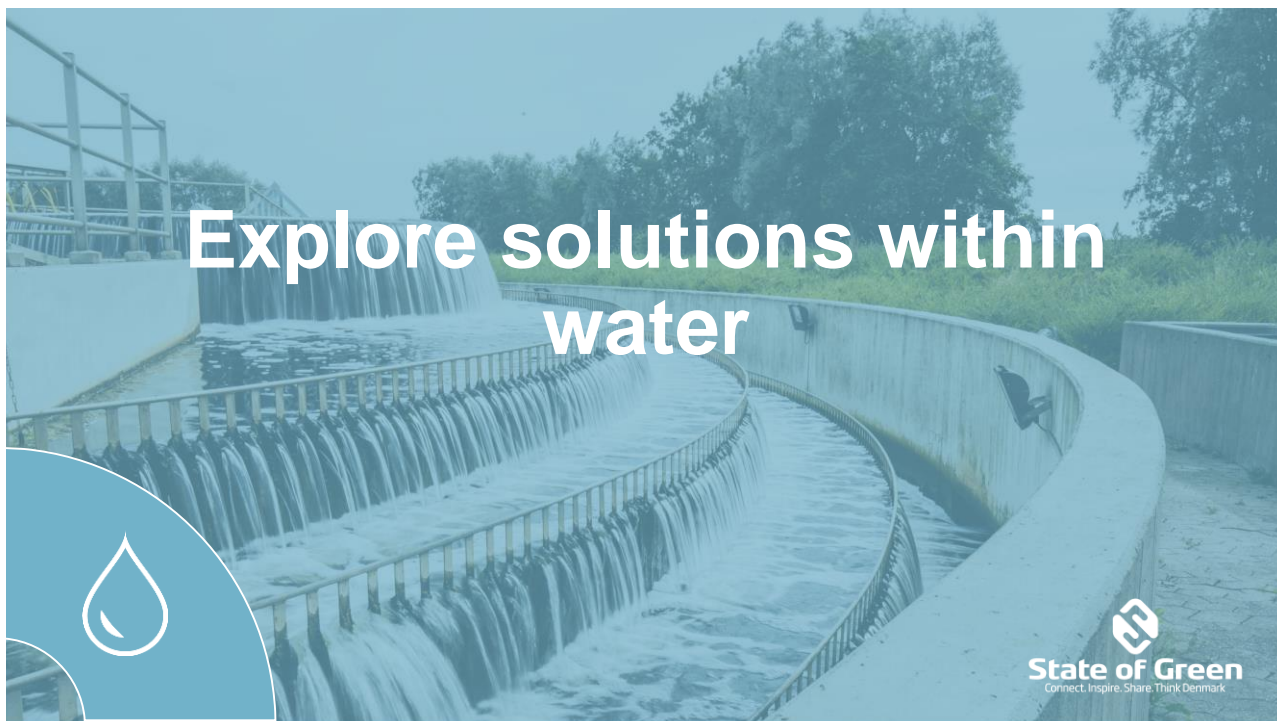
Increased utilisation of wastewater as a **valuable resource**

- Organic content used for energy production
- Phosphorus recycled and used as fertiliser
- Excess heat withdrawn for production of heat and electricity



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Explore solutions within water

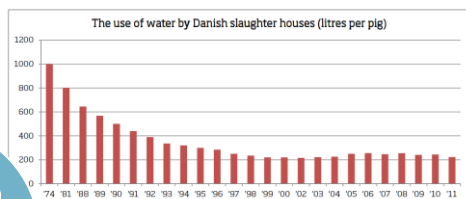


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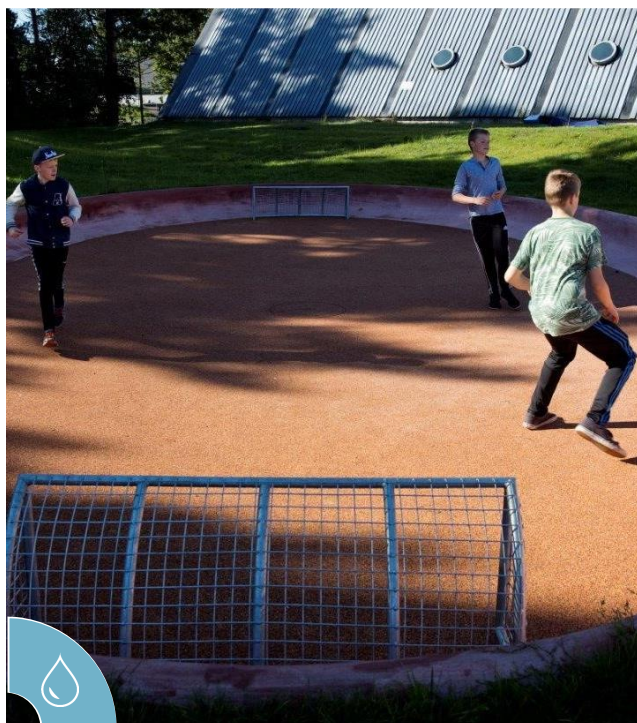
Water efficiency in food production

Sectors where high efficiency has been achieved:

- **Aquaculture** (e.g. landbased salmon farms based on recirculation technology)
- **Breweries** (e.g. on-site wastewater treatment and re-use, where possible)
- **Dairies** (e.g. reuse of water from cheese production for cleaning purposes)
- **Meat production**



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Gladsaxe Sports Centre

Partner
WATER PLUS
Spaces for Rain and Activity

Challenge

- Extreme rain events caused flooding on several occasions in the Copenhagen suburb Gladsaxe.

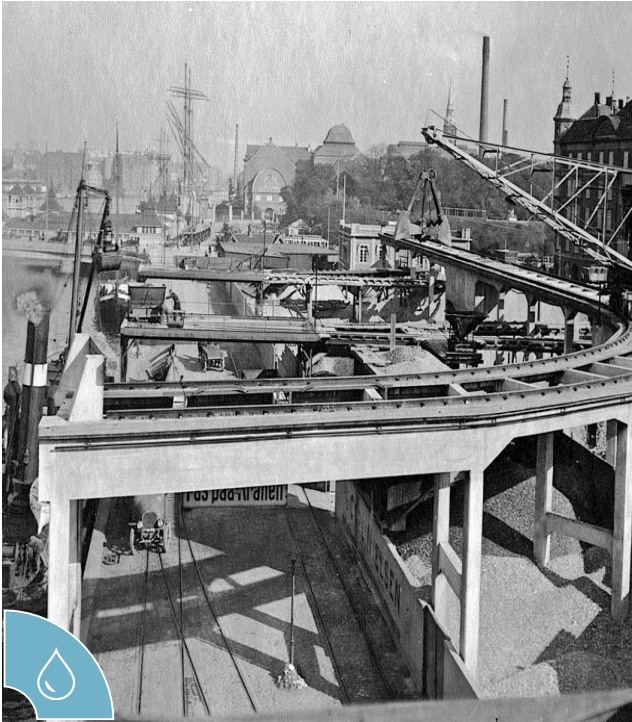
Solution

- By diverting rainwater through a series of ponds and canals, more capacity was created in the sewerage systems both locally and in the surrounding lower-lying areas.
- 8 different holes were constructed to function as different recreational areas when they are not used for collecting rainwater.

Result

- **Economic benefits:** By choosing surface solutions with dual purposes rather than traditional underground reservoirs, the project saved EUR 3.9 million.
- **Other benefits:** A stepping stone for creating new recreational areas and playgrounds which gives the park a much wider appeal for the overall local community.

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The Harbour Baths

Partner

Challenge:

Turning Copenhagen's inner harbour from cesspool to bustling, recreational and sustainable city area.

Solution:

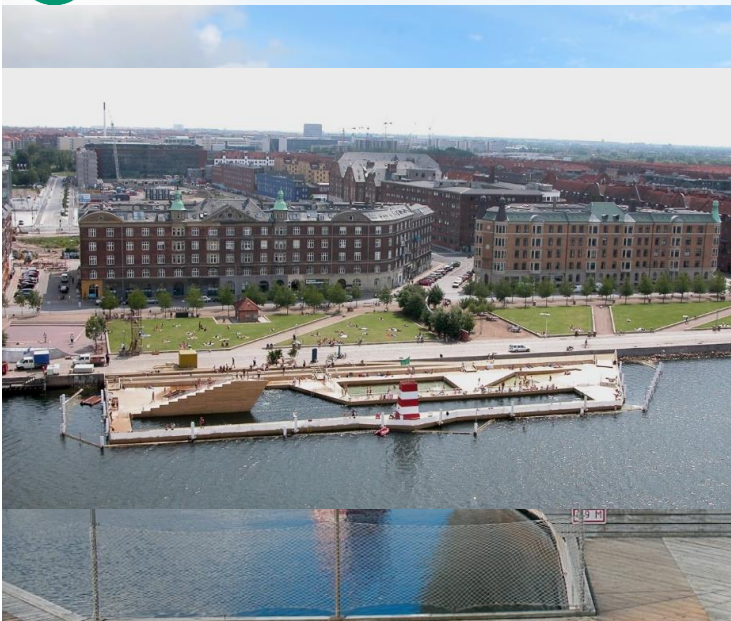
In 1992, the City council adopted a plan to improve water quality in the harbor. This included measures such as integrating urban design and wastewater management, constructing 12 large retention basins and closing sewer outlets.

Result:

The Copenhagen Harbour is now an urban oasis clean enough to swim in. The real-estate values are up by 50-100 percent and local business is booming.



The Harbour Baths



Measures taken:

- Integration of urban design and wastewater management
- Construction of 12 large retention basins
- Closing of sewer outlets
- Development of water quality warning system

The result:

- Harbour is now an urban oasis clean enough to swim in
- Real-estate values up by 50-100%
- Booming local service sectors



Download white papers to learn more

Get insights into methods, tools and best practices across climate adaptation and water management in urban areas:



Download the white papers at www.stateofgreen.com/publications



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WATER FOR SMART LIVEABLE CITIES
18-23 OCTOBER 2020



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