

Copenhagen— Resilient, green and liveable



**SAMMEN
OM BYEN**

KØBENHAVNS KOMMUNE
Teknik- og Miljøforvaltningen

The Copenhagen story



"European Green
Capital 2014"

THE EUROPEAN
COMMISSION

"Copenhagen, the
greenest major city
in Europe"

SIEMENS GREEN
INDEX

"Let me tell you what
they are: London, Toronto,
Copenhagen and Berlin.
Los Angeles joins that list
of the five greatest cities in
the world where
combating global warming
is concerned."

AL GORE

"Copenhagen
- Smartest City in
Europe"

BOYD COPEN
- SMART CITY INDEX

The main goals

- Carbon Neutral by 2025
- Climate adaptation – protecting the city against a changing climate
- The most liveable city



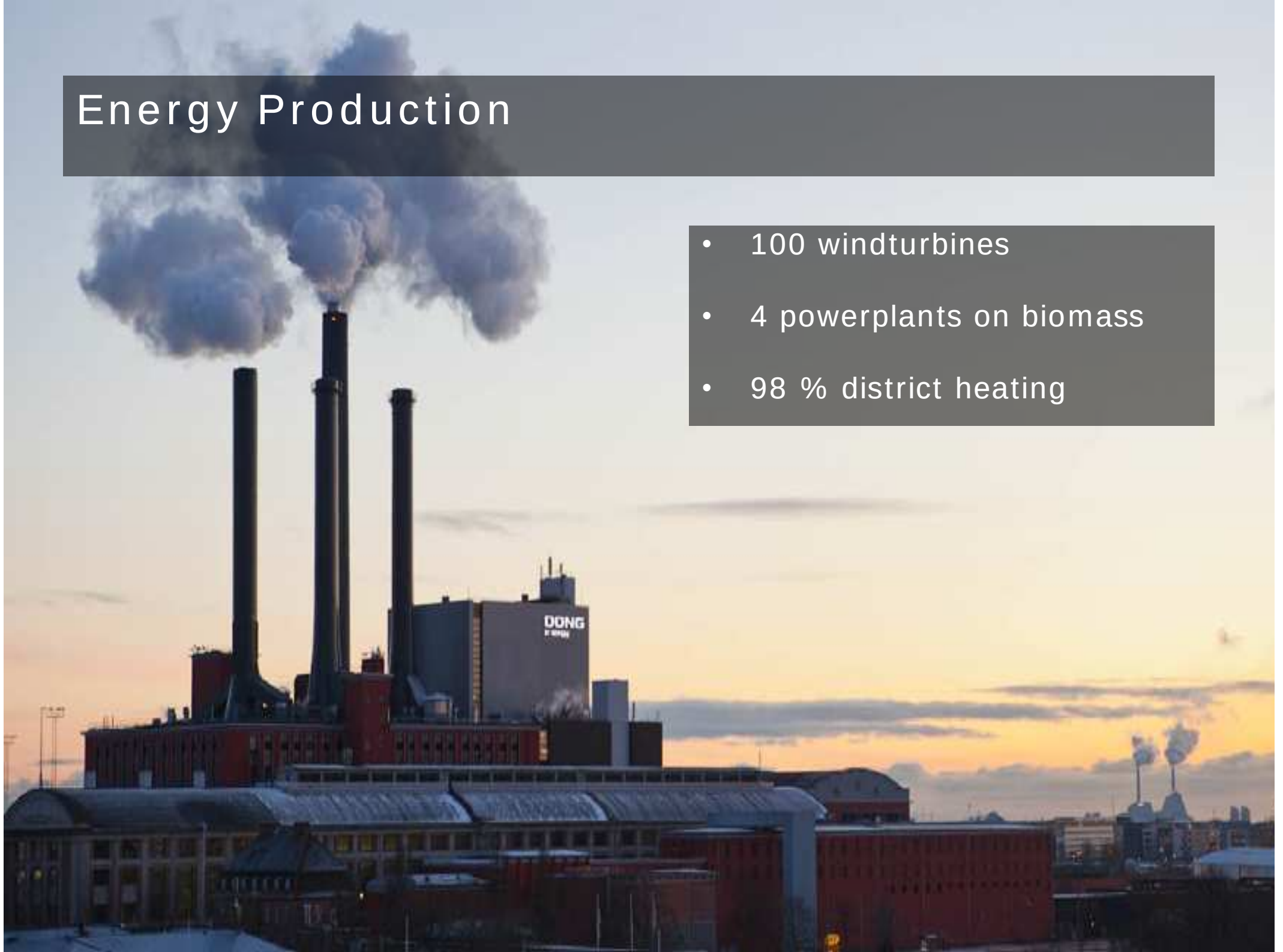
Carbon Neutral by 2025

- Energy production
- Energy consumption
- Mobility



Energy Production

- 100 windturbines
- 4 powerplants on biomass
- 98 % district heating



Energy Consumption

- 20 % reduction of heating consumption in buildings in Copenhagen
- 40 % reduction of energy consumption in own buildings



Mobility

- 75 % of all trips on foot, bike or public transport
- 20 % increase in public transport
- All municipal cars on alternative fuels (electricity, biofuel and hydrogen)



Climate change adaptation in Copenhagen

- Warmer
- Wetter
- Wilder
- Climate adaptation plan



The weather is changing

- Flooding from the sea – rising sea levels



But the weather is changing

- Increased rainfall
- Cloudburst over the city



Cloudbursts over Copenhagen

- August 2010
- July 2011
- August 2011
- August 2014

Kirkens Korshæl

- 150 mm rain in 2 hours
- Damages close to 1 billion euro
- Damages to critical infrastructure

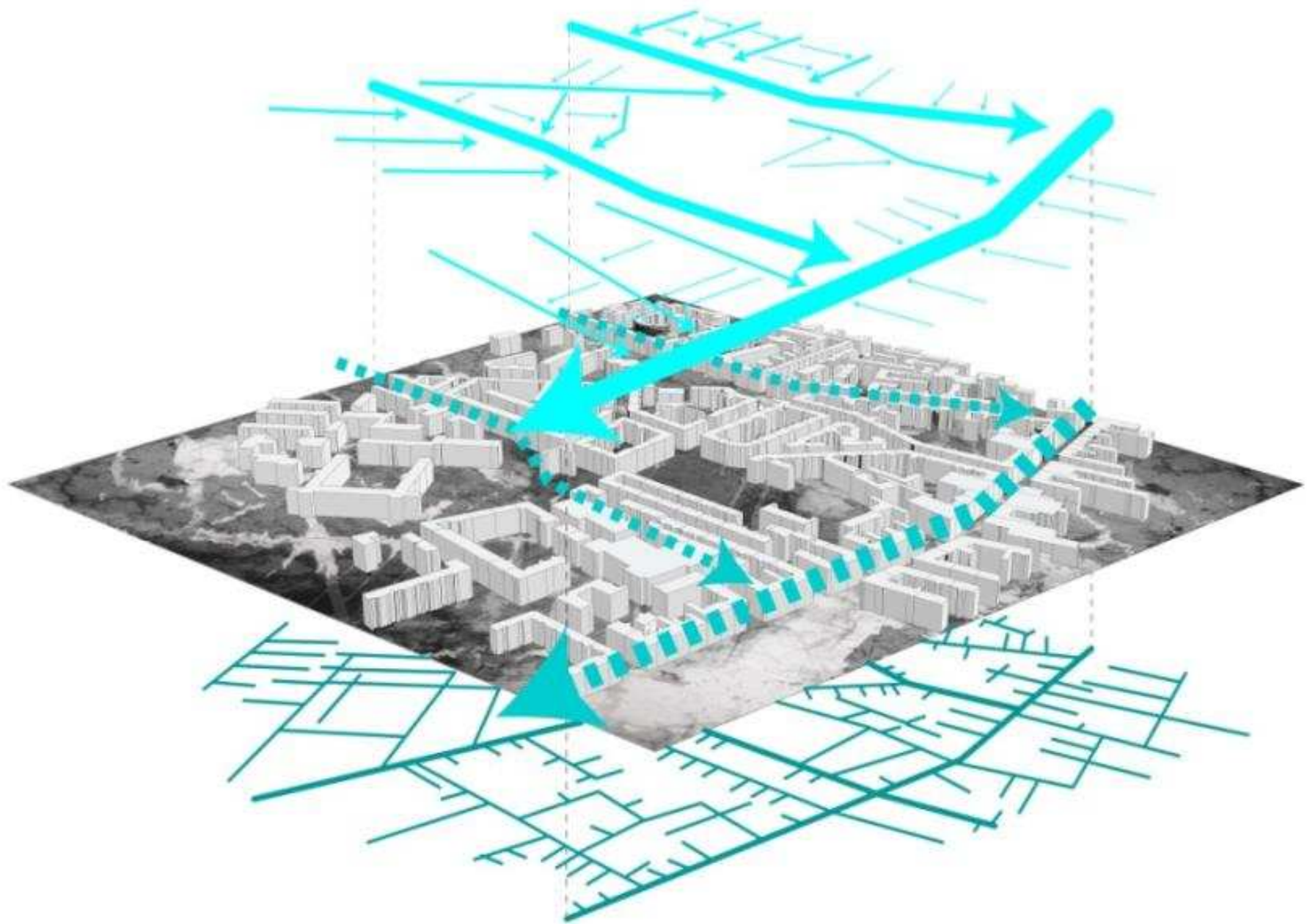


The cloudburst management plan



- Decision of service level
- Decision on safety level
- Protection against a 100 year event
- Socioeconomic figures

A new infrastructure



Following the natural flow of water

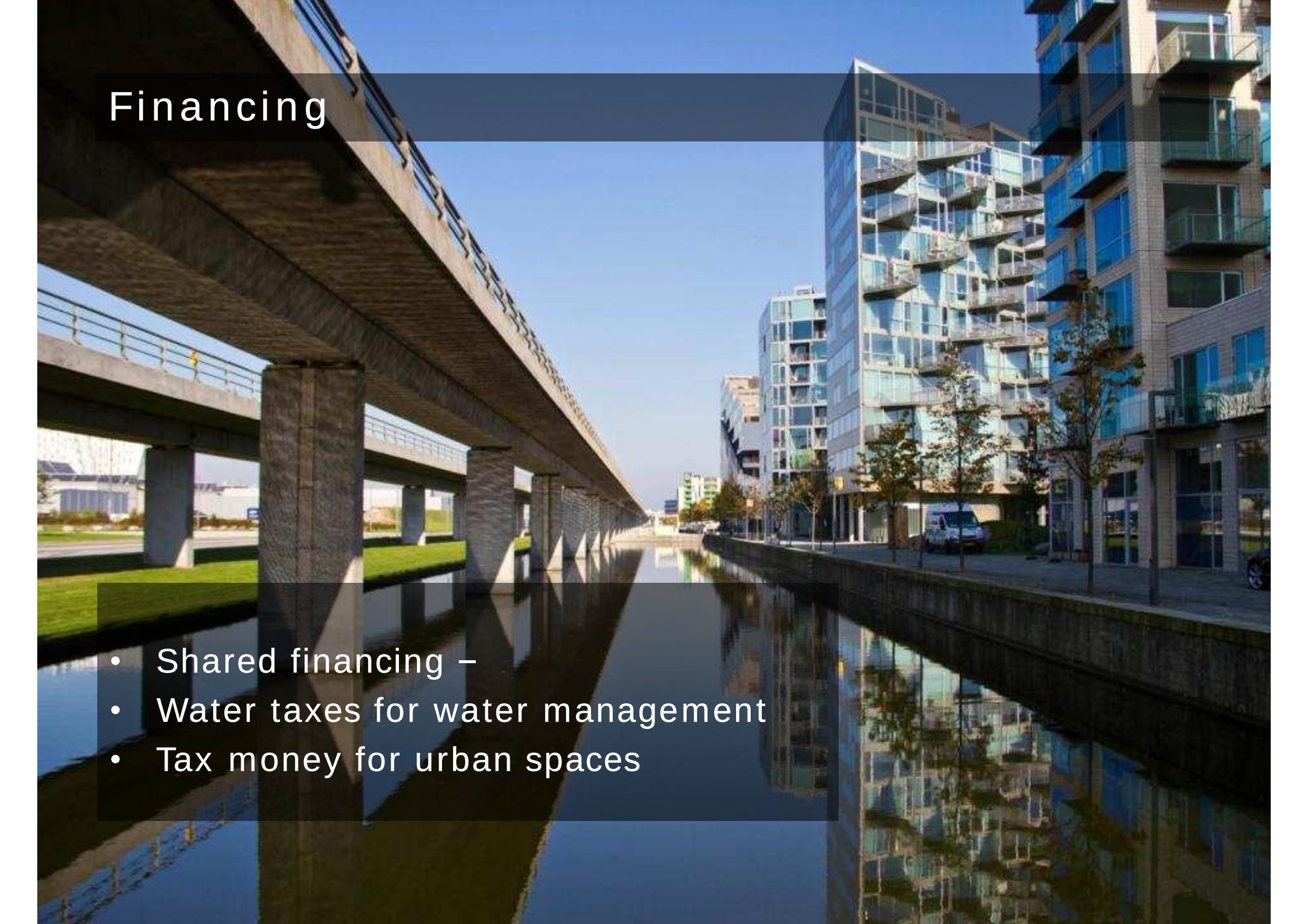


A green and blue city

- Adaptation is not just negative – it gives us possibilities
- We can create more recreative areas, new urban spaces and more quality of life for the copenhageners
- We can increase the health of people in the city
- We can increase biodiversity in the city



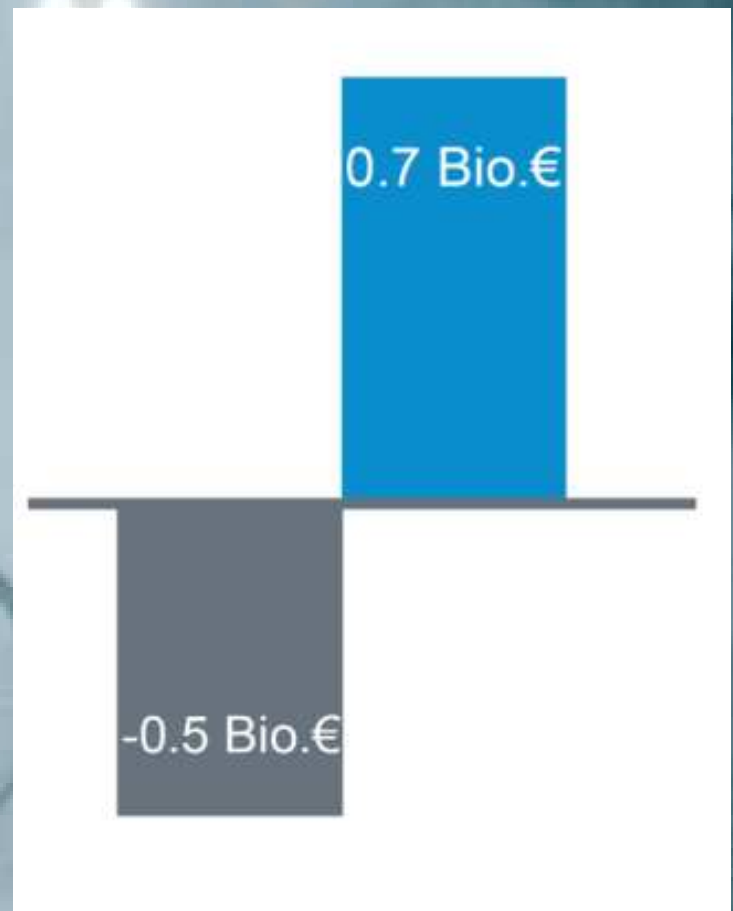
Financing



- Shared financing –
- Water taxes for water management
- Tax money for urban spaces

A good business case

- Robust socio economic figures
- Cheaper than traditional solutions
- Less flooding – less damage
- Lower insurance costs
- Higher house prices



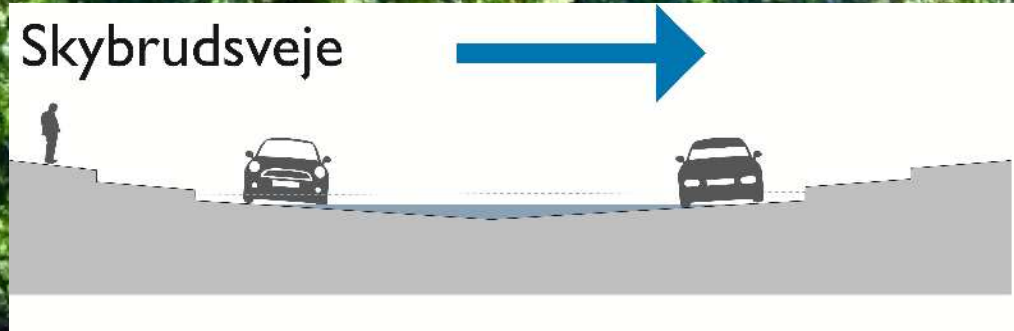
7 water catchments in the city



Types of solutions

- Cloudburst boulevards – transporting water
- Retention boulevards – delaying water
- Central delays – for storing water

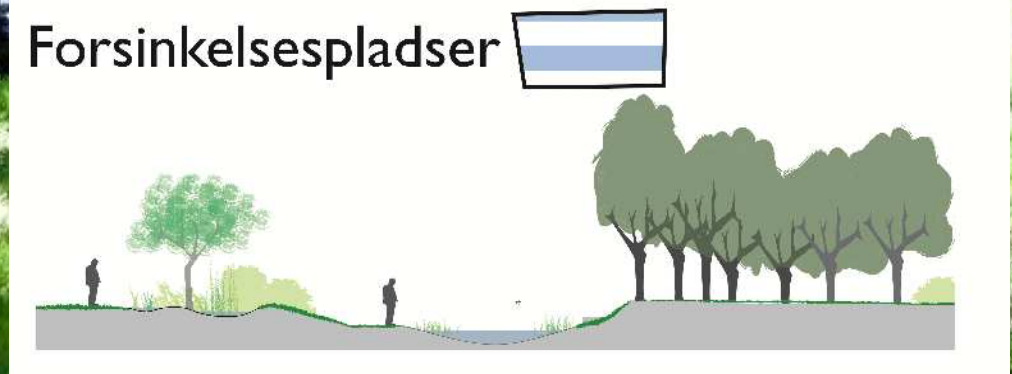
Skybrudsveje



Forsinkelsesveje



Forsinkelsespladser



Examples of solutions

- Istedgade as delaying boulevard
- Transporting and delaying the water moving to the lower areas of Vesterbro



Examples of solutions

- Cloudburst boulevard at HC Andersens Boulevard
- Traffic important
- Leads the water to the harbour





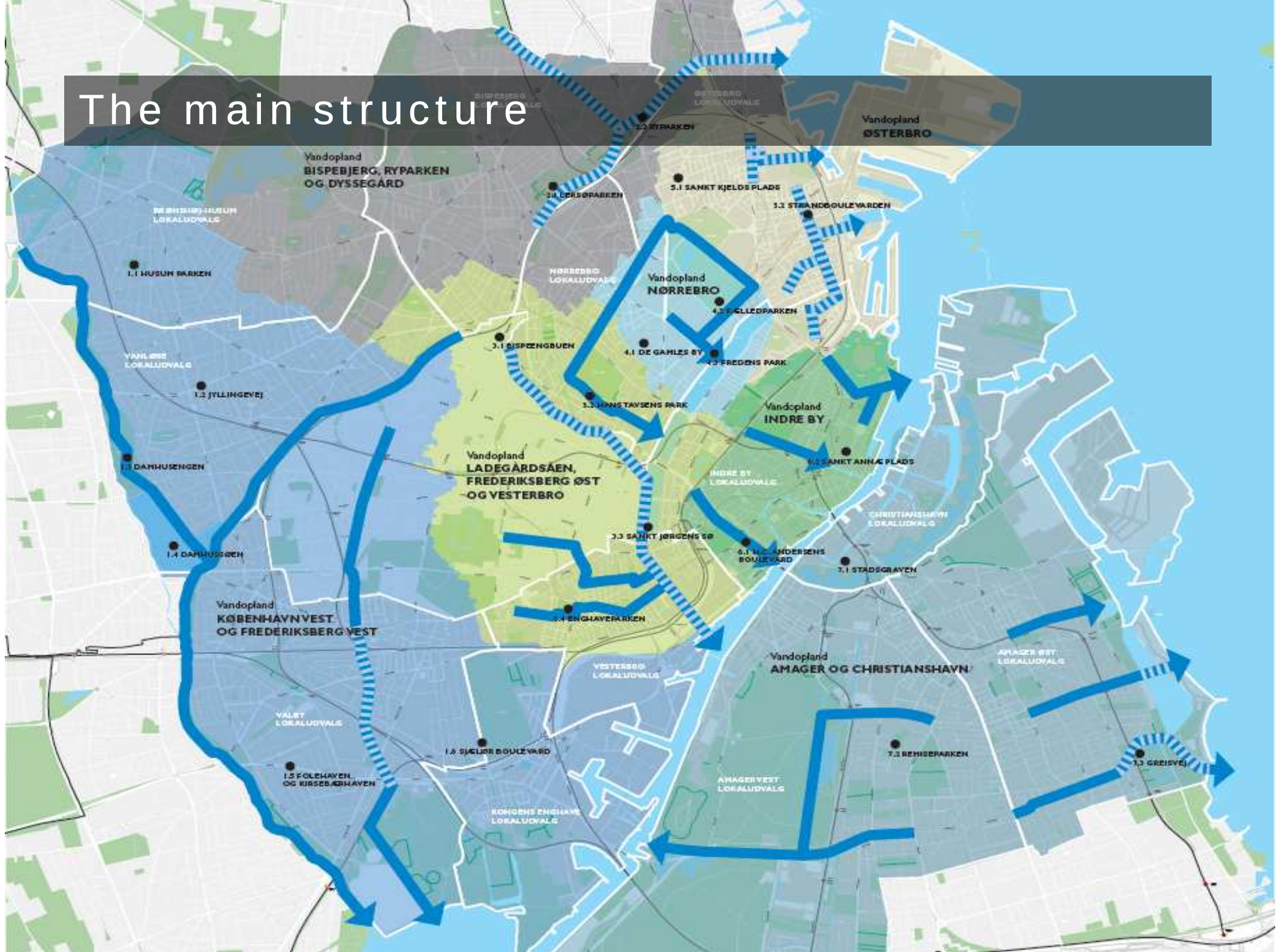
Example of solutions

- Skt Jørgens sø
- Lowering the water level in the lake
- A new park on the wider banks
- Park can store up to 40.000 m³ of water in case of cloudburst
- A pipe empties the lake – and also collects water from Vesterbro





The main structure



Implementing the cloudburst plan

- 300 projects
- Expected to last 20 years
- Annual project packages
- Focus on synergies with other urban projects
- Prioritizing of projects



Cooperation and co-creation

- HOFOR – Greater Copenhagen Utility
Close partnership in all aspects
- Citizens
Will be involved in all the projects.
Partnerships on private land
Organisations
- Other municipalities
Key as water does not respect administrative boundaries
- Local committees and neighbourhood regeneration
Local anchoring – and local cooperation with local knowledge

Adaptation is a precondition in future urban planning

- It will influence how we plan and utilise urban spaces
- It will influence the development and planning of recreative spaces
- And we want to make sure that we control the water in the future urban planning – and that we can use water as a resource





Thank you for your attention

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