



Welcome

Interreg
Baltic Sea Region



Co-funded by
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SUSTAINABLE WATERS
City Blues



CITY OF AARHUS



Holistic framework for succesful development of nature-based solutions

Aarhus, 25. september 2025

AARHUS
KOMMUNE



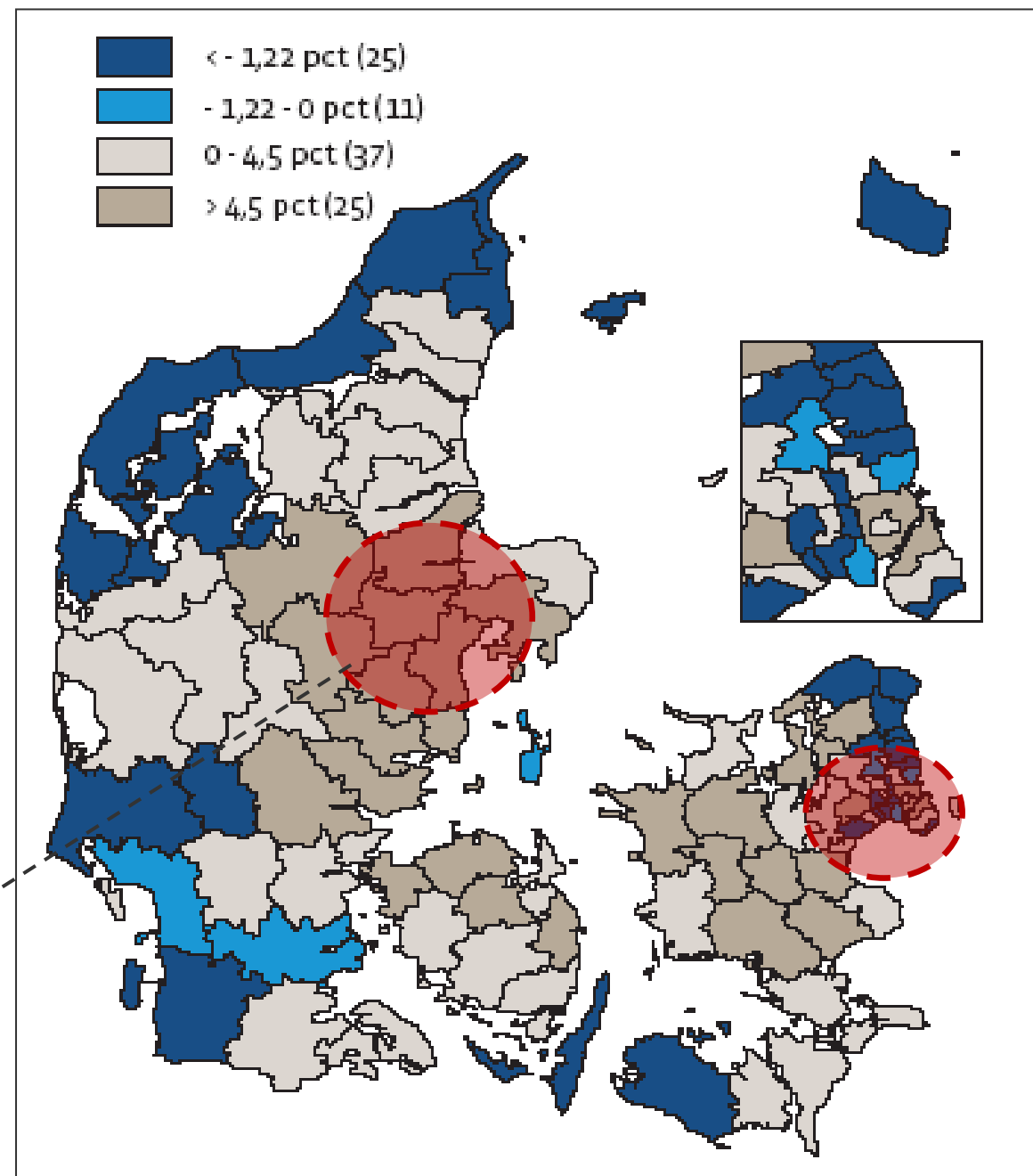


Municipality of Aarhus

Growth Centres in Denmark

- Aarhus Business Region – the most rapidly expanding center of growth in Denmark

1 mio. inhabitants



Urban NBS: Climate Adaptation Plan 2024-2030

AARHUS' CLIMATE ADAPTATION PLAN 2024-2030

Together for a
resilient blue and green
Aarhus

Approved
June 2025

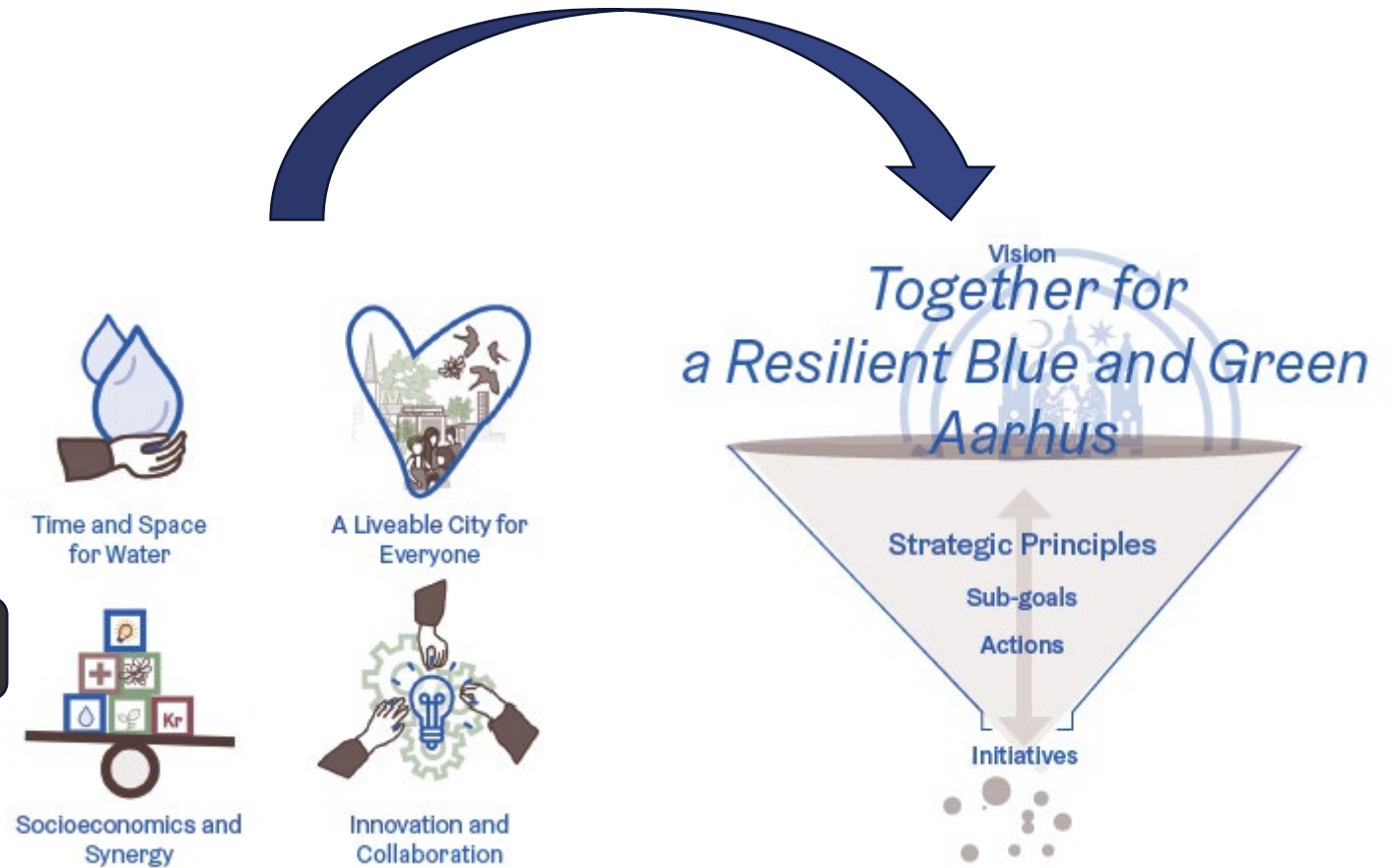


Figure 19: Strategic Principles



Urban NBS: Towards a resilient city

Broad incorporation of NBS solutions in our urban environment, both new cities and existing urban areas.





Thank you for your attention



HOW TO WORK WITH NBS IN DENMARK AND HOW TO COLLABORATE GLOBALLY

Professor Nikola i Friberg
Institute of Ecoscience, AU
Centre for Nature-based Solutions



SCOPE OF



Established in the autumn 2024

Working across Aarhus University

As much a knowledge hub as a research centre

Focus on trans-disciplinarity

C-NBS is working with:

- Across landscapes and ecosystems
- On developing tools that can optimise the use of NBS
- With all relevant sectors in society



CITY BLUES

In the project City Blues, cities develop plans for their urban waters and green areas to better respond to the negative effects of climate change, like floods and pollution, and create liveable areas for people at the same time.

Making the use of nature-based solutions mainstream!

Interreg
Baltic Sea Region

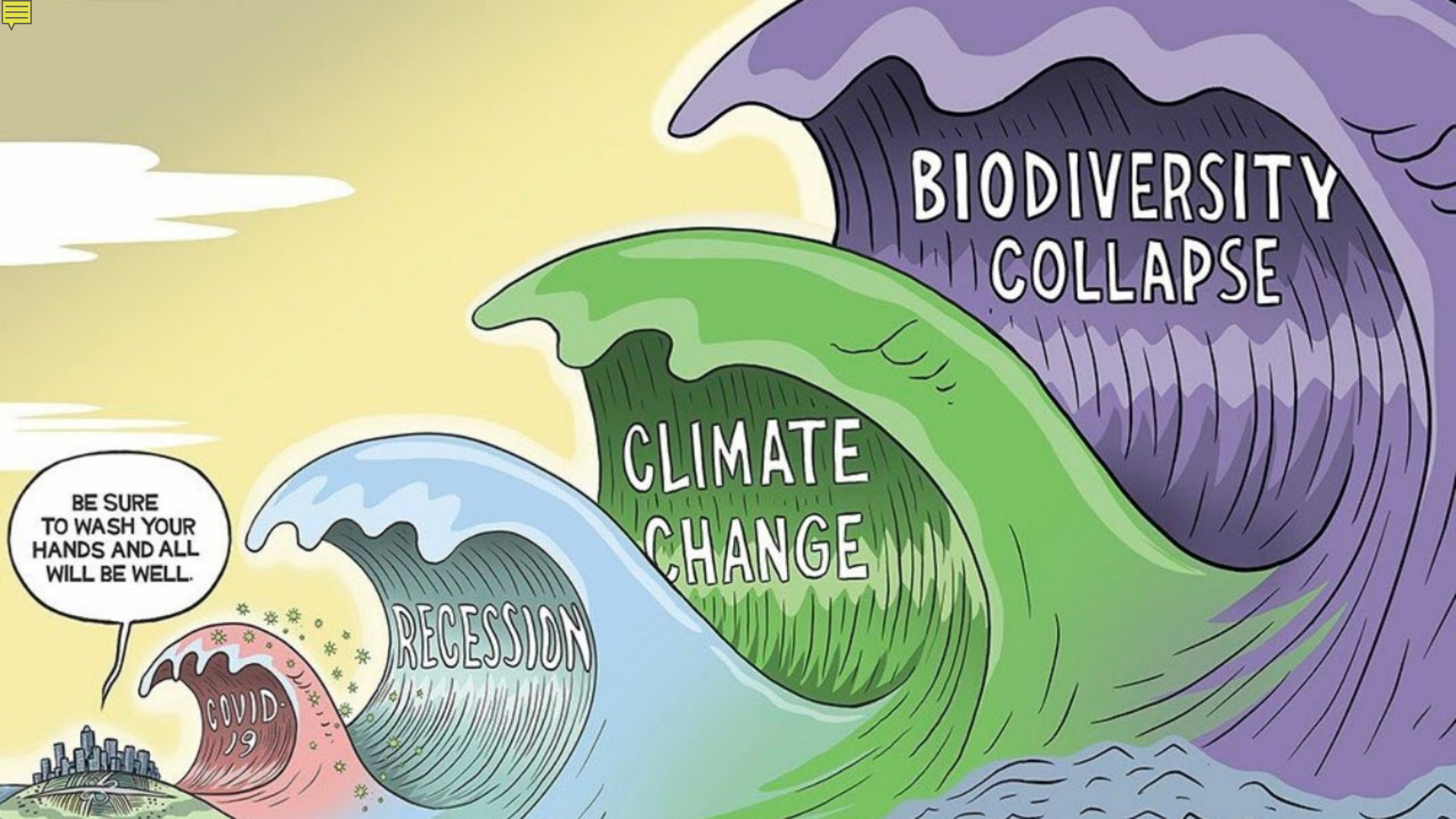


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SUSTAINABLE WATERS

City Blues



BE SURE
TO WASH YOUR
HANDS AND ALL
WILL BE WELL.

COVID-
19

RECESSION

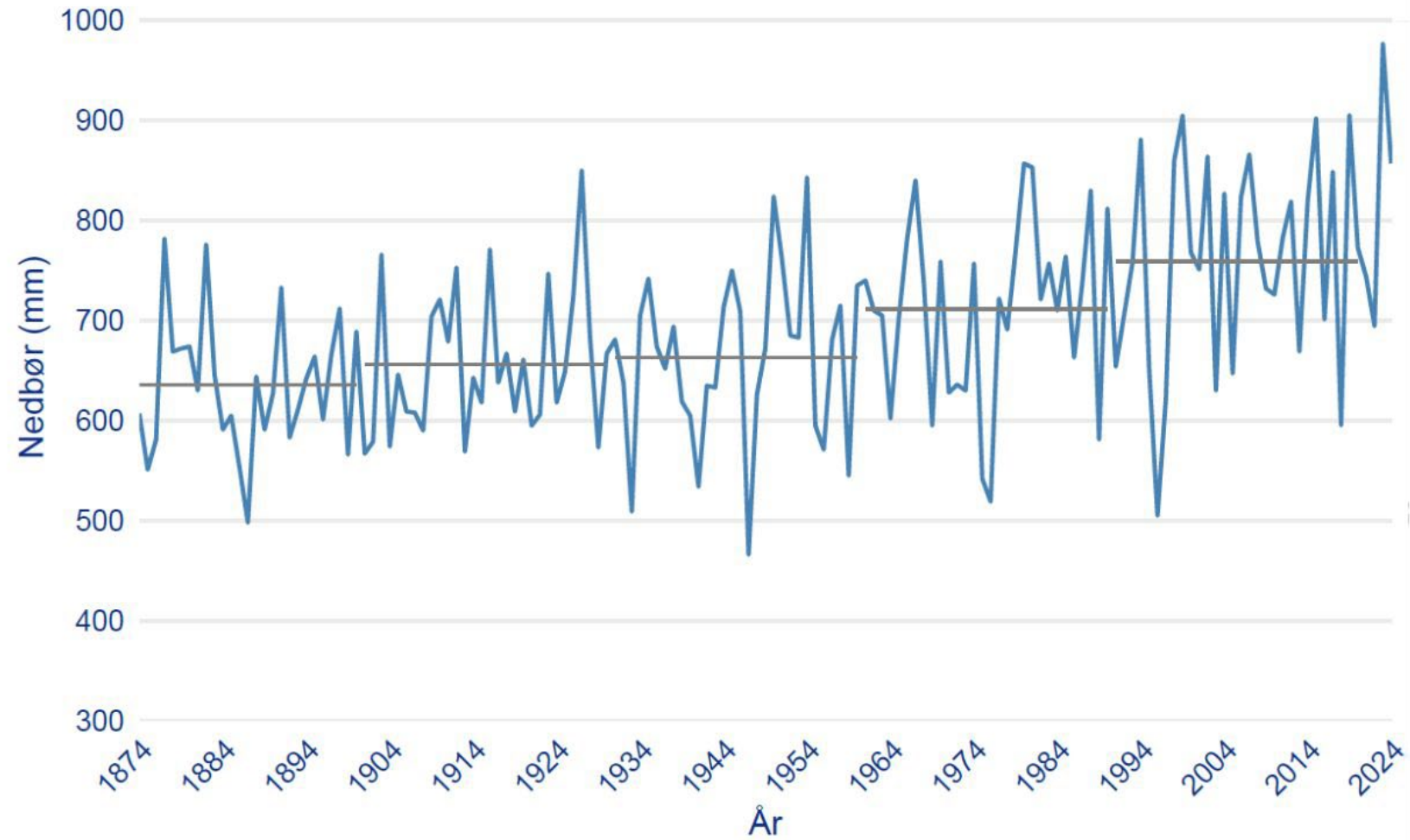
CLIMATE
CHANGE

BIODIVERSITY
COLLAPSE

Årlig Nedbør i Danmark



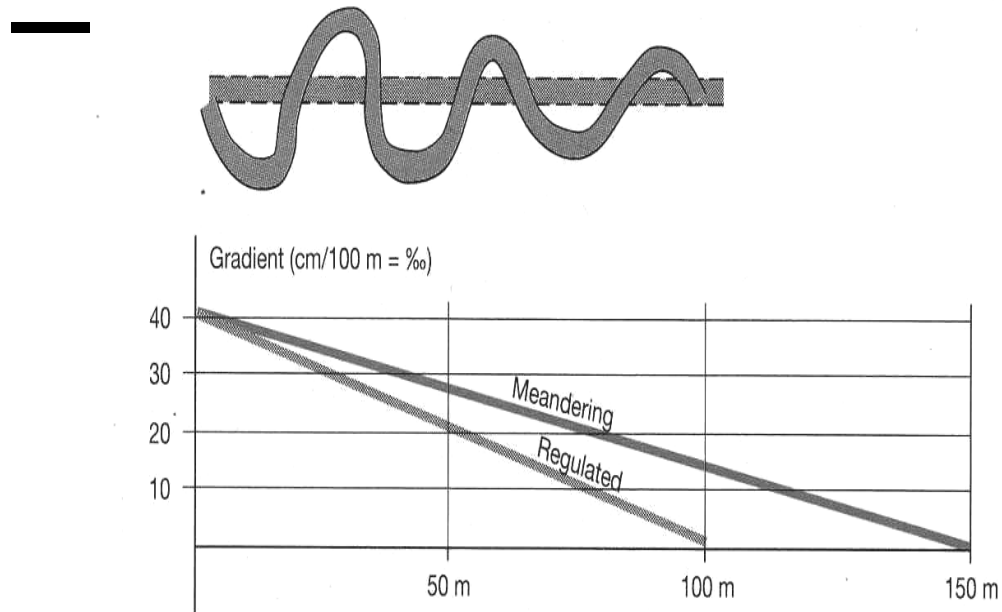
— Klimanormal — Årlig nedbør



THE LOSS OF WATER STORAGE CAPACITY AND BIODIVERSITY: FLOODPLAINS AND RIPARIAN WETLANDS



MOST DANISH RIVERS (AROUND 95 %) HAVE BEEN HEAVILY ENGINEERED IN THE PAST



They are now super conduits for excess water, moving it downstream at speed!

TRADITIONAL SOLUTIONS AND MANAGEMENT



... are not longer
enough to solve these
challenges

**IS THE FUTURE
NATURE
BASED?**



HOLISTIC AND MULTIFUNCTIONAL



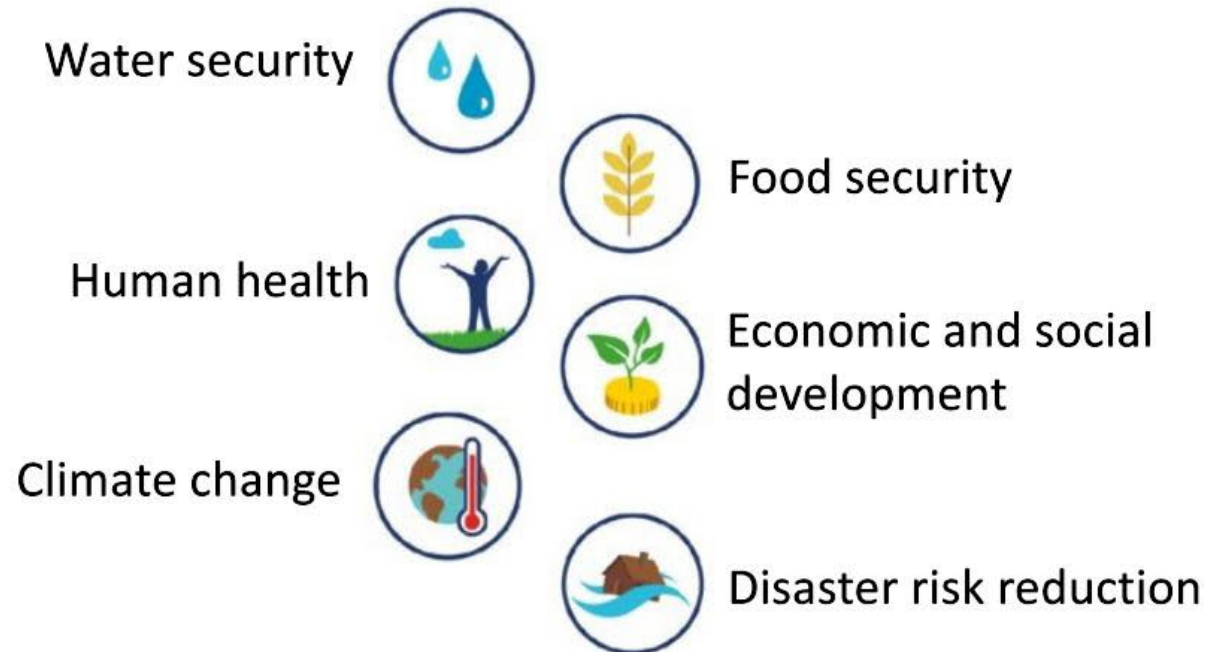
NATUREBASED SOLUTIONS

“Actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits.”



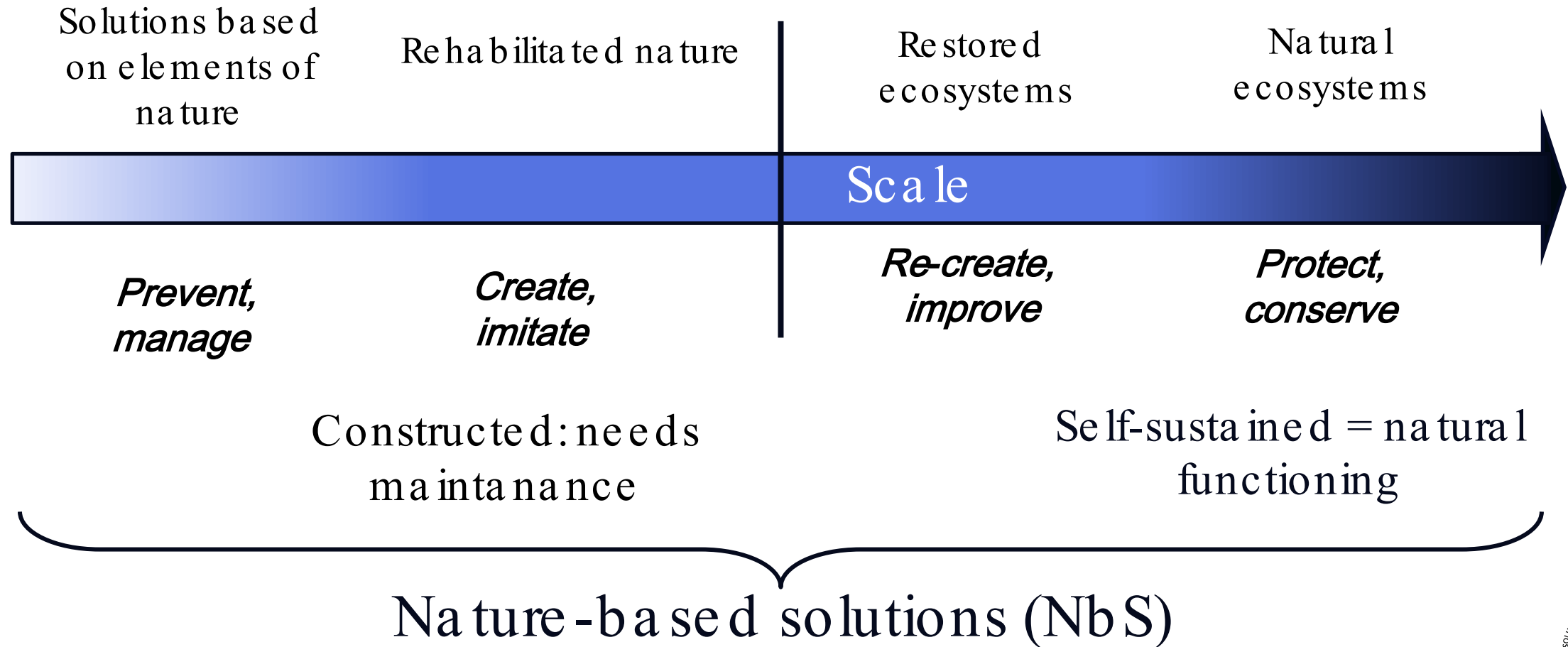
In a nutshell

NBS work
with nature
for nature
for people





THE RANGE OF NBS



Biodiversity

Scale effect



Nature elements



Rehabilitation



Restored ecosystems



Natural ecosystems

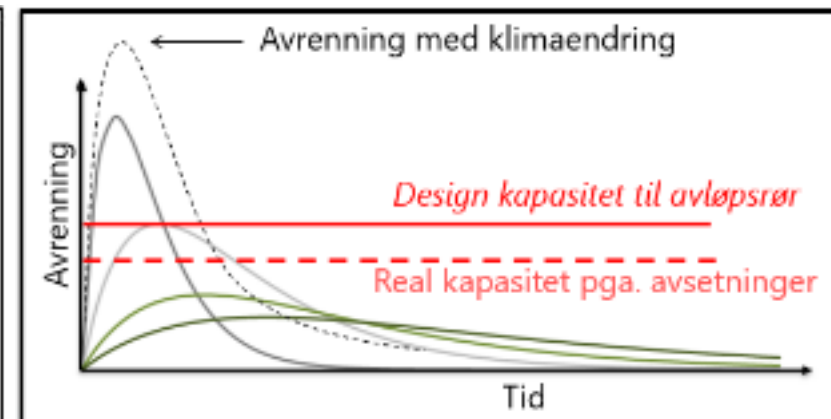
Ecosystem service delivery



EXAMPLES OF URBANBS



FLOODPROTECTION



SUMMARY

- ❑ NBS offers climate smart, low-cost and low-maintenance solutions to societal challenges with multiple other benefits – the bigger, the better!
- ❑ Scale is important – high robustness and resilience when large and connected solutions are implemented
- ❑ Trade-offs are necessary – space (land) is a limited resource and the total value of all benefits of NBS is to be considered



INTERESTED IN NBS? CONTACT ME



Follow us on LinkedIn and visit <https://ecos.au.dk/nbs>



Have an
excellent
conference!



Ecologic Institute

Science and Policy
for a Sustainable World

Nature-based Solutions as entry points for a Nature-Positive Future

Policy pathways in the urban environment

Dr. Benjamin Kupilas

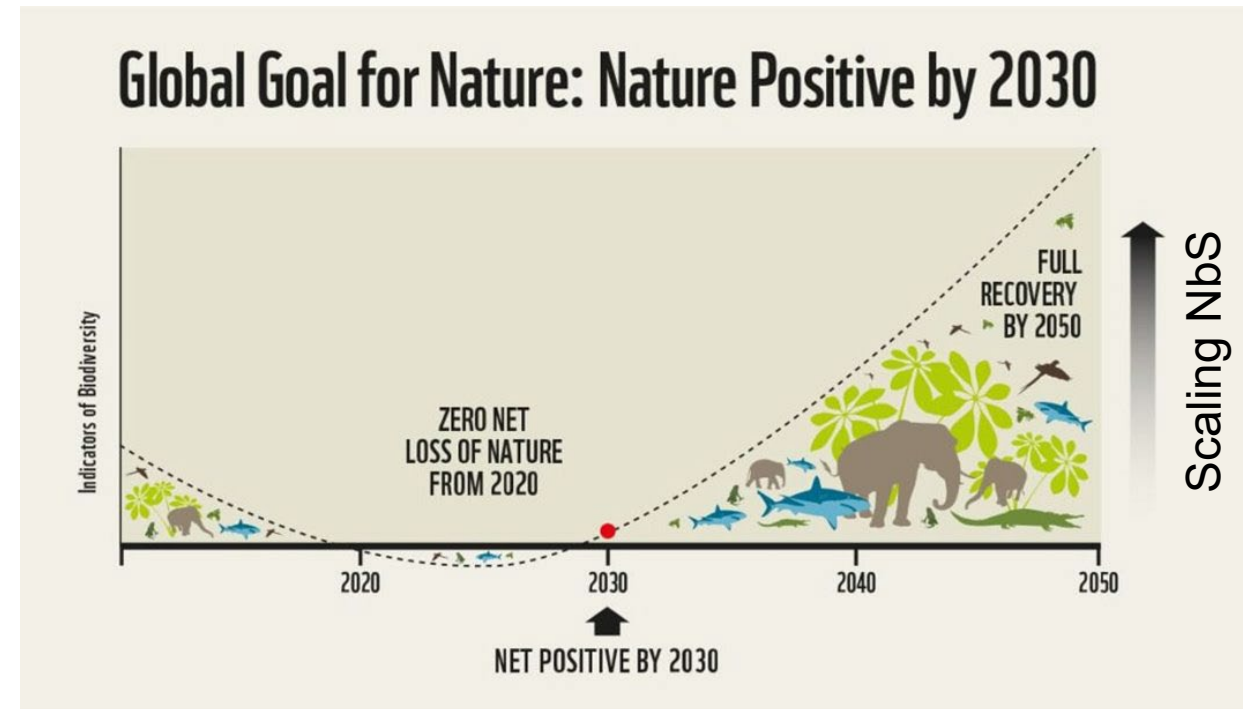
Senior Fellow, Coordinator Biodiversity

Aarhus, 25.09.2025

Bending the Curve:

How to operationalise the Nature-Positive transition

- **Reducing nature-negative impacts** and addressing drivers of nature degradation
- **increasing nature-positive actions**, including through e.g. **nature-based solutions**
- **fostering transformative change** to our economy and society.



Nature-Based Solutions as entry point for a Nature-Positive Transition

From tools to stories



Practical tools to restore wetlands, re-green cities, plant riparian trees.



Communication tools to make biodiversity visible & relatable.



Human-centered stories: clean air, cool cities, food security, health and well-being, resilience are tangible concerns.



Transformative entry point: link global goals to local action, across sectors & communities



Natural capital & value creation: NbS enhance ecosystem stocks, increase flows of services, and generate long-term value for business & society.

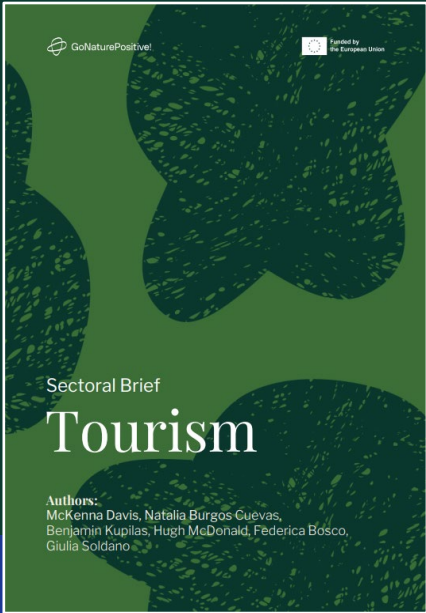
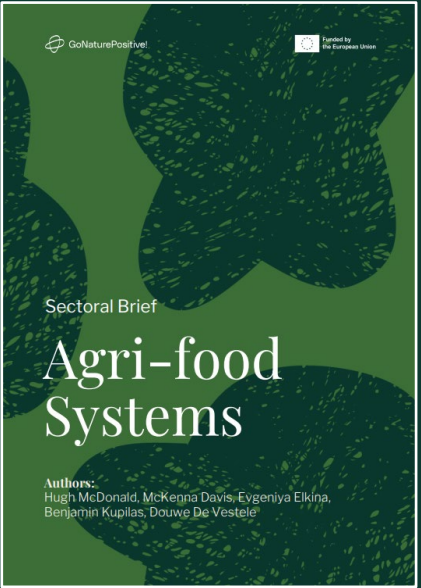
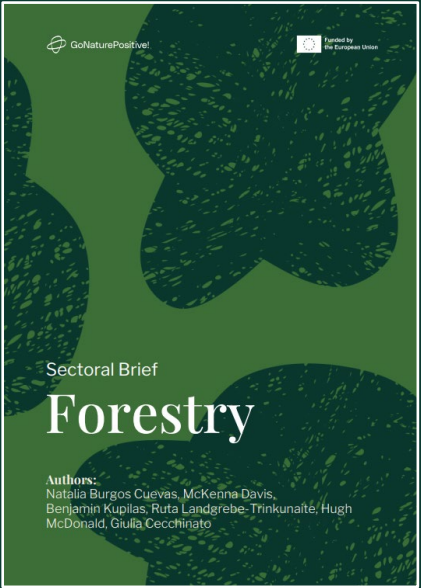
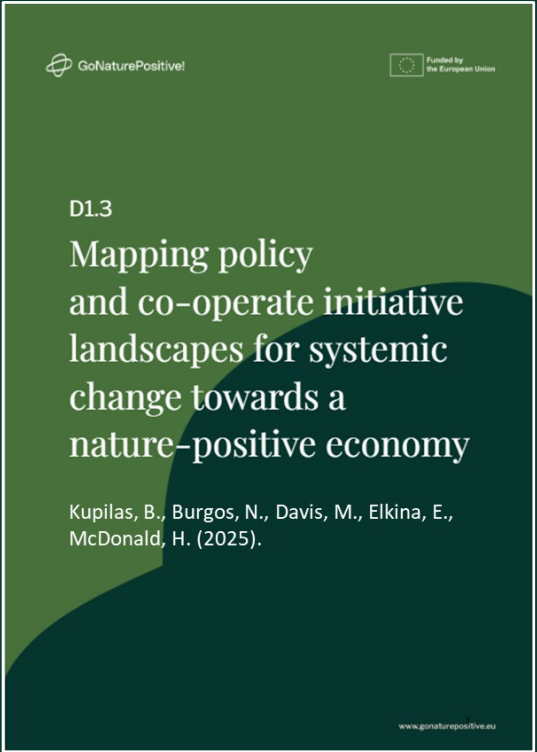
What is a Nature-Positive Economy?

An economy where the **net** result of **all economic activities combined** lead to an absolute **increase in nature**, to the point of full recovery.



Final products,
available for download:

Main report and
five sectoral briefs



Industry Pilots





Cities at a crossroads: Challenges and opportunities

Challenges

- Urban sprawl (~1000 km²/year) remains driver of biodiversity loss
- High material demand, low circularity
- Buildings account for 40% EU energy, 35% GHG emissions

Opportunities

- Integrate **NbS**: roofs, walls, trees, permeable pavements.
- Strongly embed circular materials & design
- Construct energy-efficient & retrofit existing stock



Drivers for Change: Policy & Business Initiatives

EU Policy Framework

- **Enablers:** European Green Deal, Biodiversity Strategy 2030, UWWTD, EED, and the binding Nature Restoration Regulation.
- **Challenges:** Policies like the Green Infrastructure Strategy lack binding targets, and EU funding can sometimes support nature-harmful activities.

Private Sector Action

- Initiatives like the World Green Building Council (WorldGBC) and World Business Council for Sustainable Development (WBCSD) promote sustainable practices.
- Impact is currently limited by a reliance on voluntary adoption without strong accountability.

Building the Nature-Positive Transition

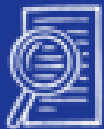
A nature-positive built environment is essential for EU competitiveness, resilience, and well-being.



Scale up NbS



Enforce
existing mandates



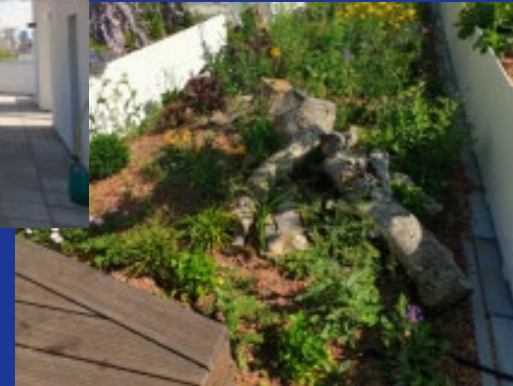
Strengthen monitoring
& accountability



Promote integrated
governance

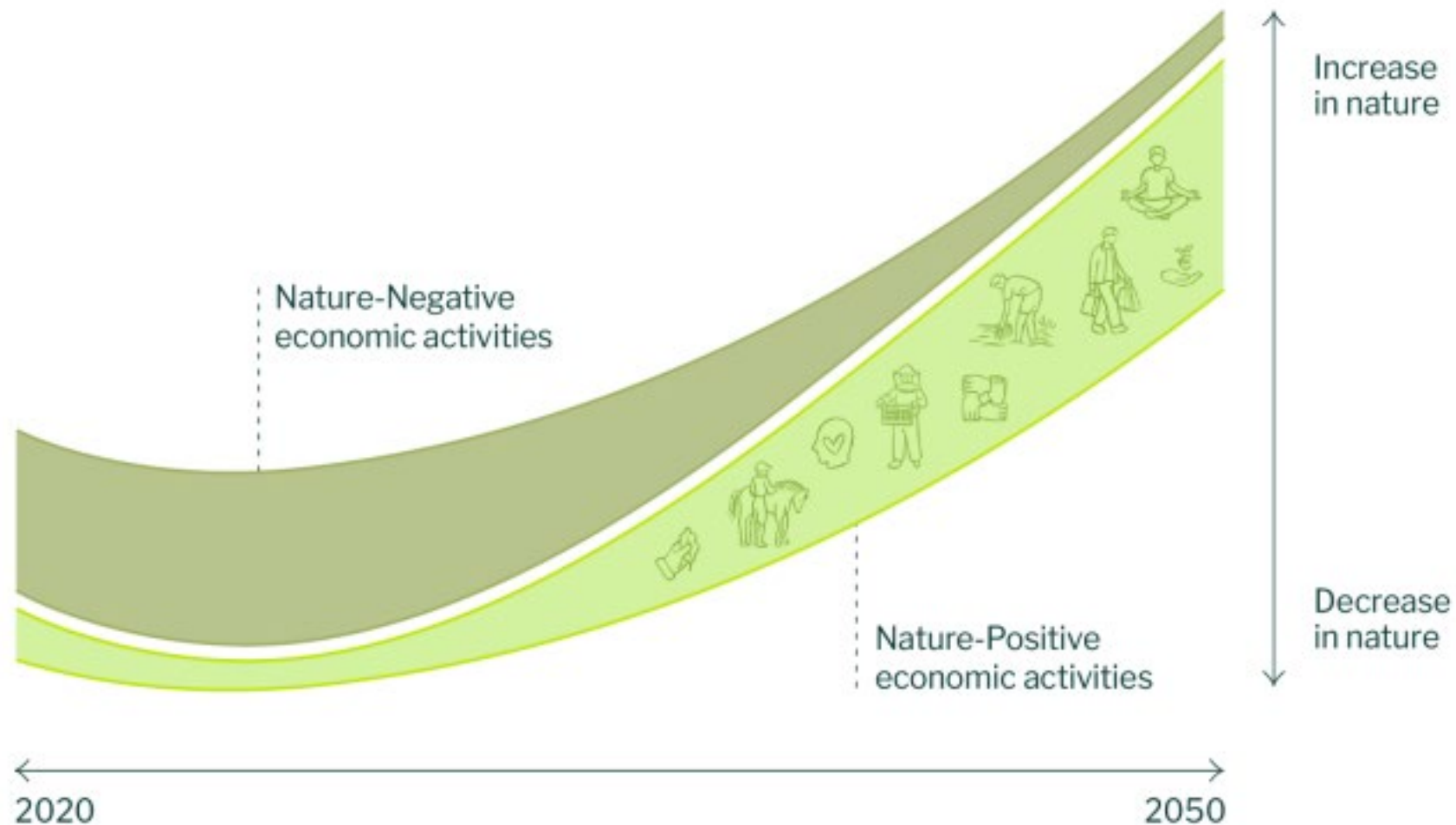


Increase
funding



Example: Biotope City Vienna as a flagship demonstration of integrated NbS (cooling, stormwater management, carbon storage, social cohesion).

Next steps: Roadmapping the transition



NICHES



Explore transition
pathways for
sustainable urban water
systems with NBS



Ecologic Institute

Science and Policy
for a Sustainable World

Thank you!

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Coordinator Biodiversity

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Germany

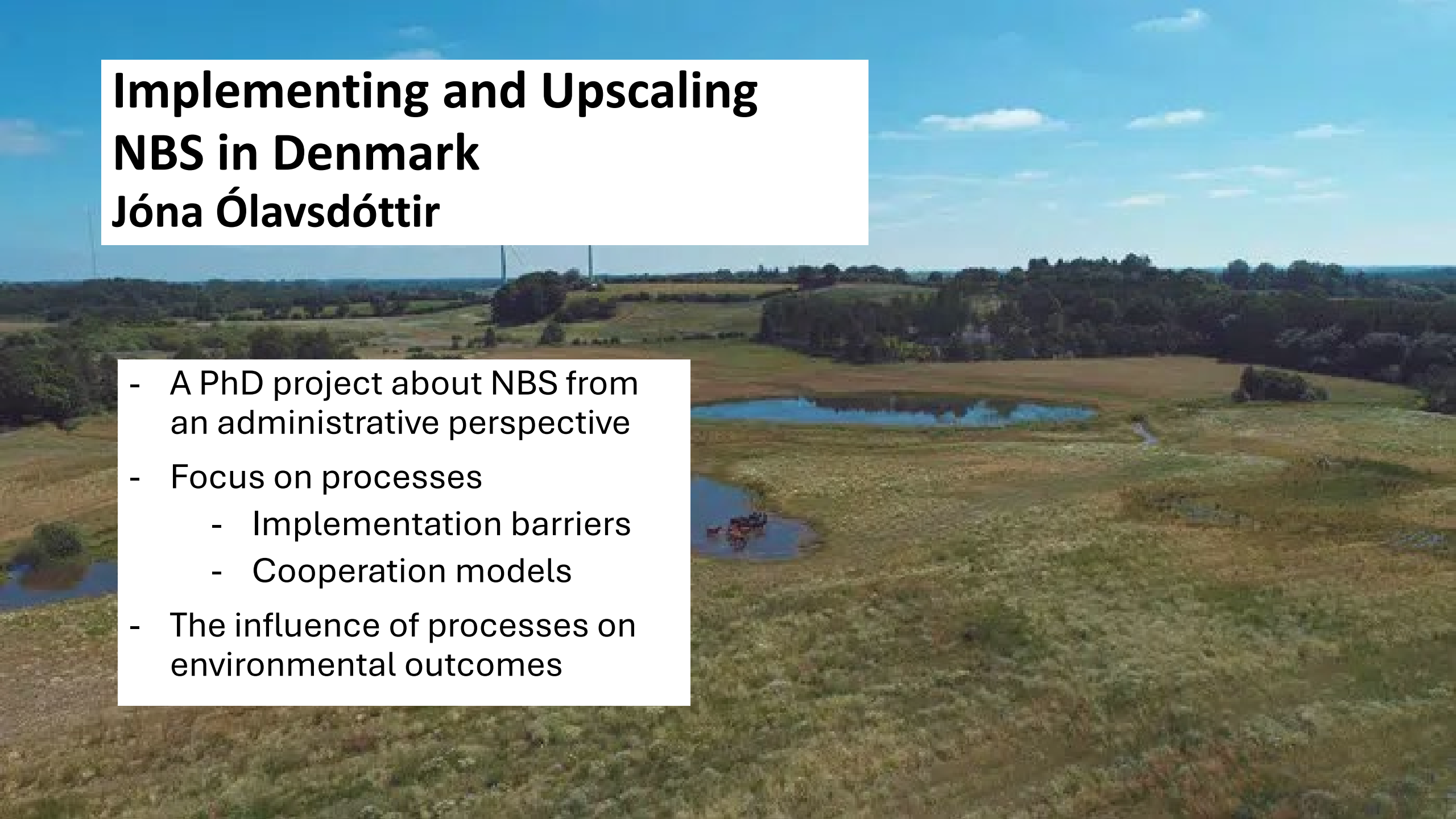
Tel. +49 (30) 86880-0

ecologic.eu

Implementing and Upscaling NBS in Denmark

Jóna Ólavsdóttir

- A PhD project about NBS from an administrative perspective
- Focus on processes
 - Implementation barriers
 - Cooperation models
- The influence of processes on environmental outcomes





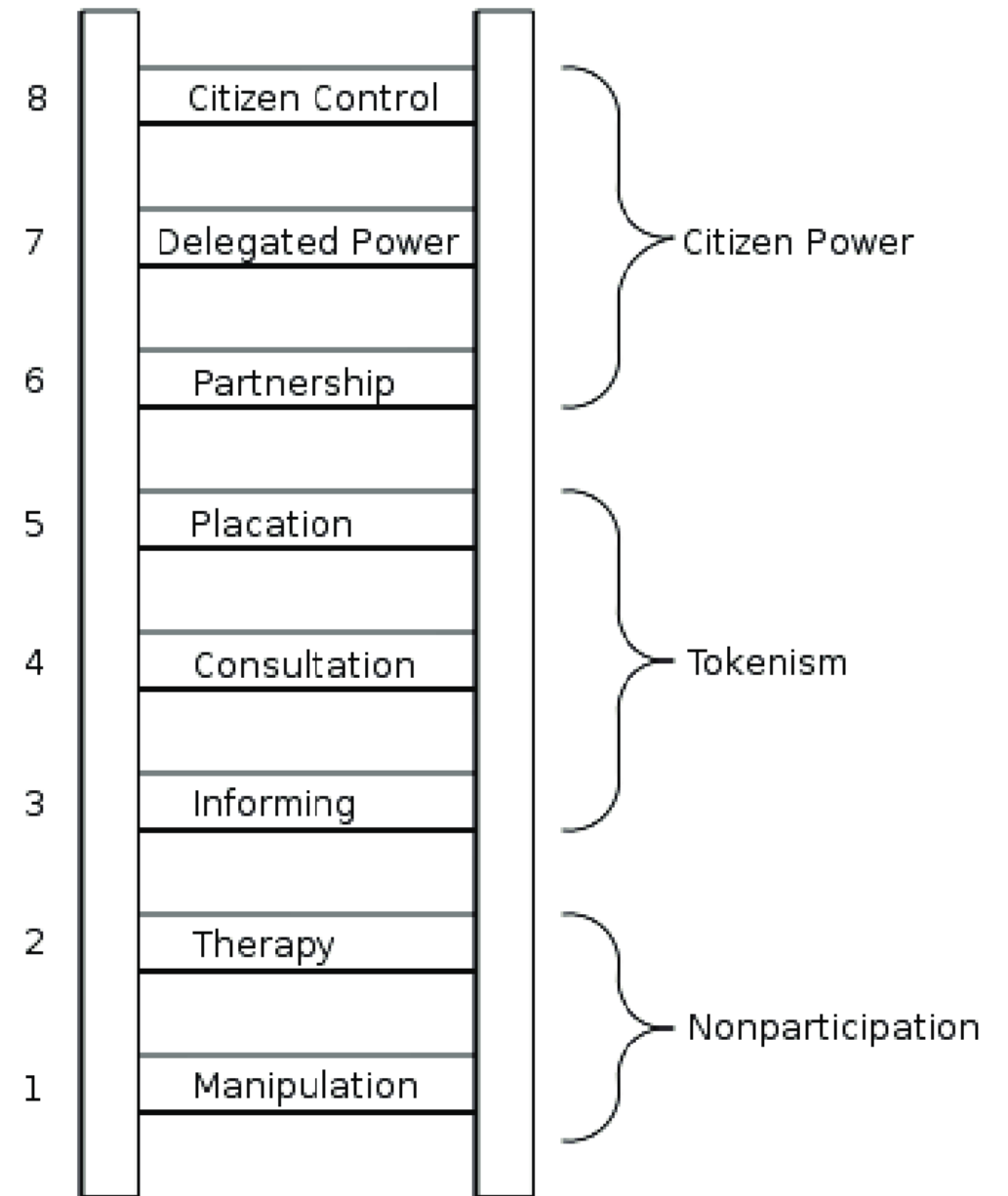


Co-creating Nature-based Solutions

What is co-creation?

“The process through which a plethora of public and private actors are involved - ideally on equal footing - in a collaborative endeavour to define common problems and design and implement new, better, yet feasible, public solutions.”

Torfinn et al. (2019)



Arnstein (1969)



Overcoming Barriers in the Implementation of Nature-Based Solutions through Early Stakeholder Engagement

A Systematic Literature Review

Systematic literature review

PICo & PRISMA-guided

European context

NBS implementation barriers with focus on
collaboration & stakeholder involvement

Peer-reviewed sources + selected Nordic
policy reports

Analysis

1. Mapping barriers (9 reviews, 2019–2024)

2. Stakeholder involvement (86 articles in
total)

Main barriers to implementing NBS in Europe

Uncertainty

Financing

Lack of
knowledge and
skills

Silo structure

Inadequate
monitoring and
maintenance

Path
dependency

Insufficient
stakeholder
collaboration

Inadequate
regulations

Spatial
constraints

Lack of support



Institutional and Organisational Barriers

Institutional and Organisational	
Financing	Uncertainty
Silo Structure	Monitoring and Maintenance
Insufficient Stakeholder Collaboration	Path Dependency
Lack of Support	Lack of Knowledge and Skills
Institutional	Organisational
Inadequate Regulations	
Spatial Constraints	

Stakeholder Involvement



- IUCN Standard, Criterion 5: '*NBS are based on **inclusive, transparent and empowering** governance processes*' (IUCN, 2020).
 - Highly context-dependent
 - Dynamic and heterogeneous solutions
 - Involving a broader range of actors





When involvement becomes a barrier itself



Resource-intensive



Inertia in decision-making



Unequal participation



Late-stage and tokenistic participation



The Importance of **Early** Involvement

The IUCN Standard: Stakeholders must be equipped with the right information **at the right time** and that their inputs must be meaningfully addressed (IUCN, 2020).

The Aarhus Convention, Article 6 specifying: “The public shall be informed **early** in an environmental decision-making procedure, and in an adequate, timely and effective manner (...)” (UNECE, 1998)

EU directives, EIA and SEA require public participation “at an **early** stage, when all options are open” (ERA, n.d.).

The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007) requires consult and cooperate with indigenous peoples to obtain their Free, **Prior** and Informed Consent (FPIC) (UN, 2007).





Co-creation benefits

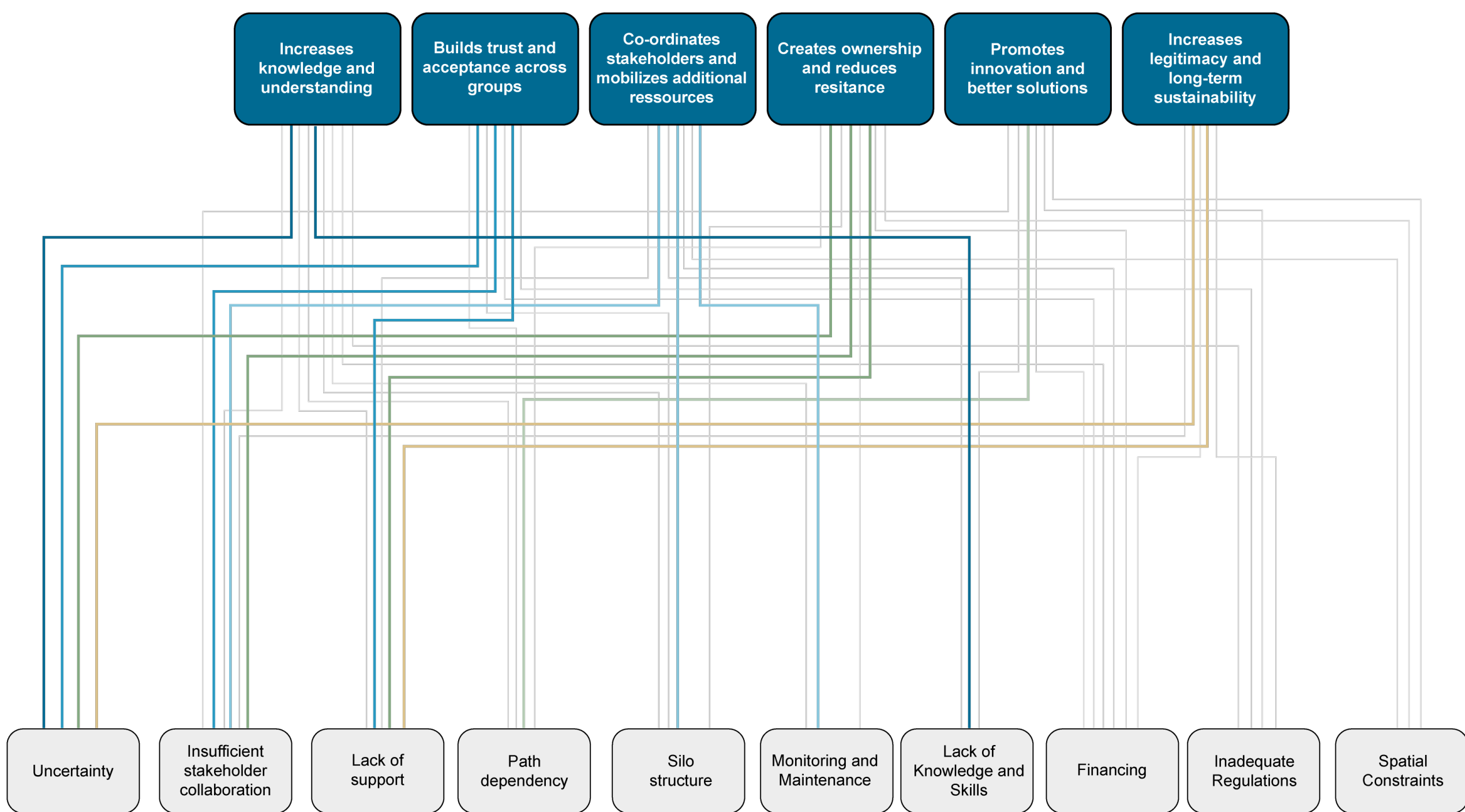
- Increases **knowledge** and understanding
- Builds **trust** and acceptance across groups
- Coordinates stakeholders and mobilizes **additional resources**
- Creates **ownership** and reduces resistance
- Promotes **innovation** and better solutions
- Increases **legitimacy** and long-term sustainability



Empirical emphasis on early participation

82 out of the 86 studies report stakeholder involvement in the NBS implementation process to some extent.

Among these 82 studies, 23 explicitly emphasize early involvement, including co-creation and co-design





Conclusion

01

10 main categories of NBS barriers

- None of these are exclusively organisational

02

1/3 mention early involvement

03

Co-creation can break down all identified categories of NBS barriers directly or indirectly

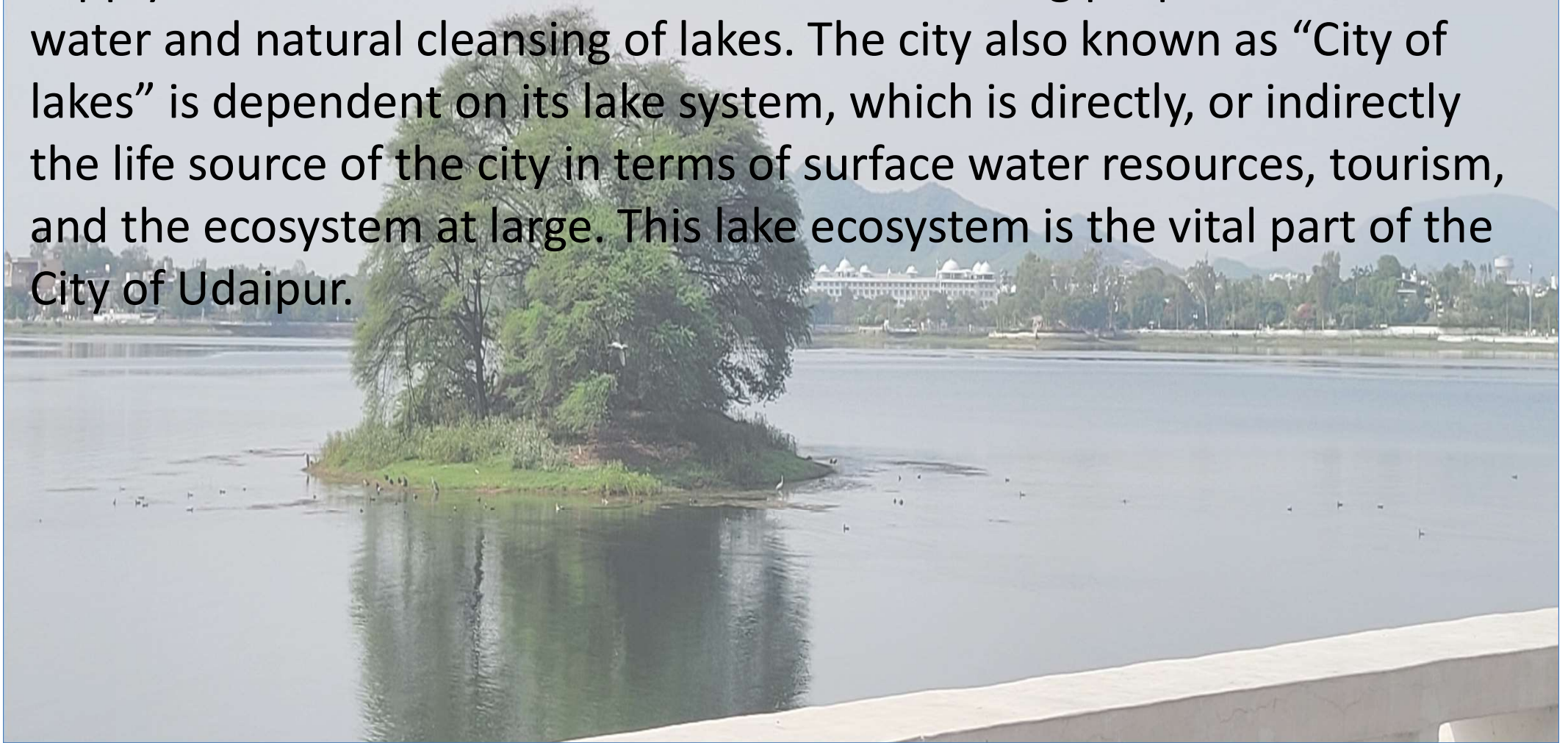
Evaluating Urban Green Spaces as Nature-Based Solutions

For Biodiversity Conservation & Habitat-Loss
Reduction around Fateh Sagar Lake, Udaipur.

Presented by:
Ar. Divya Sharma
Landscape Architect
PhD Scholar, Nirma University, Ahmedabad.

Introduction to Study Area

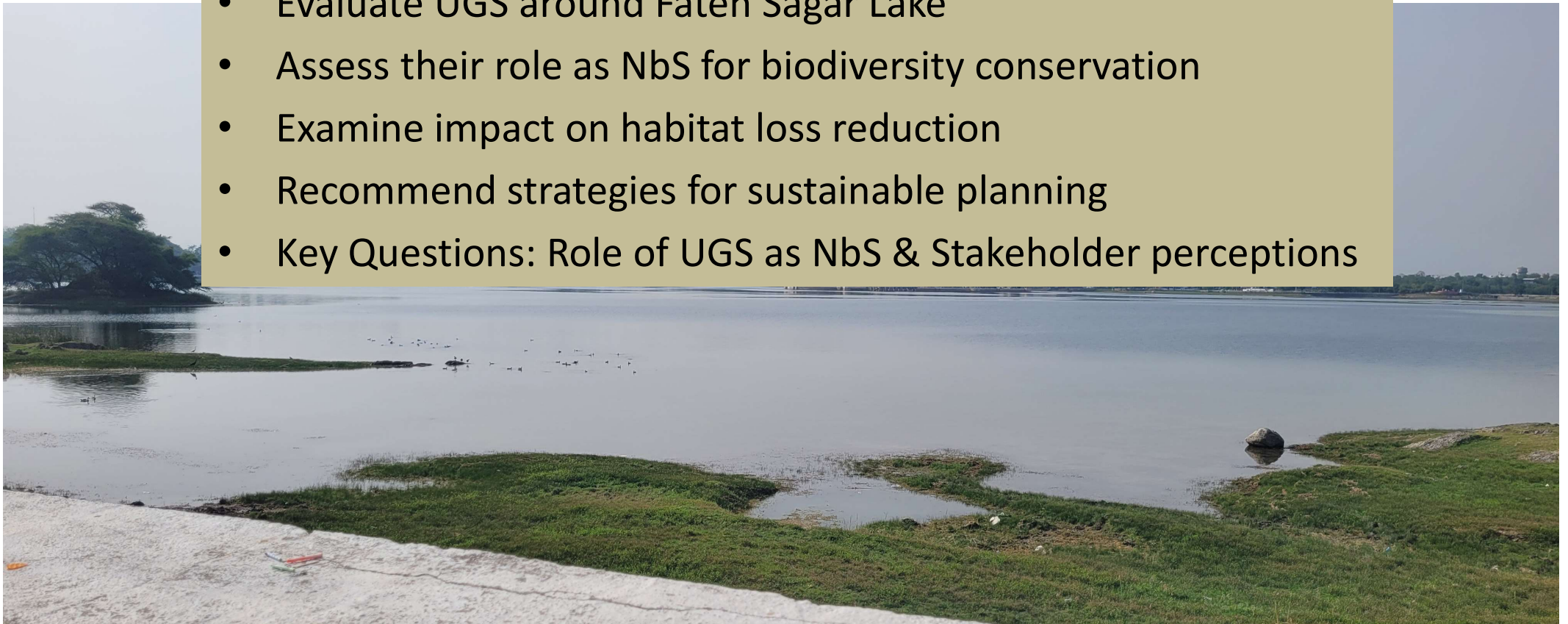
Udaipur established as capital of Mewar in 1559 by Maharaja Udai Singh faced scarcity of water because of its geographical situation and hence artificial lakes were constructed by past rulers to assure water supply. These lakes were interconnected ensuring proper utilization of water and natural cleansing of lakes. The city also known as “City of lakes” is dependent on its lake system, which is directly, or indirectly the life source of the city in terms of surface water resources, tourism, and the ecosystem at large. This lake ecosystem is the vital part of the City of Udaipur.



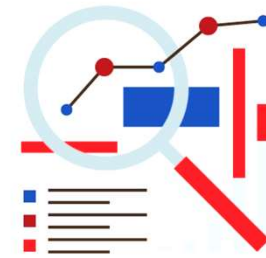
Research Objectives & Questions



- Evaluate UGS around Fateh Sagar Lake
- Assess their role as NbS for biodiversity conservation
- Examine impact on habitat loss reduction
- Recommend strategies for sustainable planning
- Key Questions: Role of UGS as NbS & Stakeholder perceptions



Methodology



- Delphi Technique: two-round expert consensus process

The primary aim of the Delphi study will be **to Build consensus on the effectiveness, feasibility, urgency and risk/trade-offs of specific Urban Green Space (UGS) interventions as Nature-Based Solutions (NbS) that regulate ecosystem processes (micro-climate buffering, water purification, noise mitigation etc) and thereby conserve biodiversity and prevent habitat loss around Fateh Sagar Lake.**

- A panel of 12 Experts was therefore formed with more than 10 years of work experience in their respected work field of ecology, environment planning, urban planning, forest management, botanical conservation, hydrology and urban design. At least 2-3 Experts from each background were approached with two rounds of questionnaire. Also, an integration of the panellist consensus is done with GIS data and visual survey to weight remote sensing indices like NDVI.

Delphi Round 1 – Idea Generation

Key Themes



The Delphi Round 1 process involved qualitative collection of expert opinions and insights through open ended questions to explore the effectiveness, mechanisms, feasibility, and vision for urban green space interventions around **Fateh Sagar Lake**, Udaipur. The responses were synthesized into structured thematic categories for Round 2 quantitative evaluation.

Key Themes:

- **Signature interventions:** riparian buffers, biodiversity parks, floating wetlands
- **Mechanisms:** cooling, pollution reduction, corridor connectivity
- **Indicators:** species richness, AQI, vegetation cover
- **Barriers:** governance gaps, funding, maintenance issues
- **Vision 2035:** thriving wetlands, biodiversity corridors, eco-tourism



Delphi Round 2 – Ratings and Score (Quantitative Results)

EFFECTIVENESS SCORE

- Most experts rated **4.4 to 4.8**, indicating strong agreement and confidence in the effectiveness of the subject being evaluated.
- The polygon for this category appears almost circular and uniform across experts which shows consensus.

FEASIBILITY score

- It has the most extremely consistent scores (almost all experts at **4.7 to 5.0**).
- This would be the most “regular” shape on the radar chart which reflects that all experts agree that the feasibility is very high and consistent.

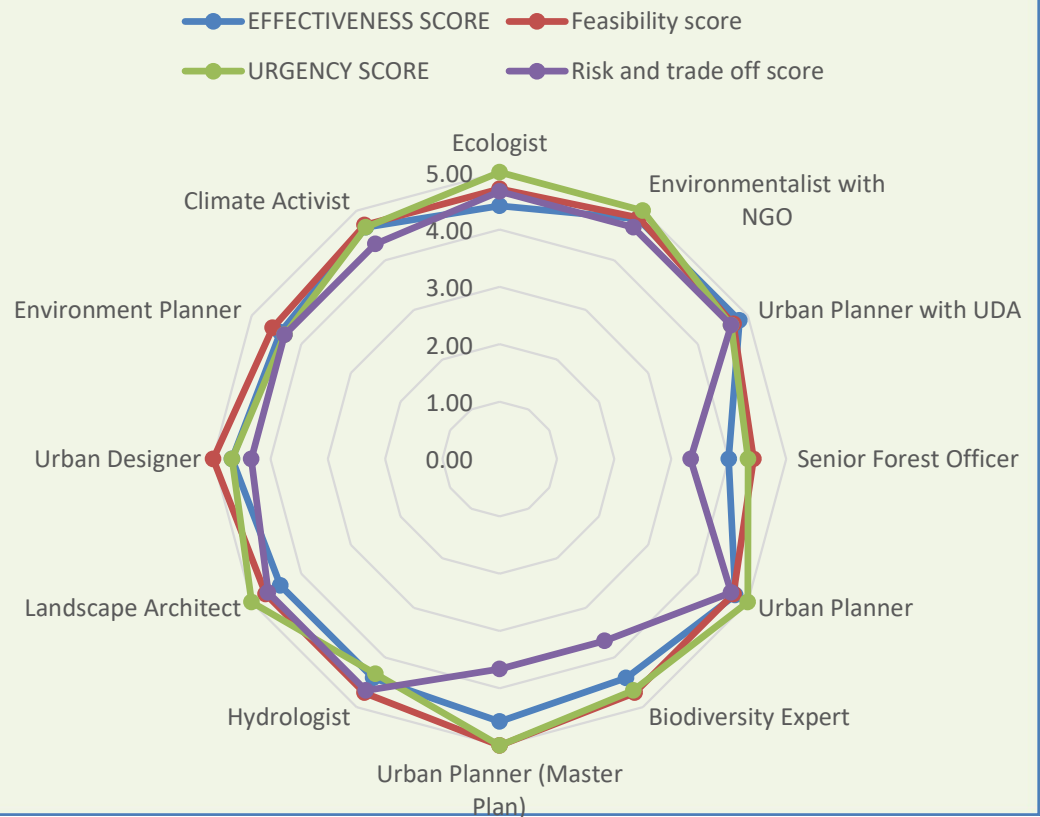
URGENCY SCORE

- High but with slight variation: some experts gave **4.33**, others gave **5.00**.
- The polygon might show slight “dents” where some experts are less urgent which indicates that urgency is mostly agreed upon but with a small level of divergence.

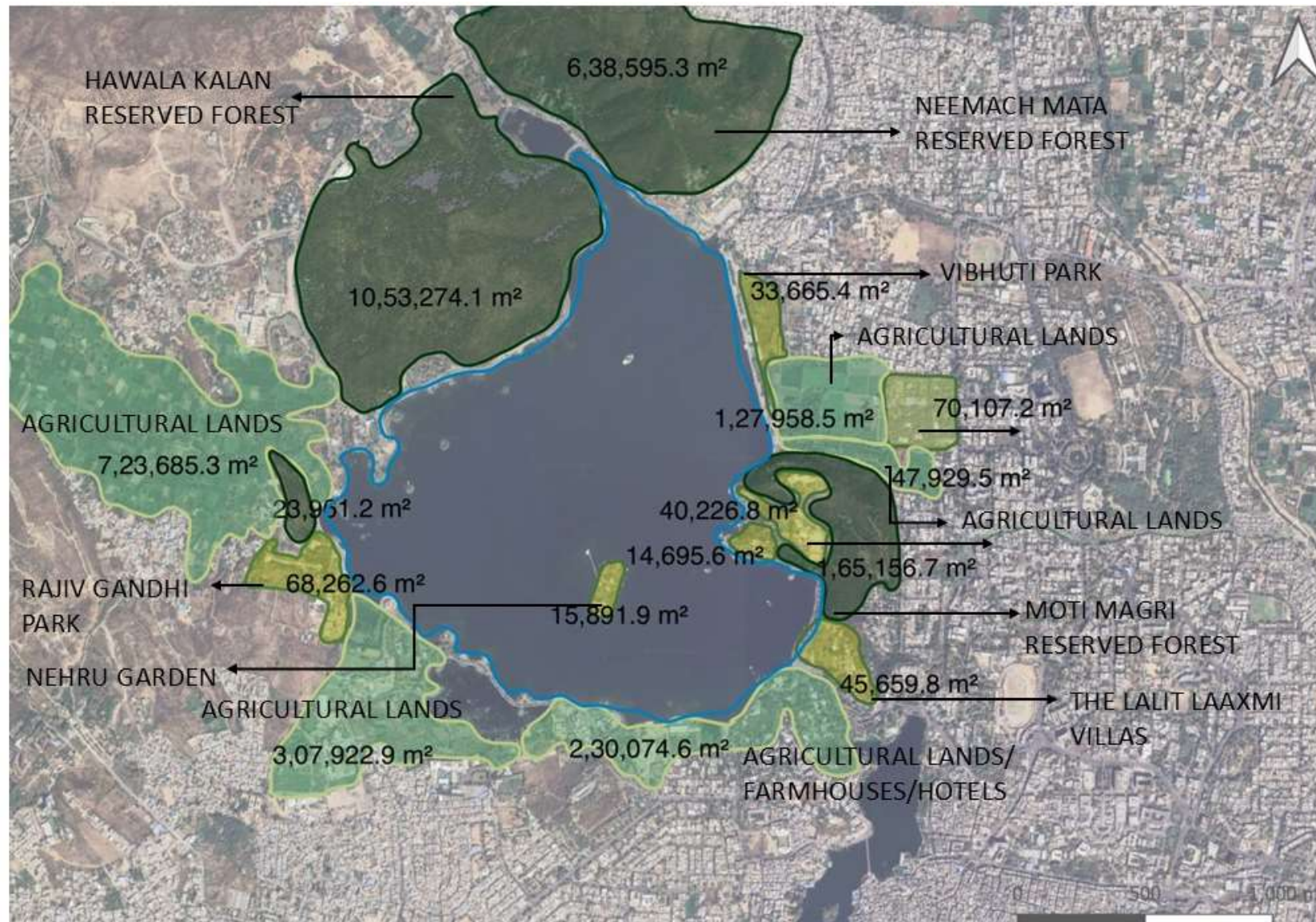
Risk and trade off score

- This has the **widest variation**: from **3.33 to 4.67**.

Radar Chart

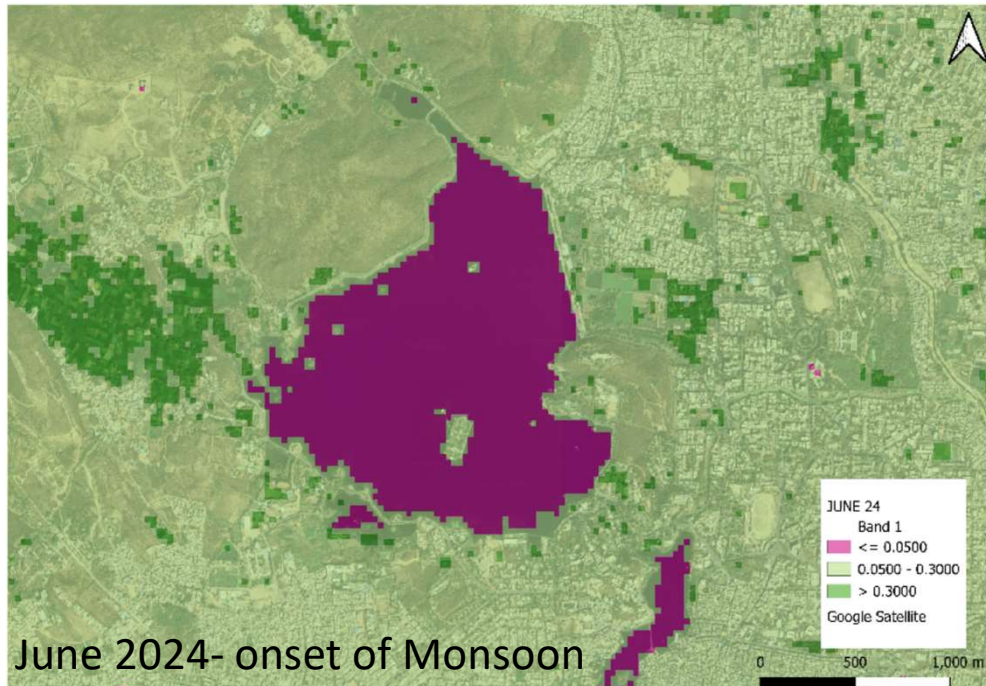


GIS & NDVI Analysis

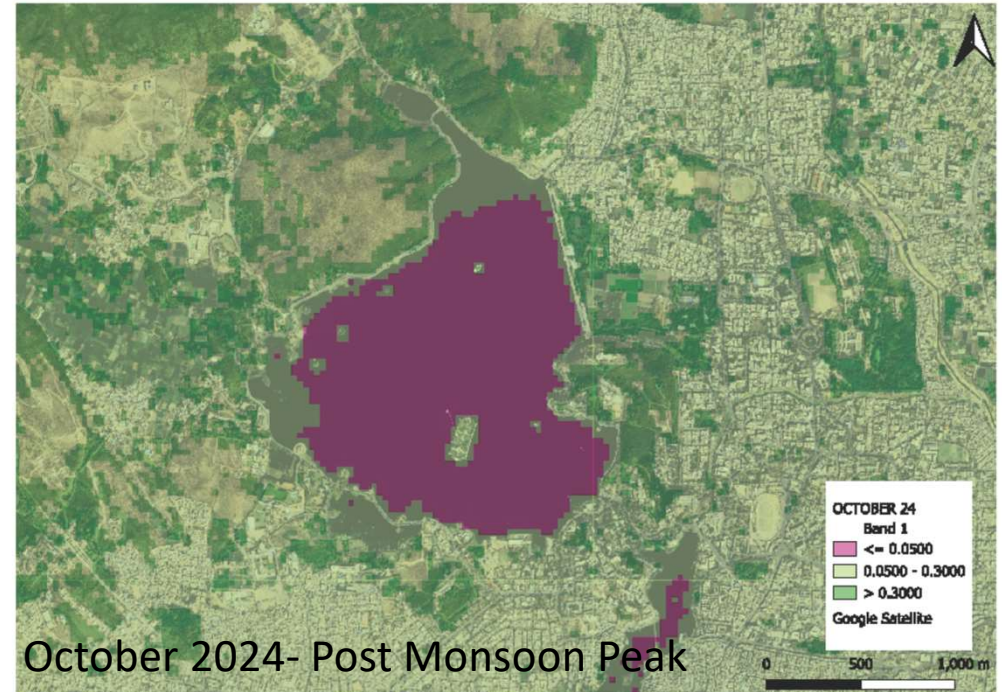


Seasonal NDVI variation using Landsat 9 imagery (2024–2025)

GIS & NDVI Analysis

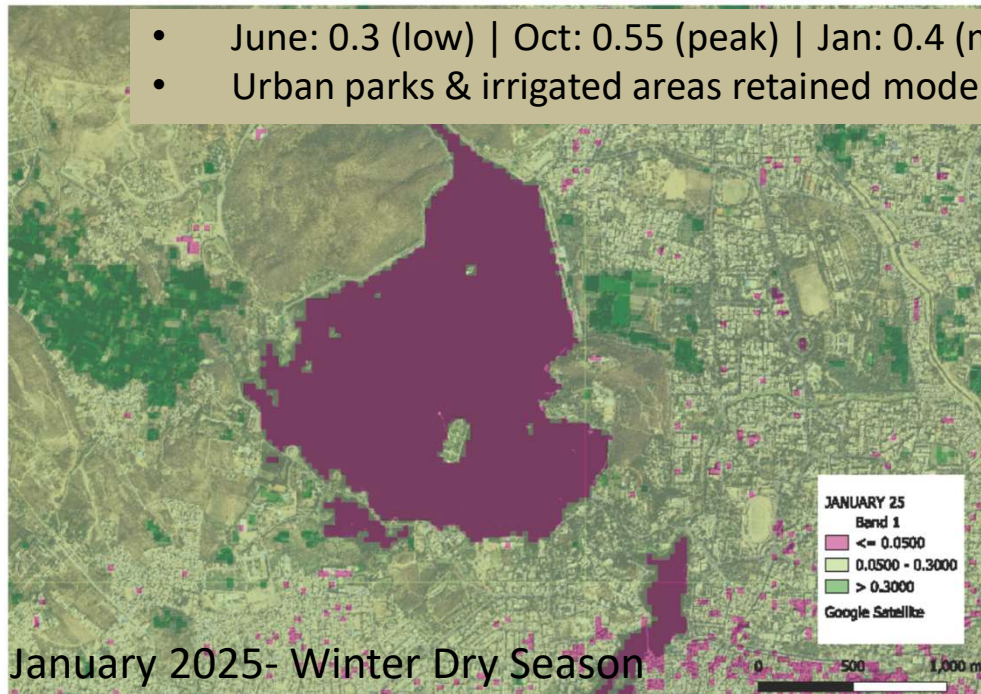


June 2024- onset of Monsoon

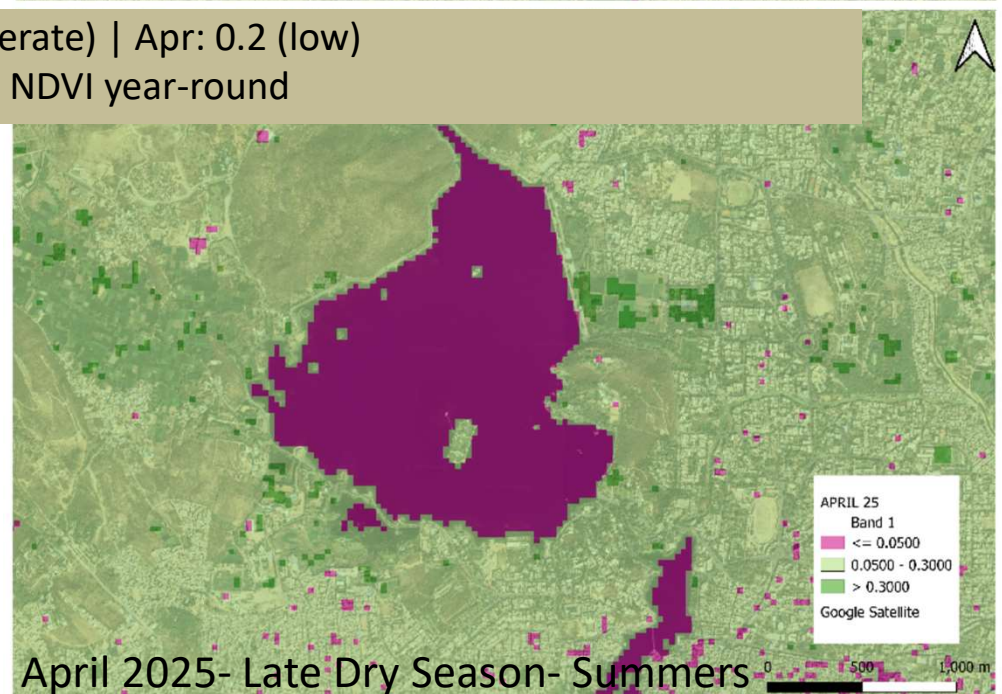


October 2024- Post Monsoon Peak

- June: 0.3 (low) | Oct: 0.55 (peak) | Jan: 0.4 (moderate) | Apr: 0.2 (low)
- Urban parks & irrigated areas retained moderate NDVI year-round



January 2025- Winter Dry Season



April 2025- Late Dry Season- Summers

Interpretation of NDVI

- Monsoon boosts greenness – peak in October
- Sharp decline during dry season – April lowest
- UGS sustain vegetation cover during dry months
- UGS help mitigate heat and micro-climate extremes



Results – Strategic Recommendations

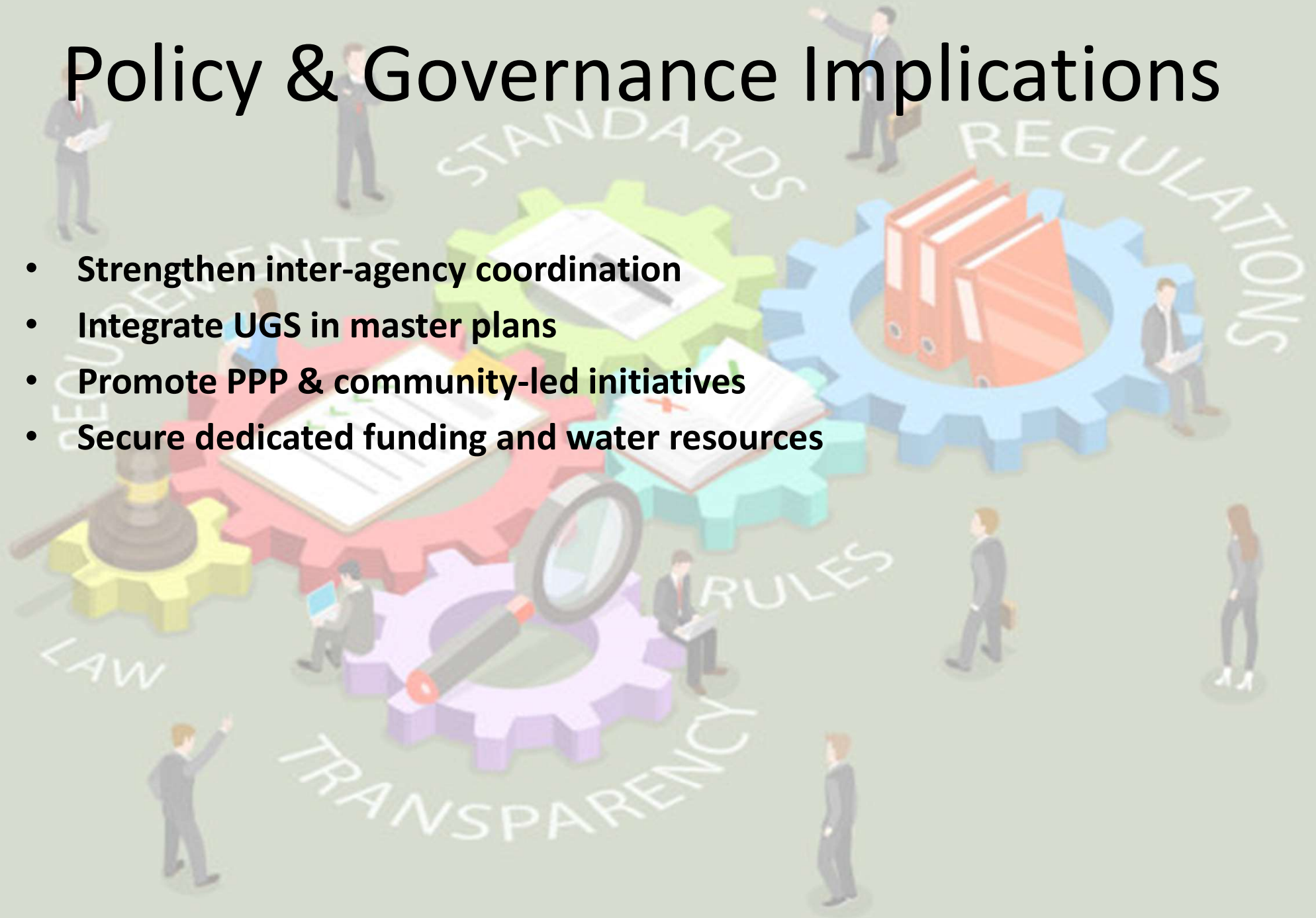


Urban green spaces show:

- Effectiveness: Improves NDVI, reduces heat & pollution
- Feasibility: Requires water management & native species
- Urgency: Immediate action before urban expansion
- Risks: invasive species, water conflict, inequitable access

Policy & Governance Implications

- **Strengthen inter-agency coordination**
- **Integrate UGS in master plans**
- **Promote PPP & community-led initiatives**
- **Secure dedicated funding and water resources**



Conclusion

- **NDVI shows seasonal fluctuations in vegetation health**
- **Urban Green Spaces: effective Nature-Based Solutions**
- **Balance feasibility, urgency & risks for sustainable outcomes**

Well Planned and Designed Urban Green Spaces can be an example of NbS in an urban setting and if effectively implied can be a pathway to climate-resilient Udaipur

Acknowledgements

I would like to extend a special thank you to my thesis supervisor, Dr. Vibha Gajjar, Associate Professor, IAPNU, Nirma University, Ahmedabad, for her unwavering support. I am also grateful to Dr. Aparna, Associate Professor, IAPNU Nirma University, Ahmedabad, for guiding me through the research methodology. I would also like to thank the Experts and stakeholders for Delphi inputs.

A heartfelt thanks to Kriitina Mardi, for this wonderful opportunity.

References

- Data sources: Landsat 9, QGIS, NDVI analysis
- Key references: Cherif et al. 2024; Chowdhury et al. 2025; Rahman & Hasan 2024



Thank You!

City Blues project and the NBS model

Project Manager Anna Vilhula | 25 September 2025 | Aarhus

interreg-baltic.eu/project/city-blues





This is City Blues

Budget of 2.9 MEUR

7 partners

6 countries

Nature-based solutions

3 years (2023–2026)

4+1 cities

3 research institutes

Stormwater management





Who is onboard?

Cities and research institutes

Tampere, FI (lead partner)

Aarhus, DK

Malmö, SE

Tartu, EE

Berlin Centre of Competence for Water, DE

Tallinn University of Technology, EE

University of Stavanger, NO

Project goals

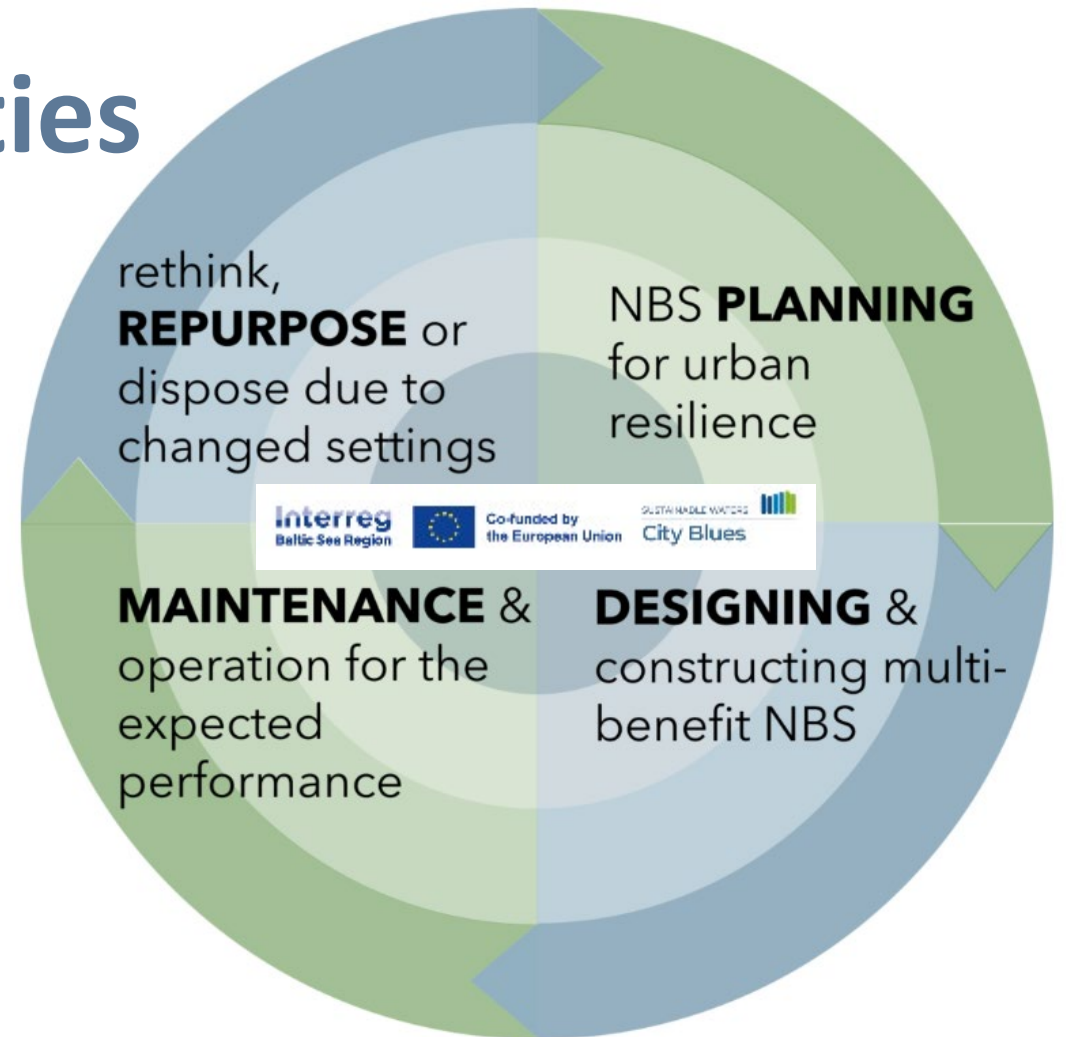
- **Prevent flooding** and negative effects of climate change.
- Make our cities **more pleasant places** to live in by bringing nature back into the city.
- Develop a **web-based tool for cities** on involving stakeholders and managing stormwater through nature-based solutions (NBS).



“We want to make the use of nature-based solutions and catchment-based thinking mainstream.”

NBS model builds a path towards water sensitive cities

- Created through pilots and workshops
- 1st draft published: nbsmodel.eu
- Final version will contain guidelines, recommendations, case descriptions and a self-assessment tool
- Acknowledges the differences between cities





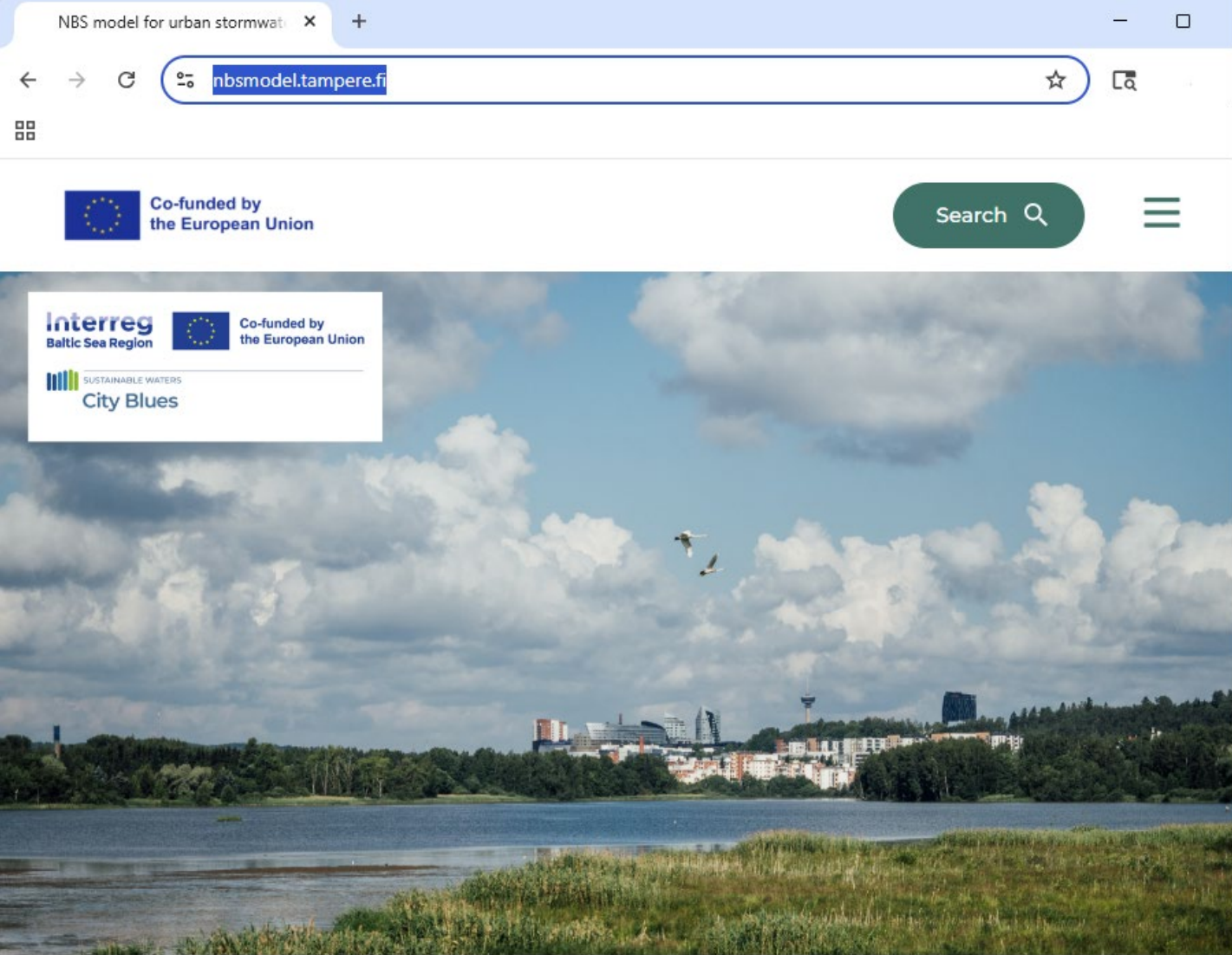
“Concept builds on different available models of urban transformation towards sustainable water management.”

Murel Truu, TalTech

Model will include set of good guidelines

Some examples

- Malmö technical manual (governance)
- Tampere NBS design guidelines (design)
- Tartu biodiversity score for private gardens (stakeholder engagement)



Welcome

This website is an online tool for different cities that brings together City Blues partner cities’ experiences and best practices on how to use nature-based solutions (NBS) and catchment-based approach for urban flooding and stormwater management. You will find information and experiences from financing and planning to

×

Home

NBS Model

Process governance

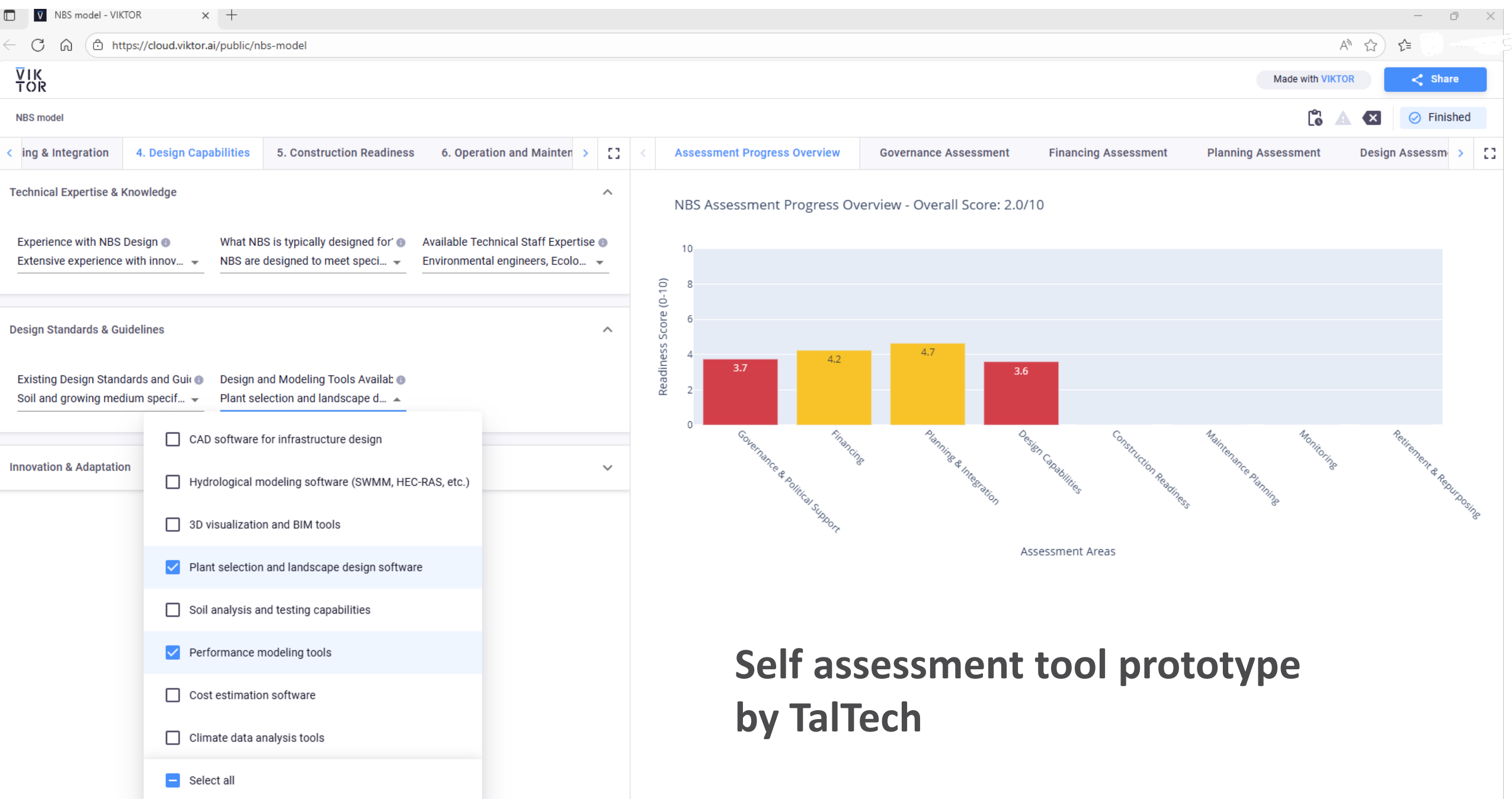
Risk management

Citizen and stakeholder engagement

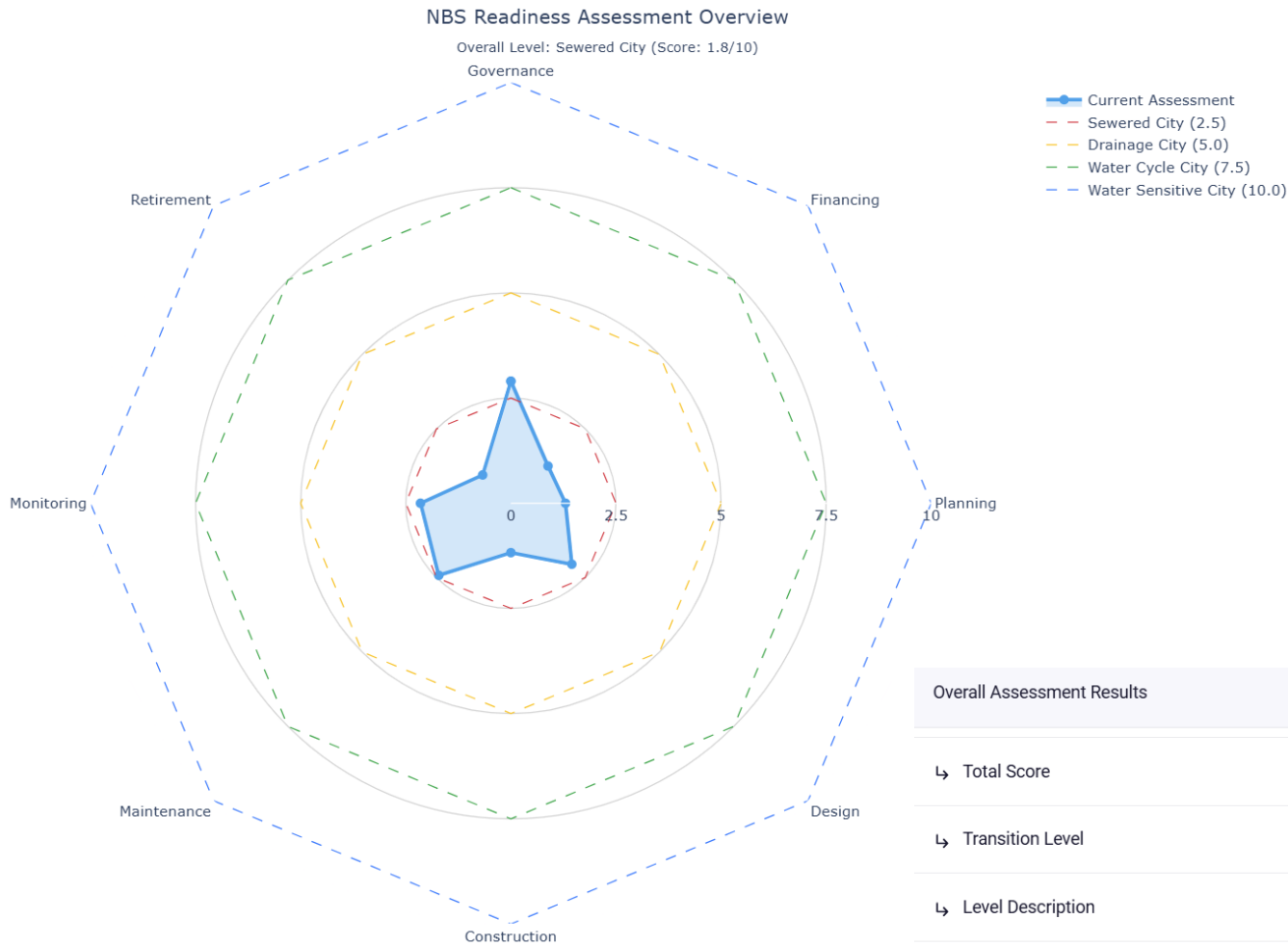
Monitoring guidance

GLOSSARY

CONTACTS



Self assessment tool prototype
by TalTech



Self assessment tool prototype by TalTech – Results view

Overall Assessment Results		[] ^
↳ Total Score		2.0 /10
↳ Transition Level		Sewered City
↳ Level Description	Limited NBS design experience with traditional infrastructure focus	
Detailed Assessment Breakdown		[] v
Prioritized Recommendations		[] ^
↳ Priority 1	IMPORTANT: Develop basic design standards and guidelines for NBS	
↳ Priority 2	MEDIUM PRIORITY: Begin by replicating proven NBS designs adapted to local conditions	
↳ Priority 3	Focus on building basic design capabilities and establishing partnerships	

Pilots



Aarhus (DK) is re-opening and restoring two streams (Bueris and Ravnsbakke)



Malmö (SE) creates a development plan for the catchment of Risberga stream



Tartu (EE) is building flood derivation cascade to support biodiversity with wetlands



Tampere (FI) creates new alluvial meadows in a park near old residential area



Stavanger (NO) is renovating urban square and managing stormwater through rain beds

KUMINAPOLUN HULEVESIALLAS

Hulevesialtaassa viivytetään ja puhdistetaan sade- ja sulamisvettä eli hulevettä. Allas täyttyy voimakkaiden sateiden ja sulamisvesien aikana. Silloin hulevettä imeytyy maaperään ja vettä haihtuu ilmaan.

Näin vähennetään ojan kulumista ja estetään maa-aineksen kulumista Kaukajärveen.

Huomaatko ongelmia altaan toiminnassa?

Allas ei toimi normaalisti, jos esimerkiksi Kuminapolun läheisyydessä oleva ritiläkantinen ylivuotokaivo on tukkeutunut.

Jos havaitset altaassa toimintahäiriön, ilmoita siitä täyttämällä lyhyt kysely. Vastaaminen vie aikaa noin minuutin.



Kuminapolun hulevesialtaan tukkeutunut kaivo



Puhdistettu kaivo



Kiitos, että autat meitä pitämään hulevesialtaan toiminnassa.

Jos havaitset altaassa toimintahäiriön, ilmoita siitä täyttämällä lyhyt kysely alla olevan QR-koodin kautta.



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SUSTAINABLE WATER
City Blues

Maintenance and monitoring

Maintenance Guidance for Nature-based Solutions

Monitoring campaigns in partner cities

Next steps

- NBS model development and dissemination
- New reports on pilots and monitoring
- Final event in Berlin in September 2026

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Baltic Sea Region



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 SUSTAINABLE WATERS
City Blues

More information

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interreg-baltic.eu/project/city-blues
nbsmodel.eu



Project has received funding from the EU's Interreg Baltic Sea Region programme.

Principles for Holistic Water Management in Aarhus



Dr. Nikolaj Kruse Christensen, PhD hydrogeology
Section for Climate adaptaion and Wastewater management





Cities creates integrated solutions!



**Water
supply**

**Ground
water
protection**



**Wastewater
planning**



**Land
use**

**Nature
based
solutions**



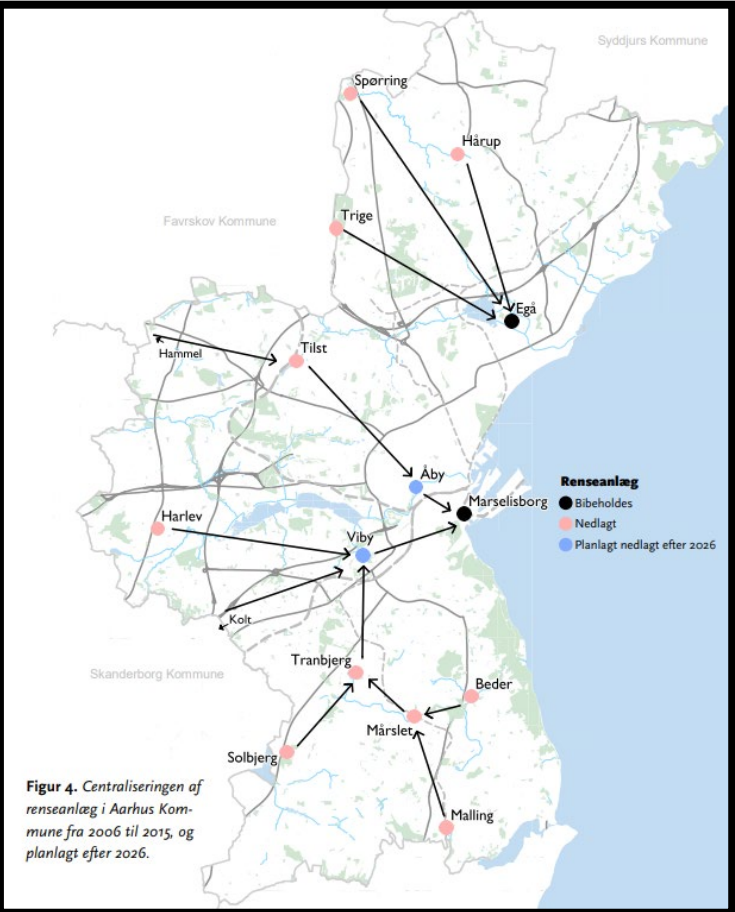
**Climate
adaptation**

**Stormwater
planning**

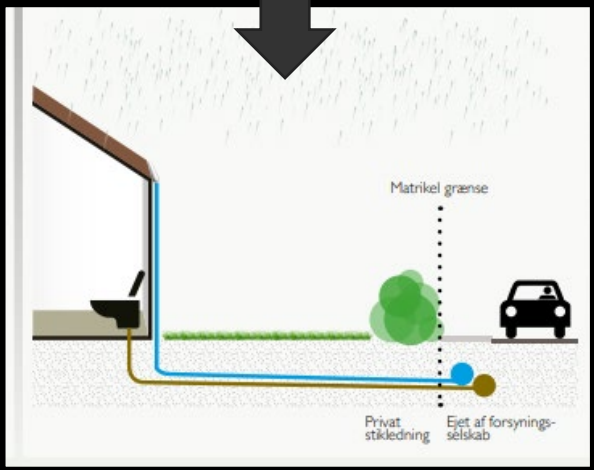
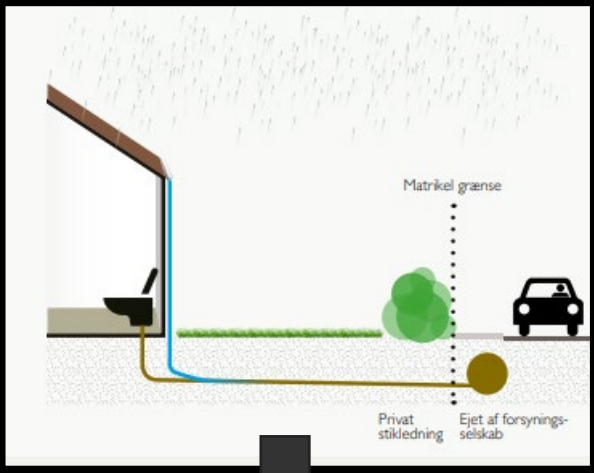


Stormwater & Wastewater management plan

Stepwise centralization of WWTP
- Improved wastewater treatment

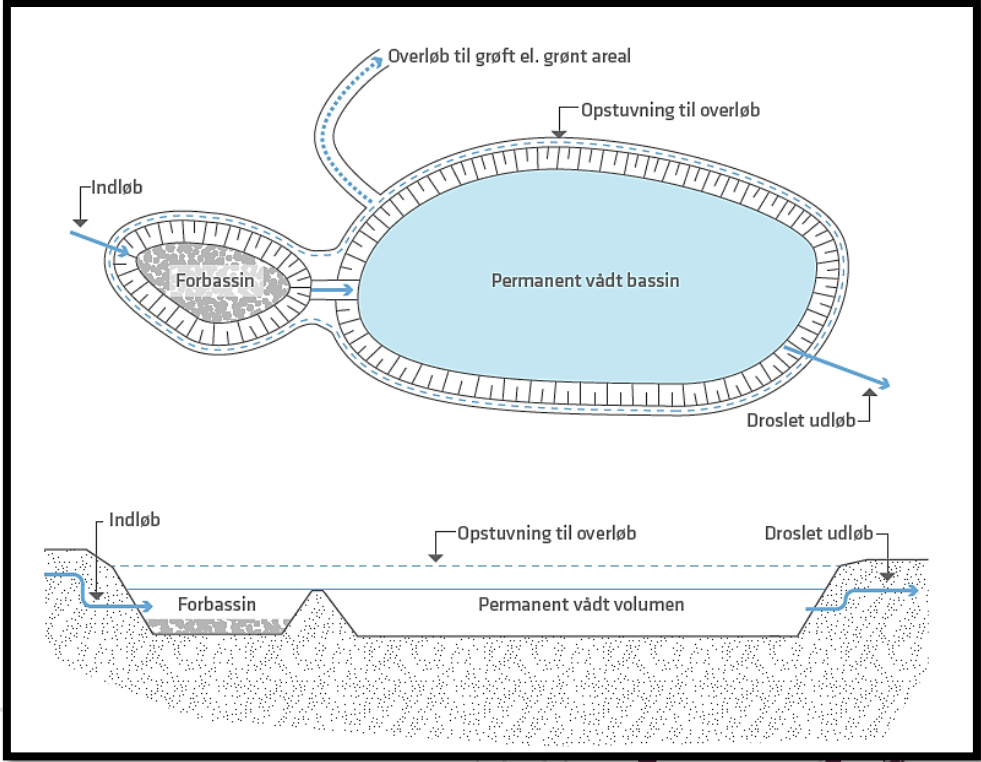


100 %
Separation of Sewer
system



TOP PRIORITY

Stormwater
management



Organization structure of Water sector in Aarhus: Areas of responsibilities



City of Aarhus

- Town planning
- Authority
- Water management plan
 - Groundwater
 - river
 - drinking water
 - wastewater
 - etc.
- Permits
- Inspections
- Enforcement



aarhusvand

- Utility company
- **Owned by the municipality**
- Water supply
- Wastewater treatment
- Operation and Maintenance (O&M)



Separation of Sewer system & Stormwater management





Water Management - visions

**Water is a resource –
not a problem !**

Integrated planning is important to:

- 1) avoid severe damage from flooding, and at the same time build a sustainable city with attractive surroundings
- 2) “create time and space for the water”:
- 3) secure continued sustainable urban growth
- 4) create synergies and “added value”



Time and space for water

1. Water storage outside urban areas
2. Reduction of nutrient load to the Bay of Aarhus
3. Biodiversity - animal and plant habitats
4. More recreational activities





The Vision:

Create a high quality city and high quality surroundings



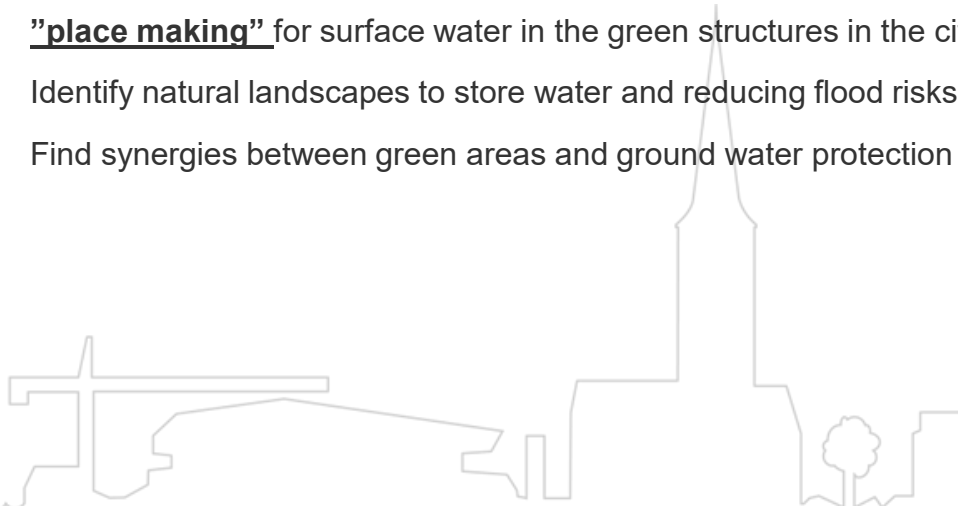
Making the city more green:

1. Ensure important green connections
2. Ensure accesibility to green areas in the city and in open field
3. Adding quality to city development by introducing a Green Norm



Making Aarhus robust and sustainable by finding space for water in the city and in green areas

1. Water gives live and added value to the city
2. **"place making"** for surface water in the green structures in the city
3. Identify natural landscapes to store water and reducing flood risks
4. Find synergies between green areas and ground water protection



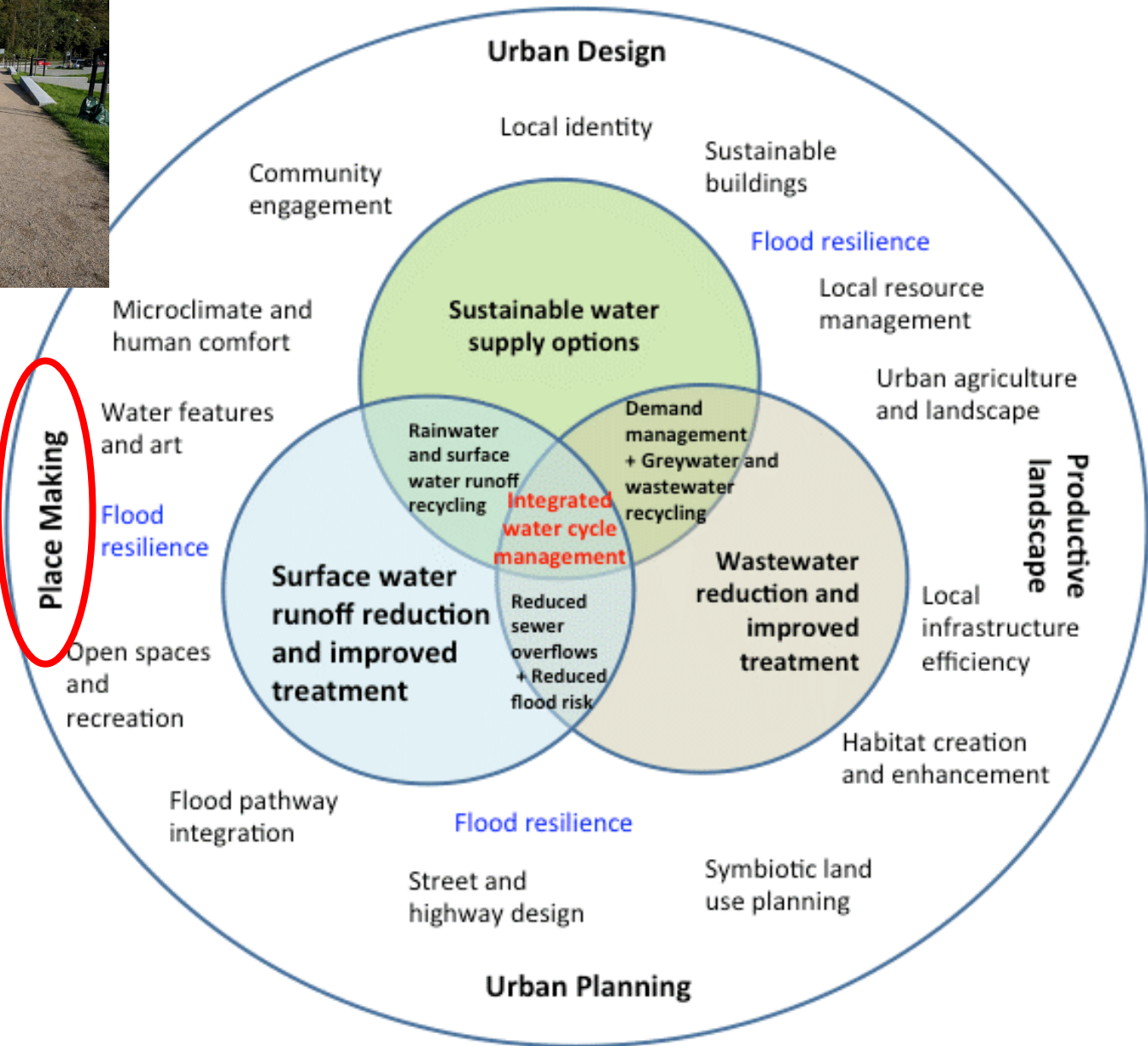
ADDED VALUE IN CLIMATE ADAPTATION AND CITY PLANNING



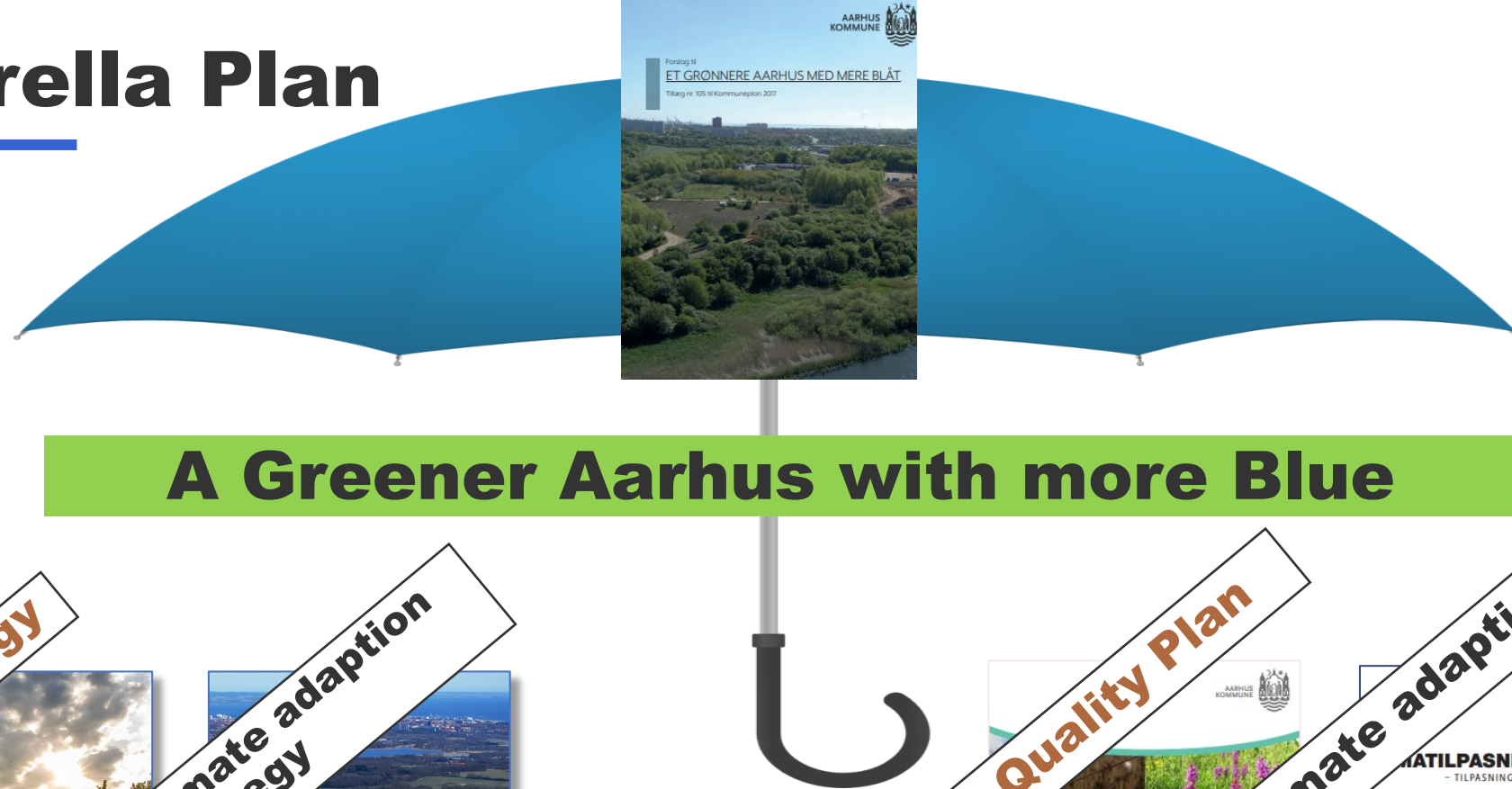
Our main challenge!!!

Place Making

WSUD – Water Sensitive Urban Design

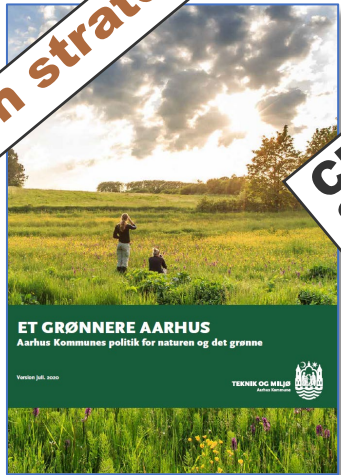


Umbrella Plan



A Greener Aarhus with more Blue

Green strategy



Climate adaption Strategy



Nature Quality Plan



Climate adaption plan



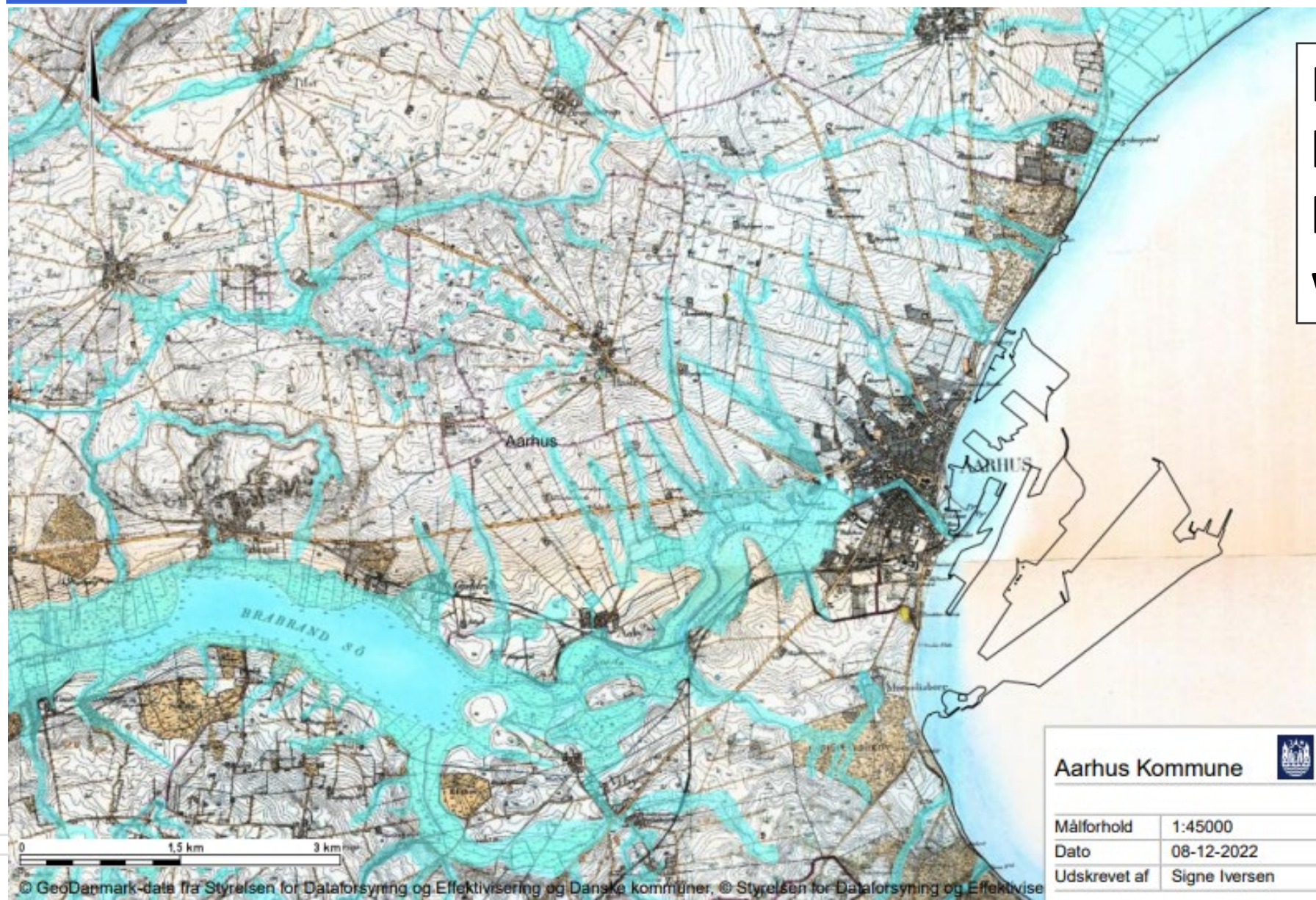
Parks & Recreation Plans



Policy strategies

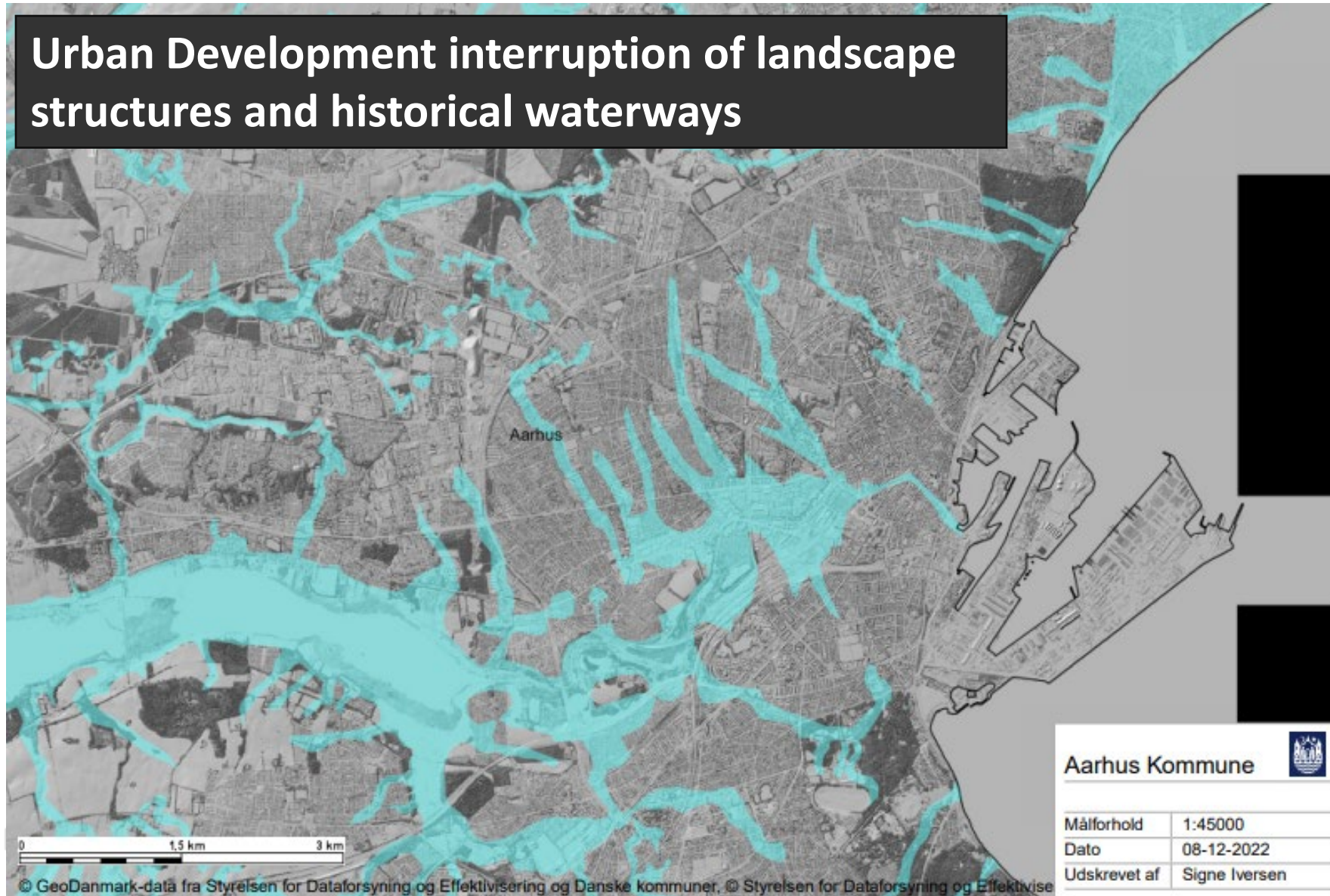
Action plans

DNA of the Plan: Landscape based city-, water- and nature planning



**Historical
landscape and
historical
waterways**

Urban Development interruption of landscape structures and historical waterways



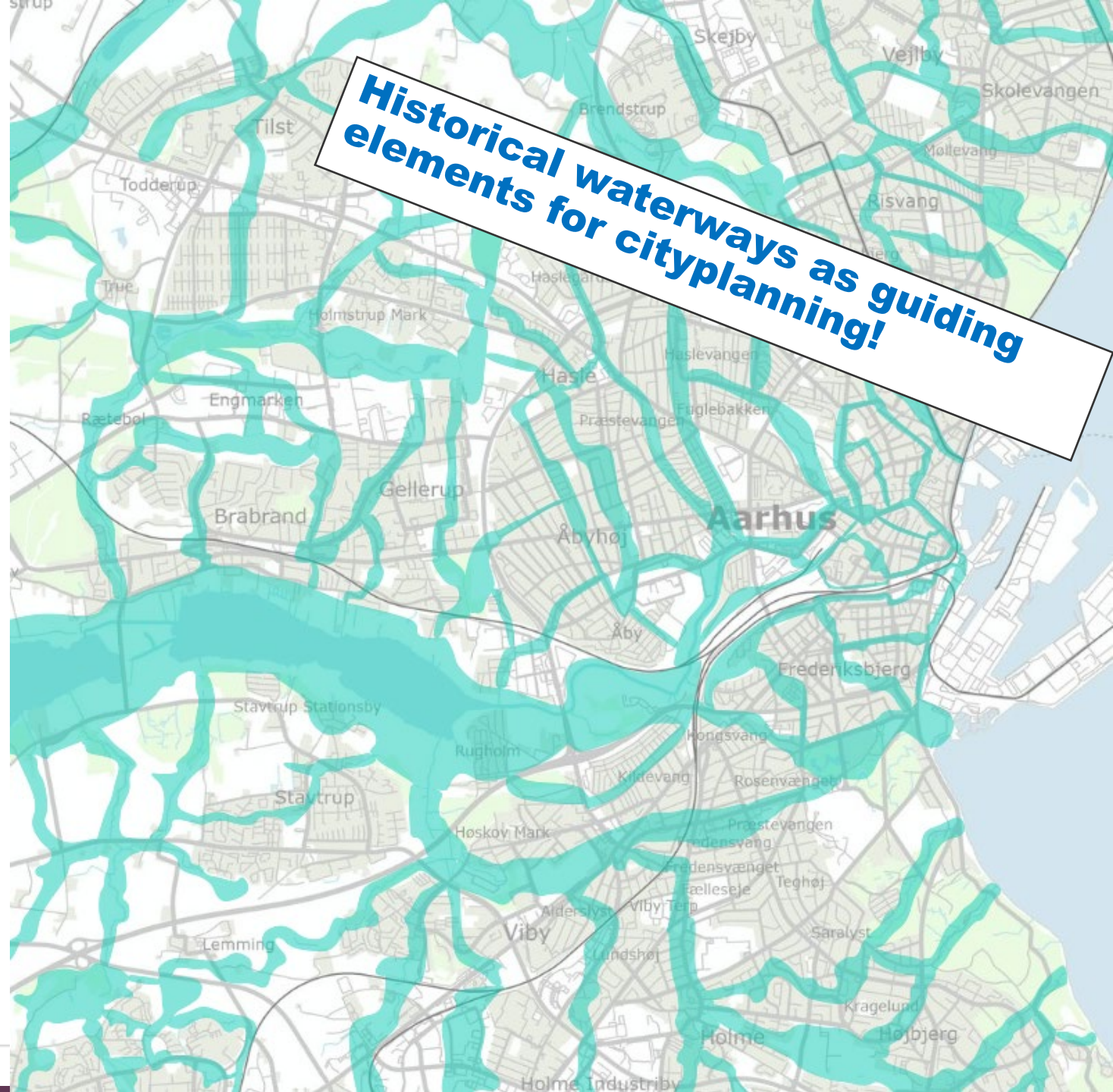
Water –
from historical
times till now



Theme 1: Blue and Green Connections

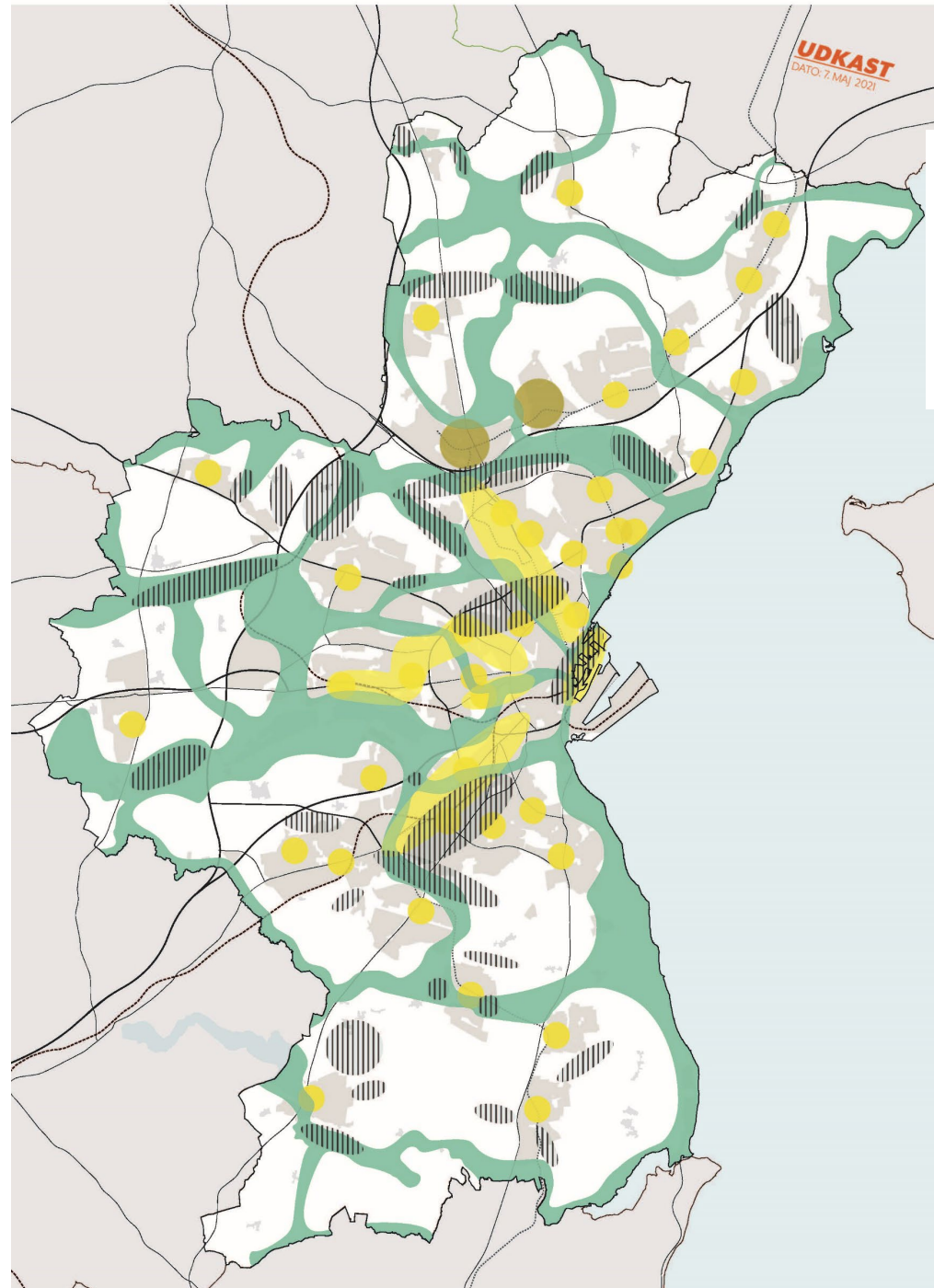
Legal Basis and Requirements in City planning

1. Support Visual and physical connectivity between nature, water, leisure areas and recreative pathways.
2. Enhance and emphasize landscape and nature
3. Emphazise Climate adaption with visible water and synergies with water, nature and Carbon reduction
4. City development, buildings and technical facilities must not be barrier for connections and accessibility to green areas.
5. Existing barriers for connectivity should be removed.





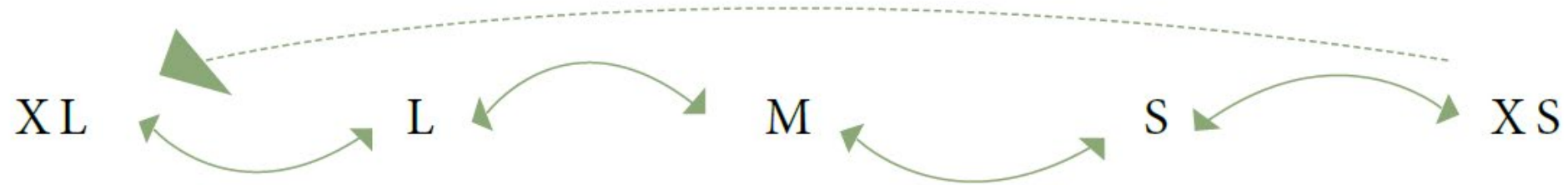
Nature, water and leisure **BALANCES** city growth



- Blue and green network
- Blue and green development areas
- City Growth – New cities
- Growth axis and densification areas

LANDSCAPE BASED URBAN PLANNING

Spatial planning hierarchy



Shared vision
Aarhus Municipality



condensed city
vs
open areas
1 : 100.000

Holistic interdisciplinary
strategic plan
for a smaller
area



theme plans
1 : 10.000

Guidelines for communal
living
- priorities of programs



what and where?
1 : 2.000

By-law spacial plan for
specific housing
or business area e.g.



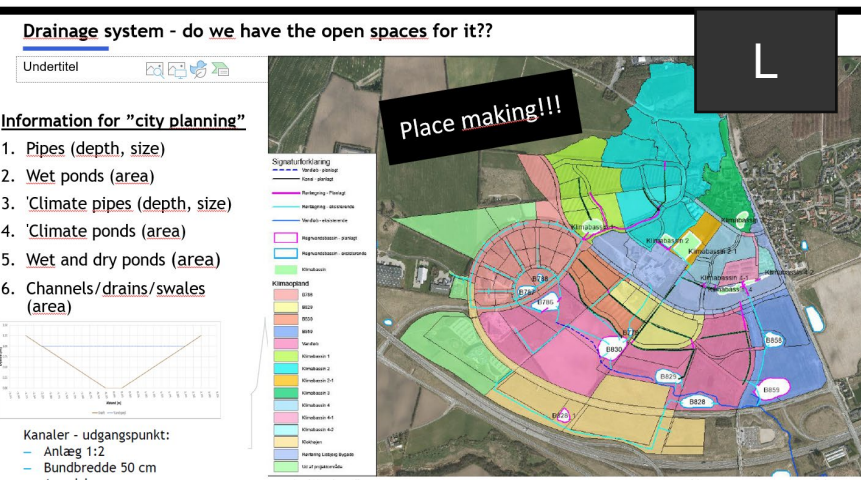
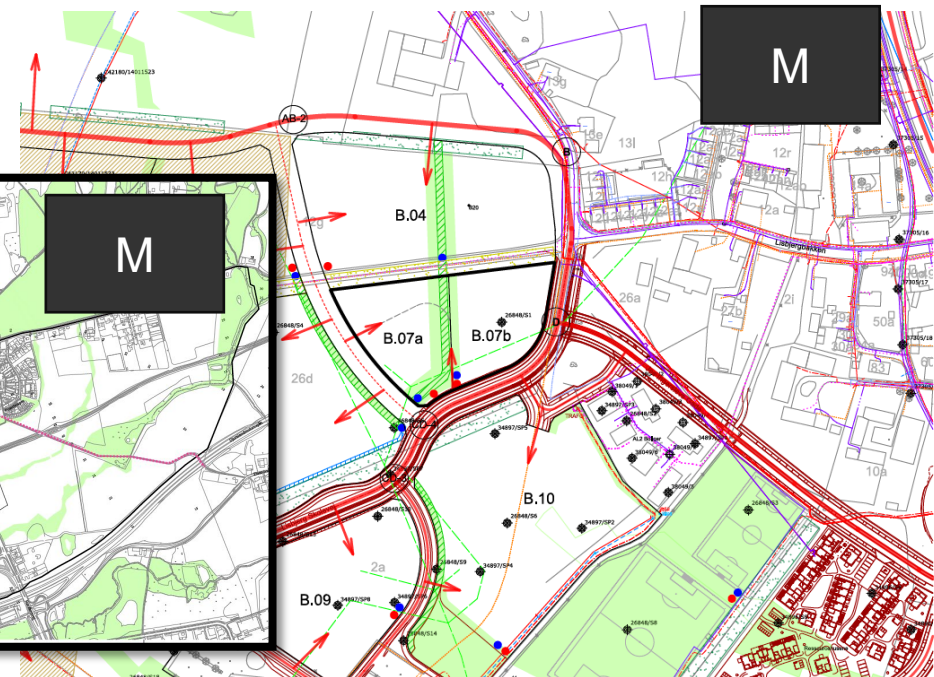
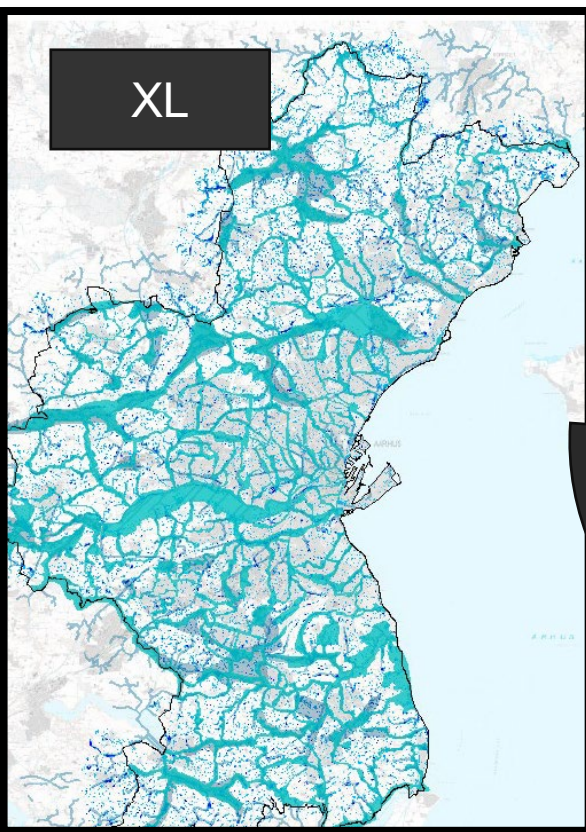
how
1:500 / 1:200

Building permission



"Time and space for water"

How?
"place making"
(at all planning levels)



Place making – how to

Permits required to connect properties to public sewer systems, often with conditions related to capacity and environmental impact.



“XL-scale & S-scale” Governance Tool - “The Danish Planning Act”

Local Development Plans in Denmark – Legal Basis and Requirements

1. Regulate Land Use

These plans regulate the **use of land**, including zoning, building design, infrastructure, and environmental considerations

2. Must Comply with the Municipal Plan

A local plan must be consistent with the municipal plan, which outlines broader development strategies for the municipality

3. Cannot Conflict with Other Legislation or Plans

Local plans must not contradict other laws or planning instruments, such as environmental protection laws or national planning directives

4. All Provisions Must Be Based on Section 15 of the Planning Act

Every regulation in a local plan must have a legal basis in Section 15 of the Planning Act, which contains a detailed catalogue of permissible planning topics (known as the "local plan catalogue")

Planloven



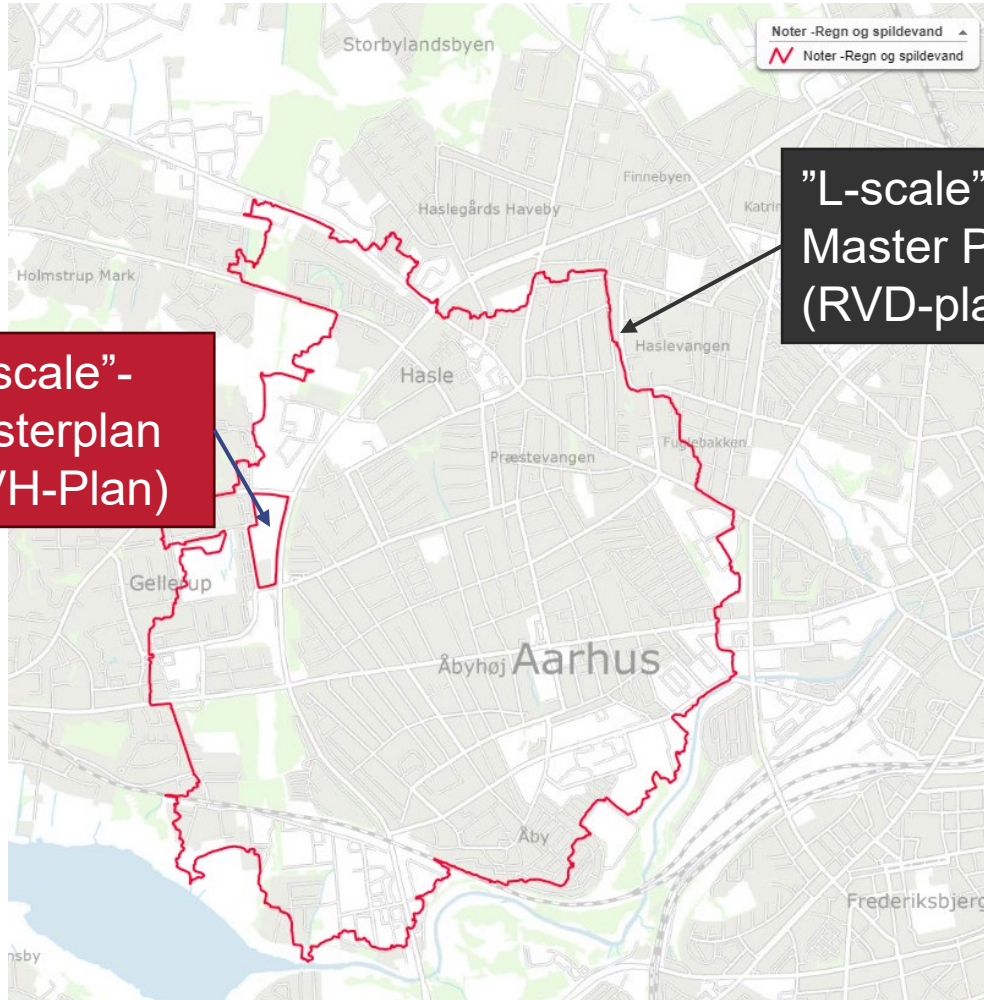
Kommenteret af
Helle Tegner Anker

med bistand af
Jens Flensburg

Jurist- og Økonomforbundets Forbund

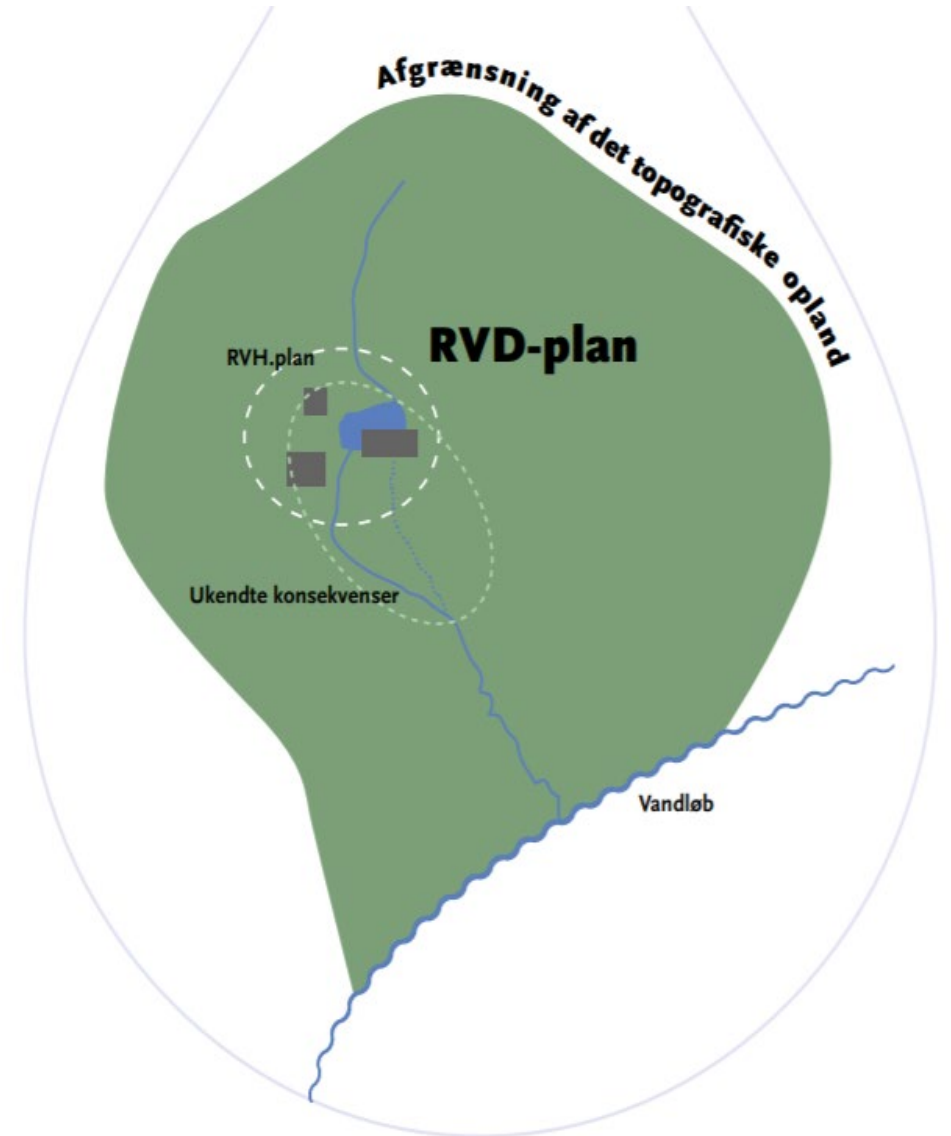
Urban Area - Catchment analysis (L-scale)

"A Matter of scale"

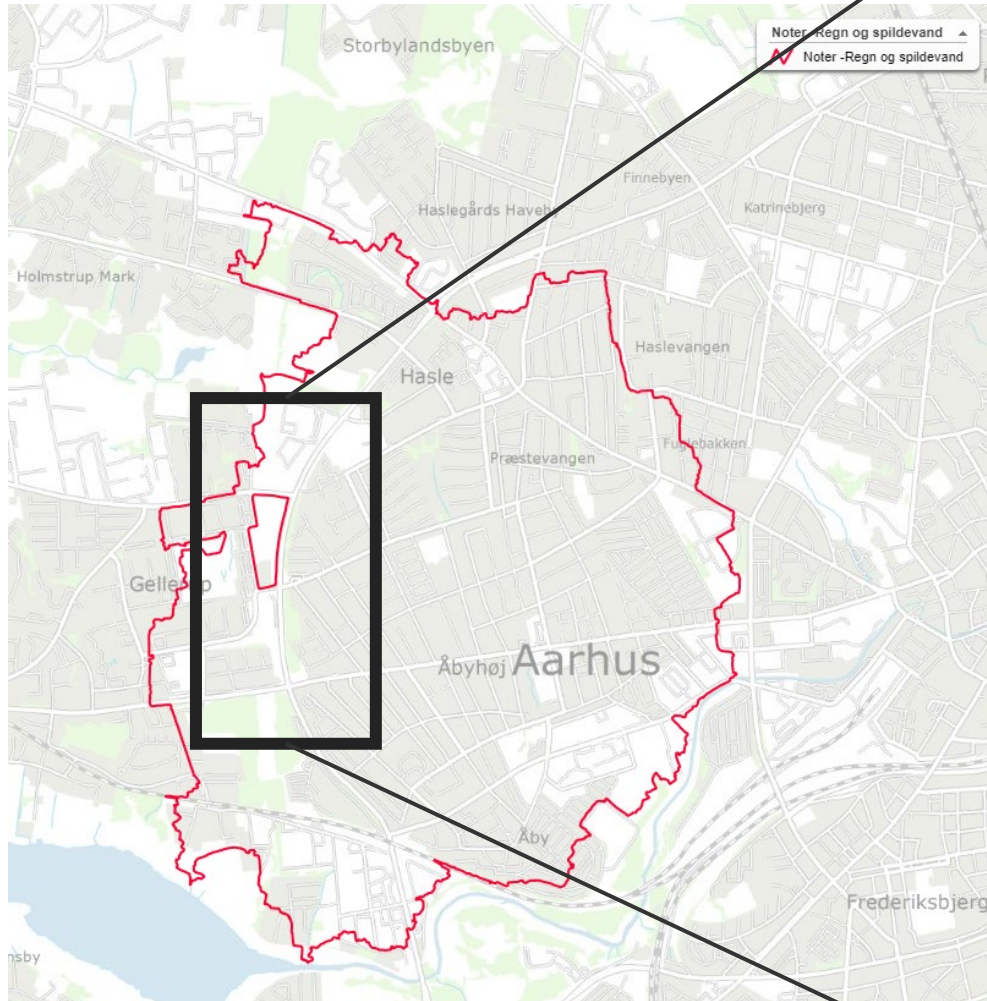


**"L-scale"
Master Plan
(RVD-plan)**

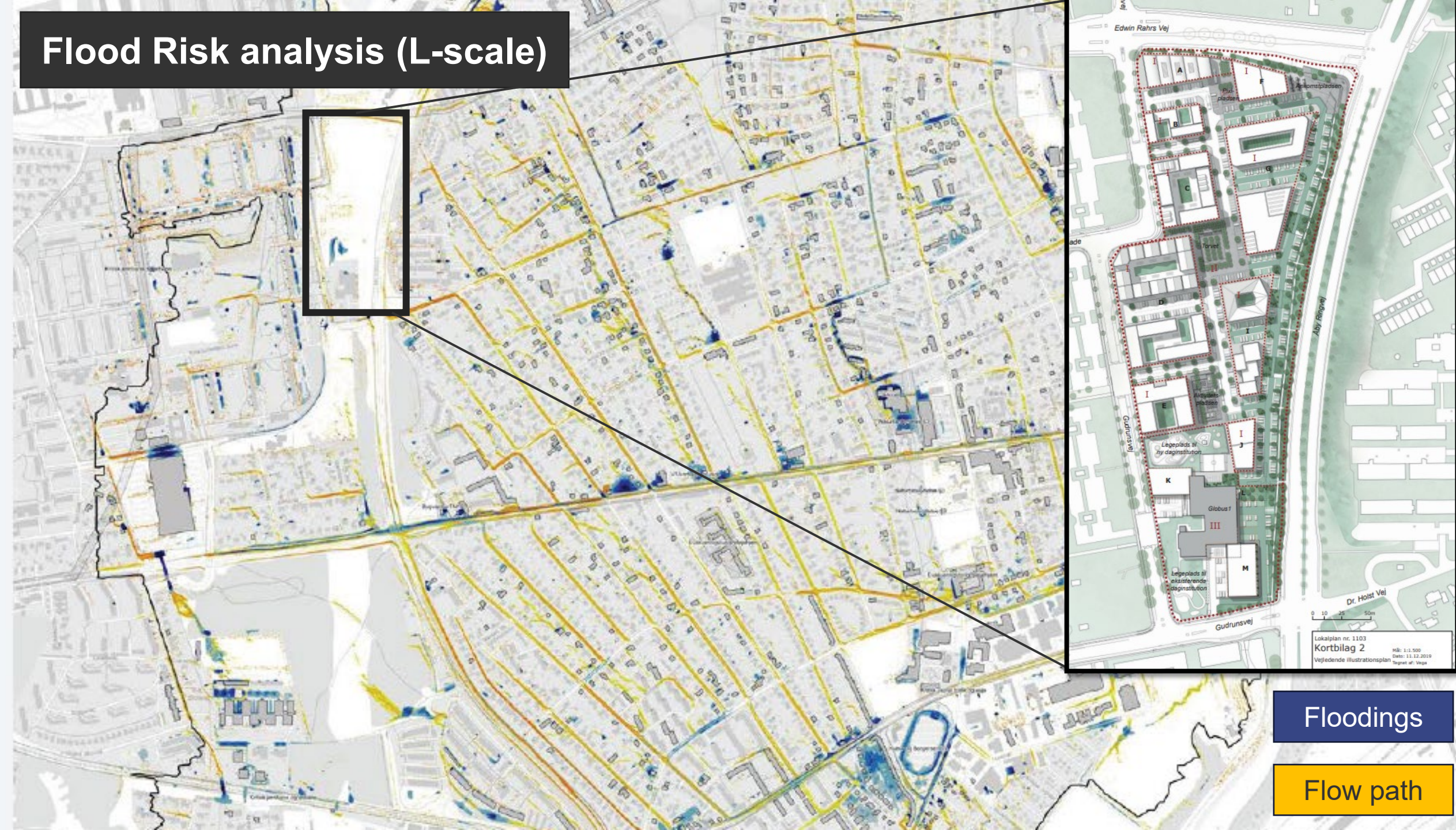
**"S-scale"-
Masterplan
(RVH-Plan)**



Planning frameworks and regulatory constraints (S-scale)

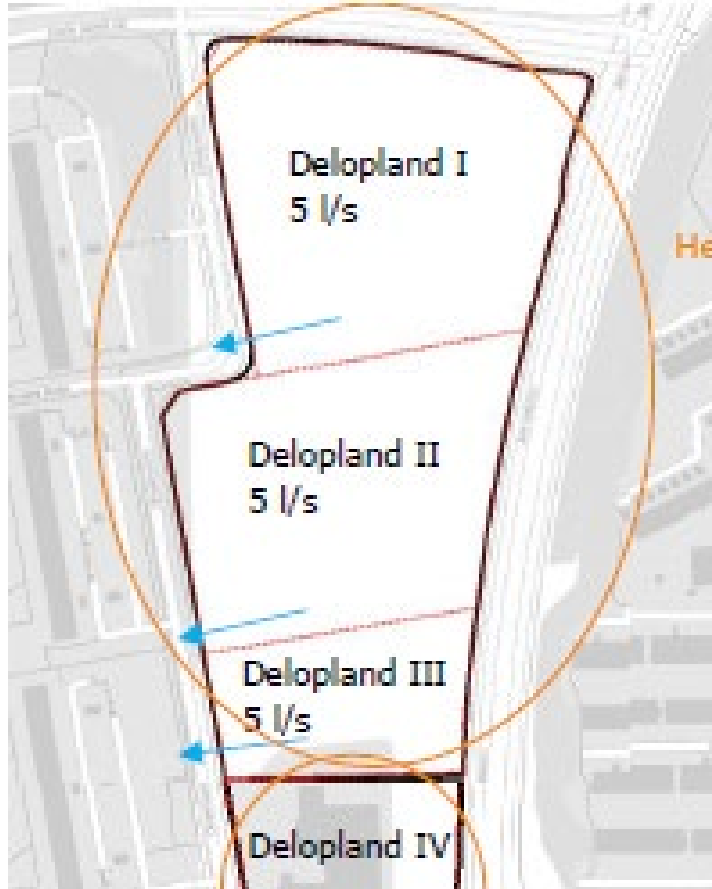


Flood Risk analysis (L-scale)



Local Development Planning/Land Use Planning (S-Scale)

Responsability – private developer



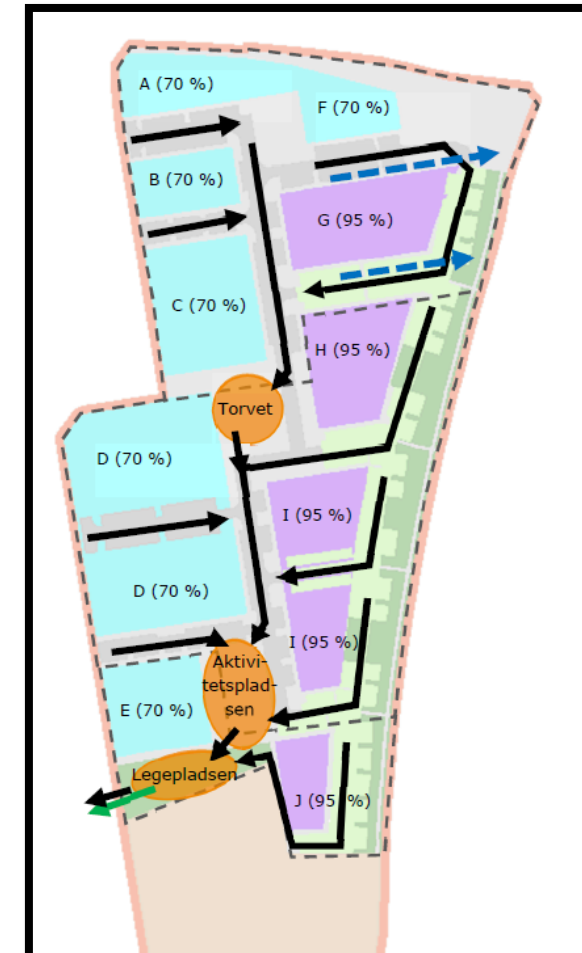
**Planning frameworks and
regulatory constraints**

Kilde: NIRAS



Flood analysis

Kilde: SCALGO



**Layout plan +
Blue-Green solutions**

Kilde: NIRAS

Urban water management plan in ÅBYHØJ ("L-scale")

Blue-green recreational path



PART OF THE LANDSCAPE – AARHUS RIVER VALLEY

Blue-green recreational path



Urban water management plan - Åbyhøj

Aarhus Vand arbejde



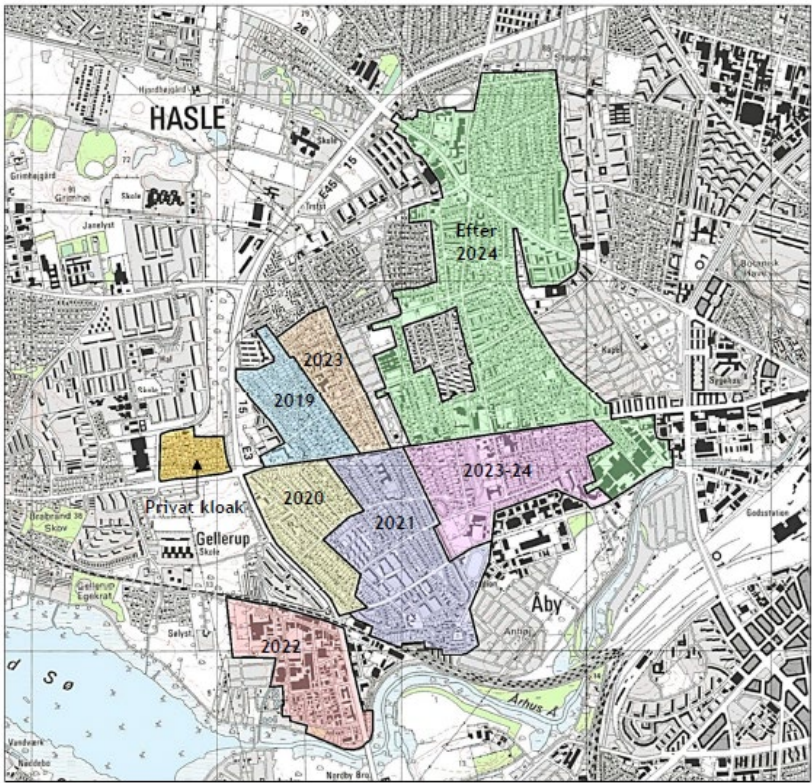
PLAN FOR SEWER SEPARATION



Flood Risk analysis



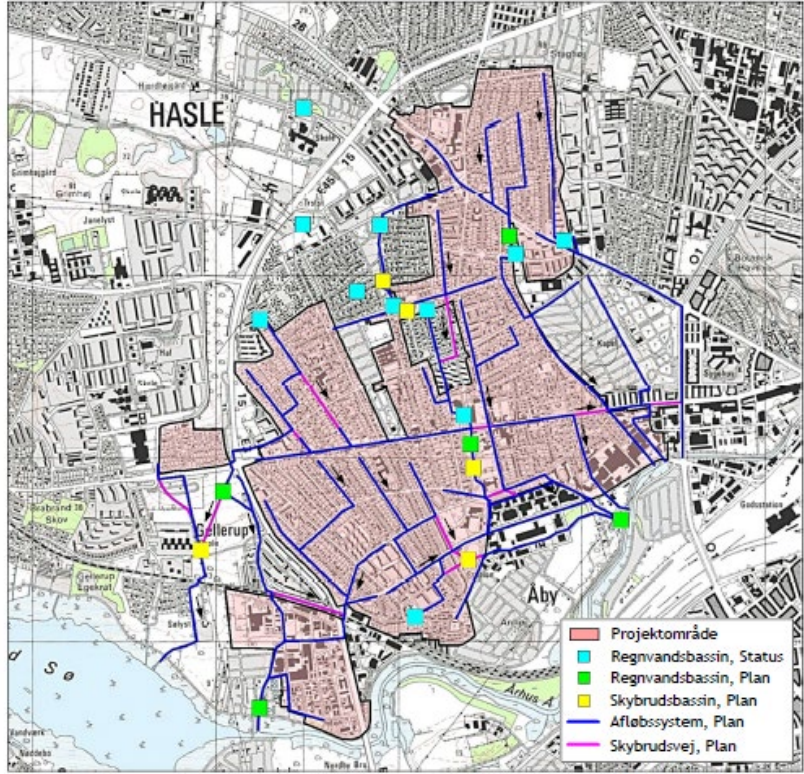
Strategic Masterplan



Ref: Aarhus Vand



Ref: Aarhus Vand



Ref: Aarhus Vand



Added Value projects + Urban water management plan

Water Projects

Aarhus Vand

Regnvandsdispositionsplan

Adskillelse af regnvand og spildevand i Åby, Åbyhøj og Hasle

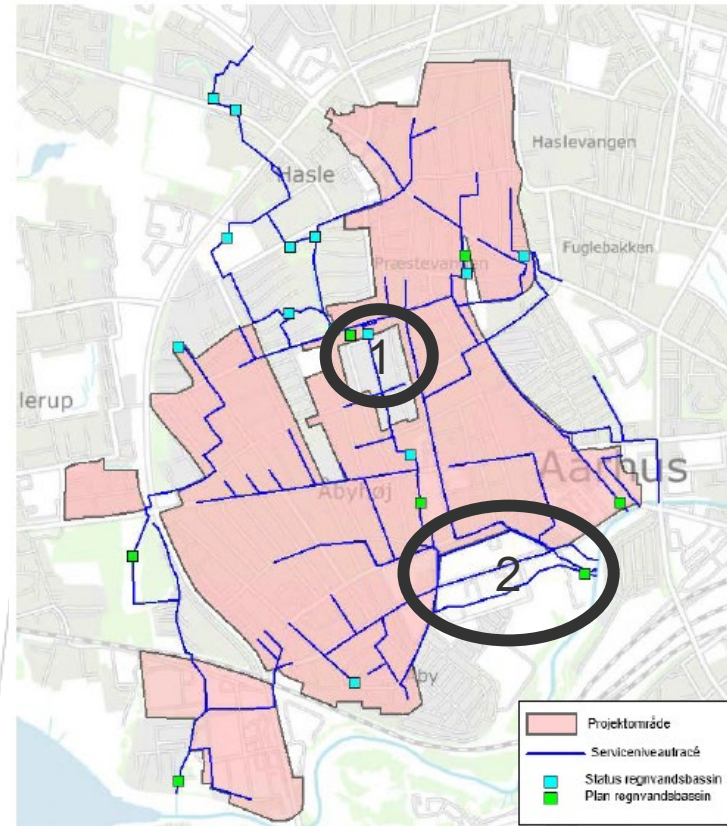
Opdatering 2021

2. december 2021

Udarbejdet til:
Aarhus Vand
Gunnar Clausens Vej 34
8260 Viby

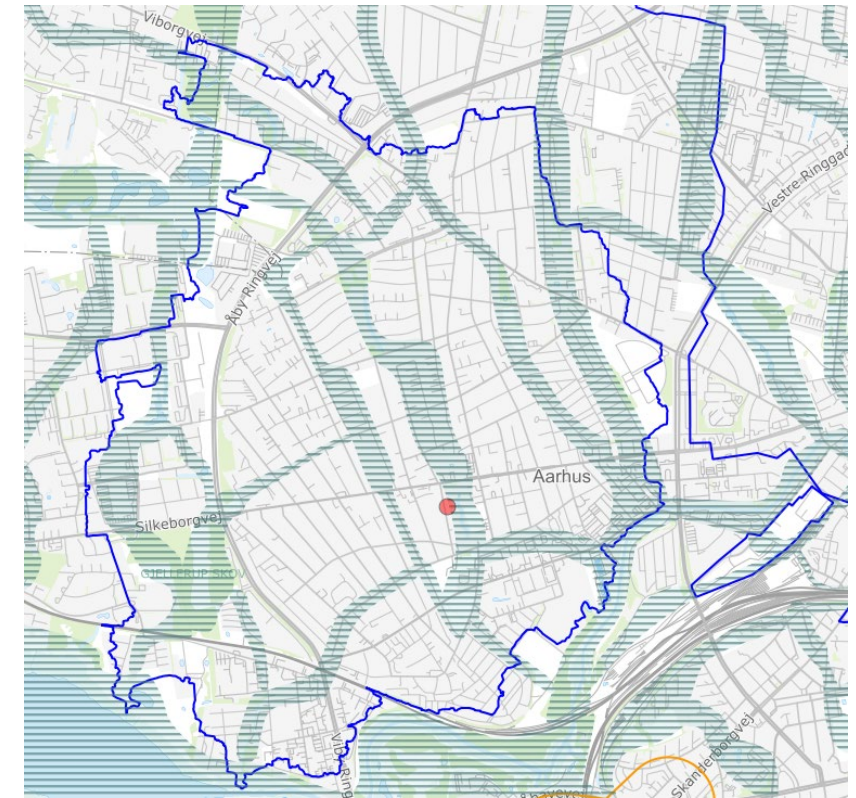
Udarbejdet af:
EnviDan A/S
Martin Hyllegaard Madsen
E-mail: mhm@envidan.dk
Direkte tlf.: 53 29 77 53
Projekt navn: Regnvandsdispositionsplan
Projektnr.: 1202469
Kvalitetssikring: Michael Møller
Side 1 af 37

EnviDan



- 1) Klokkeparken
- 2) Fragtmadscentralen

Add Value + Blue/Green plan





VISION FOR ADDED VALUE

6 QUALITIES – DEFINED IN THE VISION



IMPROVE
CONNECTIONS



NEW MEETING
POINTS



GREENER
DISTRICTS



ENHANCE THE
CHARACTER/
DISTINCTIVE/
NATURE/
ATTRIBUTES
OF THE
DISTRICTS



MORE
PEACEFUL
ROAD STREETS



INVOLVE
CITIZENS



Added Value & RVD-plan

How to put Things together

RVD-PLAN



Added Value



Combined Plan

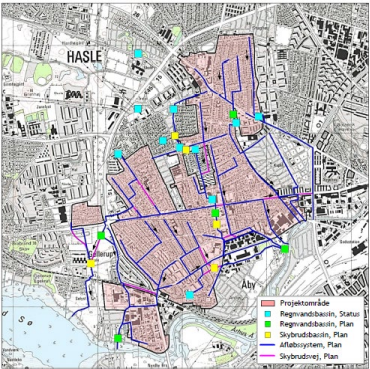
Aarhus Vand

Regnvandsdispositionsplan
Adskillelse af regnvand og spildevand i Åby,
Åbyhøj og Hasle

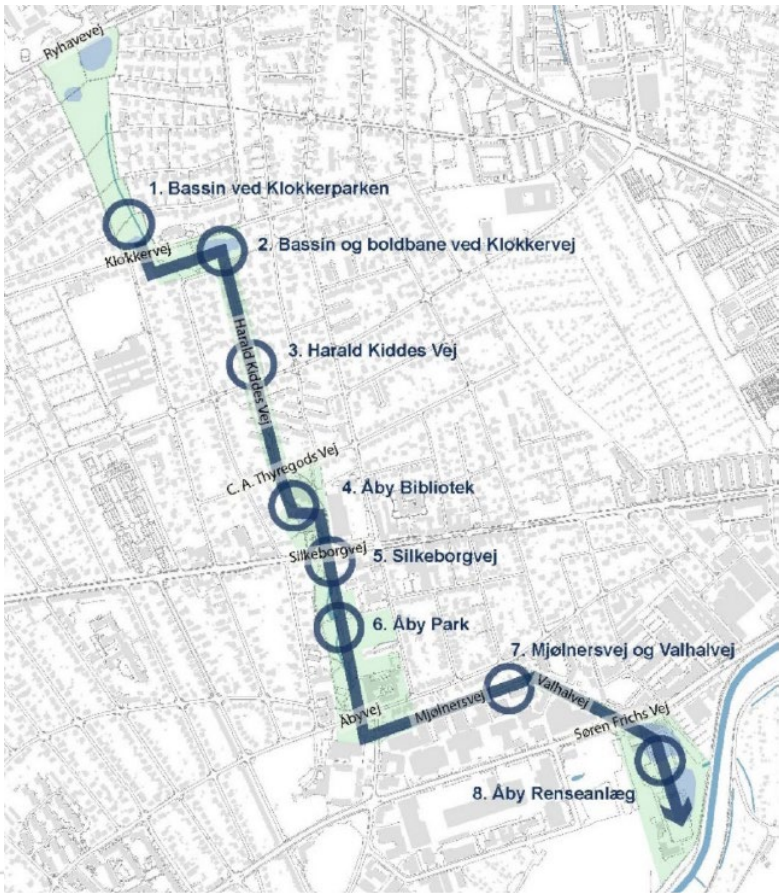
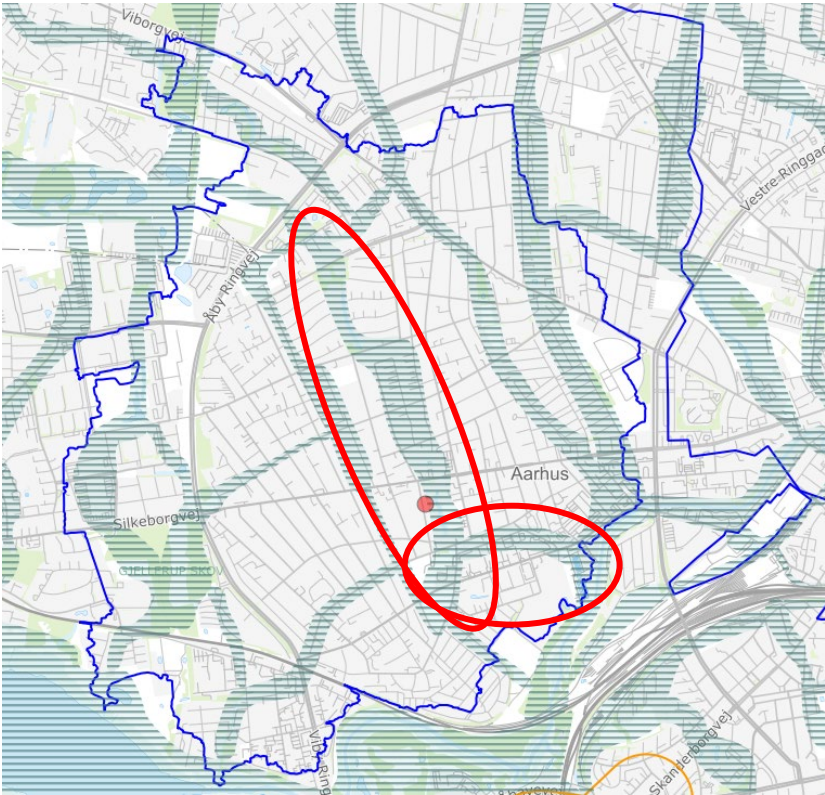
Opdatering 2021

2. december 2021

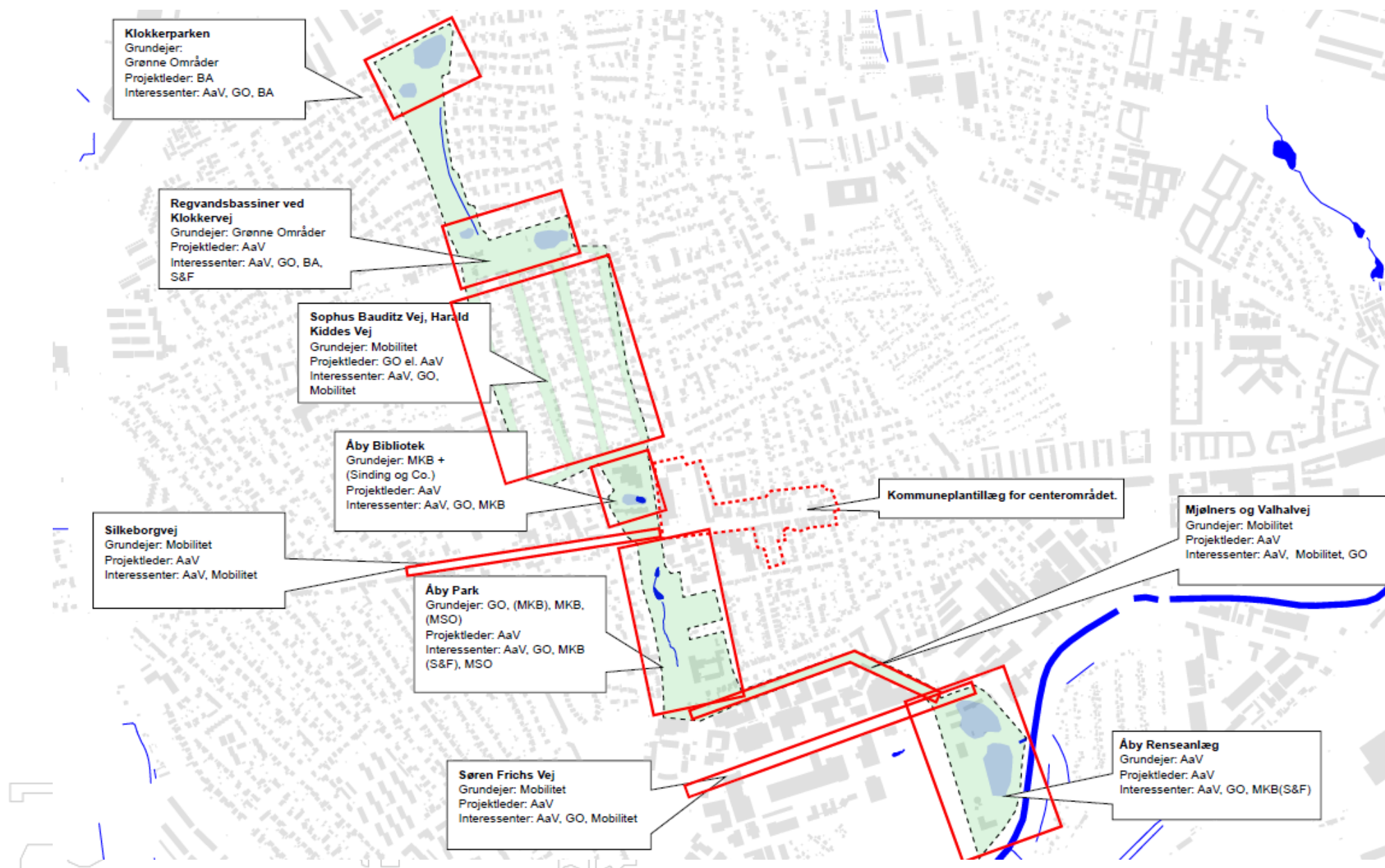
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8260 Viby



EnviDan

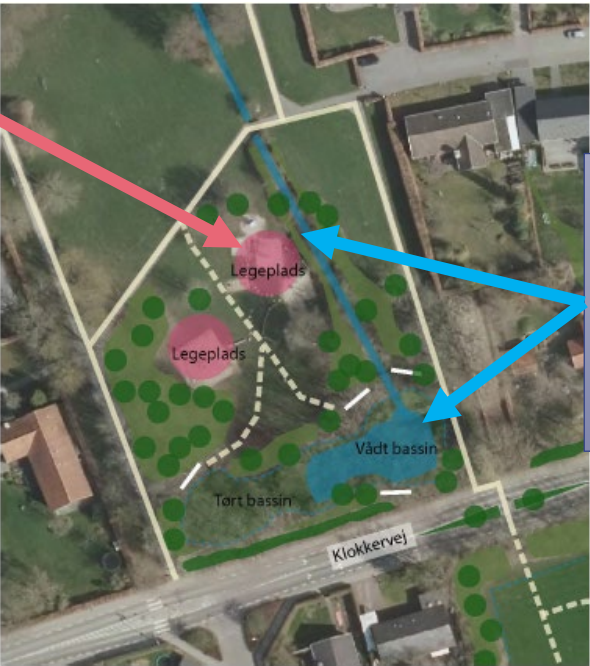


RECREATIONAL PATH – CLIMATE ADAPTATION – 9 PROJECTS



"LOCAL"-MASTER PLAN" for CLIMATE ADAPTATION & ADDED VALUE

Playground & Park

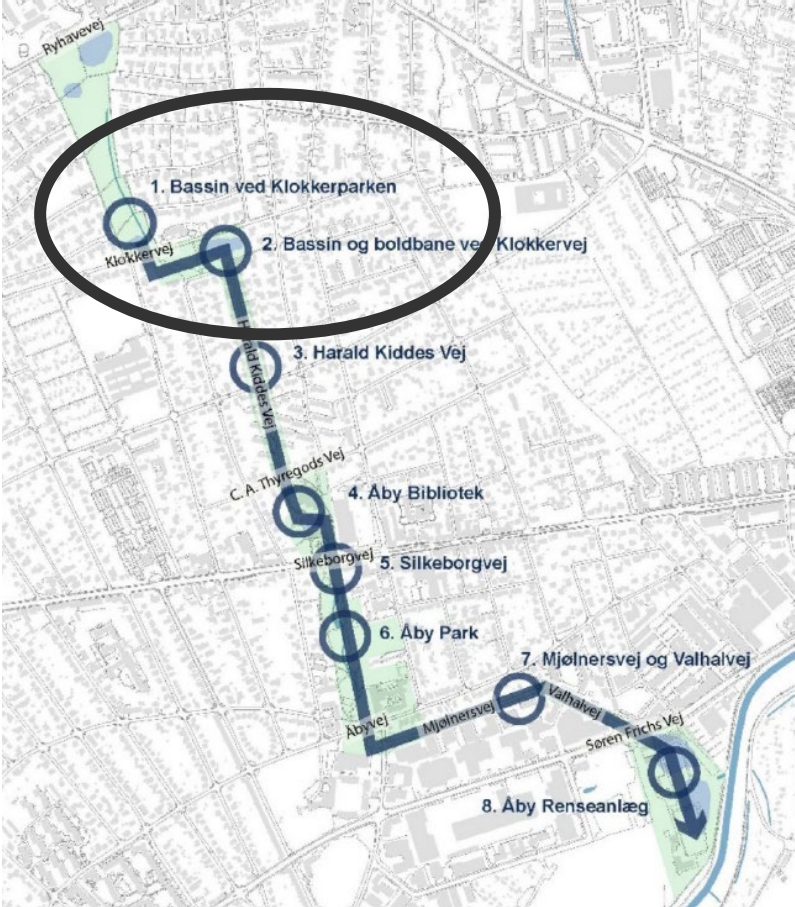


28. juni 2021
Side 4 af 18

Detention
Ponds and
"path" for
flash-floods



Side 3 af 10





Den blå-grønne kile i Åbyhøj – klimatilpasning med merværdi

Notat om designmanual for kilen

28. juni 2021
Side 1 af 18

TEKNIK OG MILJØ
Plan, Byggeri og Miljø
Aarhus Kommune

Planlægning VAND
Karen Bliens Boulevard 7
8220 Brabrand
Telefon: 89 40 22 13
Direkte telefon: 89 40 45 45
E-mail: vandognatur@mtm.aarhus.dk
Direkte e-mail: kartr@aarhus.dk
Sagsbehandler:
Karina Kracht
Sophie Langkjær Jensen



Princippet for indretning og udformning af de enkelte områder i den blå-grønne kile tager udgangspunkt i visionens seks kvaliteter.

Proces

Der har forud for dette notat været afholdt en række arbejdsmeder med de forskellige kommunale interessenter, der enten som grundgere eller brugere af arealerne i den blå-grønne kile har krav eller ønsker til hvorledes kilen skal klimatilpasses og indrettes. Arbejdsmederne har haft til formål at afklare evt. konflikter og indsamle input omkring de enkelte områder, som er blevet medtaget i dette notat. Der er afslutningsvis blevet opstillet på de mange arbejdsmeder via en samlet mail med alle arbejdsmederreferencer.





Den blå-grønne kile i Åbyhøj – klimatilpasning med merværdi Notat om designmanual for kilen

Formål
28. juni 2021
Side 1 af 18

Aarhus Vand er i gang med at adskille regnvand og spildevand samt klimatilpasse Åbyhøj jf. Spildevandsplanen 2017-2020 og er nu kommet til den blå-grønne kile i Åbyhøj. En række offentlige arealer, der samlet set strækker sig fra Klokkeparken mod nord til Åby Renseanlæg og Aarhus Å mod syd. Aarhus Kommune ønsker i den forbindelse at anvende klimatilpasningen i kilen som lejlighed til at styrke områdets nuværende kvaliteter og skabe merværdi for borgerne i Åbyhøj.

Dette notat indeholder en række skitser og beskrivelser med principper om hvorledes hvert enkelt område skal indrettes og udføres, når Aarhus Vand skal klimatilpasse kilen. Principperne skal sikre, at man opstår en fælles identitet for kilen med genkendelige elementer som f.eks. bæltre og træer samt sikre at de kommunale interesser på arealerne tilgodeses. Notatet skal således anvendes af Aarhus Vand som retningslinje for de kommende projekter i kilen.

Baggrund
Merværdi i klimatilpasningen i Åbyhøj
Aarhus Kommune har i samarbejde med lokale aktører og borgere i Åbyhøj udarbejdet en vision for udbygget søkvaliteter for merværdi. Kvaliteterne bygger videre på byens eksisterende kvaliteter og Åbyhøjs DNA som en grøn bydel med engagerede borgere.



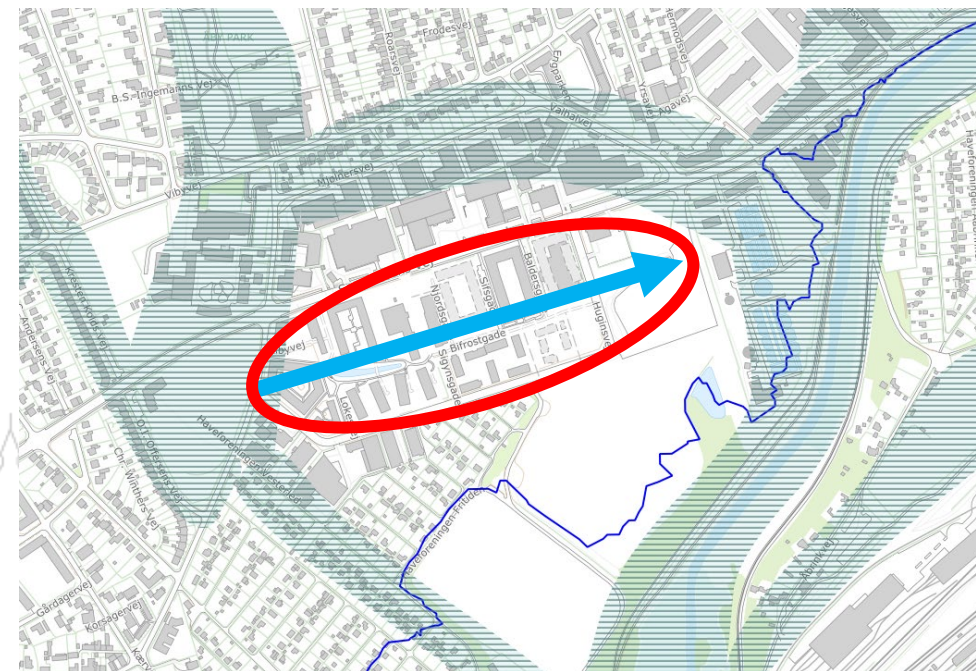
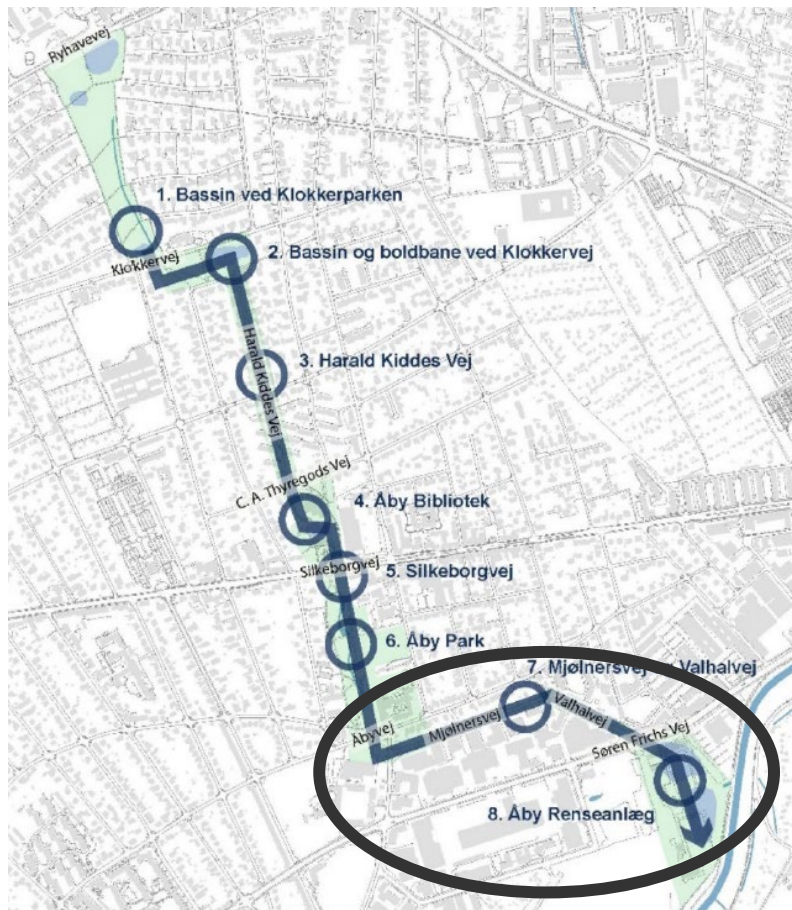
Principperne for indretning og udførelse af de enkelte områder i den blå-grønne kile tager udgangspunkt i visionens seks kvaliteter:

Processen
Der har forud for dette notat været afholdt en række arbejdsmeder med de forskellige kommunale interessenter, der enten som grundejere eller brugere af arealerne i den blå-grønne kile har krav eller ønsker til hvorledes kilen skal klimatilpasse og indrettes. Arbejdsmederne har haft til formål at sikre evt. konflikter og indsamle input omkring de enkelte områder, som er blevet medtaget i dette notat. Der er afslutningsvis blevet opsumeret på de mange arbejdsmeder via en samlet mail med alle arbejdsmederreferencerne.

TEKNIK OG MILJØ
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Planlægning VAND
Karen Bliens Brønd 7
8220 Brabrand
Telefon: 89 40 22 13
Direkte telefon: 89 40 45 45

E-mail:
vand@aarhus.dk
Direkte e-mail:
kalkra@aarhus.dk
Sagsbehandler:
Kathrine Knudsen
Sophie Langkjær Jensen



Urban Transformation ("S-scale")

Exampel of:

Climate adaptation + Greenfactor + Courtyard + Vertical development



Before



Physical planning



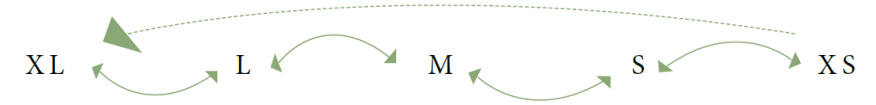
Today



Summary

Implantation of NBS

Spatial planning hierarchy



City Planning

Blue-Green planning

Place making

Urban transformation

Projects

Co-creation

Place making





ENJOY YOUR VISIT IN AARHUS



Financing models for co-financing NBS – experiences from Aarhus

Lone Telling

Aarhus Municipality, 25th of September , 2025



THE ECONOMICS OF NATURE-BASED SOLUTIONS

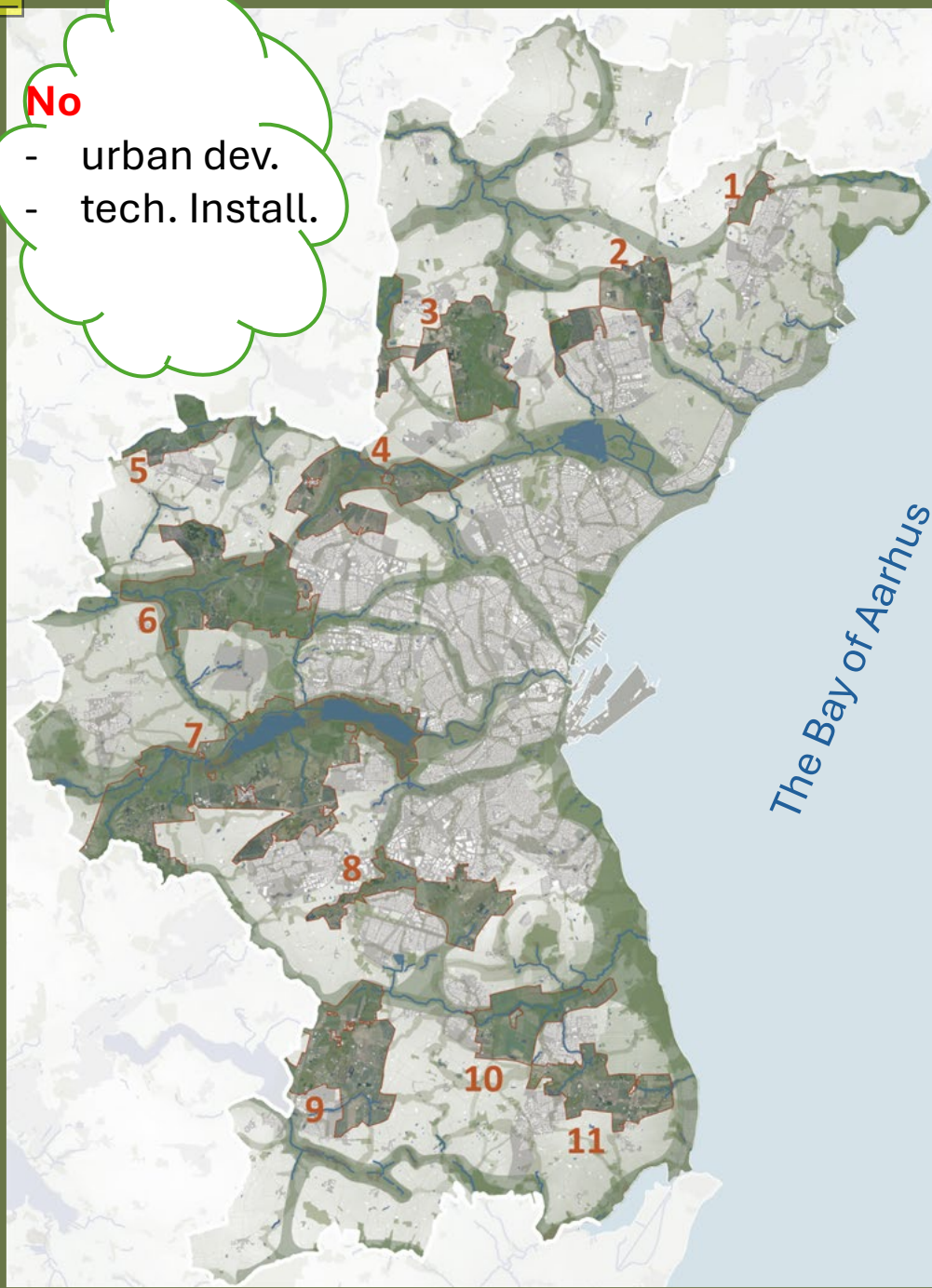


Funded by
the European Union



No

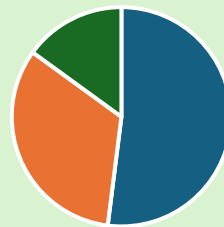
- urban dev.
- tech. Install.



Aiming for more and better nature

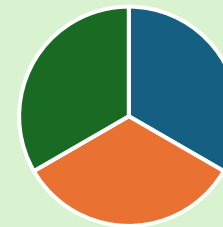
16.000 hectares nature

Today



■ Farming ■ City/infrastructure ■ Nature

Climate strategy



■ Farming ■ City/infrastructure ■ Nature

Funding the land acquisition

Ca 8.000 hektar: 210 – 220 mio Euro

One central financing model is:

50% from water utility company

50 % Municipality naturefond/ eksternal partners or a combination



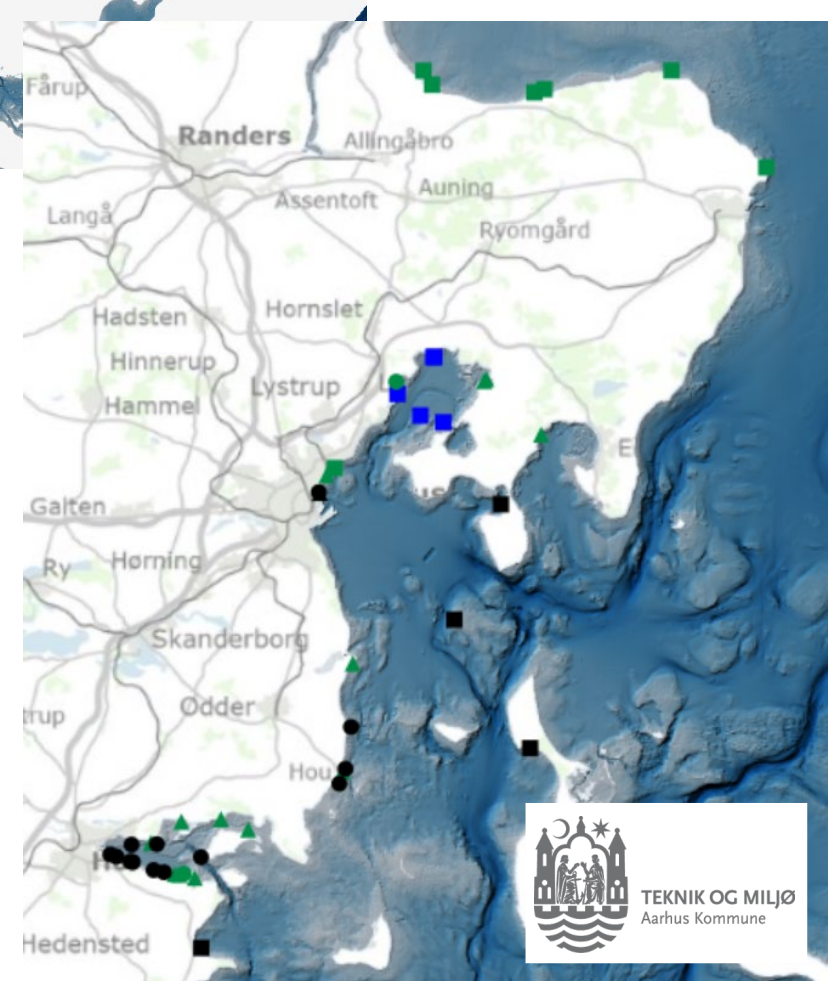
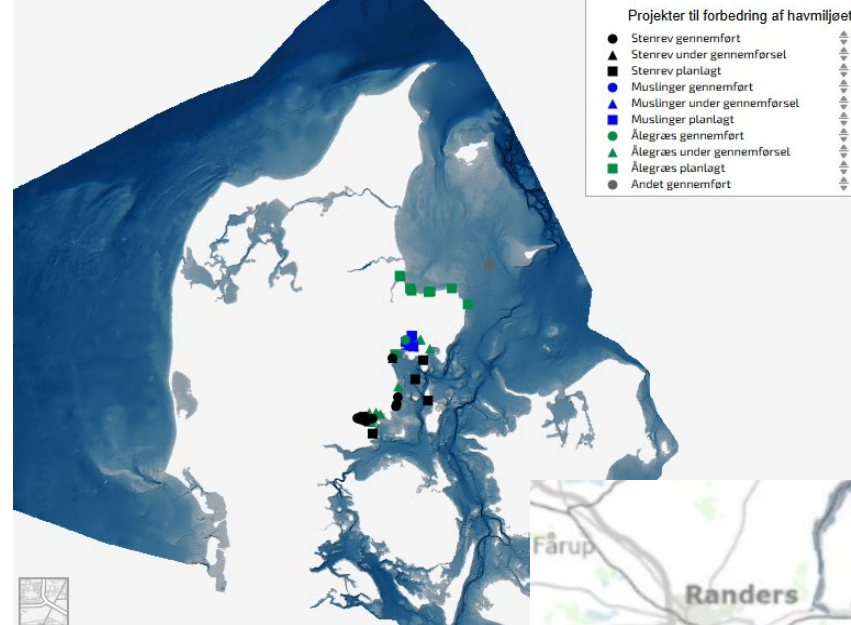
TEKNIK OG MILJØ
Aarhus Kommune



The Mayor's Ocean Coalition

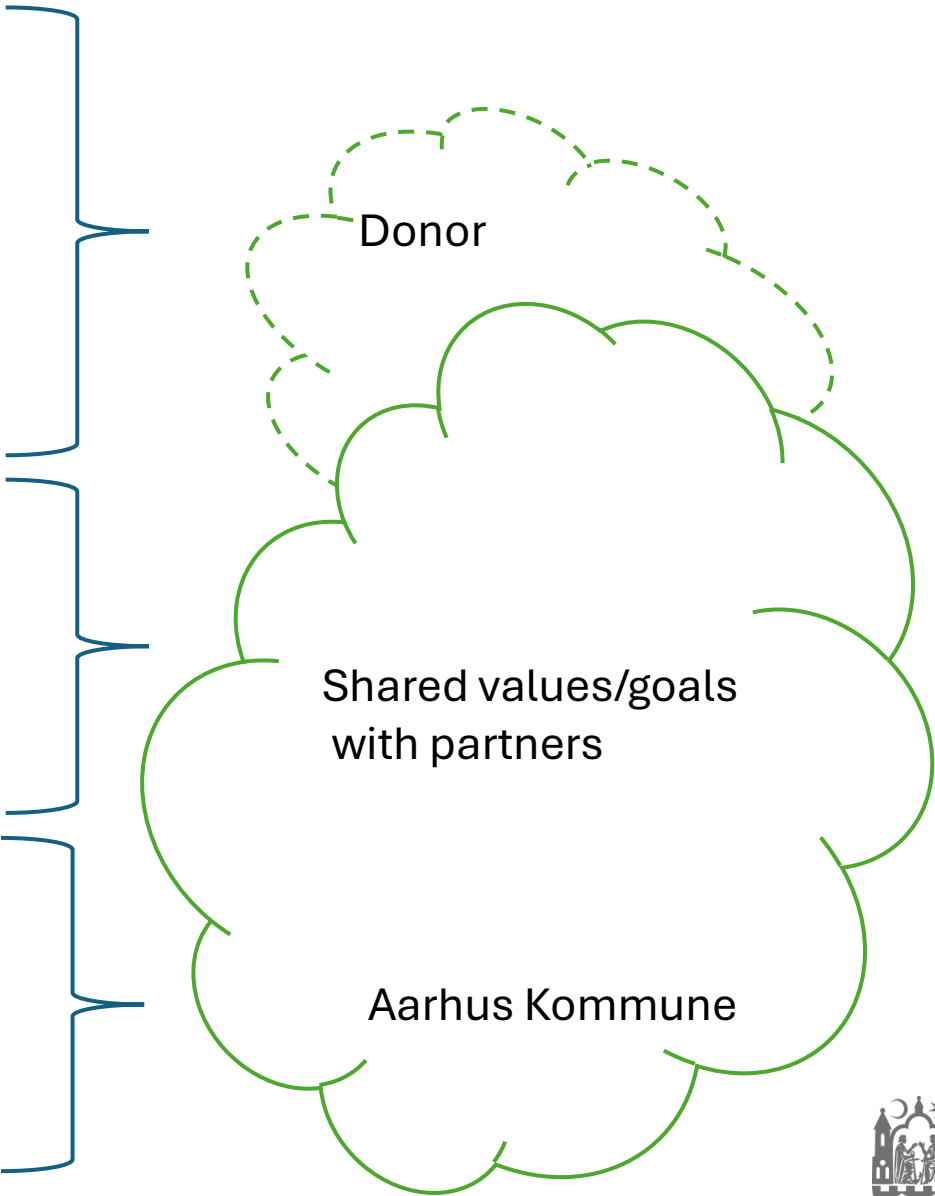
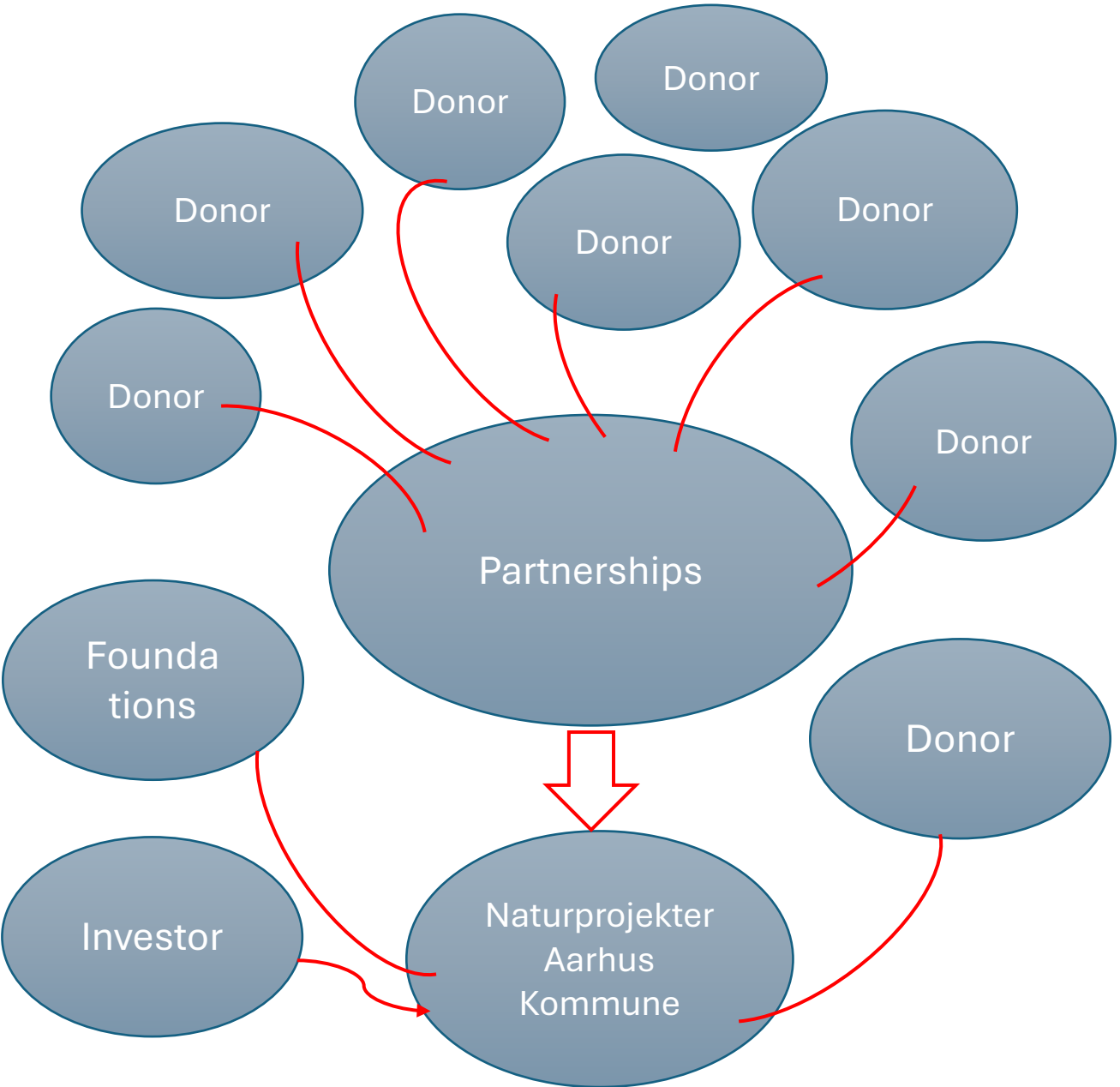
Seven mayors from neighbouring municipalities along the eastcoast of Jutland want to save the coastal waters.

- Aarhus Municipality is secretariat
- www.Havsamarbejdet.dk



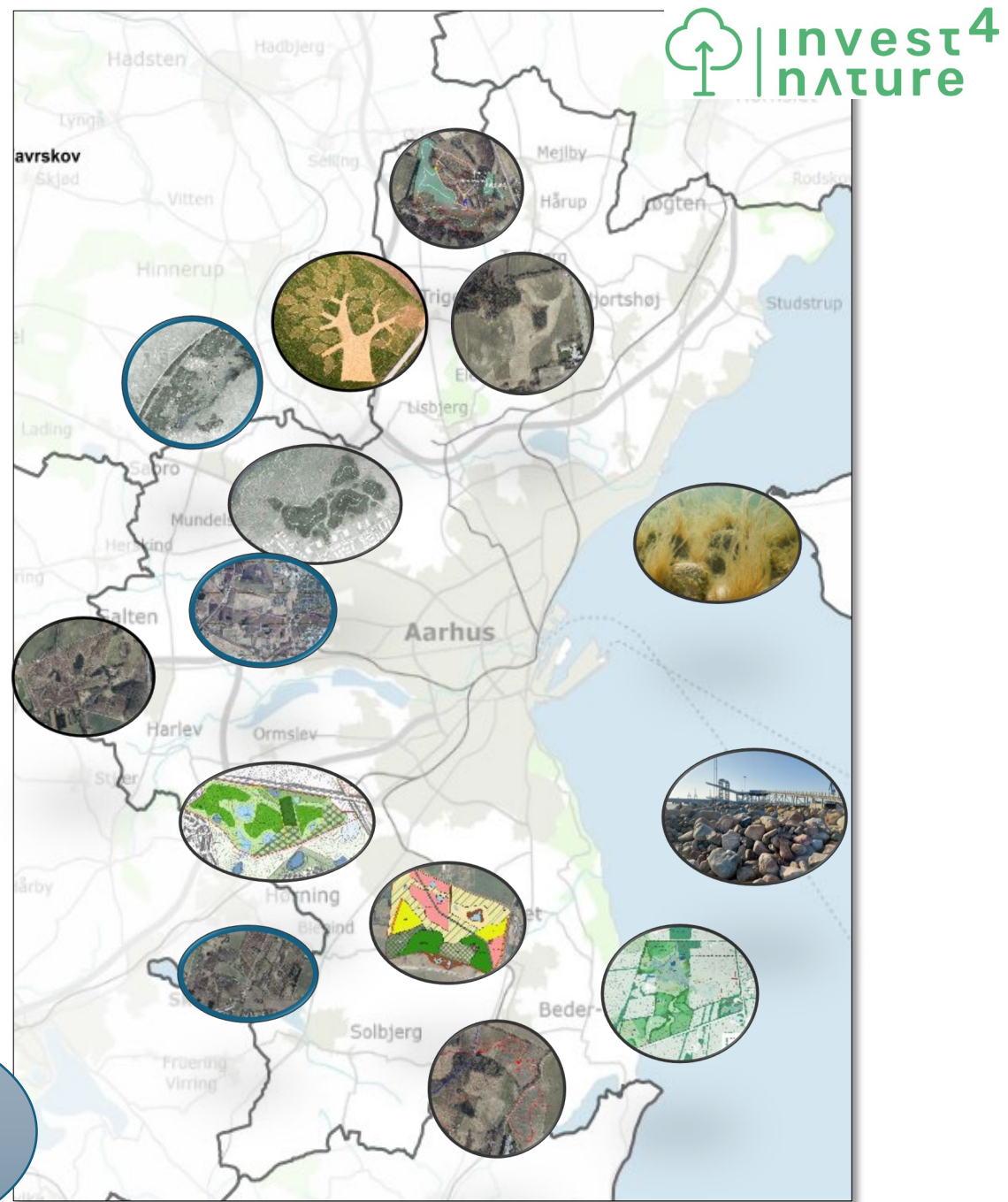
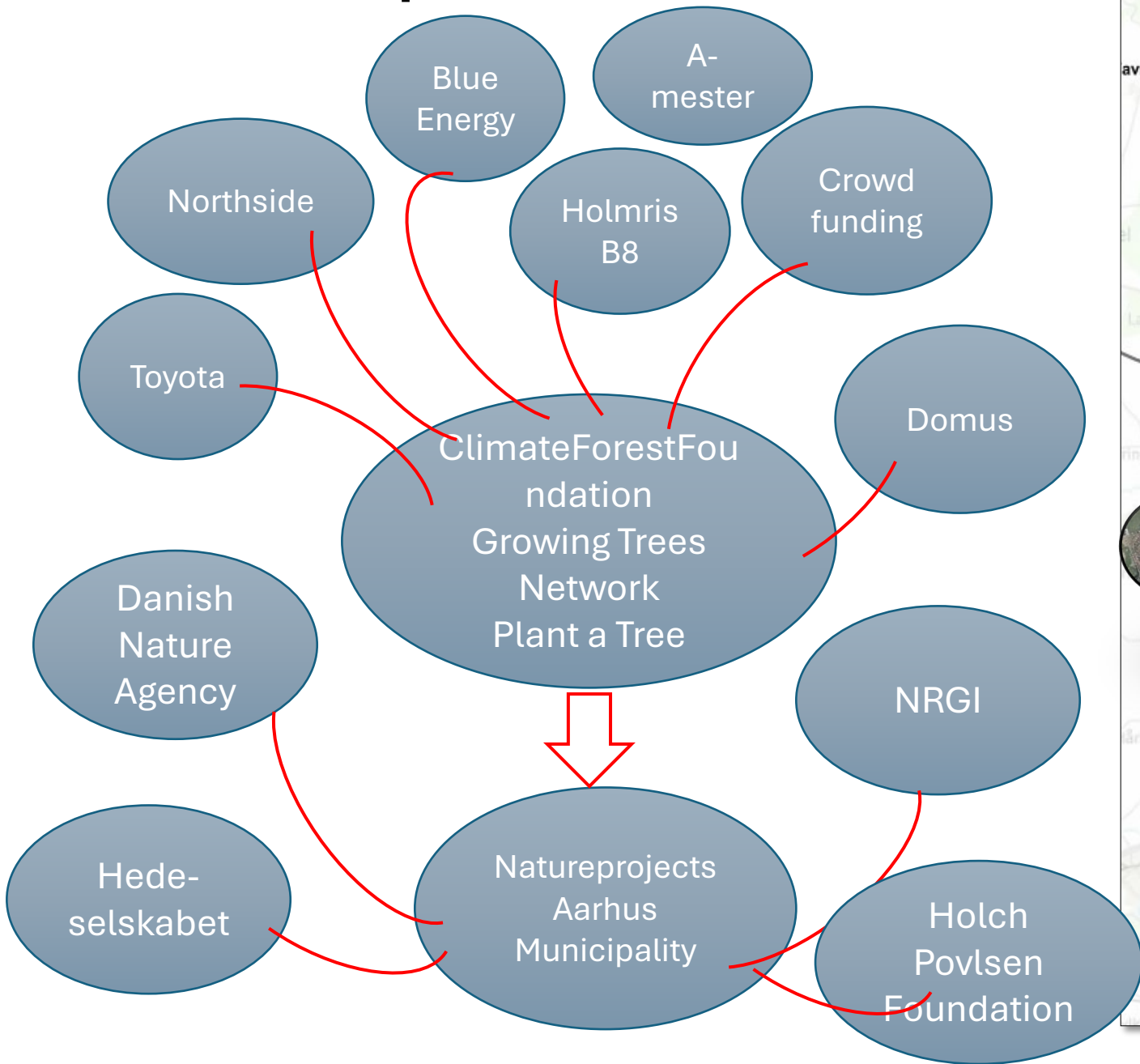


Partnership model





Partnerships





The HOW MUCH

- 10 % of total costs/ha
- 25 % of total costs/ha
- Project specific

The HOW

- Ad on ticketprice
- Pr wooden table sold
- Pr hybrid car sold
- Pr new customer
- Crowdfunding
- Investment

The WHY

- Profiling
- Do good
- Attract employees
- Employee activity
- Personal interest
- Part of business model

The NEXT STEP?

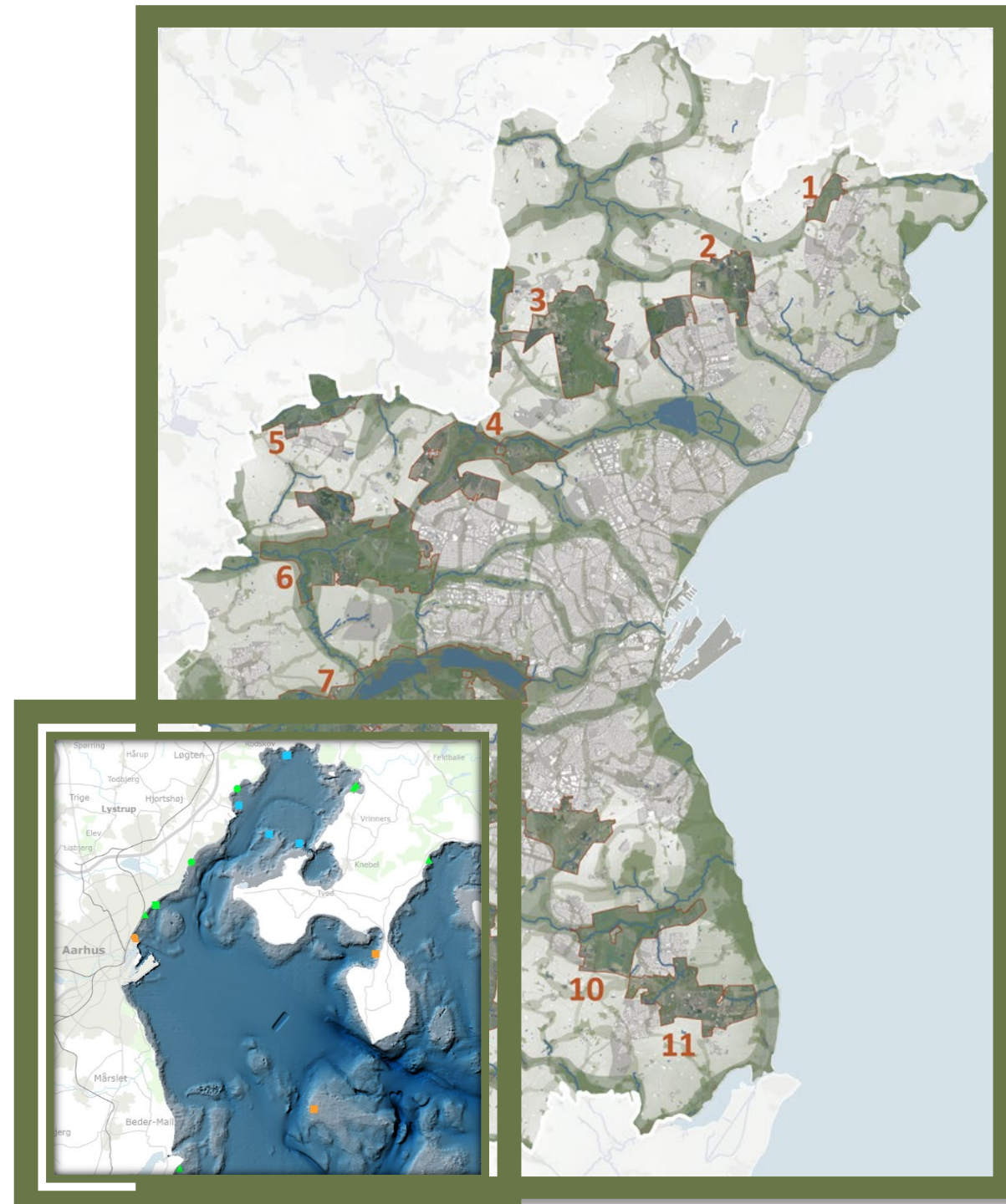
Donations AND Investments





What's so interesting about Aarhus?

- Ambitious city council
 - The size of it: connecting nature in water and natureparks and Mayors coalition
 - Financial back up
 - Support to develop, not always knowing where it will end
 - Real life projects
 - Experience and skills
 - Credibility



300 hektar new nature

DK Case sites - Vilhelmsborg North & South

Lars Eg Hoppe - Aarhus Municipality - Project site manager (North)

Overall objectives

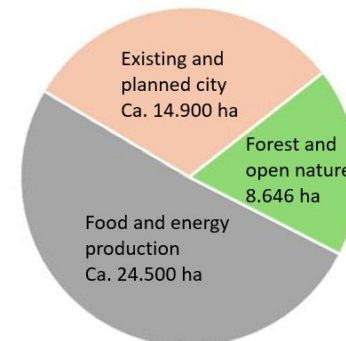


- ▶ 300ha Ny Natur (New nature) – Aarhus Municipality
- ▶ Previously agricultural land
- ▶ Boosting biodiversity
 - ▶ Re-wetting
 - ▶ Afforestation
 - ▶ Year-round grazing,
 - ▶ Assisted dispersal of wild flower seeds
 - ▶ Dead wood
 - ▶ Natural “Rock’ology”
- ▶ Nature-based recreation focus

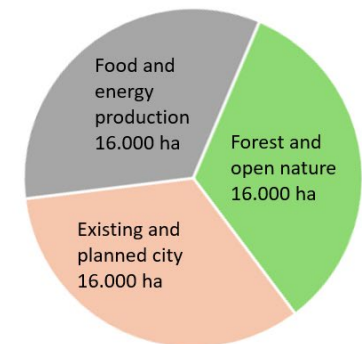
Blue Green Ambitions in Aarhus

1/3 of the municipality as forest and open nature habitats
1/3 existing and planned city
1/3 food and energy production

Status 2025



Goal 2040

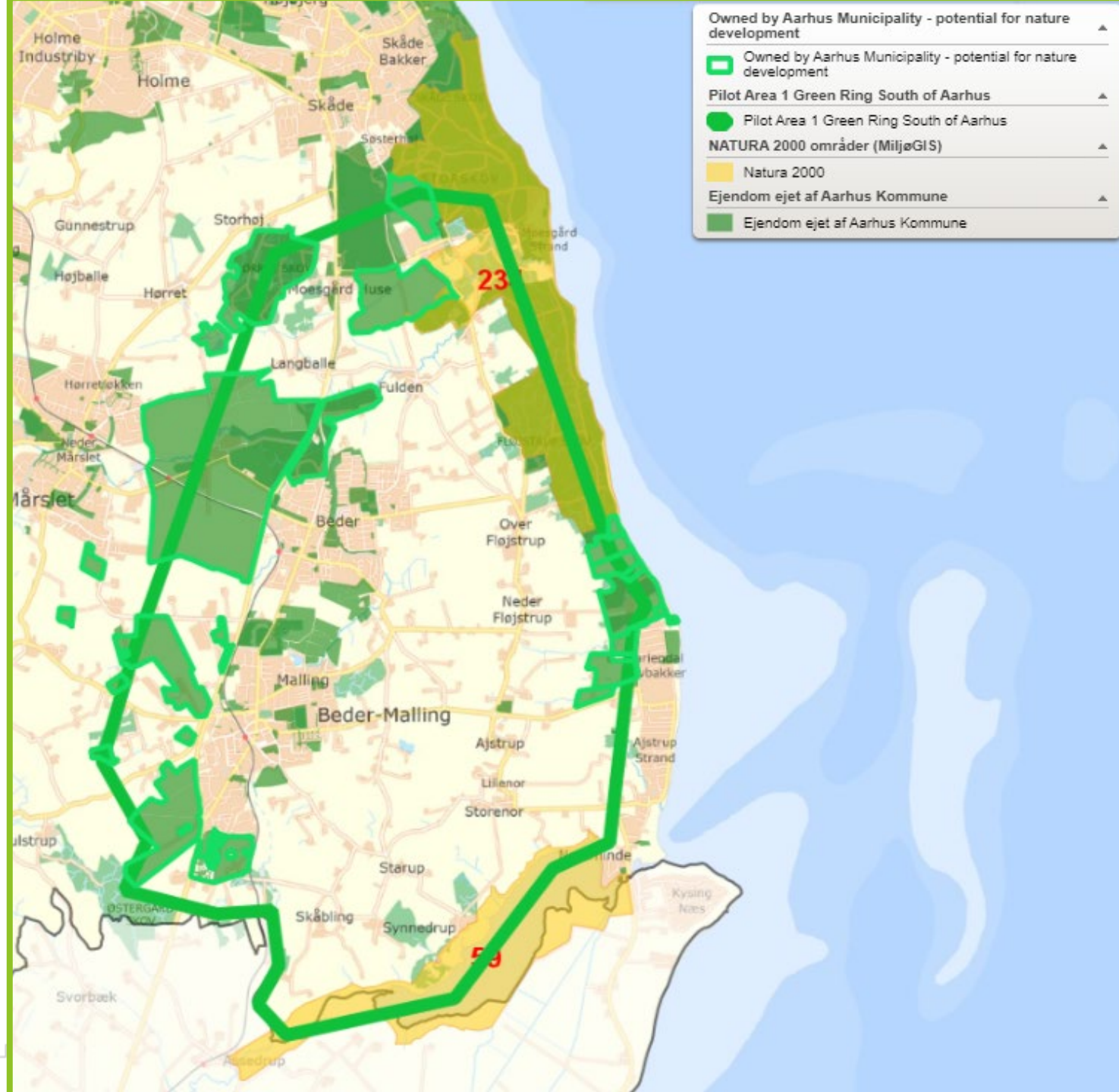




Part of a “bigger plan” – A Green Ring
connecting to the surrounding landscape

Project start 2022

300 hektar ny natur





300 hektar ny natur



Vilhelmsborg North

Vilhelmsborg South



Before project start (2023)

North site



South site



Stakeholder engagement/co-creation



Landscape management



Fencing

Landscape shaping –
bringing back the
water to encourage
natural hydrology
processes



Introduction of large grazers

Bringing back
water, structure,
messiness &
substrates



Landscape management

Assisted dispersal of wildflower seeds by hand... and on large scale



Bringing back structure, messiness & substrates



Data availability

- ▶ Drone footage
- ▶ Open public data-bases in Denmark
 - ▶ Miljøportalen (especially)
- ▶ Webpage: [300 hektar ny natur](#)
- ▶ Vegetation Baseline at Vilhelmsborg
 - ▶ (Tine Jørgensen/Aarhus University)
- ▶ Citizen science – biodiversitet
 - ▶ 5 sub-sites tracked in Arter.dk – “Fælleskaber”

The screenshot displays a citizen science activity page on Arter.dk. The main heading is "Vilhelmsborg Nord - Arter - 300 ha ny natur". Below this, it states "Få en guidet tur på denne side" and "Aktivitet | 5 følgere". The description mentions a new name "Langballe Bakker" and details the project's goal to collect data from 2023-2026. A map on the right shows the location of Vilhelmsborg Nord. The "Seneste fund" (Latest finds) section features three images of insects: a black beetle (Stor rovbille), a grasshopper (Enggræshoppe), and a dragonfly (Røddet hedelibel). The "Hvad er der fundet?" (What has been found?) section shows statistics: 1,895 species found, 644 species in total, and a button to "Udforsk i fundsøgning". The "Artsgrupper" (Species groups) section includes a donut chart and a list of groups: Fugle (754), Planter (654), Insekter (250), and Svampe (202). The "Top-10 over arter" (Top-10 species) section lists the top 10 species by number of finds: Gråand (54), Trolldand (44), Bjergvipstjert (33), Fiskehejre (28), and Spætmejse (27).

Vilhelmsborg Nord - Arter - 300 ha ny natur
Få en guidet tur på denne side
Aktivitet | 5 følgere
Nyt navn! = Langballe Bakker.
Det er et tidligere landbrugsområde nord for Vilhelmsborg, en del af projektet "300 ha ny natur" som gennemføres af Aarhus Kommune, Teknik og Miljø i perioden 2023-2026. Der indsamles data fra arter fra området Nord for Vilhelmsborg, overvejende bestående af de tidligere landbrugsjorde men også læhegn og skov er med i området.

Du følger denne aktivitet | Redigér aktivitet | Slet aktivitet

Kontaktperson
Lars Eg Hoppe

Seneste fund | Se alle fund

Dubbeld Samplonius
Stor rovbille

Dubbeld Samplonius
Enggræshoppe

Dubbeld Samplonius
Røddet hedelibel

Hvad er der fundet?
1.895 artsfund
644 arter i alt
Udforsk i fundsøgning

Artsgrupper

Artsgruppe	Antal
Fugle	754
Planter	654
Insekter	250
Svampe	202

Top-10 over arter
Med flest fund

Rang	Artsgruppe	Antal fund
1	Gråand	54 fund
2	Trolldand	44 fund
3	Bjergvipstjert	33 fund
4	Fiskehejre	28 fund
5	Spætmejse	27 fund

Site visit - Vilhelmsborg South site

- Project manager Peter Søgaard gives an introduction to the South site at Vilhelmsborg



Thank you for your attention!

Biodiverse
Cities

Interreg
North Sea



Co-funded by
the European Union



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