



# Enablers and barriers for developing Urban Greening Plans in EU cities

Kati Vierikko, senior researcher and group manager

Urban Nature Group

Built Environment Solutions Unit

Finnish Environment Institute



Suomen ympäristökeskus  
Finlands miljöcentral  
Finnish Environment Institute

# Content of my talk

- Short introduction of the Finnish Environment Institute and Urban Nature Group
- Some ideas for defining NBS
- What have change in urban green space planning and governance during the last 8 years? Follow-up study of EU FP7 GREEN SURGE (2013-2017)
- Results of Greening Cities (2022-2023) project on implementing objectives of EU Biodiversity 2030 Targets



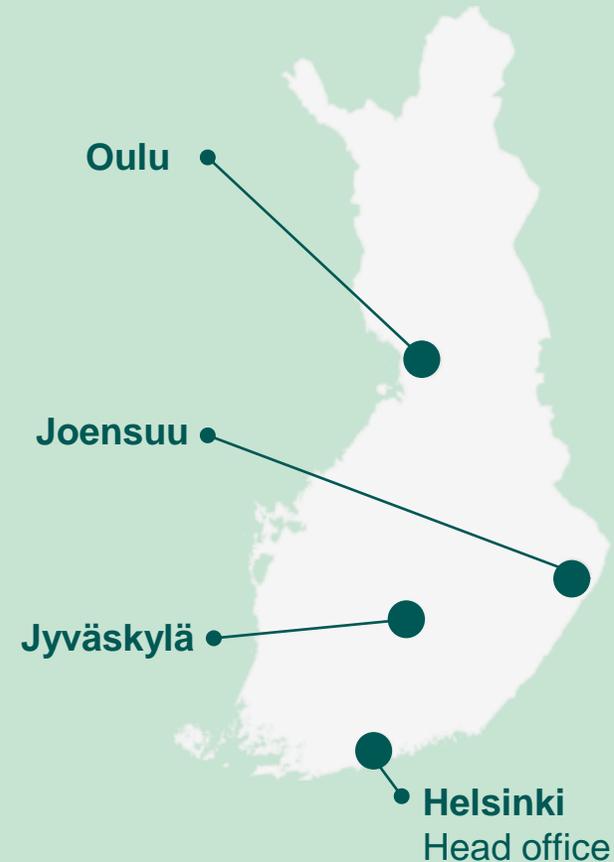
# Finnish Environment Institute (Syke) and Urban Nature group



Suomen ympäristökeskus  
Finlands miljöcentral  
Finnish Environment Institute

# Finnish Environment Institute shortly

- Governmental research institution under the Ministry of Environment
- Total annual budget is ca. 63 M €
- Proportion of external funding is 57 %
- 690 employees in 2022 (50 % researchers)
- More than 1000 projects annually
- We collaborate with ministries, municipalities, regional authorities, businesses and NGOs
- Several ongoing Horizon Europe projects
  - BioAgora – Developing Science Service for Biodiversity to better Connecting biodiversity knowledge and decision-making. <https://bioagora.eu/>



# Urban nature group

1. Arto Viinikka
2. Elise Järvenpää
3. Hanna Nieminen
4. Henna Malinen
5. Jenni Lehtimäki
6. *Kati Vierikko* (group leader)
7. Leena Kopperoinen
8. Maija Tiitu
9. Nina Ahola
10. Panu Kontio
11. Riku Lumiaro
12. Susanna Jernberg (maternal leave)



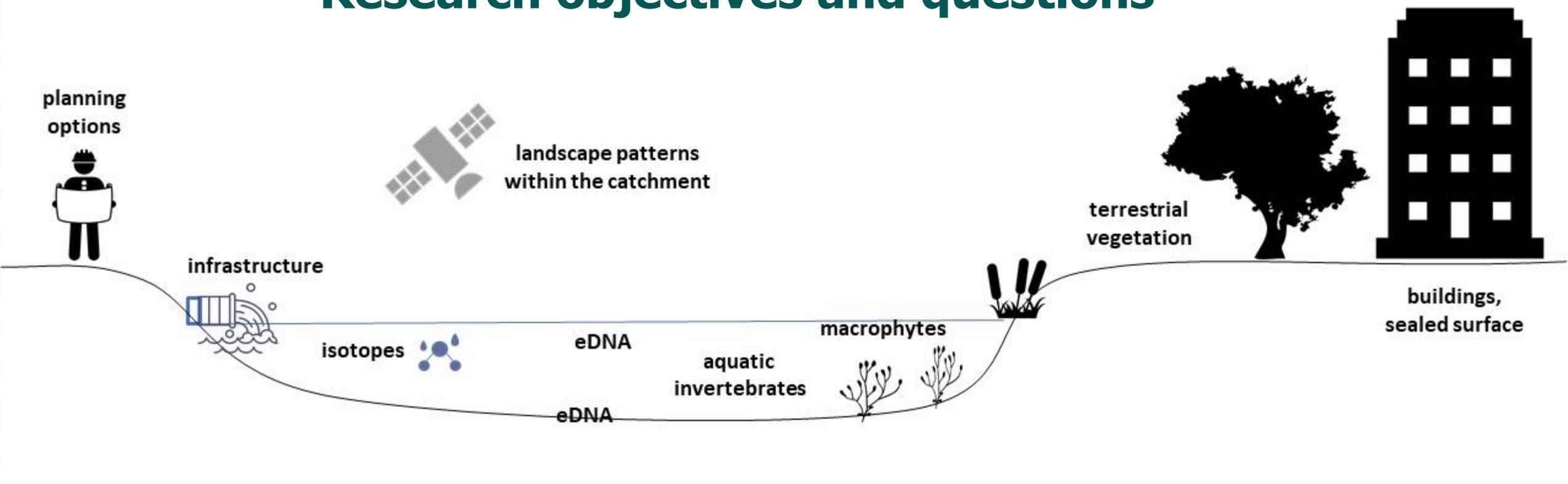
# Urban nature research group

- Analyses biodiversity, nature-based solutions and ecosystem services of green and water areas in the built environment
- Studies human-nature relationships and effects on health, experiences and valuation of nature
- Develops measures, methods and tools to identify the plural values of green and water areas as part of sustainable land use planning
- Participates in the development and production of knowledge and database for land use and cover monitoring, especially for green areas in the built-up environment
- Collaborates with municipalities and citizen in maintaining and improving biodiversity in built environment and finding best practices for greening plans including landscapes

# Examples of ongoing projects

- **Greening Cities** (2022-2023) supports municipalities to implement EU Biodiversity Strategy 2030 and cities' greening plans by providing knowledge of the EU biodiversity strategy's urban greening requirements and data. Syke's own seed funding.
- **ATeNAS: To Ally Technology, NAture and Society for integrated urban water management** (2019-2023) aimed to improve water management in cities through co-creative planning, restoring natural, regulatory interaction between biota and hydrology, namely diversion of urban runoff to supply city ecosystems using Nature-Based Solutions (NBS). Water JPI funded
- **Bringing nature back – biodiversity-friendly nature-based solutions in cities (BiNatUr)** (2022-2025) analyzes the role of biodiversity and its linkages with regulation ecosystem services (ES) in urban aquatic nature-based solutions by using social-ecological-technical approach. Biodiversa & Water JPI funded. Read more here: <https://bringingnatureback.com/>

# Research objectives and questions



## Social

How is BD valued among planners and practitioners? What is the role of biodiversity in planning NBS? How can it be enhanced?

Key social components for aquaNBS (WP1), expert interviews (WP2), document analyses (WP2), workshops and meetings (WP2)

## Ecological

What is biodiversity in aquaNBS? Is there linkages between BD and Ess? How does surrounding vegetation influence BD and ESs of aquaNBS?

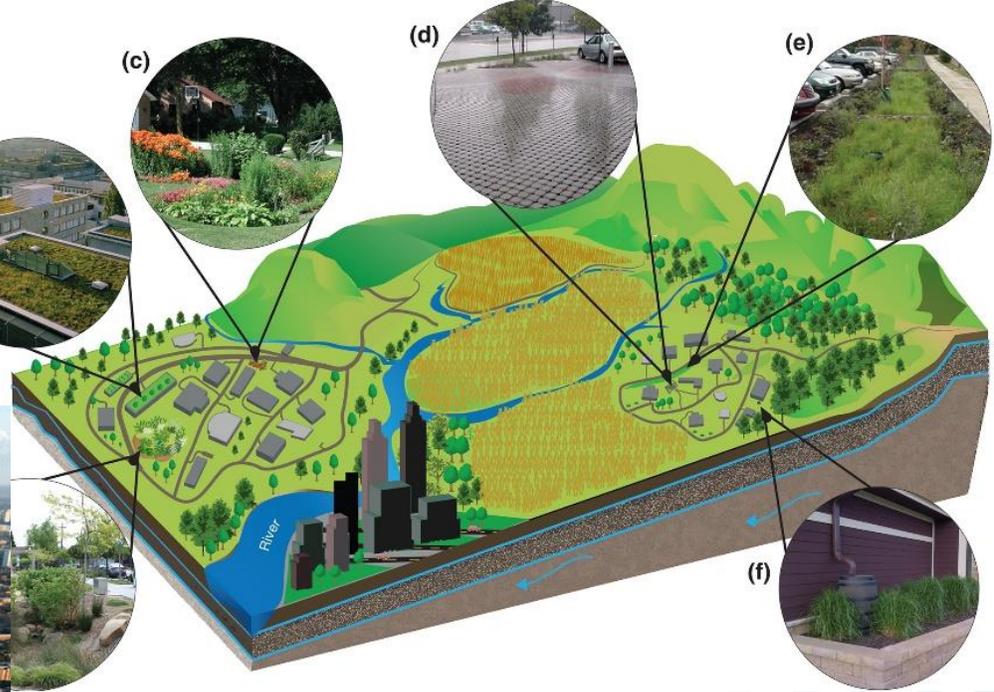
Key ecological components for aquaNBS (WP1), GIS database and Remote Sensing (WP3), water isotope and eDNA sampling (WP4), sampling of vegetation, macrophytes, macroinvertebrates (WP5), habitat monitoring (WP5), landscape analyses (WP3)

## Technological

How ESs and BD of aquaNBS are affected by local infrastructure and surrounding land-uses? How technology used in NBS influence BD and ESs?

Key technological components for aquaNBS (WP1), expert interviews (WP2), document analysis (WP2), GIS database and Remote Sensing (WP3), habitat monitoring (WP5)

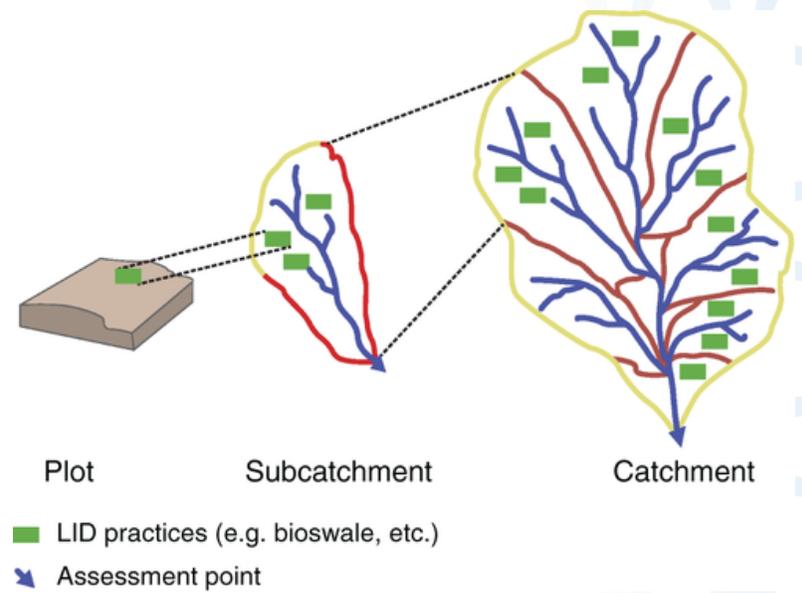
# The spatial scale of NbS: from a street level to the entire city



<https://wires.onlinelibrary.wiley.com/cms/asset/3fb412dc-f386-44f8-ac31-af664e78e206/wat21254-toc-0001-m.jpg>

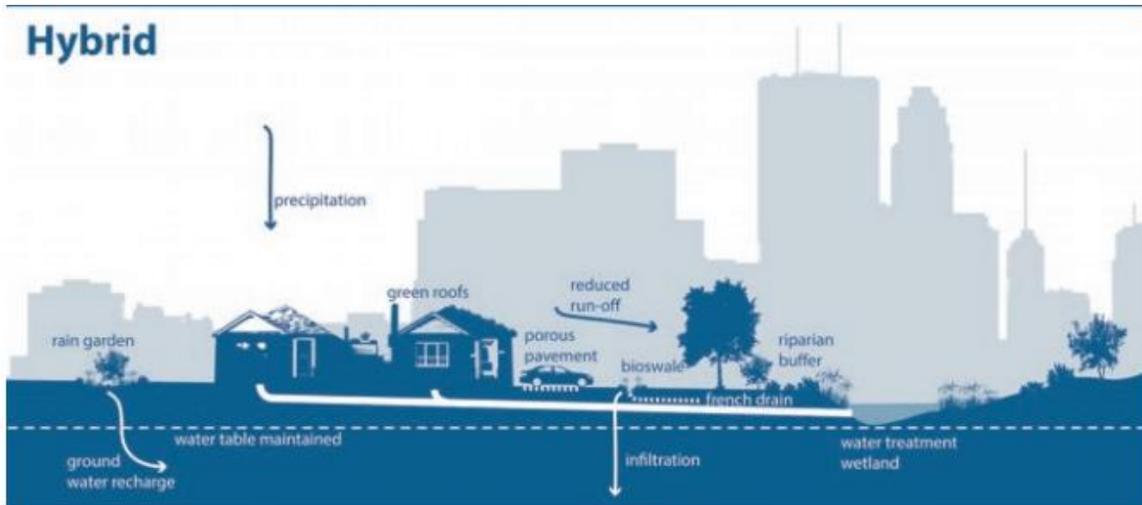


Figure: Climate-KIC



Kuva 6. Visualisointi Puutarhakadun uudistuvasta ilmeestä ja hulevesirakenteista. (Lähde: Jyväskylän kaupunki, tekijä: Ramboll Finland Oy.)

# Natural, hybrid or engineer-based NBS?



**Fig. 6.2** Three contrasting approaches, green and blue only, grey only, and hybrid for dealing with urban water, in particular significant precipitation events and other stormwater challenges that cities face. Hybrid approaches illustrated in the *bottom panel* combine grey and green approaches to maximize water absorption and infiltration and limit costs of green infrastructure while providing potential co-benefits (Source: own elaboration)

Depietri & McPhearson 2017 in Kabisch et al.

- What are our aquaNBS?
- They should not be natural ones based on our selection criteria
- They can't be only engineer-based and fully man-made green or blue systems such as biofilters or green walls
- They are combination of human improvement and natural functions → hybrid systems

# Transformative or piecemeal? Changes in green space planning and governance in eleven European cities

Follow-up study of EU FP7 GREEN SURGE  
project (2013-2017)

Rieke Hansen et al. 2022



Suomen ympäristökeskus  
Finlands miljöcentral  
Finnish Environment Institute

# Main research objectives

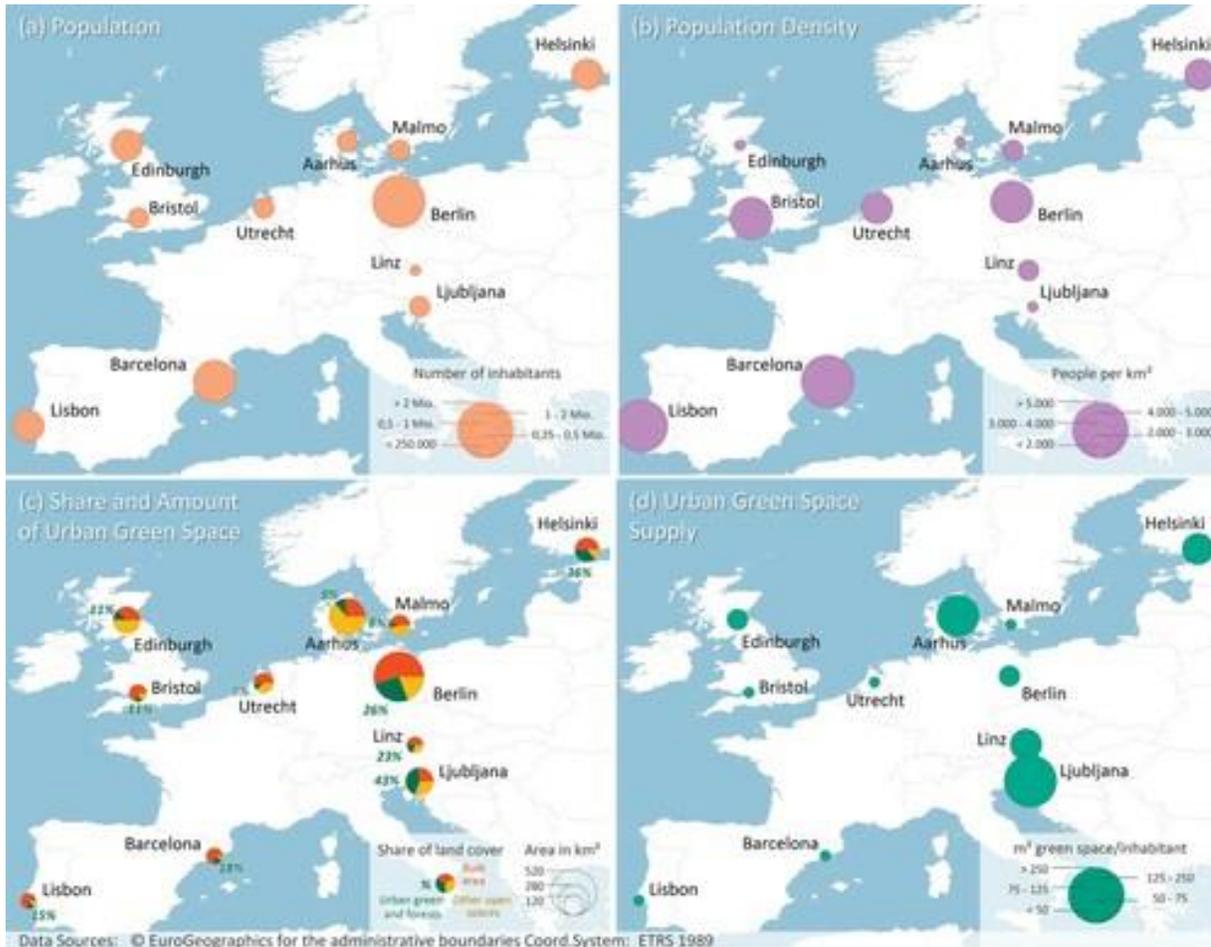
- In 2014, we studied 20 European cities as part of the EU-funded research project GREEN SURGE, revealing the cities' differences and commonalities to protect green spaces from densification or delivering more inclusive governance processes
- For the follow-up study, we examined how planning practices in eleven of these European cities have evolved, setting out to answer the following questions
  - How have urban green space planning and governance changed and what influenced these changes?
  - What is the contribution of current urban green space planning and governance to urban transformations?

# Defining "planning" and "governance"

- **Green space planning** refers to formal, government-led processes to protect, enhance, and implement public urban green and blue spaces for various socio-cultural and environmental goals using a wide range of instruments, such as strategic plans or policies, regulations, and action programmes.
- **Green space governance** highlights the involvement of multiple actors in the process of governing green spaces, often in a decentralized, networked and participatory manner (Buizer et al. 2015)



# Material and methods



- 11 cities were included to the follow-up study conducted in 2021
- Structured expert interviews with both open and closed questions made by local researchers whose were part of the GREEN SURGE projects
- One person from each city were interviewed, seven of the eleven interviews were with the same persons as in 2014
- Local researchers transcribed the interview material and sent them for further analyses
- The results for each city were reviewed by the researchers who conducted the interviews

# Perception of change in contextual factors relevant for green space planning

	National political developments			Local political developments				Resources				Other contextual factors				
	Overall perception of change	Area of change		Overall perception of change	Area of change			Overall perception of change	Area of change			Overall perception of change	Area of change			
		Laws and policies	Political leadership		Other	Laws and policies	Political leadership		Governmental structures	Other	Human resources		Financial resources	Knowledge resources	Other	Social
Aarhus	+	X		+	X	X	X	+/-	X	X	X	+	X	X	X	X
Barcelona	+	X			X	X		+	X	X	X		X	X	X	X
Berlin		X			X	X		+	X	X	X		X	X	X	X
Bristol	+	X	X	+	X	X		-	X	X	X	+	X	X	X	X
Edinburgh	+	X		o	X	X		+/-	X	X	X	+/-	X	X	X	X
Helsinki	+	X		+	X	X		+/-	X	X	X	+/-	X	X	X	X
Linz	o	X		+	X	X			X	X	X		X	X	X	X
Lisbon	+	X	X	o	X	X			X	X	X	+	X	X	X	X
Ljubljana		X		+/-	X	X			X	X	X	+	X	X	X	X
Malmö	o	X		-	X	X		-	X	X	X	+/-	X	X	X	X
Utrecht	o	X		+	X	X		+	X	X	X	+	X	X	X	X

- The positive changes concern national planning laws and policies such as new environmental legislation and policies, integration of ecological issues in land use planning or national political leadership that enhanced attention for urban greening
- The negative rankings were related to declining political support for green space planning, significant budget cuts or maintenance budgets not keeping up with an increase of green space

# Changes in relevance of different green space planning themes

	Biodiversity	Climate Adaption	Health	Social Cohesion	Cultural Diversity	Green Economy	Ecosystem Services	Urban Green Infrastructure
Aarhus	↑	↑	↑	↑	→	↑	↑	↑
Barcelona	↑	↑	↑	↓	↓		↑	↑
Berlin	↑	↑	↑	↑			→	↑
Bristol	↑	↑	↑	↑	↑	↑	↑	↑
Edinburgh	↑	↑	↑	→	→	↑	↑	↑
Helsinki	→	↑	↑	↑	→	↑	→	→
Linz	→	↑	→	→	→	→	→	→
Lisbon	↑	↑	↑	↑	↑	↑	↑	↑
Ljubljana	↑	→		↓	↓	↑	↑	↑
Malmö	→	↑	→	↑	→	→	→	→
Utrecht	↑	↑	↑	↑	→	↑	↑	→

Legend	increased	stayed the same	decreased	not determined/ not relevant
	↑	→	↓	

- Relevance were increased among four themes that were climate adaptation (10 cases), biodiversity (8) and human health (8) after 2014.
- Concern for biodiversity loss has resulted in new biodiversity plans and policies in several cities.

# Main findings and conclusions

- Several cities are making progress in overcoming well-known path-dependencies, such as working in policy silos, and are co-creating green infrastructure with businesses and civil society
- Some major challenges remain, including long-term maintenance, securing sufficient funding and changing organizational culture towards joint decision-making and partnerships with non-governmental stakeholders
- Some challenges are poorly recognized, such as accounting for cultural diversity in green space planning and other aspects of social justice
- Incentives for the identification and resolving of 'lock-in' or path-dependent practices are needed, i.e. by political or administrative leadership
- New planning and governance approaches should jointly address societal challenges, from climate change to biodiversity loss, public health and justice, to overcome the shortcomings of technocratic solutions and avoid unintended and unjust planning outcomes

# Are current urban greening actions compliant with the European Greening Plans guidance?

Laura Costadone, Kati Vierikko and  
Leena Kopperoinen



Suomen ympäristökeskus  
Finlands miljöcentral  
Finnish Environment Institute

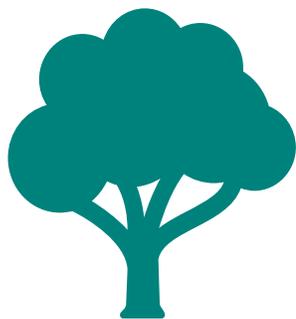
# EU Biodiversity Strategy 2030

- European Union has called cities with at least 20,000 inhabitants to develop greening plans by the end of 2021
- Promote measures to mainstream nature-based solutions and urban greening initiatives into policy, legislation and governance
- Promote citizen engagement (Target 11 of the EU Biodiversity Strategy)



# Greening Cities Project (2022-2023)

Laura Costadone, Leena Kopperoinen, Elise Järvenpää and Kati Vierikko



Assess what kind of strategies for urban greening have been implemented by EU municipalities  
Identify enablers, challenges, and obstacles



Compare official EU Greening Plans Guidelines with existing policy objectives for Urban Green Infrastructure and Biodiversity



Support municipalities in urban greening by providing interpreted knowledge of the EU biodiversity strategy's urban greening requirements and data

# Working Plan

1

Explore and review European guidance and mandates

2

Explore urban greening plans from different cities across EU

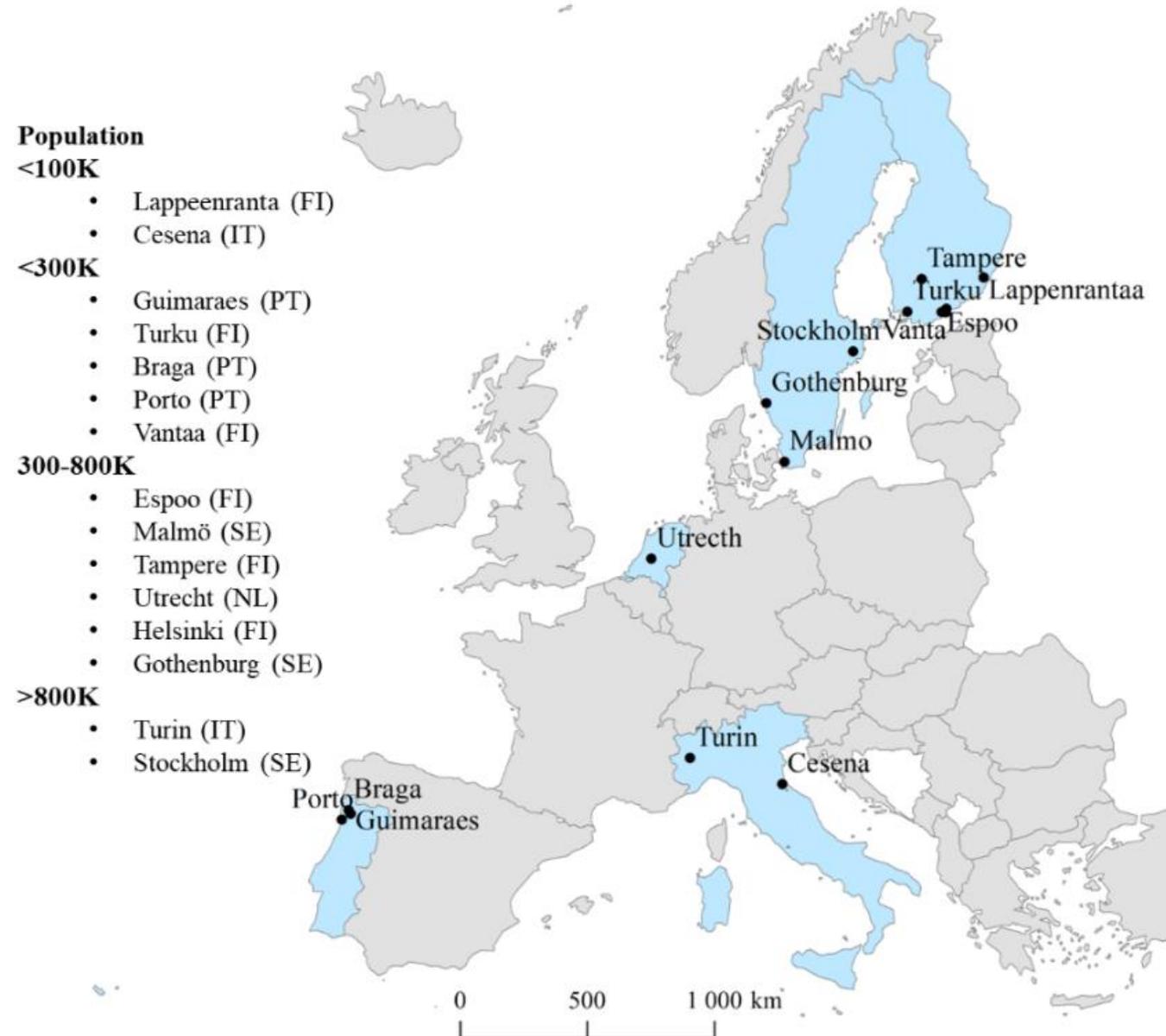
- Document analyses
- Semi-structured interviews

3

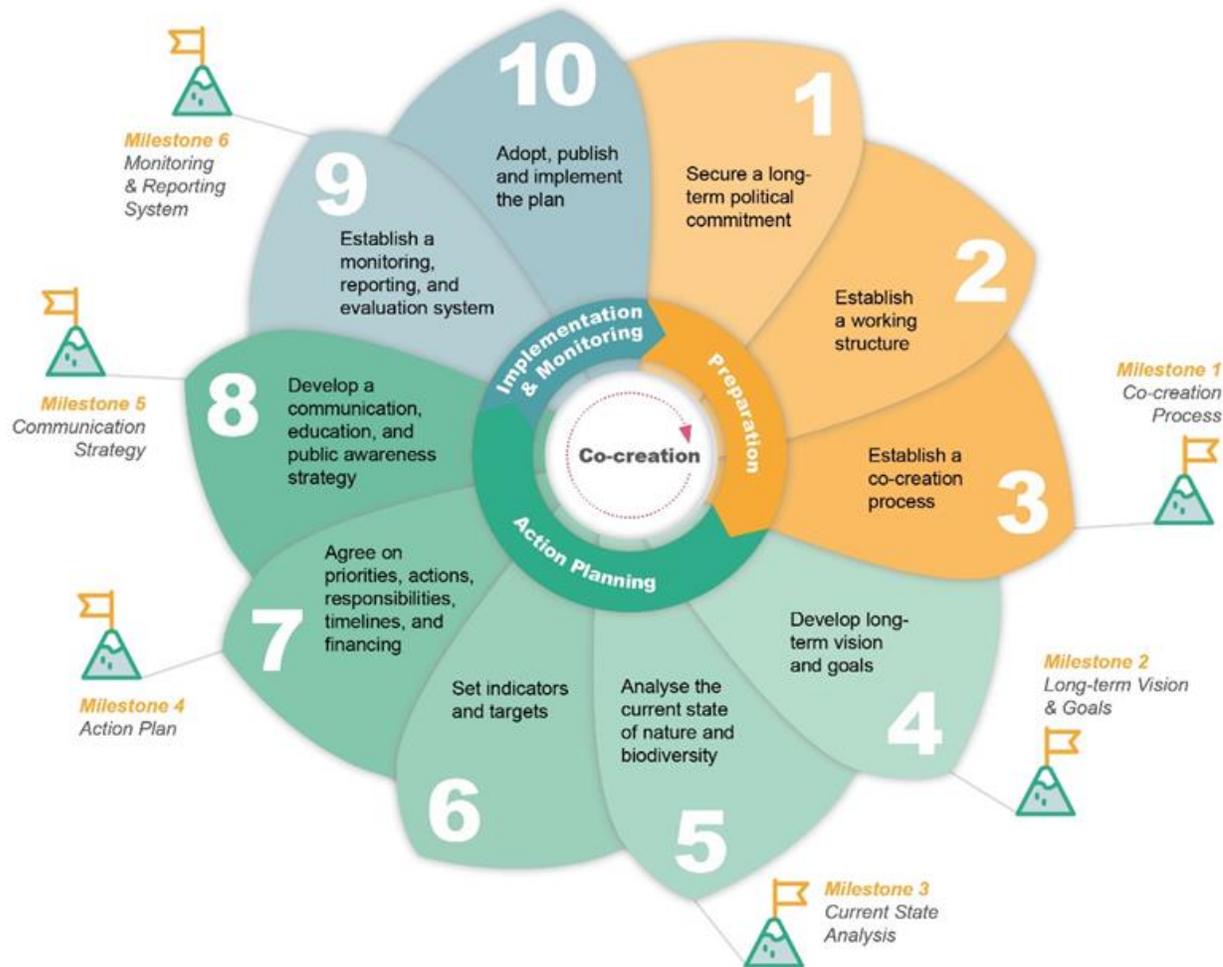
Identify gaps, best practices and share information among Finnish (and EU) municipalities

# Material and methods

- In autumn 2022, in collaboration with the Eurocities network, we selected 20 European cities belonging to the Eurocities network and signatories of the Green Cities Accord
- 15 out of 20 accepted invitation
- We interviewed city authorities working in urban environmental departments, environmental protection departments or departments of city planning



# Guidance for cities to help prepare an Urban Greening Plan published by EU



1. Long-term political commitment;
2. Working structure;
3. Co-creation process;
4. Long-term vision and goals;
5. Current state of nature and biodiversity;
6. Indicators and targets;
7. Priorities, actions, responsibilities, timelines, and financing;
8. Communication, education, and public awareness strategy;
9. Monitoring, reporting, and evaluation system;
10. Adopt, publish and implement the plan

# Current city policy documents for greening and biodiversity targets

- Guimarães, Portugal: Biodiversity strategy and Guimarães 2030 sustainability plan that includes green infrastructures, circular economy, and circular water plans
- Porto, Portugal: Urban city plan includes specific environmental goals (i.e., reforestation or ecological restoration)
- Utrecht, Netherlands: Green structure document (2018)
- Malmö, Sweden: City master plan includes blue and green environments and regulates how the city should develop over the next 20 years. It identifies priorities between greening and development
- Vantaa, Finland: Roadmap to Resource Wisdom (until 2050) includes biodiversity, carbon neutrality, ecological compensation, and nature conservation areas goals

# Current situation with the Greening Plans

- All interviewed cities are working on completing the Preparation phase of the greening plans guidance
- Securing a long-term political commitment, which is the starting point for developing an Urban Greening Plan, is still an ongoing work for most of the cities and was indicated as one of the most problematic steps
- Different co-creation processes have been implemented in most of the interviewed cities. Key stakeholders, including civil society groups, business community, academia and citizen are engaged in the process of refining UGP
- Analyzing of the current state of nature and biodiversity, setting targets, and selecting the right indicators were mentioned as the most challenging steps by many interviewees
- Citizen science projects that involve volunteers in carrying out monitoring efforts have been identified by the cities of Guimarães, Turin, Braga and Porto

Process steps

status  
■ Completed  
■ Incomplete  
■ Ongoing



# Perceived challenges and barriers

Challenges and Barriers	Helsinki	Cesena	Göteborg	Guimarães	Lappeenranta	Malmö	Porto	Stockholm	Tampere	Turin	Utrecht	Vantaa	Turku	Espoo	Braga
Trade-off between development and greening	■	■	■		■	■	■	■	■			■	■	■	■
Cross-departmental collaboration	■	■	■		■	■	■				■			■	
Lack of human resources		■									■			■	■
Lack of financial support						■					■		■		
Dialogue with politicians			■	■		■			■						
Citizen acceptance			■			■				■					
Bureaucratic barriers		■								■					
Knowledge gaps		■			■				■	■		■			

# Perceived supporting factors

- The municipal staff (incl. city planners) is the main contributors to the development of nature conservation and greening plans
- Collaborative approaches involving multiple local stakeholders and citizens, driven by environmental concerns, are also playing an important role
- International commitments like the Green City Accord and National and regional policies are also helping carry out the implementation of greening plans
- Universities and research institutes are important knowledge providers to assist municipal employees and politicians to make more decisions based on scientific knowledge to incorporate in the master plan and other strategies
- Participation to European grants and initiatives (i.e., Horizon projects or Green City Award) is often used to leverage political support as well as establishing a cross-departmental collaborations

**Thanks for your  
attention!**

[Kati.vierikko@syke.fi](mailto:Kati.vierikko@syke.fi)

Finnish Environment  
Institute (Syke)



# References

Buizer, I., B. Elands, T. Mattijssen, A. van der Jagt, B. Ambrose, E. Geroházi, and E. Santos. 2015. The Governance of Urban Green Spaces in Selected EU-Cities: Policies, Practices, Actors, Topics. Wageningen: EU.

Costadone, L., Vierikko, K. and Kopperoinen, L. 2023. Are current urban greening actions compliant with the European Greening Plans guidance? Unpublished manuscript

EU Urban Greening Platform. [https://environment.ec.europa.eu/topics/urban-environment/urban-greening-platform\\_en](https://environment.ec.europa.eu/topics/urban-environment/urban-greening-platform_en)

The Green City Accord. [https://environment.ec.europa.eu/topics/urban-environment/green-city-accord\\_en](https://environment.ec.europa.eu/topics/urban-environment/green-city-accord_en)

Hansen, R., Buizer, M., Buijs, A., Pauleit, S., Mattijssen, T., Fors, H., van der Jagt, A., Kabisch, N., Cook, M., Delshammar, T., Randrup, T.B., Erlwein, S., Vierikko, K., Nieminen, H., Langemeyer, J., Texereau, C., Luz, C., Nastran, M., Olafsson, A., Møller, M., Haase, D., Rolf, W., Ambrose-Oji, B., Branquinho, C., Havik, G., Kronenberg, J. and Konijnendijk, C. 2022: Transformative or piecemeal? Changes in green space planning and governance in eleven European cities. European Planning Studies. DOIs: /10.1080/09654313.2022.2139594