NICHES

Nature's integration in cities' hydrologies, ecologies and societies

Summary of the International Conference: "Bringing Forward Nature-Based Solutions in Major Cities" – Final Conference of NICHES project

24 March 2025

Online Event

The International Online Conference "Bringing Forward Nature-Based Solutions in Major Cities" aimed at exploring and advancing the implementation of Nature-Based Solutions (NBS) in urban environments. The conference brought together over 50 participants, including policymakers, activists, scientists, practitioners, and urban planners from Europe and beyond. Structured around two thematic sessions— (1) modelling of ecological and hydrological impacts in the morning and (2) socio-economic and governance-related aspects of NbS in the afternoon—the event provided a comprehensive platform for sharing research, practices, and insights. The morning session was moderated by *Ulf Stein*, the project's lead from Ecologic Institute, while the afternoon discussions were guided by *Lisette de Senerpont Domis* from NIOO-KNAW.

Session 1: Integrating Perspectives under SETS: Hydrological and Ecological Impacts of NBS

The session focused on the ecological and hydrological impacts of Nature-Based Solutions (NBS) using Socio-Ecological-Technical Systems (SETS) frameworks. Presentations included key case studies and theoretical insights into urban biodiversity and resilience.
The **Keynote** "**Role of AquaNBS for Urban Biodiversity**", given by *Kati Vierikko (SYKE)*, outlined biodiversity-friendly solutions to urban water management, highlighting the BINATUR project's evidence on biodiversity benefits in urban aquatic systems.
NICHES Presentations:

- **Understanding Socio-Ecological-Technical Systems** – *Pablo Herreros (BC3)* presented the SETS framework underlying the entire project concept. He presented integration challenges, advocating for inclusive approaches early on in project development.
- **Spotlight Rotterdam: Assessing Ecological Resilience of Urban Catchments to Combined Sewer Overflows** – *Sven Teurlincx (NIOO-KNAW)* assessed urban ecological resilience to sewer overflows, emphasising the importance of visibility and public engagement.
- **Co-designing Ecosystem Service Provisioning of NbS into Hydrological-Aquatic Models** – *Lisette de Senerpont Domis (NIOO-KNAW)* described the co-design process in Rotterdam, highlighting the necessity of combining NBS with traditional engineering to effectively manage urban water quality.
- **Runoff, Heat, and Habitat: Modelling Potential of Multifunctional NbS** – *Svetlana Khromova (Universitat Autònoma de Barcelona)* shared research on multifunctional NBS in Barcelona, stressing their limited direct flood mitigation but significant co-benefits like heat mitigation and improved water storage.

Key discussions around these presentations highlighted the complexity of integrating biodiversity concerns into NBS interventions, with speakers underscoring the need for careful planning to avoid potential biodiversity harm. Public engagement and the visibility of aquatic conditions were emphasised as essential to successful implementation. The

integration of perspectives and the early involvement of multiple stakeholders was recognized as crucial.

The **Panel Discussion** of Session 1 included the following speakers:

Panelists: *Dagmar Haase (Humboldt University), Nikolai Friberg (Aarhus University), Isabel Seifert-Dähnn (NIVA)*

The panellists engaged in an insightful discussion highlighting the potential of smaller-scale, green-blue infrastructure often overlooked in city planning. *Dagmar Haase* emphasised adaptive, naturally evolving solutions, suggesting a dynamic approach rather than static infrastructure, which better accommodates changing climate conditions. *Nikolai Friberg* contributed by providing practical examples, such as wooden riparian zones, illustrating their effectiveness in enhancing urban biodiversity and resilience*. Isabel Seifert-Dähnn* added depth by stressing that neither traditional grey infrastructure nor nature-based solutions alone could solve urban environmental challenges; instead, she argued for careful local assessments and tailor-made solutions. The panel also debated urban spatial constraints and the importance of creative, integrative solutions. Further points highlighted by panelists included the necessity of comprehensive consideration of social, ecological, and climatic impacts, emphasizing collaborative decision-making as vital for sustainable urban management.

Session 2: Navigating Urban Futures: Socio-Economic and Political Dimensions of NBS

This session put focus on governance, socio-economic valuation, decision-making, and policy frameworks essential for mainstreaming NBS. Presentations featured theoretical frameworks and practical methodologies addressing the complexities and diverse stakeholder involvement necessary for effective urban governance of NBS.
The **Keynote** was given by *Niki Frantzeskaki (University Utrecht).* Under the title **"Governing NBS in Major Cities",** she presented governance frameworks emphasizing the critical need for interdisciplinary collaboration, experimentation with policy approaches, and inclusive governance practices. She highlighted how new governance forms can bridge sectoral divides and enhance community participation in decision-making processes.
NICHES Presentations:

- **Spotlight Barcelona: Evaluating Socio-Economic Values of NBS in Communities** – *Giulia Benati (Universitat Autònoma de Barcelona)* shared socio-economic valuation methodologies combined with discrete choice experiment for assessing NBS impacts on local communities.
- **Decision-Tool for Water Managers: Scenario-Maps of Community Vulnerabilities and Feasibilities of NBS** – *Johannes Langemeyer (Universitat Autònoma de Barcelona)* introduced a decision-making tool to evaluate community vulnerabilities and NBS feasibility.

- **Governance of Urban Water Management: Best-Practice Examples of NICHES Case Studies** – *Ida Meyenberg (Ecologic Institute)* discussed best-practice examples highlighting effective governance structures supporting NBS implementation.
- **Transformation of Urban Water Management: Designing Transition Pathways for Major Cities –** *David Alejandro Camacho Caballero (Universitat Autònoma de Barcelona) & Benjamin Kupilas (Ecologic Institute)* outlined pathways for transforming urban water management towards sustainability.

Participants discussed integrating justice principles into NBS planning, emphasising the necessity of inclusive design and governance processes. Further dialogue underscored citizen engagement as essential but recognised institutional coordination as critical for resolving conflicting priorities in urban planning.

The **Panel Discussion** of Session 2 included the following speakers:

Panelists: *David Maddox (The Nature of Cities), Chantal van Ham (Commonland), Tom Wild (University of Sheffield), Rebecca Noebel (SenMVKU Berlin)*

The afternoon panel discussion addressed the complexities around public perceptions, policy frameworks, and governance challenges related to mainstreaming nature-based solutions. *David Maddox* argued for robust community engagement through genuine dialogue and meaningful participation rather than one-way dissemination of information. *Chantal van Ham* discussed the importance of integrating land restoration and water management, highlighting the broader ecological co-benefits and the critical interconnections between ecosystem health and urban resilience. *Tom Wild* provided insights on shifting from engineering-focused strategies toward comprehensive governance frameworks that also embrace community involvement and multi-stakeholder processes. *Rebecca Noebel* shared insights from Berlin's successful initiatives that institutionalized cooperation, demonstrating the effectiveness of local participation and community education in enhancing public support and adoption of NBS. The panelists collectively acknowledged the critical importance of carefully managing negative public perceptions, emphasizing patience, dialogue, and education as key strategies to build consensus and foster greater acceptance and implementation of nature-based solutions.

Key Take Aways

- **NBS** can, to some extent, effectively address urban stormwater, water quality, and biodiversity challenges.
- **No one solution fits all** — it's important that grey meet green solutions and that measures are always adjusted to local settings.
- **Positive mental health benefits** of NbS should be more promoted when communicating about NBS.

- **Stop the degradation of** the few **natural spots** left in urban settlements — we need to map them out! Protection is the most cost-effective measure.
- **It's important to include considerations of climate resilience** when designing NBS (e.g., tree types), and to identify habitats that stay cool despite global warming.
- **There is more space in cities than we think,** where NBS can be implemented — for example, harbor and river areas, former industrial sites, cemeteries, and allotment gardens.
- **Successful NBS implementation** requires stakeholder co-design, ensuring local relevance and community acceptance. Coordination needed: Bringing together dispersed actor groups.
- **Mainstreaming NBS** requires not only changing institutions but also experimenting with new processes and inclusive stakeholder engagement.
- **Targeted outreach is key** — tailor communication to specific topics (e.g., heat, flood) or audiences (e.g., income levels). Meet people where they are. Focus less on dissemination, more on engagement, emphasizing shared interests and benefits.
- **Data matters** — spatially explicit data, analysis, and community preferences are essential. SETS vulnerabilities and risk assessments should form the baseline for evaluating NBS performance. Data integration must be improved.
- **Good governance is crucial** — clear policies and long-term, future-oriented planning are essential. But don't try to do everything at once; implement integrated approaches progressively. → No retrofit.
- **Use smart tools** — integrated models and decision-support tools can guide strategic planning and scalable NBS implementation.
- **Break down barriers** — overcoming governance fragmentation and competition for space is vital for transitioning to sustainable urban water management. → View NRR as an opportunity!

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Project partners

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