



Social dimensions of carbon-smart urban green infrastructure

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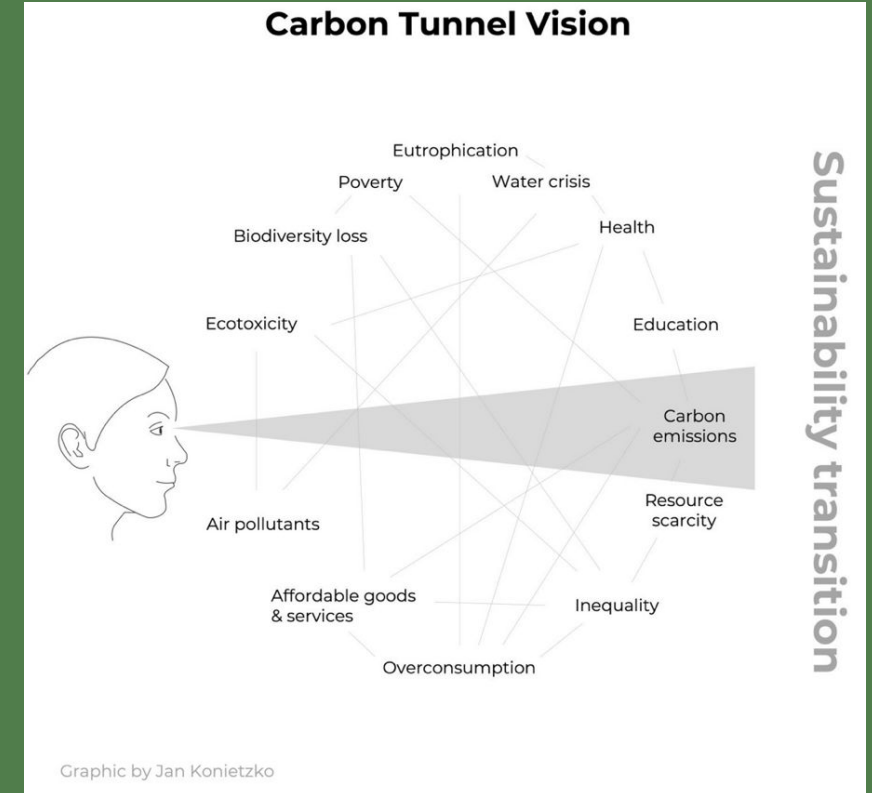


Why does the social dimension matter in carbon-smart urban green?

Sustainability transitions require holistic approaches that address synergies and trade-offs between climate, biodiversity, and society

Carbon-smart urban green must integrate human aspirations and the needs of other species

Social acceptance, everyday practices, and learning shape how solutions are realised
Moving beyond siloed thinking is essential for meaningful urban sustainability transitions



CO-CARBON avoids siloed thinking by engaging diverse scientific communities alongside practitioners.

Three interconnected perspectives

1. Residents: experiences, values, and acceptance
2. Professionals: planning, construction, governance
3. Everyday life & interventions: learning and change (Garden Coaching, Teaching)

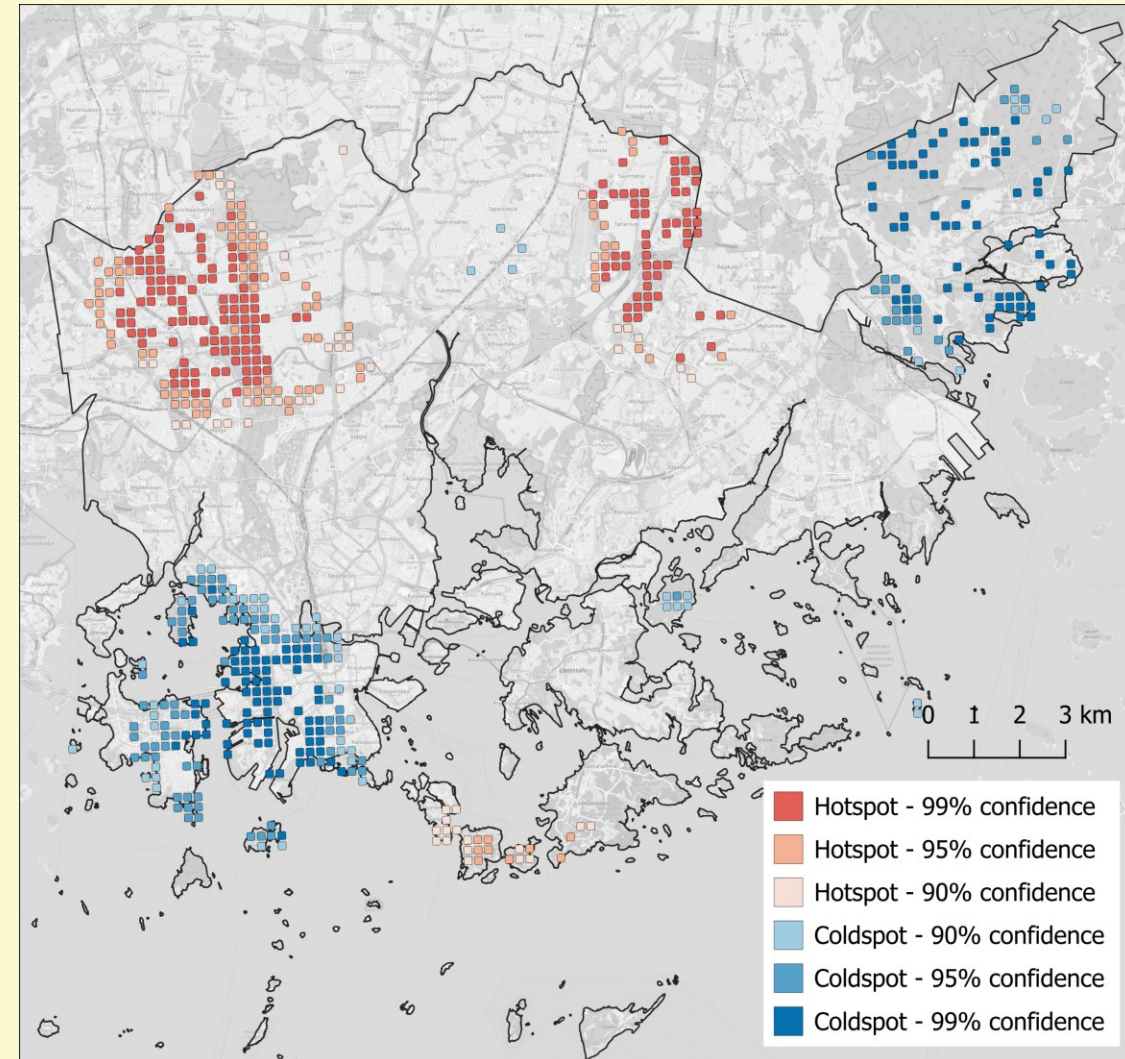
Acceptance and Place-Specificity

Carbon-smart solutions are perceived differently across the city

- Support for climate-smart green infrastructure varies spatially
- Acceptance is place-based, not uniform
- Meaningful places are never socially neutral planning sites



Lampinen, J., García-Antúnez, O., Lechner, A. M., Olafsson, A. S., Gulsrud, N. M., & Raymond, C. M. (2023). **Mapping public support for urban green infrastructure policies across the biodiversity-climate-society-nexus.** *Landscape and Urban Planning*, 239, 104856.



Values, Carbon, and Biodiversity

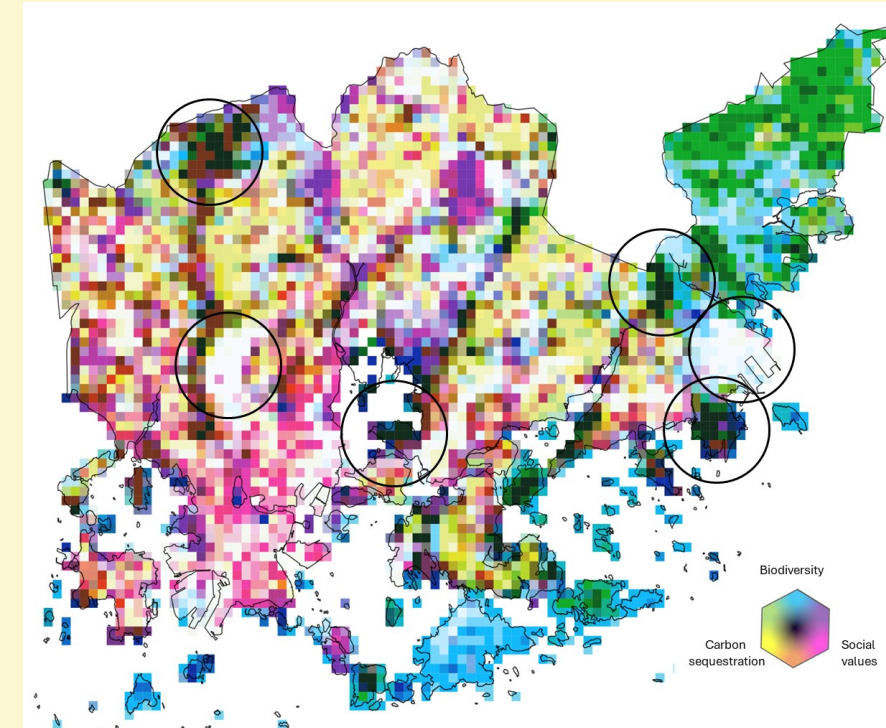
Social and ecological goals are linked — but not automatically aligned

- Green spaces valued by residents often support carbon storage and biodiversity
- Different value types (intrinsic, relational, aesthetic) occur in different places
- Benefits do not accumulate evenly across sites

Spatial Synergies and Trade-offs

Not all urban environments work in the same way

- Strongest synergies between social values, carbon sequestration, and biodiversity occur in large forested green spaces such as Central Park, Uutela, Mustavuori, and Kivinokka.
- Trade-offs between all three are concentrated in industrial and infrastructural areas such as the Pasila railway yard and Vuosaari harbor

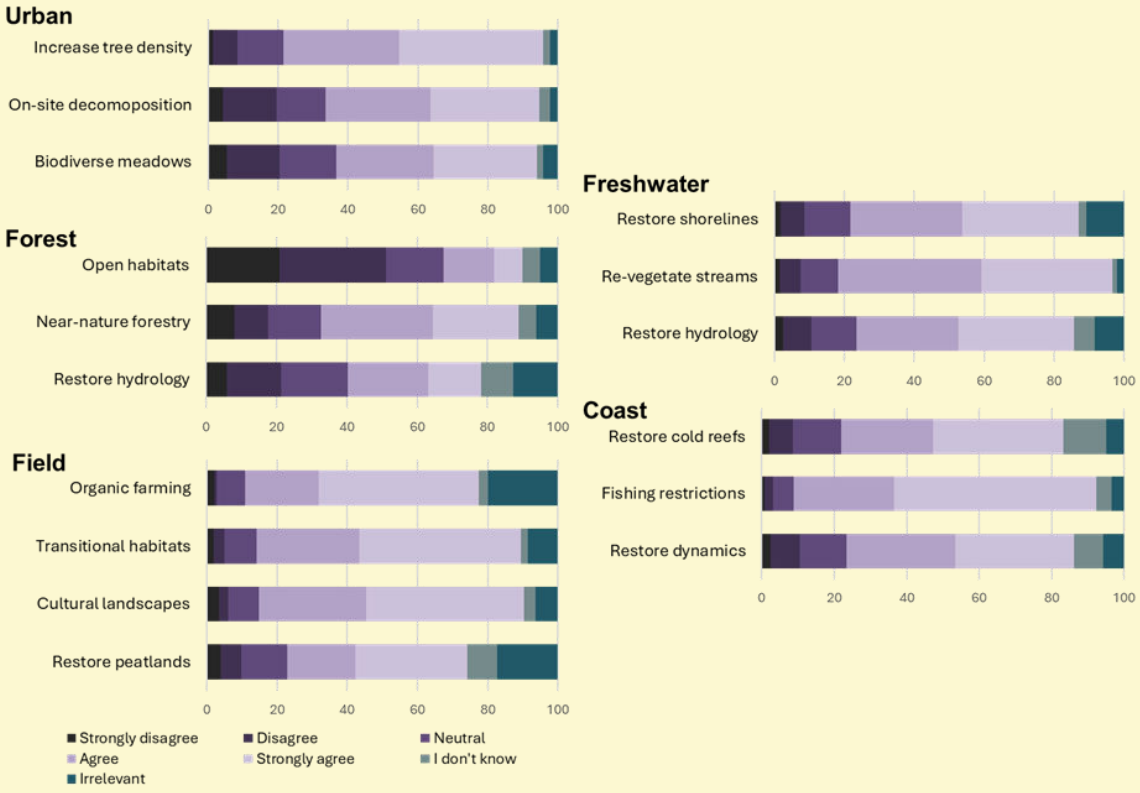


Lampinen, J., García-Antúnez, O., Jalkanen, J., Havu, M., Stahl Olafsson, A., Gulsrud, N. M., & Raymond, C. M. (2024). **Social values for biodiversity and carbon flow in cities.** *People and Nature*, 6(6), 2374-2389.

Nature restoration & Nature-Based Solutions and Their Limits

Valuable, but not without tensions

- Social acceptance of restoration varies by ecosystem type
- Urban meadows are cost-effective, but impacts differ by context
- Social, ecological, and economic goals may conflict

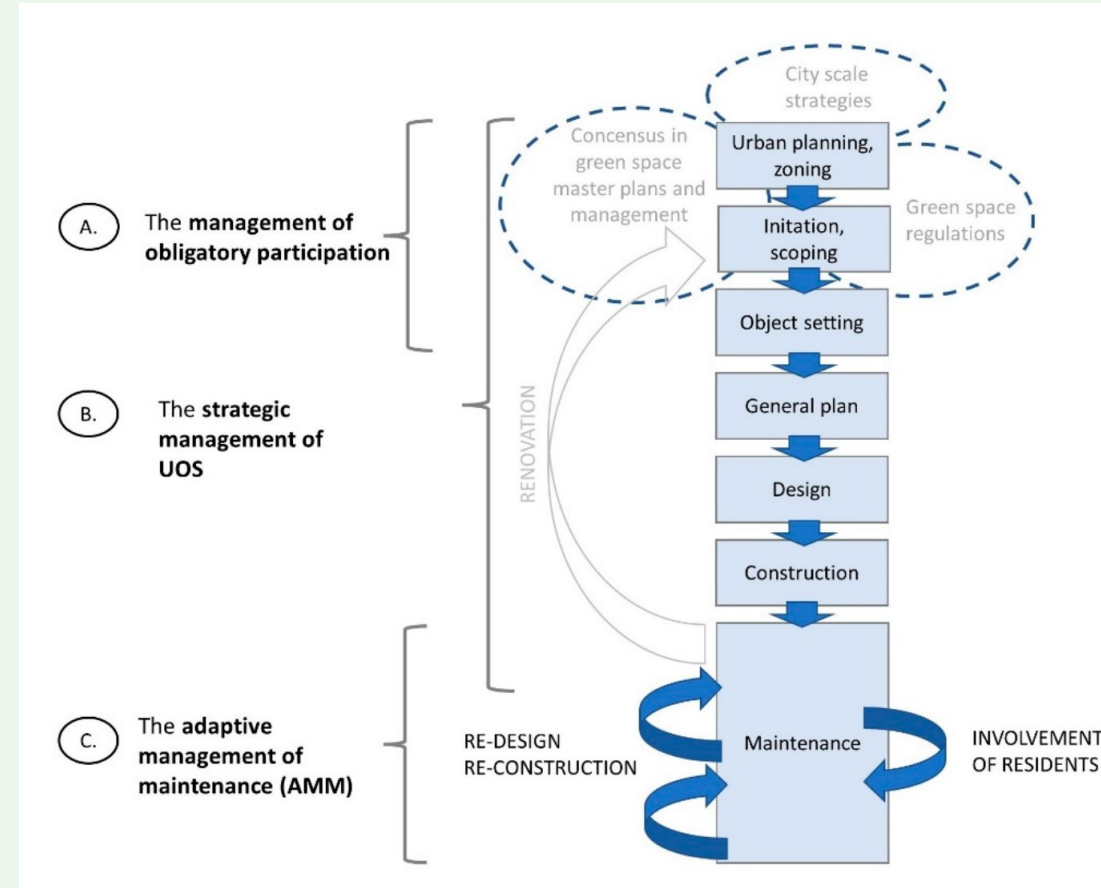


Garcia-Antúnez, O., Gernow, L., Raymond, C. M., Gulsrud, N. M., & Olafsson, A. S. (2026). **Spatially contextualizing the social acceptability of nature restoration.** Urban Forestry & Urban Greening, 129386.

Urban nature is shaped by use, management, and change

- Urban green is a socio-ecological system, not a static asset
- It consists of vegetation, soils, water, and built structures — and human practices
- Planning, management, maintenance, and everyday use continuously reshape outcomes
- Ecological functions (e.g. biodiversity, carbon storage) depend on social decisions
- Adaptive management could foster residents' contribution to sustainability transition

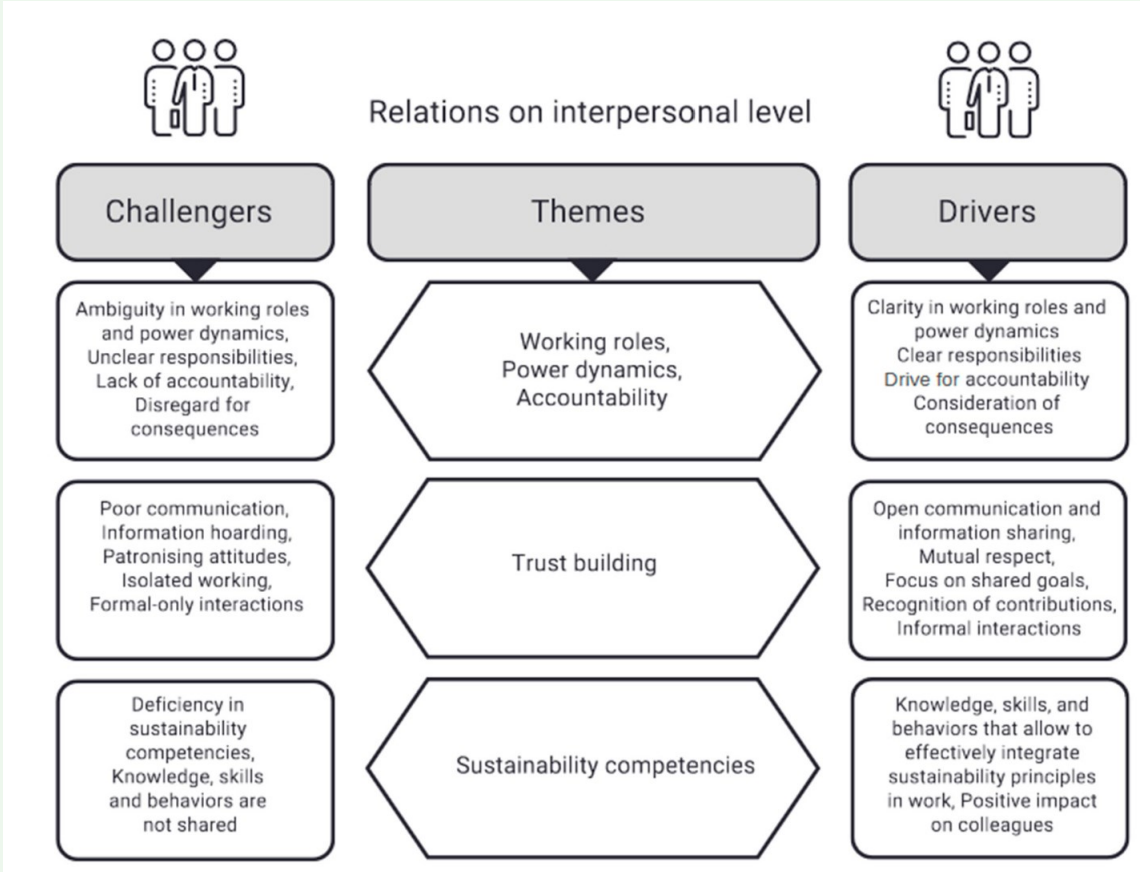
Carbon-smartness cannot be separated from how urban green is governed as it defines the use



Urban Green as Professional Practice

Carbon-smartness as relational work case: UGI professionals' relations within a residential housing project

- Carbon-smart solutions emerge through interaction, not plans alone
- Roles, power relations, and trust shape implementation
- Skill gaps, time pressure, and organisational cultures hinder change



Garden Coaching as a Social Intervention

- Private yards are a significant but underused resource
- Garden Coaching gathers residents' perspectives and supports learning and gardening practices
- The method links knowledge, action, and lived experience



Learning Carbon-Smartness in Practice

- Education is a part of the social system
- Carbon-smart urban green requires learning across generations and sectors
- Interdisciplinary climate education links climate, biodiversity, and everyday life
- Participatory pedagogies (e.g. role-play, forum theatre) support engagement and agency



Castellazzi, E., Hakkarainen, V., Saari, M., & Raymond, C. M. (2025). **Barriers and Enablers of Interdisciplinary Climate Education: Insights From Secondary Teachers.** *Australian Journal of Environmental Education*, 1–18.

Carbon-smart urban green is made together

- carbon-smart urban green is shaped by place-based acceptance, social values, and perceived trade-offs
- urban green functions as a dynamic socio-ecological system requiring adaptive governance and learning
- implementation is constrained and enabled by professional roles, power relations, trust, and sustainability competencies
- Educational and intervention contexts act as social learning arenas where carbon-smart thinking, skills, and agency are formed



Carbon-smart urban green infrastructure is not only a technical or ecological challenge, but a multi-level social process linking residents, professionals, institutions, and learning practices.

Thank you for your attention!



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And big thanks to **the team!**