



Universitat Oberta
de Catalunya

Nature-based school-making: the case for edible schoolyards

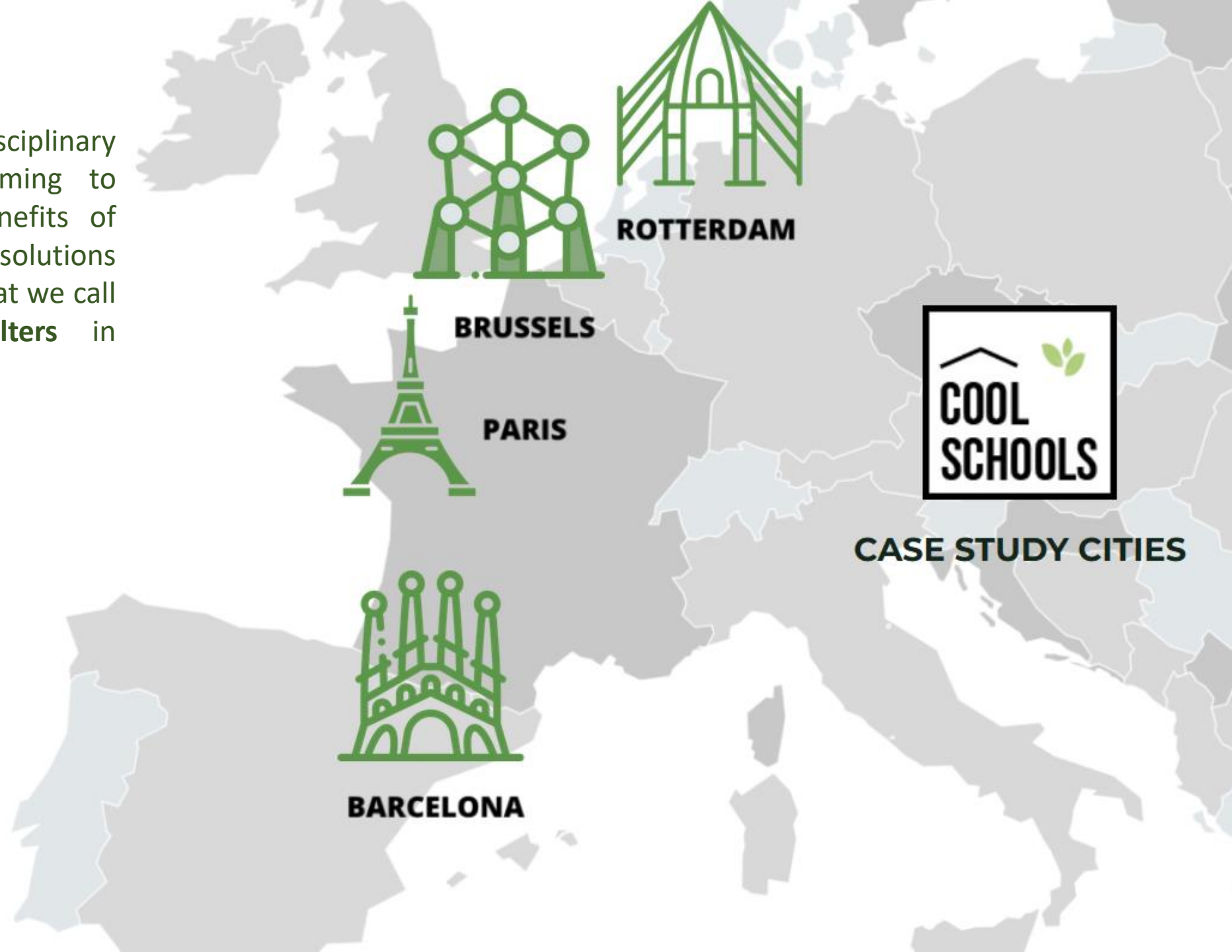
Filka Sekulova

TURBA/IN3/UOC



COOLSCHOOLS is a transdisciplinary applied-research project aiming to analyze the multiple co-benefits of implementing nature-based solutions for climate adaptation, or what we call **nature-based climate shelters** in school environments.

www.coolschools.eu



ROTTERDAM

BRUSSELS

PARIS

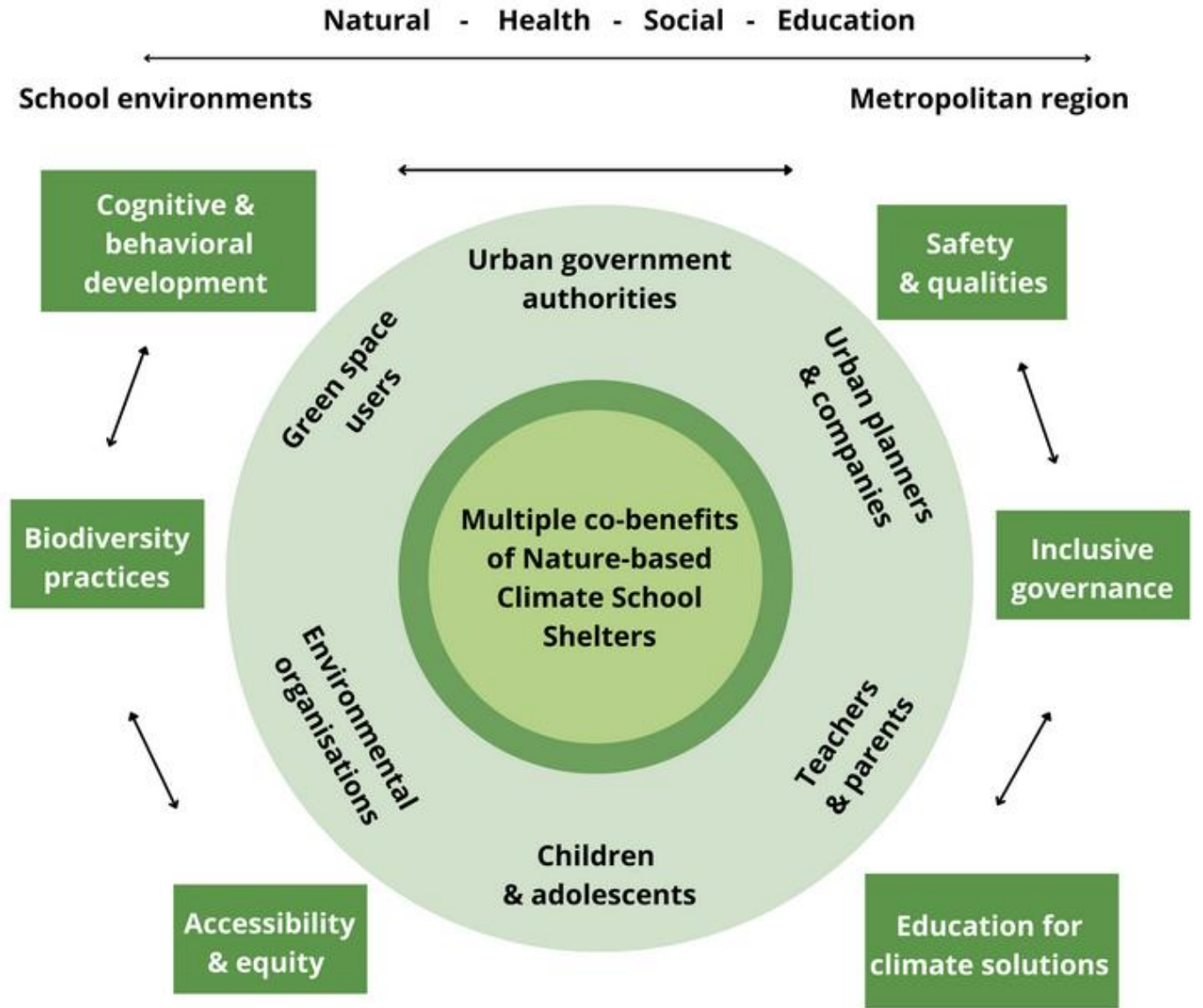
BARCELONA



CASE STUDY CITIES



Research dimensions



Our approach: the governance of green schoolyards



How a range of actors jointly produce green schoolyards: from goals to processes and people? To what aims? With what (pedagogical) impacts and implications?

What is the 'green' in green schoolyards?

- Experiential spaces that open room for creativity in play & learning through natural elements
- More than embellished squares; the 'green' in the schoolyard is not limited to views of nicely ordered flowers, grass lawns or edible plants. It features the 'brown', the sand, mud, dead branches, tunnels as central components creating a climate-adaptive, flexible and fascinating environment



Why relevant?



- **For children mental health** (stress, emotional well-being, stress) (McCormick 2017, Chawla et al. 2014) and **physical well-being** (Bikomeye et al. 2021)
- **For academic achievement** (attention, memory) (Van Dijk-Vesselius et al. 2020, Kuo et al. 2021); imaginative & creative play (Malone & Tranter, 2003) and constructive and exploratory activities (Malone & Tranter, 2003, Dymont and Bell 2008)
- **From a social cohesion/inclusion perspective** (Bell and Dymont 2008). Greening makes school grounds more peaceful, harmonious and socially inclusive.

Why relevant?



- **From a gender perspective** (in paved areas girls tend to be systematically excluded from space and play opportunities, they hang out passively around soccer fields with little engagement in play behavior, while in green areas, girls they are more actively engaged in play Mårtensson et al., 2014).
- **From a justice perspective:** public school systems have the capacity to mitigate some of the inequality in the distribution of green/vegetated areas (Zhang et al. 2022), and increase the access to nature in urban and suburban areas (Stevenson et al. 2020)
- **From a climate adaptation and biodiversity connectivity perspective:** large asphalted areas within the city, which are well-suited for the application of climate adaptive crossover developments, (Hensen 2021, Ioja et al. 2014)
- **From a sustainability transition perspective** generating a willingness to contribute to eco-social transformation (Chawla and Derr, 2012).

Why relevant?



- **Gardening activities in particular** seem to provide ongoing opportunities to **build positive relationships among students, staff and parents**, a key element in establishing a healthy school culture (Maller 2005)
- Gardening, working and playing with plants allow children to ‘participate in the processes of life’, to foster a sense of **identity and belonging** (Moore 1999), as well as to develop a **stronger sense of place**.
- Wells and colleagues (2015) conducted a large-scale, randomized controlled trial of a school garden intervention on science knowledge in over 3,000 students. 25 schools (from Arkansas, Iowa, Washington, and New York, US) were randomly assigned to receive a school garden and a series of garden-based lessons; 24 control schools did not receive a school garden, and taught the same material in traditional indoor classes. = > **Students in garden-based classes gained more science knowledge than their control peers**. Moreover, **the more garden-based instruction a school carried out, the larger the knowledge gains**.

Barcelona case study



Qualitative research (interviews, cognitive mapping):

- 5 (+3) primary schools with recently transformed schoolyards (within the Refugis Climatics project, the Transformem Els Patis initiative, or own approach)
- 2 primary schools in the process of transformation (Programa Transformem)

Barcelona case study: insights on gardens and gardening



Some of the insights from the qualitative field work and participant observation:

- Vegetable gardens are relatively **little represented** among the new interventions under the Transformem Els Patis program*, even if many schools opt for installing wide wooden pots with herbs and bushes.
- Some of the reasons for that have to do with **maintenance challenges**, including the lack of institutional support, funding, but also expertise on gardening. There seem to be little clarity so far as to the ways of addressing this.
- There is a significant **tension** around the use of **school grounds for sports** (hence the need for asphaleted spaces) and for **nature-based/diversified play, gardening**, planting or creative play altogether.

Barcelona case study: insights on gardens and gardening



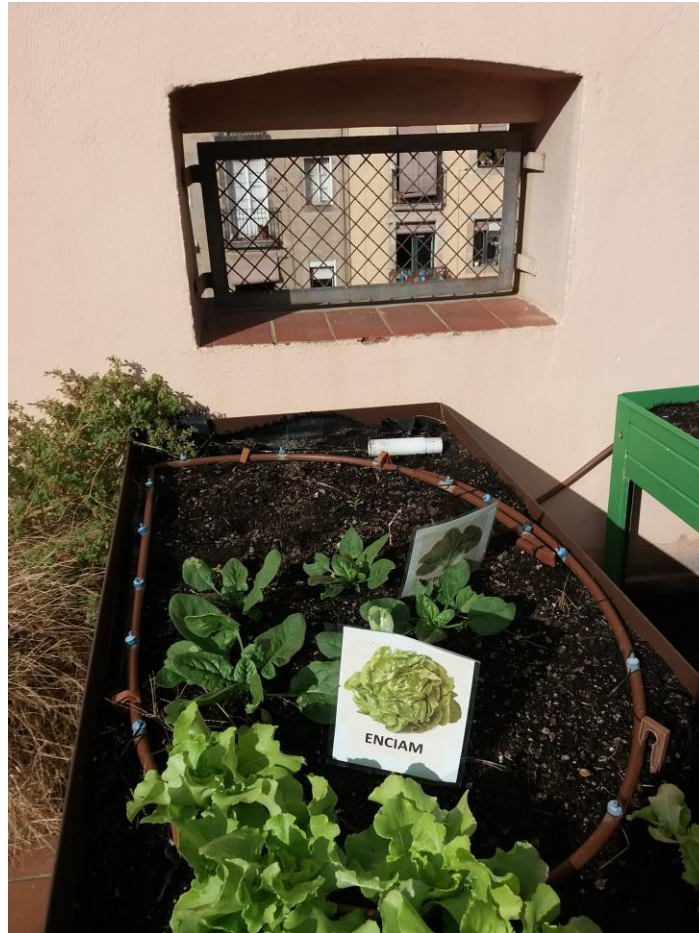
Perhaps the pioneer example among the ones we saw is Jaume I (Sants), where a significant part of the schoolyard has been depaved and transformed in flower, tree and vegetable beds.



Barcelona case study: insights on gardens and gardening



Those schools that managed to maintain a relatively good level of greenery found a way to employ a gardener for a few hours each month (Escola Cervantes)



Justice considerations: school gardens as a form of privilege



An assessment of 99 school gardens in Portland (US) reveals, that while gardening seems to be equally present among low and high-income schools, it is mostly well-off schools that can afford a paid gardener or a service relationship with local farms paid by the parent-teacher support association (Garwood et al. 2016).

This study resonates with findings from Barcelona where schools with migrant and economically vulnerable populations (for example in neighbourhoods like Raval, or Torre Barro) have considerably more difficulties finding parents with the time to dedicate to the design and maintenance of schoolyards, and gardens, mostly because issues around daily survival, home evictions or work-driven migration are on their daily agendas.

Key insights as to what matters for green and edible schoolyards?



Integration of green and edible schoolyards in the pedagogic vision and praxis of schools



Integration of schoolyard transformation in local municipal climate adaptation, food resilience and biodiversity plans.



Maintenance



Social and environmental justice



Participation and social cohesion



Consideration of wider issues of socio-ecological transition