

– RACIAL INEQUITY IN GREEN INFRASTRUCTURE AND GENTRIFICATION: Challenging Compounded Environmental Racisms in the Green City

EMILIA LEWARTOWSKA, ISABELLE ANGUELOVSKI, EMILIA OSCILOWICZ,
MARGARITA TRIGUERO-MAS, HELEN COLE, GALIA SHOKRY,
CARMEN PÉREZ-DEL-PULGAR AND JAMES JT CONNOLLY

Abstract

This article explores the role that green gentrification plays in exacerbating racial tensions within historically marginalized urban communities benefiting from new environmental amenities such as parks, gardens, waterfront restoration and greenways. Building on extensive qualitative data from three cities in Europe (Amsterdam, Vienna, Lyon) and four cities in the United States (Washington, Austin, Atlanta, Cleveland), we use thematic analysis and grounded theory to examine the complex relationship between historical environmental and racial injustices and current racial green inequities produced by the green city agenda. Our analysis also offers insights into the main differences in how community members articulate concerns and demands over racial issues related to green gentrification in Europe versus North America. Results show that urban greening—and green gentrification specifically—can create ‘compounded environmental racisms’ by worsening racial environmental injustices and further perpetrating green racialized displacement, re-segregation and exclusion. The latter is produced by the racial inequities embedded in green infrastructure projects and the related unequal access to environmental benefits, affordable housing, political rights and place-making. Moreover, we find that settler colonial practices combined with persisting exposure to toxins and re-segregation in the United States together with neocolonial spatial and social practices in Europe shape how racialized community members perceive and interact with new green amenities.

Introduction

Across the urbanized world, municipalities are increasingly investing in urban green infrastructure, green space and green amenities to address environmental challenges (Tozer *et al.*, 2020) while offering climate, health and socio-economic benefits for urban dwellers (Wolch *et al.*, 2014; Triguero-Mas *et al.*, 2015; Immergluck and Balan, 2018). The process of bringing nature back into cities—often interchangeably referred to across different literatures as urban greening, green amenities or green infrastructure (Calderón-Argelich *et al.*, 2021)—is frequently presented in apolitical terms as a win-win solution for all. However, greening may in certain circumstances actually be a contributor, driver or accelerator of social and racial injustices through the process of ecological or green gentrification (Gould and Lewis, 2017; Anguelovski *et al.*, 2019; García-Lamarca *et al.*, 2019; Rigolon and Németh, 2020; Anguelovski *et al.*, 2022). Many green investments, especially large scale (but not only) projects, tend to increase property values, undermine local cultural habits and norms, and bring displacement pressures to bear on communities of color and low-income residents

The authors thank four anonymous IJURR reviewers and the editorial team for constructive feedback that helped improve the manuscript. Emilia Lewartowska would like to thank Laura Horn for her guidance when research for this article first started. The authors would also like to thank all the respondents who generously participated in the study. This research was supported by Horizon 2020 grant Green LULUS (GA678034) and the ‘María de Maeztu’ Programme for Units of Excellence of the Spanish Ministry of Science and Innovation (CEX2019-000940-M).

through processes that have been described as urban green grabbing (Immergluck and Balan, 2018; Łaszkiwicz *et al.*, 2019; García-Lamarca *et al.*, 2022) or extractive climate urbanism (Robin and Broto, 2021). Furthermore, as green injustices often overlap with long-term environmental and racial injustices, they tend to create cumulative and compounding inequities for racialized and low-income residents (Anguelovski and Connolly, 2021; Cole *et al.*, 2021; Oscilowicz *et al.*, 2023). In response, residents and civic organizers around them are increasingly pushing back against this green space paradox in order to create a more just and green city (Pearsall and Anguelovski, 2016; Curran and Hamilton, 2017; Annunziata and Rivas, 2018; Connolly, 2019).

For communities resisting urban green grabbing, the persisting legacy of racial exclusion is a prominent manifestation of spatial injustice. Yet traditional gentrification studies have at times fallen back on a class-reductionist lens (Kent-Stoll, 2020; Rucks-Ahidiana, 2021) and omitted racial dimensions as a direct subject of inquiry, especially within green gentrification studies. Here, narratives of white cultural preferences expressed by a 'green is good' (and beneficial for all) rhetoric (Angelo, 2021) are hidden and invisibilized (Anguelovski, 2016) through the avoidance of a racial analytical lens and denial of the magnitude of sustained racism in and around neighborhoods being greened and redeveloped (Kirkland, 2008; Lees, 2016; Rucks-Ahidiana, 2021), especially the many that, in the United States, suffered from redlining in the past. When it comes to new green projects, racialized experiences and perceptions of green gentrification tend to be particularly omitted, especially when mis-recognizing residents' previous experiences, relationships and perceptions vis-à-vis urban space and nature or ignoring uneven connections between nature and land (Anguelovski *et al.*, 2020; Brand, 2022). As a result, persistent domination and subordination dynamics in urban greening may be preventing green infrastructure projects from providing wellbeing and responding to the needs of racialized marginalized groups (Cole *et al.*, 2021).

In response to these blind spots, scholars have recently called for critical research on the role of socio-environmental and cultural history in producing oppressive experiences of space (Brand, 2022) and enduring dynamics of segregation in relation to access to urban green projects for racialized residents (Anguelovski *et al.*, 2019). There is a need for an explicit centering of racial aspects in studies on green gentrification, especially for an examination of racialized constructions outside of the North American context (Lees, 2016; Connolly and Anguelovski, 2021).

The novel aim of this article is to comparatively address the racialization of greening as a conceptual and empirical gap while analyzing the political complexity between racial issues and the resulting community contestation in the context of green infrastructure equity. We define racialization of greening as the role of racism and white supremacy in making specific forms of urban greening desirable and accessible for some, which in turn fuels urban development processes that delimit who can access and benefit from it—in other words, it is a way of seeing greening as racially constructed through urban space and its associated social relations. We examine the different civic perceptions of racial injustice which characterize the North American and European landscapes by asking: (1) How are racial inequities experienced and mobilized in activism around contemporary green infrastructure equity? (2) When activists talk about race, what are the main tensions they bring up and how is their narrative connected to the histories of social, racial and environmental injustices they have experienced?

We position the narrative of communities fighting for urban green justice in selected North American and European cities within settler colonial and postcolonial studies. We argue that the processes of green gentrification posit urban greening as an emerging yet understudied pathway for existing processes of persistent racial domination and subordination dynamics. In turn, this new form of racialization prevents green infrastructure projects from considering the wellbeing and needs of marginalized groups that suffer from the negative externalities of greening. We find that historical

environmental and racial injustices overlap with new racial green inequities intensified by the creation of urban green amenities and the lack of benefit from other neighborhood amenities, creating a plurality of what we call ‘compounded environmental racisms’.

The article is organized as follows. We first review key literatures at the intersection of environmental justice, green gentrification and racism and connect this discussion to the literature on settler colonialism and postcolonial studies. Following the presentation of our research design and methods, we analyze the impacts of historical injustices on current racialized struggles and connect them to racial inequities in urban greening. Finally, we discuss the implications of our findings for the literature on decolonial urban green justice.

Situating racial inequities in studies of environmental justice and urban green space

When environmental justice (EJ) studies emerged in the 1980s, scholars documented the unequal health impacts of environmental pollution and toxic waste sites on different classes and racial groups (Mohai *et al.*, 2009; Agyeman *et al.*, 2016). In the United States, both the early EJ movement and EJ scholarship drew on the legacy of the civil rights and social justice movements, bringing issues of race, class, culture and gender into the realm of environmentalism (Holifield, 2001). Initially, empirical investigations of EJ typically followed the geography of industrial pollution, landfills and waste sites (US Government Accountability Office, 1983; Chavis and Lee, 1987), with a clear focus on the identification of environmental racism practices or racial discrimination in environmental policymaking and the deliberate targeting of communities of color (Chavis Jr, 1994). In the 1990s, EJ scholarship evolved to highlight civic efforts to improve neighborhood quality and livability and access to a variety of environmental goods (Anguelovski, 2016), shifting the focus onto the relationship between place and health and the connection of EJ to broader societal ‘everyday’ demands (Anguelovski, 2013; Agyeman *et al.*, 2016).

Focusing on inequities in urban greening through interdisciplinary studies, scholars in geography, critical environmental studies and planning have identified the political, social and economic factors which contribute to the historical inequitable access by race to urban green space and other green amenities (Wolchet *et al.*, 2014; Wüstemann *et al.*, 2017; Wu and Kim, 2021). Examples of drivers of injustice in urban sustainability (Kotsila *et al.*, 2023) include exclusionary zoning laws (Pulido, 2000), policing and explicit control of urban neighborhoods (Summers and Howell, 2019), unfit institutional structures and limited civic participation (Kotsila *et al.*, 2023), uneven distributions of funding for public infrastructure (Theodos and Hangen, 2019), and discriminatory housing policies and practices such as redlining or blockbusting (Locke *et al.*, 2021; Nardone *et al.*, 2021), all of which contribute to displacement, residential segregation, and continued inequities in access to environmental amenities (Schell *et al.*, 2020; Connolly and Anguelovski, 2021).

In North America throughout the twentieth century, racial zoning ordinances or racist property law regimes—as a tool for domination in which a community of exogenous settlers permanently displaces or eliminates indigenous populations (Veracini, 2010)—have played a central role in producing urban racial inequalities, especially in regard to access to housing, land and natural resources (Safransky, 2014; Cashin, 2021). More broadly, racial and cultural politics of land and property have been directly linked to settler colonial and plantation history and are now central to contemporary urban struggles (Safransky, 2016). As some argue, the North American city, produced through racialized logics (Heynen *et al.*, 2006), continually asserts urban spaces as white possessions and memories (Brand *et al.*, 2022), shifting the costs and impacts of urbanization such as pollution, toxification and displacement onto people of color (Bullard, 1993).

In Europe, early EJ studies mostly highlighted inequalities around exposure to contamination, the role of policymaking and ineffective monitoring in perpetuating it, and multiple cases of so-called neighborhood degradation (Dunion, 2003; Stephens *et al.*, 2007; Slater and Pedersen, 2009; Laurent, 2011). More recently, scholars in geography have started to discuss urban green space in European cities from an EJ perspective (Rutt and Gulsrud, 2016; Suárez *et al.*, 2020), evidencing how it may often be indicative of privilege and inequity, especially in relation to unequal access for migrant and low-income communities (Kabisch and Haase, 2014; Liotta *et al.*, 2020). As in the United States, colonization, slavery and imperialism have shaped and continue to shape the contemporary urban European city, their legacy visible today through, for example, recent refugee-related migration crises (Gregson *et al.*, 2016; Pulido, 2017; Benassi *et al.*, 2020). These ongoing effects are best captured by postcolonial theory, which attempts to shift dominant ways of knowing, reorienting knowledge toward perspectives and needs developed outside the West in order to transform historical conditions of exploitation, domination and subordination (Young, 2003). Moreover, postcolonial theory critiques the anthropological theories that have legitimized colonial and imperial rule on the basis of race, in particular the European compulsion to confine the ‘Other’ (Mishra and Hodge, 2005).

The concept of the dominated ‘Other’, which contributes to a ‘relationship of power, domination, and a complex hegemony’ between the Occident and the ‘backwardness’ of the Orient (Said, 1978: 5–7), is still influencing the way modern Europe perceives and treats Far Eastern people (Donzé-Magnier, 2017; Proglia *et al.*, 2021; Hawthorne, 2022). This is exemplified through the territorial stigmatization and policing of migrant neighborhoods in European cities (Wacquant, 2014) or in micro manifestations of everyday stigmatization of Roma groups in racialized urban encounters (Crețan *et al.*, 2022) or Black Europeans throughout the Mediterranean (Hawthorne, 2022). By applying postcolonial theory to ongoing European struggles around racial injustice and access to urban environmental amenities, we hope to contribute to this broader discussion by examining how racial-colonial politics and their contestation unfold through urban renaturing practices (Van Sant *et al.*, 2020). We also aim to illuminate how anti- and de-colonial activism attempts to challenge privilege and power (Young, 2003) in current urban Western cultures.

The role of race in (green) gentrification

Zooming in on race, systems of racial inequity—understood as intersecting and overlapping contexts and social forces (i.e. gender, class, sexuality, income, historical moment)—mutually constitute each other as forms of social differentiation and oppression (Christensen and Jensen, 2012), yet are contested by collective efforts to dismantle them (Owens *et al.*, 2018). We define race as an unstable complex of social meanings undergoing constant transformation through political struggle (Omi and Winant, 2020), implicating power and the imposition of one group’s authority over another (Markus, 2008). In contrast, ethnicity refers to certain shared characteristics, including geographical and ancestral origins, cultural traditions and languages (Bhopal, 2004). In Europe, the equation of race with Black-white relations is claimed to be inadequate (Allen and Macey, 1990), and the concept of race has been almost completely substituted with ethnicity (Bhopal, 2004), a term which historically represents slavery, colonial expansion or labor migration (Jenkins, 1987). Overall, we recognize that race and ethnicity are complex and multidimensional concepts which change over time and are subject to varying interpretations (Bhopal, 2004). Finally, when talking about racialization, we refer to a process of extending racial meaning to a previously racially unclassified practice, relationship or group (Omi and Winant, 2020).

In relation to gentrification studies, some authors lament a general tendency toward the avoidance of racial discourse and the failure to explain how racial conflict

shapes gentrification (Boyd, 2008) in both North America and Europe, as well as a denial of the magnitude of anti-racism claims within anti-gentrification movements (Kirkland, 2008). In fact, much of the traditional gentrification scholarship placed a primary importance on discussions of class (Glass, 1964; Smith, 1996; Slater, 2006). Nonetheless, gentrification may be seen as a racial phenomenon that not only replicates but also amplifies the contemporary system of racial residential segregation (Kirkland, 2008), bringing some scholars to advocate for frameworks such as settler colonialism to explain the racial and colonial structures that shape gentrification today (Kent-Stoll, 2020). Gentrification has indeed most recently been theorized as a product of racial capitalism and defined as a racialized process of class change (Rucks-Ahidiana, 2021), with racial capitalism delineated as an economic system in which race defines value and profit accumulation (Robinson, 2000). Although we do recognize that some gentrification processes include Black or Latino middle-class gentrifiers (Moore, 2009; Patillo, 2010), in some North American cities those middle-class Black and Latino folks seem increasingly unable to remain in gentrifying neighborhoods over the long term (Sutton, 2020).

In this study, we start from a recognition that race and capital play a crucial role in the production of space, and racism cannot be separated from questions of justice and environment (Pulido, 2000; 2017). We focus on urban greening as one process of urban redevelopment that can also play a role in gentrification but within which the implications of racial inequity need to be much more specifically understood. Recent studies have shown how in both Europe and North America the deployment of urban greening has served as a driver, contributor or accelerator toward racialized capital accumulation, and that the displacement of vulnerable groups (Angelo, 2019; Anguelovski *et al.*, 2020) is reproducing a bias across institutions and society that systematically privileges white people and their needs at the expense of people of color (Pulido, 2000). Through a process of urban green grabbing, researchers have shown that real estate actors increasingly locate developments close to green amenities in order to appropriate the financial and social benefits they generate in gentrifying neighborhoods, benefiting mostly wealthy residents at the expense of low-income and racialized communities (García-Lamarca *et al.*, 2022). In response, scholars and activists alike have recently called for decolonizing the green city through practices such as land recognition, redistribution, control and reparations, pointing to the importance of engaging with the histories of dispossession and exclusion of racialized communities (Anguelovski *et al.*, 2021).

In this article, we recognize the need to better identify the perceptions of gentrifying communities around specific forms of racial inequity and racial conflict (Boyd, 2008), especially around enduring and new environmental inequalities. In Europe in particular, race as related to urban greening and green gentrification has largely been overlooked, though there are exceptions (Kabisch and Haase, 2014; Anguelovski and Connolly, 2021). Our study uniquely explores processes of racialization and emerging racial inequities in the context of contemporary green gentrification and their connection to enduring social, racial and environmental inequities as described by community activists and leaders (Lees, 2016; Anguelovski *et al.*, 2019).

Case selection

The data used for this article derives from a larger EU-funded research project exploring inequities in urban greening interventions and projects through qualitative fieldwork in one (in a few cases, two) neighborhood(s) in 24 mid-sized cities undergoing major greening or green infrastructure investment in Europe, Canada and the United States. Preliminary research was initially conducted through a review of the gray literature, media reporting, and analysis of demographic and real estate change in each city and its neighborhoods in order to obtain an understanding of the development,

gentrification and greening dynamics in each place. In addition, the team of researchers built on pre-project relationships with urban academics, activists and city planners to develop an initial understanding of each neighborhood and its greening projects and to build and strengthen field connections and collaborations.

During the fieldwork itself, which took place across the 24 cities between 2018 and 2020, individual researchers spent approximately one month conducting intensive and targeted research in each city/neighborhood. We followed a mapping process through which we identified core planning organizations and agencies, developers, neighborhood community groups and organizations, and relevant spokespersons and community leaders with knowledge and expertise of the topics and socio-environmental dynamics under inquiry. The fieldwork consisted of semi-structured interviews covering this wide range of groups, whereby subsequent interviews followed a snowball sampling technique. We conducted between 25 and 35 interviews per field site, with the goal of representing a diversity of respondents and reaching theoretical saturation. In total, the research team conducted 492 semi-structured interviews with policymakers, planners, real estate developers and community activists and leaders.

Interviews were semi-structured, following a common interview instrument developed for all cities but slightly adjusted by the research team depending on local contexts and greening projects. For all interviews, our full interview instrument included questions about neighborhood change related to greening, green gentrification, planning practice, developers' and investors' strategies in relation to greening, community perceptions of urban greening, and community mobilization for a more just, green neighborhood. The wide majority of interviews were conducted only once and lasted between 45 and 90 minutes. All interviews were recorded, while thorough notes were also taken by each researcher during the interview. Interviews were conducted in the common language of both researcher and interviewee, but all transcriptions were translated into English.

All interviews were later coded based on a complete coding scheme developed by the team of researchers, which included a combination of initial thematic coding refined by grounded theory-based coding. We coded the transcribed interviews and extensive notes using the NVivo software. Regular meetings amongst researchers were conducted to ensure consistent coding and intercoder reliability. We used a mixed inductive-deductive coding approach based on both thematic and grounded theory coding. First, we created a detailed coding scheme based on the main conceptual and analytical themes we sought to understand through the parent project. For example, using this thematic approach, some data were coded as 'Gentrification as trigger for mobilization'. We then used grounded theory to code data more inductively in the main themes that emerged within that particular code.

Following this initial coding, we conducted a second-stage analysis—from which this article draws—in which the team selected a total of seven cities/neighborhoods in the United States and the European Union where race relations and the relevance of race in the context of greening and urban redevelopment were more prevalently discussed and where race seemed particularly relevant in each of the neighborhoods undergoing a process of greening and redevelopment (see Table 1), while still aiming for diversity in the type and geography of the cities.

This second stage of analysis consisted of more targeted coding of 32 semi-structured interviews (13 interviews from three cities in the European Union and 19 from four cities in the USA) with key activists and community leaders discussing experiences of race relations in their greening communities as well as related community activism and demands. Overall, the selected interviews discussed experiences of and mobilization around urban neglect, greening and gentrification from the standpoint of race and ethnicity. During this analysis, we also went back to our full dataset in order to complement our understanding of race relations with contextual and broader data

TABLE 1 Overview and summary of the selected case studies

City/neighborhood	Demographic characteristics (city level)	Historical urban developments	New green developments (mostly 2000s onward)
Lyon (La Guillotière)	13% of the population foreign-born. ^a One of the earliest points of settlement for migrants from Italy, North Africa, Sub-Saharan Africa, Turkey, China and Eastern Europe, among others.	A once ethnically diverse neighborhood and point of reference for refugee communities.	Renovation of existing gardens and creation of new public green spaces in key parts of the centrally located neighborhood. Adjacent riverside redevelopment of an informal parking area into a popular greenway. Progressive move-in of whiter, wealthier and higher-educated residents and new developer schemes popping up around planned green spaces.
Amsterdam (Amsterdam-Noord and Zuidooost)	35% of the population of non-Western origin. ^b Amsterdam-Noord district has third highest percentage of residents with non-Western background, mainly from Turkey and Morocco (Pérez-del-Pulgar, 2021a).	Historically a deprived industrial and working-class area with a strong social housing stock.	Revitalization projects, creation of new public green spaces and large waterfront regeneration plan transforming the district into one of the trendiest and greenest parts of the city. Attracting real estate capital investment, high-income residents and tourism as a result.
Vienna (city-wide analysis)	34.2% of the population foreign-born (City of Vienna, 2023). Residents predominantly from Serbia, Germany, Turkey, Poland and Romania.	A traditional green and livable city praised for its equitable access to green public spaces. A strong commitment to anti-displacement and affordable social housing.	Variety of new urban forests, large parks and micro green spaces together with a revitalized waterfront. Intensified demand for high-end housing, increasing privatization and de commodification pressures for green spaces contributing to recent exclusion of vulnerable groups, especially recently arrived migrants.
Austin (East Austin)	52.2% of residents non-white. ^c	A history of spatial segregation and environmental injustices along racial lines (i.e. redlining in the 1930s onwards) resulting in deeply segregated residential patterns and inequities in relation to access to green space and natural resources. African Americans displaced to East Austin in the early 1990s and exposed to poor environmental and health conditions.	Once a racially marginalized neighborhood suffering from environmental toxins. Has been facing gentrification pressures and displacement of minority residents since the 2000s due to land preservation policies affecting West Austin. Today, Austin is seen as the greenest and most ecological city in Texas, yet with access to green spaces increasingly inequitable (Connolly and Lira, 2021).
Cleveland (Detroit Shoreway)	47.4% of residents Black or African American. ^d	Historically industrial and polluted neighborhood. Decades of economic decline and severe environmental degradation (i.e. high levels of lead poisoning and asthma).	Cleanup of Lake Erie and Cuyahoga River and creation of adjacent parks has led to economic and ecological resurgence through high-end and large-scale developments.

(Continues)

TABLE 1 (Continued)

City/neighborhood	Demographic characteristics (city level)	Historical urban developments	New green developments (mostly 2000s onward)
Washington DC (Anacostia)	<p>62.5% of residents non-white.*</p> <p>The first African American freedman's town in DC, accounting for 70% of Black residents in the 1970s. Due to displacement and gentrification, the percentage of non-Hispanic white residents increased by 31% between 2000 and 2010.[†]</p> <p>Intense residential segregation.</p>	<p>Historically polluted Anacostia River. Significant interracial wealth gaps and class stratification within the African American community.</p> <p>Strong correlation between high poverty rates and areas with most African American residents (Anguelovski et al., 2021).</p>	<p>Anacostia River cleanup and revitalization. 11th Street Bridge Park project presented as an equitable development plan while carrying the risk of displacing long-term low-income residents of color (Anguelovski et al., 2021).</p>
Atlanta (Peopletown and Pittsburgh)	<p>One of the most segregated cities in the United States, with 48.2% Black or African American residents.[‡]</p> <p>Segregation along race and class lines, with further segregation by class among Black residents.</p>	<p>Long history of concentrated urban poverty along racial and class lines. Many environmental injustices (e.g. flooding) alongside a lack of infrastructure and public housing.</p> <p>Pittsburgh neighborhood separated from the rest of the city by highway and train infrastructure leading to a lack of access to jobs and resources.</p>	<p>The Atlanta BeltLine rails-to-trails project as a catalyst for green gentrification leading to increasing property prices and displacement of multi-generational, low-income Black residents from Pittsburgh, Peopletown and other neighborhoods adjacent to the Beltline.</p>

* <https://worldpopulationreview.com/world-cities/lyon-population>
 † <https://www.census.gov/world-populationreview.com/world-cities/amsterdam-population>
 ‡ <https://www.census.gov/quickfacts/table/austincitytexas/PST045221>
 § <https://www.census.gov/quickfacts/clevelandcityohio>
 ¶ <https://www.census.gov/quickfacts/DC>
 †† <https://worldpopulationreview.com/us-cities/washington-dc-population>
 ††† <https://www.census.gov/quickfacts/atlantacitygeorgia> (all sources accessed 25 November 2023)

obtained in our larger set of interviews. These were interviews that did not discuss race relations in great detail yet helped us understand the unequal redevelopment and social tensions in each city.

Denouncing compounded environmental racisms and racial inequities in the greening city

Our analysis uncovers and examines the racial inequities around urban greening reflected upon and expressed by communities affected by gentrification pressures, as well as the role of historical environmental and racial injustices that overlap with ongoing green struggles. We focus on the tensions that emerge from large-scale, municipality-driven greening projects and the related perceptions of civic groups. Some of the neighborhoods under study do have more informal, civic-driven green projects, including urban farms and community gardens, and it is true that we are not reporting on them to a great extent here, although we do recognize that they represent a form of counter-narrative and counter-spatial occupation to the greening projects of each municipality. In sum, we present comparative insights between North American and European landscapes of racial inequity in cities where the top-down, municipality-led greening projects under study have been reported as accelerating, worsening and amplifying social-ecological and other inequalities, while failing to redress historical ones (see Figure 1).

We find that urban greening and the implementation of green amenities may contribute to and accelerate processes of green gentrification to produce a distinct form of racialization—what we call ‘compounded environmental racisms’ (see the summary to Figure 1). This contributes to and worsens racial environmental injustices and acts to further perpetrate green racism in six different yet connected ways: persistent land contamination; ongoing legacies of land theft; exclusive and privileged right to and use of green public space; economic racism and housing discrimination in greening neighborhoods; territorial stigmatization; and lack of political rights and related racial exclusion (Figure 1). Importantly, the different dimensions interrelate and mutually reinforce each other in creating fertile terrain for ongoing racialization processes in the green city. Below, we analyze each dimension and its distinctive features separately, while also pointing out interconnections between them.

– Persisting land contamination and exposure to toxins

Overall, the geography of early industrial pollution and location of toxins is the most referenced example of enduring environmental racism that community respondents reported. Community members in East Austin recount a particularly traumatic history when, in 1928, the city created a masterplan for relocating people of color to East Austin, the section of the city in closest proximity to polluting industries. While white residents benefited from redeveloped and maintained green spaces that promoted healthy living in the greenest sections of West Austin, such as the Barton Creek greenbelt, minorities in East Austin were exposed to poor environmental conditions in a clear expression of institutional racism (interview, environmental activist from East Austin, 2019). It was not until the 1990s that grassroots environmental justice groups managed to fight polluting industries, with the first victory being the successful removal of the Holly Street Power Plant in 1998.

While the concentrated exposure of Black and Brown residents to contamination—seen as an extreme in East Austin but also elsewhere across our North American cases—has been a target of activism for decades, it is essential to begin with an acknowledgment that long-term urban environmental inequalities still endure for racialized residents. Respondents report a continuous exposure to environmental hazards in historically polluted neighborhoods in our case sites, such as South and Southwest Atlanta, Detroit Shoreway in Cleveland, and East Austin. In Atlanta, working-class Black neighborhoods in the city’s South and Southwest areas, such as Peopletown

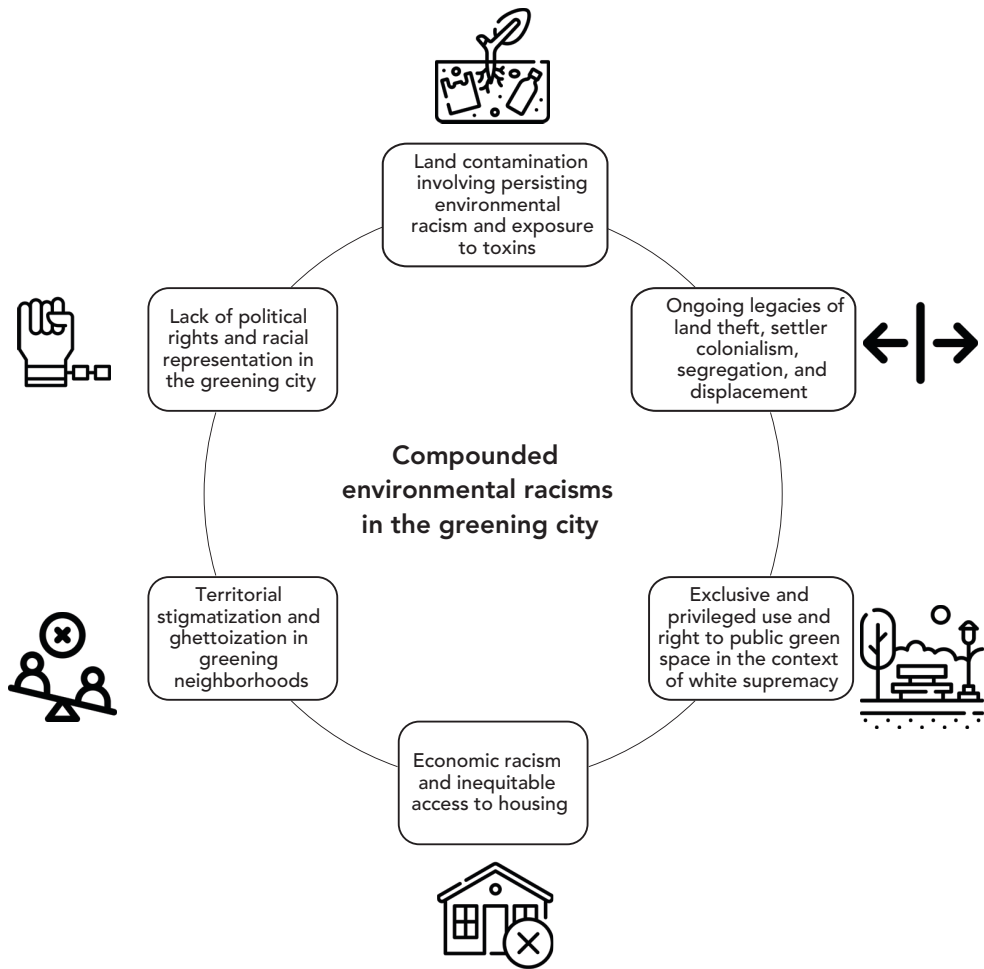


FIGURE 1 Compounded environmental racism in the greening city. These different forms of racism constitute a nexus of compounded environmental racism which are driven and accelerated by urban greening. They impact racialized residents through mutually reinforcing processes in a multitude of pathways and exclusions

and Pittsburgh, also suffer from a lack of gray and green infrastructure, public services and good jobs. In addition, respondents report that these parts of the city bear the consequences of climate-related impacts which remain unmitigated—most notably flooding—and could benefit from green amenities such as parks featuring green resilient infrastructure to help address this issue.

Community members further discussed the relationship between environmental racism and health, such as in Cleveland, with majority-Black residents experiencing high levels of lead poisoning and infant mortality due mostly to permanent exposure to lead in contaminated housepaint, air or water, an everyday gray infrastructure. Although Detroit Shoreway respondents describe lead poisoning as a ‘weird equalizer’ (interview, neighborhood resident leader from Detroit Shoreway, 2019) that everybody struggles with regardless of income or race, not every resident has the time or economic means to move out of contaminated homes and replace contaminated pipes, rugs or furniture.

Moreover, respondents disclose that the capacity to hold landlords accountable for keeping housing up to code and in good conditions is highly dependent on the

socioeconomic characteristics of renters. This is even more challenging in places affected by territorial stigmatization or where residents lack political rights and racial representation in their neighborhood. In Cleveland, activists are therefore mobilizing to demand the urgent mitigation of the unequal effects of exposure to toxins (promoting landlords' accountability and educating residents on lead poisoning health impacts) and organizing trainings about structural and institutional racism, denouncing that communities of color are particularly vulnerable to environmental ills and documenting their health impacts. As one mother explained:

The difference lays in those people that have the income and education and time to deal with it and that are going to come out in a better situation than the ones that can't ... Just by nature of being poor, or by nature of being Black which means you're 70% or whatever more likely to be poor ... we're all equally as likely to get exposed to lead. It's just what will be the result of that exposure will be different (interview, neighborhood resident leader from Detroit Shoreway, 2019).

In the context of the selected European cities, community members denounce environmental racism, often as a manifestation of the Orientalist discourse (Said, 1978), according to which racialized individuals are subordinated and 'deserve' to be exploited, sometimes under the form of global environmental injustices and climate racism, which in turn shapes patterns of sustained migration to Europe. For example, in the views of these respondents, the outsourcing of toxic materials and industries from global North to global South countries and their environmental impacts has caused mass refugee migration to the Netherlands, as one resident from Amsterdam noted:

Refugees come here because we are there [in their countries]. We used to be there as colonialists, slaveholders, and now we are there with our industries still poisoning their ground, their air, their waters. [Those refugees] also feel the consequences of climate change while the [economic gain and] activity is mostly ours (interview, radical left activist from Amsterdam, 2019).

What the interviewed activists demand, therefore, is that these ongoing injustices be acknowledged and that the current practices of environmental degradation inherent in capitalist forms of resource extraction and production be addressed. They also mobilize for a more stable life in the place to which people have migrated, which includes long-term affordable housing and green infrastructure without displacement.

In Vienna, on the other hand, concerns about environmental injustices are articulated around a widening gap between the entitlements of long-term residents versus newcomers, notably recent migrants and refugees. As community members and activists report, while locals enjoy continued access to green amenities and good environmental conditions thanks to regulations protecting their right to housing, working-class and racialized outsiders—many of whom are refugees—tend to be forced into low-quality, low-cost apartments in crowded areas, which tend to be affected by air pollution and noise and have few green amenities.

This disparity is creating a further polarization between longer-term local residents afraid of losing their standard of living (and therefore articulating a recent right-wing political discourse) and newcomers (i.e. recent migrants and refugees) whose living conditions are deteriorating (interview, social worker from Vienna, 2019). Consequently, housing activists seek to revisit the question of whose needs should be addressed and whose rights are protected in greening Vienna, a traditionally 'just city' (Pérez-del-Pulgar, 2021b) hosting an increasing number of refugees and working-class labor migrants. Here, environmental racism is directly related to inequitable access to

quality housing surrounded by green amenities as well as to postcolonial ghettoization affecting migrants from the global South.

- Ongoing legacies of land theft, settler colonialism, segregation and displacement

While continued exposure to contamination and poor environmental conditions remain a paradoxical symptom of urban greening, community members in both Europe and North America also reflected on neighborhood displacement and the associated loss of place as one of the direct negative impacts of green gentrification on racialized groups in their greening neighborhoods.

In the United States, respondents widely discussed institutionalized displacement—or displacement driven by state actors through state policies and plans (Fullilove and Wallace, 2011)—in neighborhoods receiving new green infrastructure, including East Austin and Anacostia or neighborhoods in South and West Atlanta. Displacement is often facilitated by existing zoning laws coupled with new green branding identities resulting from ongoing green (re)development plans, including Imagine Austin in Austin, the 11th Street Bridge Park in Washington DC, and the BeltLine greenway in Atlanta.

Many activists perceive redevelopment as an expression of settler colonialist and settler urbanist land grabbing practices which facilitate the exploitation and expulsion of racialized residents through the revaluation of land and neighborhoods previously seen as undesirable to investment or real estate development. In these cases, the land contamination and exposure to toxins previously mentioned are either substituted by or perpetuated through new practices of colonial land extraction and displacement in the context of greening. For example, in Washington DC:

It's all about land, it's always been about land, who owns the land, who lives on the land, but basically it's like 'ok, we were forced to live on this side of town, we made it home and we've raised our families here, and now all of the sudden you want the land back and you're going to use all these tools to displace us' (interview, public housing resident from Anacostia and former resident of the Barry Farm public housing complex which was demolished in 2019 and is to be replaced by a so-called sustainable mixed-income development located next to the future 11th Street Bridge Park in Washington DC, 2019).

In Europe, the dynamics of urban green redevelopment, revitalization, urban renewal and displacement are also denounced by activists. In Amsterdam, an anti-gentrification activist spoke about the displacement of ethnic groups in Van der Pekbuurt, Amsterdam Noord. Once an industrial working-class neighborhood, it has been transforming into one of the greenest and most desirable parts of the city since the implementation of the New Urban Renewal Strategy (1997), the Master Plan for the Northern Bank of the River IJ (1999), the Neighborhood Plan of Action (ongoing since 2012), the Circular Buiksloterham Plan (2014), and the NDSM Masterplans (started in 2004, with the most recent one in 2020), among others. Among others, these plans aim at reversing the historical spatial concentration of ethnic minorities (mostly from Turkey and Morocco) and low-income residents while investing in both gray and green infrastructure through public space improvements, housing renovation, new luxury housing complexes (built by AM and VolkerWessels), and the conversion of the area into a creative hub with livable green public spaces.

As our research participants point out, waterfront regeneration, together with neighborhood improvement projects and parks such as Overhoeks, the Noorderpark or Buiksloterham, have brought an influx of capital to Amsterdam Noord's historically neglected neighborhoods while pushing away racialized residents in a process of urban renewal and displacement. On the other hand, local activists contest this state-led regeneration project by

advocating for the restoration of quality green infrastructure without state-led gentrification or the expulsion of Turkish and Moroccan minorities through unaffordable living costs, higher rents and ineligibility for social housing in the area. Here, displacement is directly caused by inequitable access to housing, with minorities being kept away, the so-called de-concentration of deprivation (and minority neighborhoods) in Amsterdam, and new high-end developments resulting from greening projects.

An added layer of what respondents identify as socio-cultural disconnection, socio-spatial separation and displacement has been further contributed or accelerated through urban greening and is experienced through more invisible losses in all the case sites, such as a lost sense of belonging, of community ties, and an uneasiness about the changing nature of the neighborhood. For example, one activist from Detroit Shoreway in Cleveland reported experiencing a new kind of socio-spatial re-segregation from recent green gentrification in the neighborhood, caused by the restoration of the Edgewater Park, among other redevelopment efforts:

[In the last ten years] communities and families that have been part of the community for generations have either felt financially, legally or socially pushed out due to either property taxes being raised or literally just going to a store that is suddenly now in their neighborhood and they can't afford to get, you know a, like a \$15, \$20 meal each time they go, so they feel kind of excluded in that way. And a lot of, because of that kind of not feeling welcome in their own neighborhoods, not really attending community organization events in the same way, as more people come in that ... don't have their same background, don't have their same language, don't have their same culture and feeling like their community is being separated (interview, fair-housing activist from Cleveland, 2019).

Lastly, activists in the North American case sites report that the physical displacement of people of color in newly greened neighborhoods occurs in some cases even while green beautifying projects are ongoing, moving them to often contaminated and grayer neighborhoods and reproducing the cycle of environmental racism. In East Austin, once polluting industries were removed, racialized residents were pushed out from the same areas they fought so hard to protect in the first place as a result of the newly increased desirability and livability of their greened neighborhood, whereby the cost of living, property taxes and rents rapidly increased and priced out long-term, lower-income, vulnerable residents. Here, respondents equate green gentrification with new environmental insecurities linked to the displacement of Black and Brown residents to even more contaminated neighborhoods in which struggles for environmental justice around toxins or climate impacts are reproduced and endure:

We no longer have that polluting industry [Holly Street Power Plant] but we've also allowed people of color to be pushed out, they are pushed into areas that don't have the environmental protections that they fought so hard for in their neighborhood in the first place. So yeah, the struggles continue. Maybe [they] are moving further east, or maybe they are moving to suburbs of wherever people of color are being moved out to, but it's the same type of battles (interview, environmental activist from Austin, 2019).

- Exclusive and privileged use and right to public space in the context of white supremacy

A recurring trigger for civic mobilization amongst the European and North American cities studied was that of the prevalence of white privilege, also defined as the unseen, unconscious advantages that white people hold (McIntosh, 1988). From

a postcolonial perspective, white privilege consists of prioritizing Western/white practices as dominant ways of seeing, knowing and behaving. It is illustrated by the persistent unequal treatment and perception of racialized communities when compared to white people, especially in relation to the ‘expected’ aesthetics and design of green and public space and for whom it is created (Young, 2003; Bockman, 2021).

Respondents in several European cities report specific white markers of acceptable behavior and appearance in public green space against those of migrant residents, highlighting the dominance of white aesthetics of green space while demanding a more equitable distribution of decision-making power and representation in green space design and use:

People hanging on a bench with a can are called ‘bad for livability’ and ‘crime’, but then there are people hanging with a can of beer and a nice suit and they are white people enjoying urban life [peacefully]. It’s the same imagery one can do to portray and to criminalize certain aspects of society, and the green is an aesthetic (interview, right-to-housing activist from Amsterdam, 2019).

Community members in Amsterdam and Lyon further discussed white privilege and its resulting exclusion through the lens of politicized discussions over the right to neighborhood public space. Respondents especially commented on privilege in relation to green access and the right to stay put and use green space in the face of exclusionary dynamics. In some cases, public and green places carry special meanings of belonging and place attachment for minorities, such as Place Mazagran in La Guillotière in Lyon, considered one of the earliest points of welcome for migrants from across the Alps, North Africa, Turkey, China and Eastern Europe, among others. As respondents explain, Place Mazagran used to be a lively meeting place for ethnic groups and racial minorities before the neighborhood revitalization plan was proposed in 2010, which demolished several buildings occupied by squatters and migrant families in order to expand and renovate the green space (interview, long-term resident and activist from Lyon, 2019). Another activist describes the recent commodification of Place Mazagran and the micro-segregation by race that takes place there:

By enlarging the square, they created a divide that didn’t exist before. That is, now when you come to Place Mazagran, not everyone is together in the same place as it used to be. It has grown, there are Arabs on one side, Blacks on the other, whites can afford a drink on the terrace ... It really segmented the place into several sectors (interview, anti-gentrification activist from La Guillotière, Lyon, 2019).

According to our respondents, increased police control and video surveillance have also changed the nature and usage of the redeveloped square, further contributing to a change in social dynamics and interactions in public green spaces, and eventually transforming them into an increasingly white normatized and policed space. Nonetheless, some residents highlight the importance of visibilizing and defending the spatial uses of the migrant community within the neighborhood: ‘They are the ones who have maintained a little of this flame of having a neighborhood where we live, where we work, where we consume, where we have social ties, that’s it’ (interview, architect and activist from Lyon, 2019). What activists are organizing around, therefore, is the preservation and recognition of valuable cultural ties and safety for migrant and racialized residents in green spaces, without experiencing fear of being persecuted or discriminated.

In the United States, several activists—in Washington DC and Atlanta in particular—also commented on instances of white privilege and white entitlement, especially when considering the practice of many white groups who move into a historically Black neighborhood and complain about long-established cultural practices

in public green space. As a result, respondents report that many white newcomers impose new expectations, thereby changing local customs and habits. For example, a community leader in DC reports: 'It's a lot of racism, classism, and people coming who think they're entitled and privileged and they can walk over people who have been here [before them]' (anti-gentrification and small-business community development leader, Washington DC, 2019). Long-time community members in both DC and Atlanta also shared feelings of being estranged in their own neighborhood after white residents move in, losing community ties and a sense of belonging in public space. This dispossession of cultural belonging can be seen as part of settler colonial practices and white supremacy, also represented in the redevelopment of the Anacostia River of Washington DC and the development of the Atlanta BeltLine greenway.

In return, such exclusionary dynamics have a strong psychological impact on communities of color, both in the United States and in Europe, including feelings of uprootedness, segregation away from new green amenities built within redevelopment projects, and helplessness. When discussing the Atlanta BeltLine, one resident described children in the neighborhood asking whether the green space is built for white people or for Black people. 'Eight, nine-year-old kid, already engrained that when good things happen, they're not for Black people. That's not the BeltLine, that's America, and that's racism' (interview, local activist from Atlanta advocating for the BeltLine project, 2018). Furthermore, some rebranded places, such as Anacostia in Washington DC, are reported as having a strong historical significance for Black families who were moved into the area as part of urban renewal programs in the 1950s and 1960s. Yet this significance and the associated practices and networks are now perceived as invisibilized in the context of a neighborhood formerly seen as a no-man's-land but now being 'discovered' by developers through green settler colonial practices.

In short, respondents' perceptions reveal that socio-cultural marginalization in public green space represents a form of cultural appropriation and settler colonialism and allows for shifting cultural practices that benefit white residents, with a shared feeling of dispossession, exclusion and marginalization among racialized groups in relation to green and cultural assets. What activists demand instead is a recognition of the land and networks of resilience and care alongside a robust affordable housing policy in historically Black and racialized neighborhoods undergoing green redevelopment.

– Economic racism and inequitable access to housing next to green amenities

For community members, neighborhood greening is also associated with the impossibility of accessing secure affordable housing options due to the economic racism they experience or fear in proximity to green amenities and green (re)developments. In Cleveland, respondents argue that a federal housing program meant to assist low-income families in leasing privately-owned rental housing and to increase racial integration has instead paradoxically contributed to racial segregation because landlords participating in the program usually refuse to rent to African Americans, the majority of whom are single Black mothers (interview, fair-housing activist from Cleveland, 2019). This reality specifically applies to housing in proximity to the redeveloped shoreline of Detroit Shoreway. In Washington DC, housing activists are fighting against similar discrimination experiences, as Anacostia residents attempt to use their rental vouchers to find new housing after being expelled from Barry Farm, the public housing development demolished in 2019 to be replaced by a mixed-housing green development. Examples like these are a clear illustration of mutually reinforcing links between persisting racism and inequitable access to housing.

Further adding complexity to the intersection of greening and unequal access to housing in the United States, community members report that green gentrification has driven the intense stratification of residents by class as well as race, and even within a racialized group. Since gentrification increases property values, it has been shown to

benefit homeowners at the expense of renters, including Black or Latino homeowners (Moore, 2009), who might in turn advocate for green infrastructure projects to further improve their neighborhood (depending on whether they benefit from gentrification or not). This value capture, of course, only benefits those Black or Latino homeowners who are able to stay long enough in their greened neighborhood (i.e. without being priced out by increased property taxes) (Hightower and Fraser, 2020). However, in doing so, Black or Latino residents who accumulate greater generational wealth through home ownership may catalyze the pricing-out and displacement of lower-income Black or Latino renters who don't have access to such generational wealth (Moore, 2009; Sutton, 2020). In the context of the Atlanta BeltLine, for example:

There's a huge class divide in terms of multi-generational Atlantans, in particular poor Atlantans, and the new Black Atlantans that are moving in[to] the city and are benefiting from all the things that are happening. So it's not just about the racial implications of gentrification ... There's definitely a racial wealth divide in this city but there's also a major, there's a class divide (interview, affordable-housing activist from Atlanta, 2019).

Thus at times there is a lack of racial consensus among respondents around the value of environmental clean-up and green projects and their relationship to gentrification and the long-term racial composition of a neighborhood, as in the case of the Anacostia River clean-up and the 11th Street Bridge Park project in Washington. Some middle-class Black residents argue that green revitalization initiatives will benefit a broader community, while working-class Black residents tend to distrust them because of fears of displacement, claiming that 'urban renewal is urban removal' (interview, community leader from Anacostia, 2019). In the view of working-class Blacks: 'Black people can't be gentrifiers because gentrification is about wealth and ... Black people have been marginalized [from] all different class backgrounds because of racism, and Black residents will end up losing out in the mid-term' (interview, community leader DC, 2019). Recent research in the United States indeed shows that Black middle-class residents themselves risk being displaced over the medium- and long-term and that over time there is a declining share of Black and Latino populations in gentrifying neighborhoods (Sutton, 2020).

In European cities, including Amsterdam and Vienna, respondents regret the dismantling of subsidized housing protections, despite these cities' historical commitment to and provision of secure and affordable housing. Respondents in Vienna talked about the obstacles to refugees and migrants accessing affordable or social housing located in new developments that feature livable green spaces and amenities (e.g. small urban gardening projects), park restorations and the waterfront revitalization of the Danube Canal. This is due to the recent implementation of discriminatory regulations which exclude non-long-term Vienna residents (including refugees) from the eligibility criteria for subsidized housing, allocated via the Vienna Living Ticket. A minimum requirement is registration at the same address for at least two years, and there is a contentious bonus condition that privileges citizens who have lived in the city for more than five years, thereby penalizing low-income newcomers, particularly migrants in urgent need of affordable housing (Pérez-del-Pulgar, 2021b).

Thus, while housing regulations guarantee subsidized housing, unlimited contracts and regulated rents for long-term tenants, low-income newcomers lack access to council housing due to their immigration status and are often forced into the private housing market. Private housing is characterized by higher prices, shorter leases, insecure relationships with landlords, and less access to green spaces and amenities. Consequently, a lack of political rights and representation together with 'nativist' politics results in inequitable access to housing in Vienna. In response, undocumented

migrants employ a variety of strategies to access housing. For example, in Amsterdam, some migrants squat or occupy vacant buildings and spaces, such as the members of the collective ‘We Are Here’ in Amsterdam, and they campaign for the rights of undocumented migrants. They also keep moving from one place to another, including improvising tents in church gardens and seeking shelter in public green spaces (interview, activist working for the rights of undocumented migrants in Amsterdam, 2019).

Some activists and residents also reflected on the inadequacy of new housing construction typical of urban renewal in the greened neighborhoods. In both Van der Perkbuurt (Amsterdam Noord) and La Guillotière (Lyon), they remarked that units are generally small and only suitable for one person or young gentrifying couples rather than families. In parallel, they denounced the fact that existing working-class public or affordable housing is being privatized and renovated with the aim of attracting wealthier people and real estate capital investment. As an Amsterdam activist reported:

Traditional people who lived here from Turkey and Morocco, they are all gone ... The ones that do not come back [after renovation] are these ethnic groups. It has to do with the fact that they cannot pay it, the [renovated] houses are not fit for big families anymore (interview, anti-gentrification activist and artist from Amsterdam, 2019).

Similarly, in Lyon activists noted that the new social housing units in La Guillotière are not suitable for the larger families who historically inhabited the area, causing a large-scale displacement of working-class and migrant resident families:

So even if we respect the right quota of social housing, we deport these large families. Through this expulsion it is clearly the working classes and people with an immigrant background who are targeted. These social housing units are more greatly available for newcomers, for young couples who have just graduated from school (interview, anti-gentrification activist from Lyon, 2019).

What activists demand instead is a more accessible system of social housing for racialized newcomers and refugees and a restructuring of housing facilities in order to make them more appropriate for families, while maintaining proximity to green spaces and improving inclusivity within them.

– Territorial stigmatization and ghettoization in greening neighborhoods
Territorial stigmatization, a collective, generally negative and stereotyped representation fastened onto place (Wacquant *et al.*, 2014), and processes of ghettoization intended as the spatial confinement of a poor minority population inside an area of attenuated opportunity (Galster, 1999) are all discriminatory social practices that are frequently described in the interviews of both European and North American respondents, often in relation to colonial legacies. Although greening (and even gentrification) is prescribed by planners and elected officials as a means of undoing this historical stigmatization, for many respondents greening is actually experienced as a way of obscuring or extending existing territorial stigmatization and ghettoization.

For example, Amsterdam activists talk about the continued racial and social stratification in the Bijlmer district—infamous as a poor Black neighborhood and the site of a large migration following Suriname’s independence from the Netherlands in the 1970s—which is hosting new green developments such as the greenbelt around the Nelson Mandela Park. Here, postcolonial relations of power are reproduced today at the neighborhood and citywide scale. Bijlmer residents from the former colonies of the Netherlands (especially Nigeria and Ghana) denounce not being entitled to experience the neighborhood and its

green amenities to the same extent as native Dutch residents, even if they have lived in the neighborhood for more than 50 years. As one Bijlmer resident explained:

In general people are still kept poor, dependent, as racism is still systemic and being maintained actively ... This is a cultural, political, social and psychological thing to keep people down (interview, radical left activist from Amsterdam, 2019).

The legacy of the European colonial past is also reported in municipality-led green real estate development, such as in Noorderpark in Amsterdam, where anti-gentrification activists remarked that some buildings—in the new high-end area of the Overhoeks—have been named after the ships sailing across the oceans during the slavery trade. In Lyon, activists expressed concern about the name of Place Mazagran, which refers to a battle in Algeria and therefore evokes a colonialist past. Examples of active repression and spatial subordination are further exemplified by activists' reports of specific xenophobic political parties at the national level advocating against Moroccan migrants and refugees (interview, fair-city activist from Amsterdam, 2019).

In the selected North American neighborhoods, respondents portray ghettoization as the ongoing legacy of the Jim Crow laws, which legalized segregation and white flight from racially diverse neighborhoods in the 1960s and 1970s. As an activist from Washington DC explained: 'as soon as Black people could start living where they want to live, then white people left and the resources left with them and they created these intense pockets of poverty and the ghettos as we now know' (interview, neighborhood resident leader from Anacostia, Washington DC, 2019). As a result, today the Anacostia neighborhood has no green space or tree canopy nor a well-maintained and amenity-resourced river shoreline, particularly in comparison to the white-majority Navy Yard neighborhood across the Anacostia river. Even though the 11th Street Bridge park project is envisioned as a tool to reconnect both sides of a divided river and "re-engage" the local community with the river, many residents and community workers denounce that their neighborhood is often pointed at as drug- and violent crime-ridden area of the district of Washington.

In Atlanta, respondents argue that racial segregation and decades of neglect left the city's South and Southwest with poor transportation infrastructure, services, jobs or access to inclusive, maintained green spaces. As one community activist reported: 'The city's totally underfunded, and we don't have enough resources and there has been massive disinvestment in particular communities due to racial injustice' (interview, activist and local leader from Anacostia, Washington DC, 2018). Notably, Black neighborhoods were physically separated from inner-city financial opportunities and subsequently became degraded and resource-constrained when highway infrastructure was built in the 1950s and 1960s to connect white families living in the suburbs to jobs in the center of the city. Later improvements to the rail transit system in Atlanta were opposed by white suburban residents to 'protect' their greener, wealthier neighborhood(s) from poor urban Black residents. Consequently, today many of the suburbs to which Atlanta's racialized communities are displaced lack public transit as well as accessible and maintained green space, producing new cycles of territorial stigma.

Other neighborhoods in the study, such as East Cleveland, have seen a dramatic demographic change between the 1950s and 1970s, not only due to white flight but also because of the 'blockbusting' fear tactic, whereby developers and real estate agents convince white residents to sell their properties at below-market prices, claiming that Black and migrant communities would soon move into the neighborhood, leading to a decrease in housing values and bringing new stigmas associated with a diverse racial composition. The same property would then be sold at a higher price to Black families seeking upward mobility, creating a dual housing market; a phenomenon mentioned in both Cleveland and Washington. These neighborhoods are now often being greened and white gentrified in

some new form of “greenlining” process (Anguelovski, 2015). As noted by an activist from Cleveland: ‘the legacy of intentional [housing] segregation that’s taken place in the United States has never really been undone’ (interview, fair-housing activist, 2019).

By remaining unacknowledged, the outcomes of this legacy can be used as a pretense for interventions that generate green gentrification—a complex tale that portrays top-down urban greening as recompense for wrongdoings, while at the same time perpetuating a pattern of racialized fear-mongering and manipulation. What civic activists demand instead is an acknowledgment of and, to some extent, reparation for the enduring injustices related to the discriminatory and racist housing and environmental policies in the country:

It really is about ... being open and willing to have those very complex and very complicated, painful conversations ... It’s important to make sure community members understand that you see all of those injustices and understand that they are not equal, that they have been propagated onto communities of color in a much different way (interview, environmental activist from Austin, 2019).

– Lack of political rights or racial representation in the greening city

Last, community members in several of the analyzed cities, including Austin, Atlanta and Cleveland, reported structural racism as a significant challenge to participation in environmental policymaking and decision-making processes, especially in the United States. In Austin, activists lamented the lack of involvement of people of color in the comprehensive city plan called *Imagine Austin*,¹ intended to be driven by ideas and inputs from Austin residents. In their view, limited voice was given to communities of color who have been driving positive environmental change in the city with no recognition of their efforts. ‘People of color who are being impacted are not the ones driving the change. And that’s an environmental issue in my mind’ (interview, environmental activist from Austin, 2019). In Atlanta, despite a succession of Black mayors and other Black politicians since the 1970s, community members pointed out that the Black elected leaders have often voted and made decisions with the needs of wealthy white communities in mind. This issue of representation separates working-class Black residents from wealthy Black elected officials.

The lack of political power and the continued structural racism in representing racialized residents is also reported with regards to the leadership and decision-making in non-profit environmental groups and organizations. In Atlanta, many respondents regret that the membership of environmental organizations remains predominantly white, while voices from the front-line communities that face environmental hazards are largely absent from the planning of green projects: ‘In a majority African American city, we’ve only had one leader of the BeltLine of African descent, all the other leaders have been white males’ (interview, Atlanta resident, 2018). Similarly, in Cleveland residents reported that the board of the Detroit Shoreway Community Development Organization, a major force for organizing park development and maintenance within the community, has been mostly white. However, this non-profit has recently attempted to shift its focus onto racial equity and inclusion, while reviewing ‘the impact of white privilege and how that has systematically and historically defined the programs and the policies that have been in place for 400 years in America’ (interview, neighborhood resident leader from Detroit Shoreway, Cleveland, 2019).

Perceptions of a lack of political power and racial exclusion are exemplified by impressions that neighborhoods can change for the better only when white gentrifiers move in and demand certain transformations. As an example, in the United States

¹ See <https://www.austintexas.gov/department/about-imagine-austin> (accessed 25 November 2023).

long-standing concerns within Black communities, such as the opioid crisis, access to healthy food in Cleveland, or access to inclusive green space, are reported as being addressed only once they become a white issue:

Basically, we all kinda want the same things, we want safe neighborhoods, we want fresh grocery stores, we want nice places to eat, nice places to shop. But it should be what we as the people who've been here for so long, you know we've been asking for these things for years, we've been asking for the same things. And you, now you're saying the only way we can get it is if somebody who makes more money comes in and then it's going to be catered to what they want. It's just racist, it's wrong (interview, public housing resident from Anacostia, Washington DC, 2019).

In Europe, some cities have demonstrated an ability to employ strategies aimed at involving migrant communities in both green and social policies. In Vienna, municipal officers include more vulnerable residents in urban greening projects in a way that can help counter gentrification, especially following completion of the development. As explained by one respondent:

You have populations there that don't want any change, that are not able to adapt, that are not easy to talk to, but you need to get along with in order to ... improve the city in a holistic way ... A lot of migrant communities ... we didn't know how to reach at all. So we developed a lot of tools (interview, social worker from Vienna, 2019).

The tools mentioned by this interviewee include: meeting families in an open space while conducting workshops; employing accessible technology to illustrate the benefits of a smart green city; organizing quizzes and games for children related to environmental topics; and offering a free trial of e-bikes in order to teach about eco-mobility.

Nonetheless, working-class and minority residents in the selected European cities struggle to access available financial support from the government in order to develop community-led green initiatives, and they blame their failure to do so on their lack of knowledge, representation, power and outreach capacity. Their mobilization and organizing capacity have been much less visible and effective in comparison with movements such as Black Lives Matter in the United States, for example. In addition, issues such as economic racism or discrimination around access to housing often impact people's ability to participate in decision-making processes related to broader community (re)development issues, thus limiting political participation within migrant and minority communities.

In Vienna, for example, residents lamented that racialized communities required greater political mobilization and power-building in order to fight for the improvements that were desperately needed (interview, resident from Vienna, 2019). Moreover, activists working with communities in Amsterdam, Vienna and Lyon reported that reaching out to migrant communities is challenging, as these groups either do not seem to be interested in taking an active part in environmental initiatives, or lack the means to do so, having other, more immediate priorities to address. As one respondent in Lyon explained:

It's kind of hard to project yourself in improving the place ... when you just have trouble to find what to eat. And this is a general concern, and it's very hard to involve people that are just too busy finding a way to live (interview, collaborative planning facilitator from Lyon, 2019).

Last, in regard to broader fights for urban green justice, in American cities, respondents highlight how fighting for justice in housing or employment is itself climate and

environmental justice work, and that those fights cannot be separated from climate resilience work. In most of the cities examined, several multi-stakeholder and multi-expertise coalitions are fighting for equitable development through greening, building community infrastructure against environmental racism, gentrification and displacement, as some of our other research examines in greater depth (e.g. Oscilowicz *et al.*, 2023). In Europe, individual civic groups and even coalitions of activists are not articulating a broader urban green justice agenda, except around questions of green retrofits and access to secure, upgraded housing.

Discussion

Our research examines the racial dimensions of urban greening, shedding new light on gentrification and the dynamics of racialized exclusion from the perspective of civic activists and community leaders whose neighborhoods have been a site of concentrated new or redeveloped green amenities in selected American and European cities. Overall, we find that urban renewal anchored in greening and the (re)development of green amenities can worsen racial injustices and further embed persisting racial inequalities and racism into green infrastructure projects due to compounded environmental racism. These manifest in six combined and connected processes of: land contamination and continued exposure to toxins; ongoing legacies of land theft, settler colonialism and displacement; exclusive and privileged use of and right to public green space; economic racism and inequitable access to housing; territorial stigmatization and ghettoization; and lack of political rights in the greening city.

Our results empirically and conceptually expand previous research on racial inequalities at the intersection of improved neighborhood environmental amenities (Agyeman, 2013; Connolly and Anguelovski, 2021), access to affordable and safe housing (Immergluck and Balan, 2018; Klein *et al.*, 2020), political rights (Triguero-Mas and Kellogg, 2021), and cultural preservation (Hyra, 2017; Summers, 2019). They show how racialized groups often bear the weight of cumulative, overlapping environmental disadvantages in greening neighborhoods, creating complex forms of oppression (Ackerly and True, 2020) and re-colonizing practices (Safransky, 2014; 2016). It also expands the existing literature on green gentrification (Rigolon and Németh, 2020; Anguelovski *et al.*, 2022) by illuminating the racial dimensions of exclusion embedded in the greening process.

Our analysis specifically reveals the contradictory dynamics of green urban renewal and urban greening across international landscapes. On the one hand, it is true across the board that new urban green developments provide higher quality infrastructure in historically neglected and segregated neighborhoods. On the other hand, however, we highlight that urban greening is also feared by residents and activists due to the increased risk of displacement—both state-led and driven by housing costs—particularly of racialized residents; a result that further builds on recent findings regarding gentrification-led racial displacement in Europe (Annunziata and Lees, 2016) and in the United States (Hyra, 2017; Summers, 2019; Sutton, 2020).

Displacements resulting from land clean-up projects in distressed urban neighborhoods often turn new environmental amenities into what are known as Green Locally Unwanted Land Uses (GreenLULUs; Anguelovski, 2016) or disruptive green landscapes (Triguero-Mas *et al.*, 2021) that socio-culturally divide, displace and even re-segregate racialized communities through the production of “urban green sacrifice zones” (Anguelovski and Connolly, In Press). We also find that this disruption is particularly acute because white privilege and supremacy forms part of the design and dynamics of using public green spaces, a phenomenon which has been called ‘green privilege’ (Anguelovski, 2016) or ‘environmental privilege’ (Argüelles, 2021). The severity of this phenomenon is further perpetuated by the appropriation of green rent gaps, as developers extract financial and aesthetic value from adjacent green spaces through increased housing prices, in a process of urban green grabbing (García-Lamarca

et al., 2022). Thus, both during and after successful fights against land contamination, vulnerable residents find themselves fighting the double challenge of displacement from or within their neighborhood to grayer, more contaminated and insecure housing and neighborhoods, exemplifying the production and perpetuation of complex environmental risks (Cole *et al.*, 2021).

In addition, our work builds on previous research by arguing that new green spaces and amenities, together with the consequent changing character of neighborhoods, run the risk of leaving long-term residents culturally excluded and alienated from places they used to belong to (Shokry *et al.*, 2023), compounded by the fear of being priced out of their housing (Oscilowicz *et al.*, 2020; Shokry *et al.*, 2021). Complex issues of identity, historical injustice, and current processes of place-making and place disruption all intersect in the responses of racialized communities to urban green developments. The frequent occurrence of discourses around colonialism and settler colonialism in interviews demonstrates the ongoing relevance of these dynamics for studies on urban greening and green gentrification.

From an international comparative standpoint, the narratives of activists reveal that racial injustices play out both similarly and differently in North America and Europe (see Table 2). On the one hand, enduring injustices related to historical environmental struggles and the legacy of colonial and racialized pasts are still influencing the way community members in both regions approach and perceive the green spaces around them. Across our data, white privilege emerged as a continuous structural component of greened urban space (Pulido, 2000), manifesting in differing degrees of institutionalized severity and spatial dynamics in American and European cities and demonstrating that the greening of cities is reproduced through racialized logics, similarly to other processes of urban redevelopment (Heynen *et al.*, 2006).

Our analysis thus shows that gentrification studies—and green gentrification studies in particular—need to explicitly center race relations (Rucks-Ahidiana, 2021) and visibilize the permanence of layered colonial practices in the United States and Europe. Within this context, greening is not only whitening, but may also continue the practice of settling (Porter *et al.*, 2020) through dispossession and displacement as a result of land redevelopment and green gentrification in American cities (Safransky, 2014) and through the practice of discriminating against migrants who have moved from former colonies to European cities and excluding them from green public spaces and social housing (Hawthorne, 2022). All the emerging threads demonstrate the relevance of racial issues and the pressing need to address them, not only in relation to urban greening, but also with regards to that other vital infrastructure that allows residents to remain in place: affordable, healthy and secure housing.

On the other hand, the specific legacy of historical injustice which characterizes each country (Simpson and Bagelman, 2018; Porter *et al.*, 2020; Van Sant *et al.*, 2020) is strongly felt within our case sites. In Europe, as mentioned, a strong colonial past permeates race relations in both Amsterdam (Netherlands) and Lyon (France). This is particularly the case in terms of the discrimination that migrant groups bear in different social, political and economic spheres of urban life, thus reproducing the patterns of domination and subordination characteristic of postcolonial relations (Young, 1998). Discrimination is also emerging in progressive cities without a colonial past such as Vienna (Austria) in terms of unequal access to social housing for new migrants.

Furthermore, historical differences between different European cities are reflected in the ways through which community activists are able to articulate their claims around racial tensions and access to the green city. Colonial legacies seem particularly strongly felt in cities such as Lyon or Amsterdam, where mass migration flows between the former colonies and the colonial French and Dutch ex-empires are still shaping green exclusions and racial discrimination. In the United States, past racial injustices revolving around exposure to toxins and racial segregation similarly

TABLE 2 A comparative overview of racial injustices and compounded environmental racism (RICER) in selected EU and US greening cities and neighborhoods

	European Union	United States
Land contamination; persisting environmental racism and exposure to toxins.	Mass refugee migration (especially from Ghana, Nigeria and West Africa more generally) to Amsterdam Zuidoost (in particular Bijlmer) due to the outsourcing of toxic materials. High percentage of population of Turkish and Moroccan origin living in neighborhoods exposed to land contamination in Amsterdam Noord.	Continued exposure to contamination, poor environmental conditions and uneven neighborhood redevelopment and greening in East versus West Austin, for instance, as well as in the case of Detroit Shoreway in Cleveland, where green spaces such as Edgewater Park are located in the whiter part of the neighborhood and attract in a white middle-/high-income population.
Ongoing legacies of land theft, settler colonialism, segregation and displacement.	Denunciation of perpetuating colonialism through the displacement of ethnic groups (mostly from Turkey and Morocco) from Van der Pekbuurt (Amsterdam Noord) to grayer neighborhoods and their exclusion from the benefits of greening in Bijlmer (Amsterdam Zuidoost). Legacies connected to urban renewal and the politics of 'regeneration' projects such as Overhoeks, Noorderpark or Bulksloterham in Amsterdam Noord.	Discrimination in environmental policymaking and planning in the case of new green amenities in Austin (Imagine Austin Plan), Atlanta (The BeltLine, seen in the inappropriate decisions made about racist artwork on display along the BeltLine in predominantly Black neighborhoods) and Cleveland (Edgewater Park and the unequal provision of green spaces in the rest of the neighborhood). Denunciation of continuing environmental injustice and racism, for example, in Cleveland, Washington DC, and in South and Southwest Atlanta where residents continually speak out against the lack of intervention for controlling flooding and related exposures in predominantly Black neighborhoods, or the Detroit Shoreway neighborhood in Cleveland.
Exclusive and privileged use and right to public green space in the context of white supremacy.	Exclusionary development and displacement due to the changing character of neighborhoods and the socio-spatial division of communities, as with Place Mazagran in Lyon or in Amsterdam Noord (affecting Turkish and Moroccan communities in particular). Perception of green spaces as belonging to privileged white residents and responding to their cultural codes and norms, as with Place Mazagran in Lyon or Noorderpark in Amsterdam.	Institutional displacement related to zoning laws coupled with new green identities and development, including Imagine Austin, the 11th Street Bridge Park in Anacostia, or the BeltLine in Atlanta. Displacement pressures related to increasing housing and services prices, a lost sense of belonging and community ties and emotional displacement, as in the case of Edgewater Park's restoration in Cleveland or development of the 11th Street Bridge Park in Anacostia, Washington DC.
Economic racism and inequitable access to housing.	Discrimination in access to new housing and poor access to affordable and secure housing in redeveloped areas in Vienna, Amsterdam Noord and Lyon (Place Mazagran).	Cultural appropriation of green spaces and patterns of white supremacy in their use. Wealth accumulation benefitting white residents and privileging their needs in the use of public space, as with the Atlanta BeltLine, where Black residents perceive the amenity as responding to the desires of white people only. Environmental improvements reserved for white people, for example in West Austin, or in the case of the Atlanta BeltLine (i.e. the displacement of Black residents due to rising prices and a lack of protective policies and the use of racial profiling by police along the BeltLine). Strong legacy of housing segregation and new housing exclusions, as in Cleveland and Washington DC.

(Continues)

TABLE 2 (Continued)

	European Union	United States
Territorial stigmatization and ghettoization in greening neighborhoods.	<p>Racialized stigmatization following the continued migration flows from former colonies as in Amsterdam or Lyon.</p> <p>Postcolonial relations of power reproduced in municipality-led green developments in Lyon, Amsterdam and Vienna.</p>	<p>Legacy of intentional housing segregation, racial segregation policies, white flight, blockbusting and other fear tactics bringing new stigmas associated with racially diverse neighborhoods, which also suffer from enduring under-investment in resources and infrastructure. Examples include East Cleveland and Anacostia in Washington DC.</p>
Lack of political rights and racial representation in the greening city.	<p>Lack of representation and participation due to absence of social capital and more pressing survival needs, as reported in Lyon, Amsterdam and Vienna.</p>	<p>Racial marginalization in power positions related to environmental planning and neighborhood redevelopment in Austin, Cleveland and Atlanta (for instance, in the lack of Black leadership among those planning the BeltLine and the extremely late integration of an equity officer into the organization managing the BeltLine).</p>

shape ongoing struggles around gentrification and equity in green infrastructure. Moreover, we also find that class tensions within racialized American communities further stratify gentrification processes, demonstrating that more scholarly attention should be paid to internal relations within African American communities and other community populations of color in order to understand the full range of social tensions in gentrification dynamics (Boyd, 2008) and equitable access to the benefits of the green city.

Finally, we found some deeper differences between Europe and the United States in civic mobilization around racial and green justice in relation to what triggers activism and the historical social and environmental contexts in which activists operate. In Europe, municipalities still seem to overlook racial equity and environmental justice in equity-driven planning and policy interventions and, when they do work toward these goals, they tend to mobilize legal grounds and to use income and class as the key measure of territorial difference and subsequent investment. Some cities, such as Amsterdam, operate to de-concentrate (yet uproot) their racialized residents and neighborhoods as they green districts such as Amsterdam Noord.

In the European cases, local migrant groups still do not have a political voice or organizing power around which they can mobilize, especially when environmental inequalities and racism issues are at stake. In the United States, in contrast, both activists and planners mobilize the lenses of environmental justice and anti-racism. Community groups have been able to articulate broader equity claims in the city administrations and beyond, often supported by a progressive political environment and by ample civic mobilization as part of movements such as Black Lives Matter. While the analysis of concrete mobilization strategies lies outside the scope of this article, their exploration should be the subject of further research.

Conclusions

This article constitutes a unique, layered, international analysis of the links between urban greening, gentrification and racial exclusion in selected North American and European cities from the perspective of community members and activists. We show that urban greening can worsen racial injustices and further perpetrate a plurality of compounded environmental racisms, revealing persisting racial inequalities around green infrastructure projects and associated access to environmental benefits, affordable housing, political rights and cultural protection. Moreover, we found that historical injustices related to environmental struggles and colonial legacies together with new urban colonizing practices shape how people interact with and perceive the green spaces around them, demonstrating the relevance of postcolonial and settler colonial lenses for scholarship on (green) gentrification. Past injustices and suffering that have shaped urban development are not erased by the green developments; rather, they are exacerbated in new forms of social and political power struggles and compounded environmental racisms.

As cities around the world increasingly 'go green', more attention must be paid to new racial inequities arising from or being aggravated by green development initiatives. Persisting racial disparities continue to define many communities, with shared feelings of dispossession, exclusion, marginalization and re-segregation. The provision of environmental amenities must therefore be accompanied by urban policy and community interventions that aim to mitigate the negative externalities of greening by addressing both displacement impacts as well as the accessibility and inclusivity of green space in marginalized neighborhoods. Examples include a variety of funding schemes and land use tools to help support vulnerable tenants and homeowners including non-profit and affordable housing or special zoning protections, among others (Oscilowicz *et al.*, 2021).

We also call here for the application of decolonial and emancipatory lenses to the green city through new spatial planning practices, embracing land recognition, redistribution, control and reparations, as called for by many respondents, while engaging with histories of dispossession and recognizing community networks of care (Anguelovski *et al.*, 2020; Ranganathan and Bratman, 2021). Without securing a right to place and a right to return, the green city will remain the domain of white and green privilege.

Emilia Lewartowska, Department of Social Sciences and Business, Roskilde University, Universitetsvej 1, Roskilde 4000, Denmark, e.lewartowska@gmail.com

Isabelle Anguelovski Institute of Environmental Science and Technology (ICTA), Universitat Autònoma de Barcelona, Carrer de les Columnes s/n, Campus UAB, Edifici ICTA-ICP, 08193 Cerdanyola del Vallès, Barcelona, Catalunya, Spain, isabelle.anguelovski@uab.cat

Emilia Oscilowicz, Institute of Environmental Sciences and Technology (ICTA), Universitat Autònoma de Barcelona, Carrer de les Columnes s/n, Campus UAB, Edifici ICTA-ICP, 08193 Cerdanyola del Vallès, Barcelona, Catalunya, Spain, emilia.oscilowicz@uab.cat

Margarita Triguero-Mas, Institute of Environmental Sciences and Technology (ICTA), Universitat Autònoma de Barcelona, Carrer de les Columnes s/n, Campus UAB, Edifici ICTA-ICP, 08193 Cerdanyola del Vallès, Barcelona, Catalunya, Spain, margarita.triguero@uab.cat

Helen Cole, Institute of Environmental Sciences and Technology (ICTA), Universitat Autònoma de Barcelona, Carrer de les Columnes s/n, Campus UAB, Edifici ICTA-ICP, 08193 Cerdanyola del Vallès, Barcelona, Catalunya, Spain, helen.cole@uab.cat

Galia Shokry, Department of Environmental and Sustainability Sciences, Kean University, 1000 Morris Avenue, Union, NJ 07083, USA, galia.shokry@uab.cat

Carmen Pérez-del-Pulgar, Helmholtz-Centre for Environmental Research (UFZ), Permoserstr. 15, 04318, Leipzig, Sachsen, Germany, carmen.ppulgar@ufz.de

James JT Connolly, School of Community and Regional Planning, University of British Columbia, 6333 Memorial Road, Vancouver, BC V6T 1Z2, Canada, jconnoll@mail.ubc.ca

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