



## Original article

## Greening plans as (re)presentation of the city: Toward an inclusive and gender-sensitive approach to urban greenspaces

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## ABSTRACT

Cities around the world are increasingly expanding their sustainability agendas and adopting urban green and blue infrastructure planning as a strategy to become more resilient, healthy and sustainable. However, the development of urban greening governance often lacks a holistic vision that considers social inequities within the planning, implementation and management of green and blue spaces. Further, gender inequities have been a specific dimension particularly overlooked in urban greening planning, despite gender concerns gaining increasing political relevance in recent years. In this research, we assessed the extent to which social and gender equity are being considered in urban greening plans and projects at the local level. We chose Barcelona (Spain) as main case study due to its pioneering role in implementing crosscutting equity and gender policies at the municipal level. Building on document analysis and semi-structured interviews with key stakeholders, we examined how social justice and gender are understood and operationalized in practice, from the design phase to implementation and maintenance of greening projects. Our findings suggest a shift in the role of urban greening which evolved from an ornamental role to a multifunctional vision of greening and is recently incorporating equity and inclusivity concerns. We identified three action areas of inclusive, gender-sensitive urban green planning practices: first, the incorporation of inclusivity and care as guiding visible values to recognize multiple needs of city residents; second, urban design for different uses and perceptions of greenspaces, particularly in relation to accessibility and autonomy; and third, the awareness and expertise from municipal staff vis-à-vis the consideration of social and gender equity in green planning and participatory approaches. Finally, we provide practical examples of the strategies that the City of Barcelona is implementing in each area and discuss some challenges and limitations, including what we identify as *ad hoc* intersectional greening.

## 1. Introduction

Urban greening is gaining more and more prominence in municipal policies. Cities worldwide are expanding their sustainability agendas through the planning and implementation of urban green and blue spaces to address different environmental and social challenges like adapting to climate change, protecting biodiversity, improving citizens' health and wellbeing, and creating spaces for social interaction and recreation opportunities, among others. As part of this trend, concepts such as Urban Green Infrastructure (UGI), Ecosystem Services (ES), and Nature-based Solutions (NbS) have been incorporated into many official city plans. Such frameworks have been especially integrated by Global

North local governments, often in response to international directives, strategies, and awards (Grădinaru and Hersperger, 2019; Lindley et al., 2018; Matsler et al., 2021; Neidig et al., 2022; Pauleit et al., 2018). As part of this trend, for instance, the EU's biodiversity strategy for 2030 has recently called for European cities of more than 20,000 inhabitants to "develop ambitious urban greening plans by the end of 2021" (European Commission, 2021).

Urban plans of all types often have significant implications in terms of social and environmental justice (Cortinovis and Geneletti, 2018; Grabowski et al., 2023) and yet, green planning has often lacked an equity perspective (Grădinaru et al., 2023; Hansen et al., 2022; Pearsall and Pierce, 2010). In recent years, there has been an increasing interest

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in how urban greening is not neutral in front of pre-existing social inequities (e.g., Schell et al., 2020) and how (green) planning practices can trigger or exacerbate such inequities among marginalized and socially vulnerable groups (Anguelovski et al., 2020; Wolch et al., 2014). Environmental justice scholarship has produced increasing evidence that some vulnerable social groups face injustices in cities' green transformation: they are more exposed to environmental hazards, experience more disadvantages in the benefits from UGI and lack agency to participate in city making processes (Agyeman, 2013; Haase et al., 2017; Wachsmuth and Angelo, 2018). The assumption that greenspaces in cities are always win-win interventions has been thoroughly questioned, problematizing so-called "sustainability fixes" and calling for a re-politization of urban greening (Diep et al., 2022, 2022; Kotsila et al., 2020a; Neidig et al., 2022; Rutt and Gulsrud, 2016).

However, far too little attention has been paid to how gender inequities in particular are reproduced in the use and planning of UGI and to how such inequities should be considered through a feminist lens in the design of (green) cities (Bella, 2023). Indeed, research shows that women and girls tend to use and perceive greenspaces differently, for instance by being discouraged from developing certain activities or spending time in parks (Fernández Núñez et al., 2022). We draw here on environmental justice (Buckingham, 2016; MacGregor, 2020) and feminist geography (Curran, 2017; Hayden, 1980; Miralles-Guasch et al., 2016; Sánchez de Madariaga and Neuman, 2020) delving into how gender inequities permeate people's experience of the urban environment. A key insight yielded by this literature is that cities have been historically designed to meet the needs of the male-dominated productive sphere of work, relegating women to (unpaid) care work in the private sphere (Kern, 2021; Spain, 2014; Wiesel et al., 2020). This hierarchization of urban activities reproduces gender inequities in the way women and girls interact with public space and meet their daily needs (Sánchez de Madariaga and Roberts, 2016).

Efforts towards achieving gender equity in cities have recently become more prominent in policy frameworks at different levels. For instance, Sustainable Development Goal 11's Target 11.7 calls for "providing universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities". International organizations have launched frameworks and tools to guide the incorporation of a gender perspective in the practices of policymakers and planners (The World Bank, 2020; UN-Habitat, 2021). Cities like Vienna or Paris have launched guides to raise awareness on the subject (Ville de Paris, 2021; Wien Stadt, 2014). Furthermore, "gender mainstreaming" has emerged as a key concern in the European Commission's policies, through "the integration of a gender perspective into the preparation, design, implementation, monitoring and evaluation of policies, regulatory measures and spending programmes" (European Institute for Gender Equality, 2022). Other national governments have followed suit, such as Canada's federal endorsement of the Gender Based Analysis Plus tool (Women and Gender Equality Canada, 2021).

Consequently, there is a need to further understand to what extent planning processes have in practice and on the ground integrated a gender perspective in the design, implementation, and management of greenspaces. Here, we refer to greenspaces as a range of publicly accessible small or large-scale green infrastructures such as parks,

gardens, street trees, green corridors and squares, roofs, and walls (Taylor and Hochuli, 2017). To date, research on greenspaces considering gender has mostly focused on users' perceptions (e.g., Braç et al., 2021; Colley et al., 2022; Ode Sang et al., 2016) and health benefits (e.g., Fernández Núñez et al., 2022; Sillman et al., 2022). What is not yet clear is whether and how urban greening strategies and governance processes attempt to address social justice goals including gender inequities. Gender and greening policy agendas have largely evolved in parallel and are only now converging within current plans for "inclusive, safe resilient, and sustainable cities" (SDG 11). As a consequence, urban policy-makers, planners and other practitioners often continue to lack practical guidance and tools to guarantee that urban greening involves just processes and outcomes (Diep et al., 2022; Ugolini et al., 2022). Thus, the assumption that greenspaces benefit everybody equally is not only inaccurate but also problematic from an environmental justice perspective (Borbés-Blázquez et al., 2016; Felipe-Lucia et al., 2015; Leach et al., 2018).

In response to these knowledge gaps, this research aims at determining how social justice and gender equity considerations are being incorporated into urban greening policies, and how stakeholders operationalize these perspectives when designing and implementing urban greenspace interventions. These aims are addressed through the following research questions: 1) To what extent do leading examples of green urban planning incorporate social justice in general, and gender equity in particular? 2) How can cities incorporate justice and inclusivity as guiding goals for their greening strategies and practices? Following a non-exhaustive exploratory analysis of urban greening plans recently implemented in Global North cities, we focus on the case of Barcelona (Spain) due to its pioneering role in the implementation of both ambitious greening strategies and cross-cutting equity and gender policies at the municipal level.

## 2. Material and methods

### 2.1. Document analysis of justice trends in green city planning

Our analysis first consisted of examining broader international urban trends regarding the role of gender within efforts to link social justice and urban greening practice. Then, we delve in greater detail into our target case of Barcelona's approach. We thus first developed a comparison of the greening plans of cities considered international references according to the strategic greening plan of Barcelona "Pla Natura 2021-2030" (see Table 1). We analyzed each greening plan's main objectives and rationales, how plans framed the role of green spaces in the city, and whether these frames included any social justice and gender considerations. For gauging the degree of social justice considerations, we looked for references to distributional, procedural, and recognition justice, which comprise the three-dimensional framework of environmental justice (Schlosberg, 2013), a well-established analytical framework in the context of urban greening research (e.g., Campbell et al., 2022; Fitzgerald, 2022; Mullenbach et al., 2022). For gender considerations, we assessed whether there was any mention of feminism, gender, or any concerns related to women and/or girls in green planning.

**Table 1**

Key international urban greening plans analyzed through a social justice and gender equity lens.

City	Document	Scope of the document
Barcelona	Pla Natura 2021–2030	Urban greening strategy
Paris	Plan Biodiversité de Paris 2018–2024	Urban greening strategy
Berlin	Strategie Stadtlandschaft Berlin 2012–2050	Urban greening strategy
London	The London Plan 2021	Urban sustainability strategy with greening integrated
Montréal	Montréal durable 2016–2020	Urban sustainability strategy with greening integrated
New York	PlaNYC 2011–2030	Urban sustainability strategy with greening integrated

**Table 2**

Key planning documents analyzed from Barcelona City Council (available in BCNROC).

Year	Document type	Policy document (original title)	Policy document (translated)	Acronym
2022	Guide	Carta del Verd i de la Biodiversitat	Charter of the Green and Biodiversity	CVB-2022
2021	Strategic plan	Pla Natura 2030	Nature Plan 2030	PN-2021
2021	Strategic plan	II Pla per la justícia de gènere 2021–2025	II Plan for gender justice 2021–2025	PJG-2021
2021	Strategic plan	Pla d'Acció per l'Emergència Climàtica 2030	Action Plan for Climate Emergency 2030	PAEC-2021
2020	Guide	Guia pràctica per a la integració de la perspectiva de gènere als plans i projectes de la ciutat de Barcelona	Practical guide for the integration of the gender perspective in the plans and projects of the city of Barcelona	GPG-2020
2019	Manual	Manual d'urbanisme de la vida quotidiana. Urbanisme amb perspectiva de gènere	Manual of the daily life urbanism. Urbanism with gender perspective	MUVQ-2019
2019	Strategic plan	Pla del joc a l'espai públic de Barcelona amb horitzó 2030	Plan for play in public spaces, 2030 horizon in Barcelona	PJEP-2019
2018	Report	Serveis socioambientals dels espais verds de Barcelona	Socioenvironmental services from the Barcelona greenspaces	SSA-2018
2017	Strategic plan	Arbres per viure. Pla director de l'arbrat de Barcelona 2017–2037	Trees for life. Director plan for Barcelona trees 2017–2037	PDA-2017
2017	Government measure	Mesura de govern. Urbanisme amb perspectiva de gènere. L'urbanisme de la vida quotidiana	Government measure. Urbanism with gender perspective. Daily life urbanism	UPG-2017
2016	Government bill	La implantació de les Superilles a Barcelona	Implementation of Barcelona Superblock Plan	ISB-2016
2015	Government measure	Mesura de govern. La transversalitat de gènere a l'Ajuntament de Barcelona	Government measure. Gender mainstreaming at the City Council of Barcelona	TG-2015
2013	Strategic plan	Pla del Verd i de la Biodiversitat de Barcelona 2020	Green and Biodiversity Plan 2020	PVB-2013

## 2.2. Barcelona as an emblematic case of inclusive green planning

### 2.2.1. A brief context of urban greening practice

Barcelona is the second largest city in Spain with 1.7 million inhabitants and one of the densest urban areas in Europe with an average of 16,325 inhabitants per km<sup>2</sup> (Ajuntament de Barcelona, 2021a). As a Mediterranean city, it is characterized by its compact form and a low ratio of urban greenspaces, that is, a surface of 17.1% publicly accessible greenspaces compared with the European average of 41.2% (Barboza et al., 2021). Indeed, following the World Health Organization's recommendation of having accessible greenspaces within a 300 m distance of residence, Barboza et al. (2021) found that 86.2% of the population of Barcelona does not meet this requirement.

Barcelona's current greenspace deficit originates from a historical legacy of high-density and compact urbanization. Following Honey-Rosés (2022), most of the city greenspaces come from either non-urbanized residual space and squares and gardens that became accessible after urban transformations and claims and petitions from residents. Additionally, the internationalization and touristification of Barcelona since the mid-1990's due to the organization of the Olympic Games (1992) led to a development-focused strategy. This urban planning strategy shaped the location and size of new parks and public greenspaces, which became notoriously oriented toward international visitors and tourists (Anguelovski et al., 2017). Since 2015, when the progressive *Barcelona en Comú* party won the municipal elections, Barcelona has held a leading role in the implementation of local sustainability policies aiming to make a more livable and inclusive city. The City Council has led multiple initiatives around the development of citizen participation, feminism, urban ecology, and social economy. Some of these initiatives are standing out as international references for progressive municipal governance including mainstreaming gender policies (C40 Women4Climate, 2019), the Climate Emergency Plan (Satorras et al., 2020), and the *Decidim* digital participatory platform (Borge et al., 2022). It is in this broader context that, in 2021, the City launched the "Pla Natura 2021–2030" as the key strategic plan for the city's green planning and management.

### 2.2.2. Content analysis of strategic urban greening policy instruments

To specifically analyze the practice of urban greening in the City of Barcelona, we developed a content analysis of strategic policies, plans and documents. In order to identify how the municipality is framing its strategic urban planning, we conducted an in-depth review of municipal plans, strategic documents and local policies related to urban greening and gender equity in Barcelona from the last 10 years (see Table 2). All

documents were identified through the document repository of the City Council BCNROC, other policy documents, and through interviews. Data was analyzed using thematic analysis identifying the main objectives, motivations, and actions of strategic plans and projects. This approach allowed us to identify how official planning documents operationalize social justice and gender concerns surrounding urban greening in the context of Barcelona.

### 2.2.3. Semi-structured interviews with key stakeholders

Along with the previous stage, we conducted 15 in-depth semi-structured interviews with key stakeholders including municipal officers, city planners, technicians, and practitioners from environmental, planning or social disciplines that have been involved in the design and implementation of the public greenspace of Barcelona (see Table 3). Interviews were used to further understand how different involved actors understand and translate into practice the relationship between urban greening, social justice, and gender equity in their day-to-day work. We identified interviewees through snowball sampling, building from previous research experience, policy documents and municipal websites review until reaching saturation point. All interviews were conducted via video call in Spanish or Catalan with a 45–60 min length following a semi-structured interview guide (available in Appendix A) and an informed consent form previously signed. Interviews were transcribed and analyzed in their original language using Nvivo software and translated by the authors. Interview data was iteratively coded combining broad categories pre-defined theoretically (e.g., dimension of justice, gender equity strategy, alliances between sectors, limitations) and emerging themes and categories from a grounded theory approach.

## 3. Results

We present our analysis of social justice and gender considerations in local greening strategies. We start by summarizing the greening plans of Barcelona's international reference cities. We then delve into the case of Barcelona to disentangle how social justice and gender equity-oriented strategies are being transversally incorporated into local urban greening processes. We describe how the City is deploying different strategies in response to social and gender inequity problems, in which we identify three spheres of action: 1) inclusivity and care as strategic guiding values 2) accessibility and autonomy in the use and perception of greenspaces, and 3) awareness and representation in decision-making and participatory processes (see Fig. 1). We analyze the role of these three action points in relation to specific greening interventions to illustrate how justice and inclusivity can be translated into practice.

**Table 3**  
Interviewee characteristics.

Interview number	Profile	Motivation for inclusion
I01	Member of the Gender Mainstreaming Department (original name: <i>Transversalitat de Gènere</i> ). Barcelona City Council	Involved in the gender mainstreaming strategy of the city and gender equity policies
I02	Members (2) of the biodiversity program in the Environmental area. Barcelona City Council	Involved in the Pla Natura 2030
I03	Member of feminist urban planning group	Has experience in working on feminist urbanism projects and activism in Barcelona
I04	Member of Urban Ecology and Parks and Gardens ( <i>Parcs i Jardins</i> ). Barcelona City Council	Involved in public urban greening projects
I05	Members (2) feminist urban planning group	Have experience in working on urban planning projects in Barcelona, including BCN Superblock (original name: BCN Superilla)
I06	Member of the Strategy department of Urban Architecture. Barcelona City Council	Involved in BCN Superblock
I07	Member of the Municipal Institute of Parks and Gardens ( <i>Institut Municipal de Parcs i Jardins</i> ). Barcelona City Council	Has experience as technician managing and designing greenspaces in Barcelona
I08	Member of feminist urban planning group	Has experience in working on feminist urbanism projects and activism in Barcelona
I09	Researcher and expert in urban ecology	Member of the scientific advisory board of BCN Superblock
I10	Member of the Participation Department at Urban Ecology Barcelona City Council	Involved in Pla Natura 2030 and other participatory processes related with greenspaces
I11	Member of the Strategy department of Urban Architecture. Barcelona City Council	Involved in the design and implementation of the gender strategy in the public space
I12	Members (2) of the Municipal Institute of Persons with Disabilities ( <i>Institut Municipal de Persones amb Discapacitat</i> ). Barcelona City Council	Involved in the design and implementation of greenspaces
I13	Member of the Climate Change and Sustainability office ( <i>Oficina de Canvi Climàtic i Sostenibilitat</i> ). Barcelona City Council	Involved in the Action Plan for Climate Emergency 2030 Barcelona
I14	Member of Institute for Childhood and Adolescence ( <i>Institut de la Infància i l'Adolescència</i> ). Barcelona City Council	Involved in the strategic plan PJEP-2019
I15	Member of the Environmental area. Barcelona City Council	Involved in the design and implementation of greenspaces

Finally, we provide a summarized compilation of our results in terms of barriers, strategies and limitations as identified in our case study (Table 4).

Our results are presented with the following caveats, building from previous environmental literature on closely related topics like gender and care (Macgregor et al., 2022). First, we treat gender as a category that helps to analyze how power relations interact within green planning processes. We advocate for women as a non-homogenous category and contend that gender intersects with different axes of inequality (including class, race, age, sexual orientation, gender identity, and disability). Further, recognizing non-binary gender and non-heteronormativity should not be overlooked. Finally, we reject any assumption essentializing women as intrinsically more vulnerable and caring and use instead a systemic understanding of gender inequities comprising complex and dynamic relationships, norms, and processes (Lau et al., 2021).

### 3.1. Comparative analysis of urban greening plans

Comparing the six cities (Appendix A displays full analysis), we see that all greening plans highlight the contribution of greenspaces to human well-being and to the livability of cities. The Montréal and London plans are framed around a broader urban sustainability strategy and portray greenspaces as a strategic element for addressing climate change challenges, among others. The Berlin and New York plans have a stronger focus on public space, emphasizing the function of greenspaces as places of encounter and as a key infrastructure of the urban landscape with an important economic role (e.g., flagship parks). London's plan includes a chapter explicitly pointing at green and blue infrastructure conceived as a network to be designed and managed in an integrated way within the city's built infrastructure. In contrast, Montréal's plan does not include a green infrastructure approach but frames its objectives in terms of increasing tree canopy cover and protecting natural areas. The Paris plan highlights the importance of conserving urban biodiversity. In short, urban greening plans acknowledge the multi-functional role of greenspaces through the provision of ecosystem

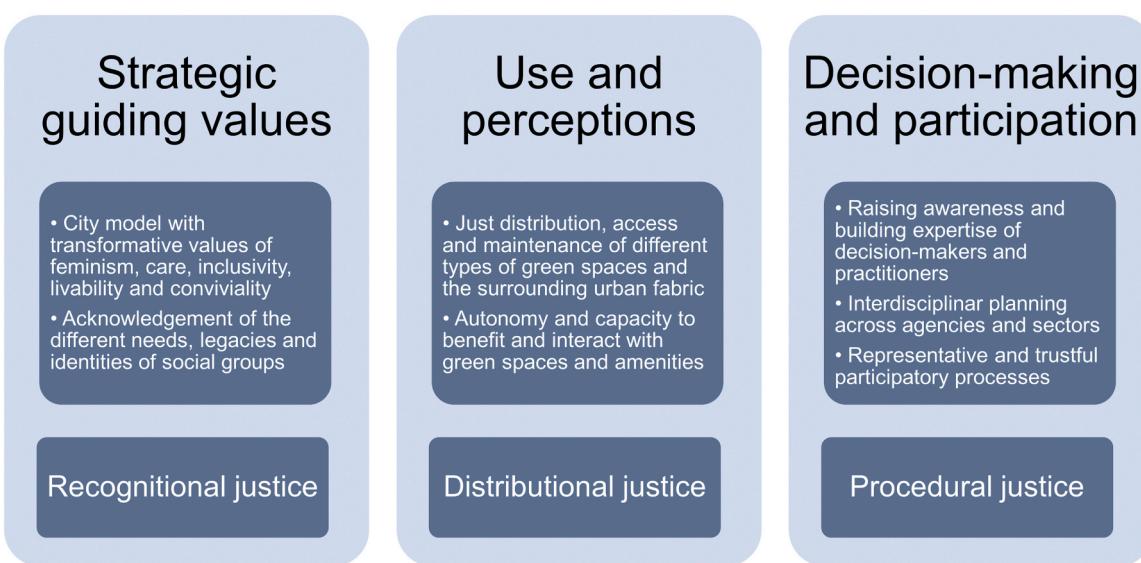
services but differ in the conception of their relationship with the built environment of the city.

Distributional justice is a central concern of all the analyzed plans. Equity is mentioned as ensuring the availability and accessibility of greenspaces for all city residents. For instance, the Paris plan highlights social justice as a key objective due to the "increased dependency of low-income residents on their immediate greenspaces". Similarly, the NYC plan states greenspaces as a public infrastructure that must be guaranteed "to all New Yorkers". The Berlin plan starts with a universal access goal by stating that all residents should have access to a greenspace within a distance of less than 500 m from their home and, similarly, the NYC and Paris plans aim to ensure accessibility to a greenspace within a 10- and 7-minute walk, respectively. Furthermore, the Barcelona and Berlin plans include a diagnosis of the distribution of their green infrastructure and London's suggests creating accessible open space in "areas of deficiency".

Procedural justice is present in most of the plans through the implementation of participation programs. Paris and Barcelona have ambitious aims for participatory processes, framed in terms of participatory democracy, empowerment, support for citizens' bottom-up initiatives, and their right to participate. Berlin's plan calls for the cooperation of citizens in increasing the sense of belonging and cohesion. However, Montréal's plan does not explicitly mention any participatory approaches in relation to greening and London's plan only cites participation in the case of community gardens. Finally, NYC's plan justifies participatory processes as a way to maximize impact and promote civic engagement in the co-design and management of greenspaces. Most participatory programs do not specify the mechanisms by means of which to achieve a fair representation of participants, although some are broadly targeted towards children and families, actors from public and private sectors, and non-profit organizations.

Finally, recognition justice (i.e., the acknowledgment of the different values, needs, and identities of historically marginalized communities) is rarely explicitly considered within the urban greening plans. NYC and Berlin recognize the importance of considering the needs, uses, and preferences of different social and cultural groups in the

## Examining the inclusive focus of urban greening: three areas of action in the Barcelona case



**Fig. 1.** Conceptual framework. Three areas of action identified in the practices and strategies of the City of Barcelona for ensuring an inclusive green planning approach. Action areas are proposed as closely related with the three dimensions of environmental justice.

design of greenspaces. Berlin's Plan also frames greenspaces as spaces of representation where historical legacies have an important role referring to the former Wall separation.

Gender equity is not explicitly mentioned as a goal in any of the plans except for the Barcelona case, which aims to "address to the new needs of parks (...) in [supporting] gender perspective and social justice" (PN-2021, p.98). However, the document does not specify how to apply such perspectives and how it is expected to be implemented in practice. Instead, it leaves it as an action point to be developed in the future. Nevertheless, in this context, Barcelona stands out as a unique example of a city aiming to employ the gender perspective as a cross-cutting lens in bringing together social justice concerns with greening strategies. Thus, unlike the other analyzed cities, Barcelona can provide novel perspectives into how cities integrate social and gender equity into green planning practices. To trace how such goals are being understood and operationalized, we present in the next subsections an analysis of the processes behind the production of Barcelona's strategic greening plan.

### 3.2. Strategic guiding values: inclusivity and care

The first strategic green guiding plan of Barcelona was the PVB-2013 (see Table 1). The PVB-2013 established a strategic vision for urban greening and framed green and blue spaces as an interconnected, multifunctional infrastructure, while emphasizing biodiversity goals and management criteria. However, that first policy document lacked any consideration on equity or distribution. This strategic vision was consolidated with the PN-2021, which fully deploys a multifunctional role of green infrastructure; and complemented with the CVB-2022, a reference guide for implementation and management needs within biodiversity and sustainability criteria. The PN-2021 presents a green infrastructure aimed at making the city more livable, sustainable, and healthy, in addition to its aesthetic and heritage role. And, as mentioned in previous international comparison, the PN-2021 starts making explicit reference to the (un)equal distribution and accessibility of greenspaces throughout the city. Thus, we identify a shift in the role assigned to greening, which goes essentially from an ornamental to a multifunctional focus. This shift was experienced by municipal

technicians: "*In the last 15 years, it's been like a professional and personal transition (...) from a city that didn't consider greenspace as something strategic (...) we talked about it only as something aesthetic or horticultural (...) to a city that starts to consider it as an infrastructure*" (I7).

In parallel, the city implemented the UPG-2017, a set of measures for the incorporation of gender equity, inclusivity, social cohesion, and care at the forefront of urban planning processes to "situate the sustainability of daily life at the center of policies" and, in sum, for creating an "inclusive public space from a gender perspective". These policies contribute to a broader trend of gender mainstreaming, developed in the TG-2015, designed to incorporate the gender perspective in all local government policies and measures. Consolidated later with the PJG-2021, these documents point out the importance of caring activities in the public space, the feminization and invisibilization of care work, and how such aspects have historically influenced the design of cities.

The explicit link between gender equity and urban greening in practice is crystallized when the City Council launched the MUVQ-2019 and the GPG-2020 as a set of guidelines for the integration of the gender perspective in urban plans and projects. Their purpose is to design and manage public spaces –such as squares and parks– so they can contribute to the creation of spaces of comfort, safety, and autonomy where people can develop their daily tasks, socialize and take care of themselves and others. Building from the understanding of urban space as a mechanism for the reproduction or transformation of gender inequalities, the aim of such documents is to facilitate everyday life activities, also through greenspaces. And, therefore, greenspaces are displayed as a physical infrastructure that can be designed for the diverse needs of city residents in everyday life, that is, also taking into account care work and self-care needs. However, there is no questioning or elaboration of the care work within broader social and gender dynamics of who undertake that work and at what cost.

Such recognitions of inclusivity and care configure a particular model of greening that we see evolving in Barcelona. In this context, the Superblock (originally *Superilla* in Catalan) program emerges as the ultimate green intervention following proximity, inclusion, and care values (ISB-2016). The Superblocks program is a flagship urban planning initiative aiming to transform public space mostly dedicated to traffic/car parking into new pedestrian areas with more greening and to

**Table 4**

Compilation of barriers, strategies and limitations identified from interviews and policy analysis in the prevention of social and gender inequities in the planning of the Barcelona urban green infrastructure.

Barriers in ensuring social and gender equity within urban greenspaces	Strategies and measures (envisioned or already in practice) to address inequities	(Potential) limitations and risks
<b>Strategic guiding values</b>		
City model strategies and greening plans do not incorporate a social and gender equity in their diagnosis and objectives.	Applying transversally those perspectives in all policies and plans, and producing action plans, guidelines, methodological toolkits and indicators.	Mainstreaming social and gender perspective can banalize its concepts if carried out superficially or by non-experts.
Strategic documents acknowledging environmental, social and gender inequities do not include a specific action plan and mandatory norms.	Acknowledging feminist and justice symbolic values in the planning of the city such as feminism, care, inclusivity, daily life, and conviviality.	Differences in the understanding of concepts and methodologies of gender-related concepts (perceived as subjective).
Lack of acknowledgement of historically marginalized communities and activist movements from feminism and LGTBIQ+ movements.	Translating the gender-sensitive criteria into clear and replicable technical standards adapted to the context and needs of green planning.	Ideological dissensus or politicization of gender-related concepts which hinders consensus or the continuity of projects.
<b>Use and perceptions</b>		
Unequal and patchy distribution of the urban green infrastructure in the neighborhoods across the city.	Including diverse socioeconomic variables in the criteria for the diagnosis of needs in the implementation, renewal, and maintenance of greenspaces.	Ecological and biodiversity criteria of greenspaces do not always coincide with inclusivity and accessibility criteria.
Unequal maintenance of greenspaces and unequal provision of ecosystem services across the city.	Improving greenspace inclusivity and accessibility through design guidelines: improving lighting, pruning vegetation to avoid high and dense trees and bushes, prioritizing perennial over evergreen vegetation, avoiding cul-de-sacs and corners, facilitating permeability and visibility of the park from outside, avoiding walls and separations, prioritizing polycentric design, and facilitating the orientation and itineraries.	Limited capacity to increase the surface of green due to compact and built form of the city.
Differences in the use, frequency and perception of city residents, particularly affecting women, migrants, children and elderly feeling unsafe or unwelcome.	Identifying demands and potential uses for a greenspace focusing on different scales and responding to their local and context-specific needs (e.g., implementing pocket parks to benefit nearby residents).	Design guidelines are easier to apply in new green interventions but are more difficult and costly to transfer to the already existing spaces.
Inclusivity criteria tends to focus mainly on physical access and overlook cognitive accessibility.	Allowing different activities and uses within greenspaces and avoid mono-functional areas. Promote flexibility, mixed uses and naturalization (e.g., use of natural elements for playing is suggested as a more gender-neutral space for children).	The design and use of greenspaces can reproduce and perpetuate gender roles (e.g., essentializing women as the caregiver).
Risk of green gentrification and touristification within greenspace (re)development.	Implementing different types of UGI according to the space availability (e.g., vertical surfaces, terraces, roofs, tree pits, pots and other small structures). Establishing usage plan policies ( <i>Pla d'usos</i> ) to diversify commerce while limiting certain uses to control gentrification and touristification processes.	Limited potential (ineffective or slow) of policies changing sexist behaviors (which is often reproduced in the private sphere).
<b>Decision-making and participation</b>		
Lack of awareness and expertise in environmental justice and gender topics. In particular, environmental departments focus on ecological and biodiversity criteria but not on the social and justice implications of their policies.	Establishing specific teams in charge of the application of gender and social equity perspectives (e.g., gender mainstreaming department).	Lack of transparency and accessibility in participatory processes may impede city residents to participate (e.g., formal language, legal procedures, unclear impact, lack of trust towards the institutions, time poverty). The digital sphere for online participation is a barrier particularly present among women with other intersecting identities (e.g., women with disabilities, migrant women).
Reluctancy and contestation towards the use of gender perspective in urban (green) planning.	Incorporating social equity and intersectionality as complementary goals in urban greening	The politicization of gender and feminism can delay changes and compromise its institutional stability.
Unequal representation in participatory processes. Some social groups (e.g., single women, children and teenagers, low income, and immigrant residents) tend to be underrepresented.	Establishing training programs to raise awareness to the people working on the public administration and establishing collaborations with professional experts on gender and social topics (e.g., feminist urban planners).	Participatory programs tend to have a limited transformative potential, and tends to be reduced to a compilation of opinions from decisions previously taken.
Internal gender inequities among municipal workers, including unequal representation and discrimination. For instance, with gardeners as a traditionally masculinized	Incorporating gender-sensitive methodologies in participatory sessions such as small workshops, focus groups, exploratory walks, street surveys, online participation, time flexibility in participatory sessions, providing economic compensation, contacting entities and associations (e.g., associations of people with	Tokenistic approaches to participation.

(continued on next page)

**Table 4 (continued)**

Barriers in ensuring social and gender equity within urban greenspaces	Strategies and measures (envisioned or already in practice) to address inequities	(Potential) limitations and risks
professional sector.	disabilities, feminist assemblies).	
Silos and difficulties in establishing long-term collaborations among different departments in the administration. Lack of transversal planning across agencies and sectors.	Carrying out participatory processes at different institutional scales like city, district, and neighborhood to identify the different needs of citizens and leverage from different governance structures.	
	Targeting specific social groups to ensure representativity with an intersectional focus (e.g., women with disabilities, migrant women, teenage girls, older women, etc.).	
	Developing internal policies and protocols for gender equity, representativity, gender and sexual harassment and any kind of discrimination.	

create accessible and secure public areas for diverse groups with particular care needs like children, families, and older residents. This project gained international attention as an ambitious city-wide planning model bringing together environmental (i.e., climate change, ecosystem services) and social (i.e., human health, inclusivity, conviviality) concerns (Ajuntament de Barcelona, 2022a; Mueller et al., 2020; Torrens et al., 2022). Thus, the Superblocks materialize a reformulation of the public space proposed with special attention to the tasks of everyday life and care, and aiming for “greener, healthier spaces to be, walk, sit, play, and socialize, and with the ability to strengthen the social network of everyday life (...) and make the neighborhood spaces more comfortable for all people and jobs” (p. 98, PJG-2021). Similarly, the 2020 program *Protegim les escoles* (“Protecting schools” translated), also aims to implement small greenspaces for pedestrians around schools in order to protect children from traffic and provide a more comfortable space to socialize and take care of children (PJEP-2019). Additionally, another policy strategy that explicitly considers gender equity and sustainability is the Climate Plan PAEC-2021, where gender is included within an intersectional perspective of climate change vulnerability (e.g., p. 25 and 29 and first 3 action lines).

While we see an emerging trend of including the gender perspective as a pathway for ensuring social justice within Barcelona’s greening plans, some challenges remain in their actual implementation. We found that the increasing prominence of greening in the political agenda of the city has created a political instrumentalization of greening policies: “*A lot of people are like ‘all for the green!’ (...) [and this] is rhetorical, branding*” (I7) or “*These topics are used as political weapons*” (I6). Another recurrent theme emerging from the interviews was a sense that, even if greenspaces are now considered a key urban infrastructure, the resources allocated have not increased proportionally enough. Besides, although the Superblock program is presented as a long-term green and inclusive transformation of the public space, its implementation may fall short as a city-level transformation: “*I miss a city model (...) that goes beyond specific interventions*” (I9) or lose continuity in time: “[In] long-term issues with big investments... the administration often gives up. (...) *The main risk is that nothing gets consolidated, that [the Superblock program] remains anecdotal*” (I6).

Finally, interviewed feminist architects argued that the current institutionalization of the gender perspective can undermine its transformative potential: “[Feminist urbanism] is in all agendas, it is a requirement. We could be now in the opposite situation, banalizing the concept” (I3). Besides, the incorporation of the gender perspective into official documents creates tensions with feminist activists, who consider that their historical influence and societal contributions are not being fully recognized: “*There is a very powerful feminist movement in Barcelona from many decades ago. And the City Council builds on that, no doubt. A lot*

*of times without visibility or recognition. (...) [The City Council] appropriates feminist claims and knowledge*” (I8).

### 3.3. Use and perceptions: accessibility and autonomy

Secondly, moving towards operationalization and implementation, a recurring topic during the interviews was the distribution of greenspaces across the city. The average ratio of greenspace per inhabitant in Barcelona is relatively low and unevenly distributed. For instance, the Eixample district has the lowest ratio with 2.01 m<sup>2</sup> of urban green per inhabitant, while Sants-Montjuïc has the highest with 17.48 m<sup>2</sup> per inhabitant, mostly due to the proximity of the Montjuïc mountain park (Ajuntament de Barcelona, 2021b). However, because of the compact and consolidated urban morphology of the city, the creation of new large greenspaces is often driven by major renewal or development projects rather than a real green equity agenda. This phenomenon relates to an “opportunistic” approach to greening: “*Urbanistically, Barcelona is an almost finished city. There is no space to add greenery, and greenery is placed where there is an opportunity (...) [which] of course, it does not always coincide with the map of deficits*” (I2). In this context, the City Council tries to compensate green deficit areas with the implementation of smaller green interventions such as pocket parks, green walls, façades and community gardens. This approach is best embodied in the Superblock and the Green Axis and Squares (*Eixos Verds i Places a l’Eixample*) programs, which creates new pedestrianized squares in former traffic intersections with greenery and urban furniture (Ajuntament de Barcelona, 2022a). Still, it is important to consider that green (re)development areas can contribute to green gentrification and tourism, potentially leading to the exclusion and displacement of local residents. To address these concerns, the City Council proposes the implementation of usage plans (*Pla d’usos*) as a proactive policy approach to regulating specific commercial activities and housing prices.

However, having physical access to greenspaces does not guarantee an equal use and benefit, since differences in citizens’ perceptions and preferences –constraint by social roles and dynamics– affect the practices and activities carried out there. This aspect was very present when asking about gender equity in greenspaces, since interviewees very often expressed their concerns about how men and women use such spaces in different ways. Municipal managers (I04, I07, I15) acknowledged how men tend to use these spaces mostly for leisure time and sport, while women tend to use them less intensively, including more passive recreation and care tasks. Besides, women often perceive parks and other greenspaces as unsafe, particularly at night hours, thus preventing them from accessing and using those spaces autonomously to the same extent as men: “*A greenspace does not mean to be a safe space, or a space for*

women (...) a lot of times it is the opposite" (I9). To address this problem, the City Council is applying a set of design and management guidelines (compiled in GPG-2020, p.31–34) on green infrastructure quality and accessibility (further detailed in Table 4). Such guidelines tended to go hand in hand with considerations of further axes of vulnerability and inequalities, making reference not only to gender but also (dis)ability, age and migration background. Several common points around accessibility and autonomy in the public space were suggested when asked about specifically gender equity (I12, I14, I10), forming spontaneous interdepartmental alliances in their needs and diagnosis: "It's interesting because, coming from different discourses, like gender or disabilities, at the end we reach the same conclusion (...) Accessibility is linked with disabilities (...) [but] safety, community, comfortability, autonomy are features that benefit everybody" (I12). Besides, the operationalization of the gender perspective in urban greening is not applied as a one-size-fits-all solution: "The reality is not standard" (I12) but as an inclusive framework for the improvement of public space design: "Safety is not only good for women, it is good for everybody. (...) Gender criteria brings quality" (I10).

Such principles for accessibility and autonomy, when brought to greenspaces, may entail some tradeoffs vis-à-vis ecology and biodiversity needs. Environmental professionals expressed certain incompatibilities with what is recommended for fauna in terms of habitat conditions: "For fauna preservation, during the night there should be no lighting. [Parks] should be dark spaces (...) and [they] should be closed so people don't enter" (I4). This tradeoff also limits the potential of some ecosystem services like temperature regulation: "[When creating open and visible greenspaces] you lose the buffer effect that greenspaces can have, even on noise or heat reduction" (I4). Additionally, green interventions more embedded in the urban fabric present a reduced potential transformation from the environmental and biodiversity point of view. Although small-scale greening may increase the canopy cover within the compact form of the city, the extent and quality of such greenspaces is rather limited. For instance, Superblocks are often built with tactical temporary elements such as flowerpots that limit plants growth and are costly to maintain, according to municipal managers: "Those are spaces which are complex to manage because having trees in large pots is not viable (...) neither for the trees nor for the gardeners" (I7).

Last, another gender-sensitive aspect relevant in greenspace design is the facilitation of care tasks (e.g., taking care of children and older adults) through the installation of benches, tables, playgrounds and other street furniture. This approach is embedded in a broader city model emphasizing the value of care work, as reflected in the "Caring city Plan" (original name *Ciutat Cuidadora*), the PJG-2021 and the Government Measure for Democratizing Care Work (2017–2020) (original name, *Democratització de les cures a la ciutat de Barcelona, Ajuntament de Barcelona, 2022b*). However, presenting the care-oriented design for greenspaces as an isolated measure for the benefit of women poses the risk of creating an image that essentializes women as mothers and caregivers: "I am a mother and I am happy to bring my children to the park, but my partner can also bring them. (...) Not as an axioma that says that our greenspaces use must be this [taking care of children]" (I09). Heeding this concern reflects a delicate balance between use, demand and gender roles: "One thing is the reinforcement of gender roles, and another is not to take into account the differential day-to-day reality of women and men" (I8). These measures, according to the above-mentioned policies promoted by the City Council, meet two equally important objectives: to acknowledge and dignify care tasks developed in the public space, and to redistribute the responsibility toward care (*Ajuntament de Barcelona, 2022c*).

### 3.4. Decision-making and participation: awareness and representation

The third relevant aspect emerging from our results is related to procedural justice within Barcelona's greening strategies. With the aim of attending the different needs and values of society, the City Council has established participatory programs as a priority within their urban

planning policies. Participatory processes related to urban greening unfold in two aspects: one, for the inclusion of citizens' opinions and needs in the diagnosis, design, and evaluation of plans, programs, and interventions; and two, for the stewardship of greenspaces with programs like volunteering and co-management of parks and gardens.

The former includes, for instance, the formulation of the Superblock program, the "Barcelona Green Axes" project (*Eixos Verds i Places de l'Eixample*), and strategic plans like PN-2021, PAEC-2021 and PGJ-2021. These programs have often been accompanied with feminist methodologies like participatory walks, that is, urban routes led by women neighbors that allow for *in situ* public space assessments (*Departament de Transversalitat de Gènere, 2019*). However, when we asked interviewees from environmental departments, who work addressing citizen petitions and complaints, they expressed fewer requests centered on girls' and women's needs comparing with other users of greenspaces such as dog-owners or people doing sport (I04). These comments suggest somehow a gender imbalance in the articulation of demands related to greenspace use: "We have few petitions in this sense [gender-related needs or demands]" and "Barcelona's planning process takes different neighborhood needs into account [but those] are frequently dominated by men" (I7). Besides, while participatory processes and methods entail an important step toward bringing gender issues to bear on urban greening interventions, participatory schemes have tended to be limited to a compilation of opinions rather than a real co-creation process, and often based in an incomplete and biased representation of the population.

Regarding the latter aspect, participatory mechanisms for public greenspaces stewardship seem to face a high demand: "There is a high demand in collaborating, in being able to participate (...) The City Council is always behind the demand" (I10). With such demands coming particularly from women, according to municipal workers involved in participatory programs: "The majority of proposals come from women who want to plant and take care of spaces and who have this awareness. (...) The leadership comes from women" (I10). This observation follows other research findings on Barcelona's informal green spaces, including community gardens, in which women have been shown to take a particularly important role throughout (*Kotsila et al., 2020b*) – a role that is being compromised by the overburdening of women and by administrative procedures and timelines that can undermine the sustainability of the civic green projects.

On the other hand, the operationalization of a social and gender equity perspective in green public spaces is an intrinsically interdisciplinary task which requires close –yet challenging– collaboration between different municipal departments and institutions. Municipal staff from greening areas recognize difficulties in breaking silos and working across disciplines and in collaboration with different departments: "It's difficult to work with everybody coordinated" (I2) and "In the end, we end up doing participation for the administration. Departments are very fragmented, they don't have this internal communication" (I5). In this sense, the Gender Mainstreaming department works with the objective of applying a cross-cutting approach: "What we do is to assess, collaborate and assist all City Council [areas] to integrate the gender perspective" (I01). However, we find that the institutionalization and mainstreaming of the gender perspective is still a relatively new and challenging task for the City Council. First, some respondents expressed a lack of awareness and knowledge in gender-sensitive planning, particularly among departments related to environmental issues: "It's a new world to us" (I2). This is also noted by experts on gender issues who work in the implementation of public space projects: "Is it guaranteed that there are expert persons carrying out the projects? What does it mean to apply a gender perspective? To put more public lighting and that's it? What is the level of depth being applied?" (I3). Second, some interviewees expressed that it is frequent to find reluctant attitudes towards gender equity in the administration: "We find a lot of resistance" (I1) and "When the word 'gender' appears you have to justify yourself, and whatever you present cannot have any mistake" (I5). However, this situation has apparently evolved over the last years: "I remember doing [participatory] gender walks, and the urban planner was

laughing. Younger generations of architects/planners have it [the gender perspective] more incorporated" (I10). Third, the rise of a gender perspective in the political agenda is a conspicuously contested topic and gender policies might get compromised by political turnovers and changes in the municipal government. Public officers working on gender mainstreaming expressed their fears about the fragile institutionalization of gender equity criteria and the risk of projects losing continuity: "We are interested in institutionalizing these [gender equity-driven] processes (...) so it can be maintained [across time and institutional changes] and some elements remain and impregnate the organization" (I1). The challenge here is that gender equity goals in the public space often do not benefit from legally binding rules. Municipal staff with experience working with people with disabilities and public space expressed similar obstacles and experiences that were eventually overcome through mandatory guidelines and policies: "What is going on with gender is like what happened with accessibility for people with disabilities. (...) When norms get approved, planners and architects have to adapt" (I10).

Finally, another aspect that emerged from our analysis is the potential reproduction of gender inequities within staff positions in the City Council, including discrimination, harassment and (under)representation of women in different units and agencies. For instance, the management and maintenance of greenspaces is a highly masculinized sector which has faced sexual harassment complaints by its workers in the last 20 years (El Crític, 2021). In response, the City launched an internal equity plan with a protocol for the "prevention, detection and action" of sexual harassment (PN-2021) and a campaign to encourage the incorporation of female gardeners called "I am a woman, I am a gardener" (Soc dona, soc jardiner) (Ajuntament de Barcelona, 2021c).

#### 4. Discussion

The goal of this article was to determine whether and how urban green planning addresses social justice with a focus on gender equity, using the pioneering agenda of the city of Barcelona as a particularly exemplary case study. First, our initial international review revealed that social justice is often addressed in a superficial and unstructured manner within strategic greening plans. Second, our case study stands out in the realm of green infrastructure planning by effectively incorporating multiple objectives related to social and gender equity. We identified three key spheres of action where these objectives are prioritized and implemented.

##### 4.1. Adding the lenses of social justice to urban greening: a shifting focus

Our comparative analysis indicates consistent patterns in how urban greening is being addressed within strategic policies across various cities. In all policy documents, greenspace is portrayed as a multifunctional infrastructure that brings social, economic, and environmental benefits to city residents. However, this multifunctional approach does not necessarily align with ambitious goals for social justice to ensure that benefits are equally shared. Similar to previous research conducted in different geographic contexts (Grabowski et al., 2023; Gradinaru et al., 2023; Hoover et al., 2021), the policy documents we examined demonstrated a superficial engagement with justice, focusing primarily on distributive aspects and participatory processes. Additionally, we observed minimal direct connections with recognition justice and gender equity.

Drawing on the literature problematizing "technocratic approaches" to greenspaces (Diep et al., 2022) our findings question the potential of urban greening as a transformative amenity that can automatically contribute to inclusivity in a trickle-down manner. For instance, if girls and women perceive parks as unsafe and consequently utilize them less frequently, as reported by our interviewees and supported by research (Derose et al., 2018; Fernández Núñez et al., 2022; Fontán-Vela et al., 2021; Marquet et al., 2019), we cannot assume that the benefits of

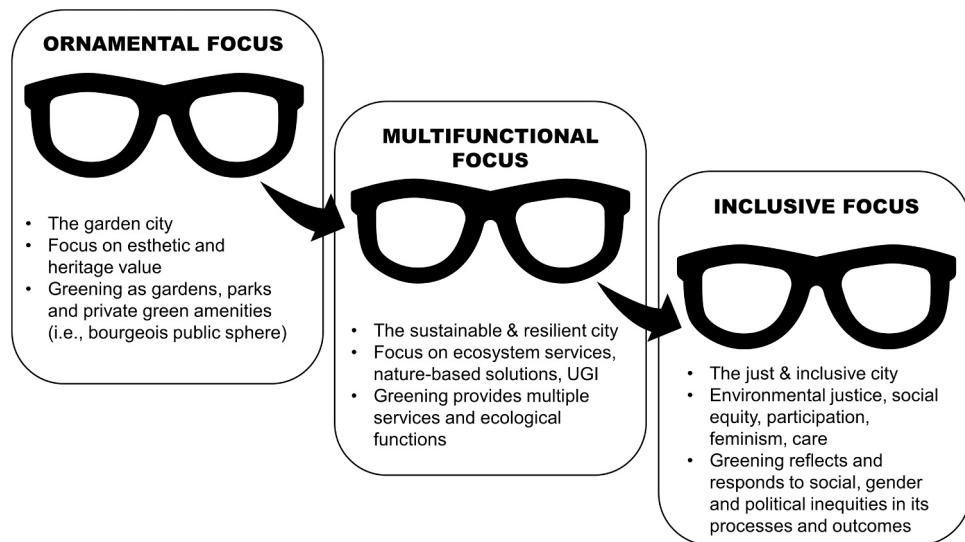
greenspaces will be equally received unless additional gender equity-driven policies are implemented. The issue of care and gender follows a similar line of reasoning: merely providing high-quality greenspaces to support and acknowledge care work will not bring about transformative change unless accompanied by comprehensive policies and structural adjustments aimed at redistributing care tasks. This shift is necessary to ensure that care work is not solely perceived as a women's burden but rather shared equitably both within households and public space (Macgregor et al., 2022). According to Buckingham (2016), there is a risk that city planners may overlook gender relations and inequalities, mistakenly assuming that these issues are adequately addressed within the broader sustainability urban agenda. This is why it is necessary to problematize and account for different social groups that may be more or less advantaged by greening and sustainable-driven activities, even when these activities and plans are framed as broadly inclusive and beneficial.

Our findings also indicate that urban greening plans and gender equity policies remain relatively separate in urban governance. We acknowledge that although justice-oriented goals were scarcely mentioned in urban greening plans, this does not imply that cities steer away from social and gender equity discussions in their agendas. However, we found that this discussion has not transversally permeated across greening and other environmental policies. And therefore, even if European institutions push for gender mainstreaming recommendations, the incorporation of the gender perspective in greening plans and policies is still scarce and inconsistent. On this particular topic, the City of Vienna stands out as a historically pioneering case introducing gender-sensitive parks and officially accounting for women and girls' needs in public space design (Irschik and Kail, 2016; Stadt Wien, 1999).

Despite considerable disparities in terms of implementation, awareness of social justice issues in urban greening is gaining increasing attention (Gradinaru et al., 2023; Hansen et al., 2022). As depicted in Fig. 2, we contextualize this trend in relation to a previous approach of valuing greening for its ornamental, patrimonial value, materialized in more estheticized and manicured gardens and large parks. As we have seen in the case of Barcelona, this focus has shifted toward a model valuing ecological functions and social benefits, materialized in smaller pocket parks and squares integrated within the compact urban fabric. While the ornamental focus builds on a vision of nature as an urban asset for the beautification of the city (Angelo, 2020), the multifunctional focus articulates greening as an integrated, connected infrastructure addressing daily life needs of city residents. Such vision of the green infrastructure is aimed at making cities sustainable and resilient (Connolly, 2019) and considers greenspaces essentially as "infrastructural fixes" (Diep et al., 2022). Although an in-depth historical analysis of urban greening models is out of the scope of this article, we suggest that our case study exemplifies a shift in urban greening approaches, introducing the lenses of social justice, inclusivity and care to the multifunctional model. In the context of Barcelona's green planning model, these lenses gradually and unevenly shape an urban greening approach that addresses inequities and incorporates socially inclusive governance processes.

##### 4.2. Consensus-based and ad hoc intersectional planning in urban greening practice

Our analysis shows how in Barcelona similar criteria for the different spheres of action stemmed from greening policies and gender-sensitive planning guidelines and plans. The strategic role assigned to public space in policy documents—even if coming from different departments and disciplines—is increasingly linked with delivering equitable, inclusive, and accessible public spaces and ensuring "livable, proximate and green" neighborhoods. This finding suggests a strong resemblance between explicitly gendered approaches and implicitly-gender sensitive approaches emphasizing quality of living, a matter already described in



**Fig. 2.** Conceptual framework for the three urban greening models proposed in our analysis. The ornamental focus, the multifunctional focus and the inclusive focus act as lenses that can be added to the rationale and operationalization of green planning in cities.

the literature (Sturm et al., 2019). However, we have identified two elements to consider for the unique pathway created by bringing the gender lens on to socially just greening.

First, although we often see “green” or “sustainable” at the forefront of urban policies (Andersson, 2016; Garcia-Lamarca et al., 2021) while “feminism” and gender-related concepts tend to be disguised and more implicitly addressed in urban planning. At the discursive level, greening can contribute to processes of “consensus-making” (Angelo, 2020; Neidig et al., 2022) under a broader current of de-politization of urban environmental planning (Rosol et al., 2017). In contrast, the contested and politicized disposition toward feminist cross-sectional policies may hinder the explicit incorporation of such terms. In consequence, inclusivity and equity terms are employed instead, encompassed within broader objectives of promoting well-being and fostering social cohesion.

Second, our Barcelona analysis reveals that similar recommendations for greenspaces quality and design converged even if planned for different social groups separately. We call this apparently spontaneous confluence *ad hoc* intersectional planning. Our interviewees –when asked for justice-driven actions in greening– expressed their concerns for girls, women with disabilities, single mothers and migrant families, among others. Therefore, the intersection of different axes of inequalities was present when applying inclusivity and accessibility guidelines in greenspace practice. Although these strategies may not have been explicitly integrated in advance, they were reflected through the day-to-day implementation of greenspaces by the City. We argue that, under the terms “inclusivity” and “accessibility”, we found an *ad hoc* intersectional planning approach responding to different combinations of residents’ needs, even if not being strategically anticipated as such.

However, we contend that adopting an inherently intersectional approach, building from previous scholarship on intersectionality and greenspaces (Anguelovski et al., 2020; Colley et al., 2022; Henderson and Gibson, 2013; Powers et al., 2020) would enable a more accountable and responsive focus on the specific needs of marginalized communities. In the case of Barcelona, this approach is particularly absent in relation to racialized minorities (Amorim-Maia et al., 2022). Similarly, participatory programs tend to build on top-down approaches aimed at “collecting opinions” and failing in the fair representation of underprivileged population and their perspectives. Such tokenistic approaches, rather than a real co-design process, have shown a limited empowerment potential (Kotsila et al., 2023).

#### 4.3. Recommendations for inclusive urban greening policy and practice

In this article, we aimed to assess the relevance of social and gender equity within urban greenspaces to eventually identify best practices and examples from our case study. In the following subsections, we provide recommendations for policy-makers and practitioners in urban greening to move beyond consensus-based and *ad hoc* intersectional planning. Nevertheless, it is important to acknowledge that the implementation of some of our recommendations may be limited and contingent upon specific contexts.

##### 4.3.1. Define green infrastructure goals aligned with equity goals

First, urban greening policies need to explicitly incorporate the social and equity links with their environmental goals and actions. To achieve this, it is necessary to provide clear definitions and goals of justice and equity in the outcome and processes of (greening) policies. Second, guiding strategies, action plans and indicators ought to be provided to ensure the execution, continuity and evaluability of the policy. City planners working on green interventions often lack the tools and guidelines for ensuring equity, particularly regarding procedural and recognition justice aspects. This can take form as toolkits with indicators previously identified by the literature (see, for instance, Kato-Huerta and Geneletti, 2022) and by gathering sex-disaggregated data for understanding gender inequities in urban issues. Third, green infrastructure interventions are not necessarily win-win solutions. It is important to openly address and discuss conflicting interests and trade-offs that can arise during such interventions. By doing so, we can proactively prevent and manage potential urban processes that may hinder accessibility and inclusivity. For instance, Oscilowicz et al. (2022) reviews anti-gentrification, displacement and equitable greening policies. Finally, gender inequities have shown to be particularly overlooked within green planning, and therefore we consider that environmental and city planners would greatly benefit from other framing lenses, such as feminist urbanism. Greening planners and decision-makers could seriously incorporate guidelines, toolkits and manuals from research and international organisms working on the topic (e.g., UN-Habitat, 2021).

##### 4.3.2. Provide adequate training and work in an interdisciplinary manner

Breaking silos and interdisciplinary work constitute an essential step in ensuring a real integration of the urban green infrastructure into strategic urban planning. Facilitating collaborations with different

infrastructure types, policy domains and stakeholders is crucial. Transversal departments such as those dedicated to participation and gender mainstreaming have shown to be useful in ensuring the inclusion of certain criteria throughout different policies and avoiding duplication of efforts. Additionally, cities can benefit from building alliances with other cities and regions with similar greening strategies and demands (e.g., the “Green City Accord” by the EU, or the Covenant for Mayors for Climate & Energy at the global level). For instance, a common repository of greening plans could facilitate the consultation of strategic policies and serve as example to other cities.

Furthermore, changes in the decision-making processes and new planning concepts have continued to develop and, hence, there is a need to provide continuous training to municipal officers (e.g., training on gender perspective, LGTBQ+, and social justice aspects to environmental departments). Likewise, it is very necessary to provide training and resources about sexual and gender harassment and to develop protocols on action and prevention of abuse and discrimination, which is an indispensable condition for gender equity among staff.

#### 4.3.3. Avoid standardization and assess needs intersectionally

There is no standard solutions or one-size-fits-all approach for an inclusive green infrastructure. Put differently, the prioritization of increasing  $m^2$  of greenspace per inhabitant (as often conveyed) does not necessarily address conjunctural unjust aspects of everyday access to and use of greenspaces. Applying a social and gender equity perspective requires engaging with the diversity of needs, preferences and values of all users, which can evolve or enter in conflict. This involves attending different communities, listening to civil society organizations and activists, and acknowledging historical injustices and legacies. Therefore, it is important to take into account local needs at different scales (i.e., neighborhood, district, municipality, metropolitan area, etc.) and to ensure meaningful participatory processes and co-production of strategies. An intersectional approach can serve to acquire a deeper and more precise understanding and a justice-led action towards the inequalities that are reproduced within public space.

#### 4.3.4. Engage with the specific characteristics of green infrastructure

We have seen how cities are increasingly planning greenspaces as a strategic, multifunctional, multi-scalar and networked infrastructure. However, the multi-functional and multi-scalar characteristics of the urban green infrastructure add a layer of complexity in ensuring an environmentally just governance. A key policy priority should therefore be to plan for the long-term care of the greenspaces considering the specific demands that differentiate such infrastructure from others. As stated by [Rivera and Hendricks \(2022\)](#), the planning and management of green infrastructure requires not only its initial design and implementation, but also a frequent maintenance over a lifecycle. For instance, newly implemented green interventions require time to grow and provide their full potential of benefits (e.g., shade, fruits...), polluted ecosystems might need to be restored, and some species may not adapt to the new conditions and structures of climate change and urbanization processes.

Besides, unlike other infrastructures, greenspaces may take form in different degrees of formality, and the responsibility for its maintenance is sometimes shared between municipalities and volunteer work by city residents. For instance, Barcelona developed the program “Hands on Green” (*Mans al Verd*) for the collaborative management of greenspaces to involve citizens, organizations and businesses from the city. A reasonable approach in ensuring an equitable maintenance of greening could be to involve different actors while attending to the local dynamics of environmental stewardship and the capabilities of each neighborhood ([Campbell et al., 2022](#)) and then provide adequate resources.

## 5. Conclusion

This study is, to the best of our knowledge, one of the first attempts to evaluate the incorporation of social justice and gender equity within urban greening plans and strategies. Consequently, it sheds light on the unique trajectory formed by applying a gender lens to the pursuit of socially just greening. Despite the growing adoption of ambitious greening plans by cities to address urgent environmental and social issues, our analysis reveals that these plans often inadequately address justice considerations in a superficial and unstructured manner. As a result, there is a risk of perpetuating existing social and gender inequities within greenspaces.

We contextualize our findings as part of a shifting trend in the strategic role of urban greening. Global North cities are currently building and promoting its green infrastructure under a multifunctional urban greening model in mind, which builds from an “infrastructural fix” understanding of greening. This multifunctional focus has evolved from a former and more traditional role of greening seen as an ornamental asset. However, the increasing considerations of social and justice aspects within green planning processes have recently shaped a new justice- and inclusivity-focused lenses for urban greening. We situate our case study, Barcelona, as a city gradually pushing for this model.

We identified the key characteristics of three spheres of social and gender equity action that Barcelona is currently implementing within its green planning. First, greening is assigned a social and functional role centered on values of inclusivity and care with a transformative potential on the public space. Yet, we saw that those values have not fully permeated greening guidelines and there is room to improve synergies and coordination between greening, urban and feminist/gender policies. Second, regarding the implementation of green interventions, the City launched some design guidelines for the accessibility and autonomy in the use and perceptions of greenspaces. These included, more notably, measures to increase comfort, safety, and visibility in parks for different socially vulnerable groups. However, such guiding principles can enter in conflict with recommendations for the fauna and habitat conservation. Third, decision-making and governance processes are increasingly incorporating justice and gender concerns and establishing participatory approaches. Yet, greater progress in this area will likely be achieved through clear guidelines and definitions able to transcend both professional traditions and gender-adverse practices by municipal staff and through the implementation of participatory processes that move beyond top-down tokenistic approaches. Finally, the combination of the above-mentioned strategies on the day-to-day practices of the City Council produces particular solutions for intersectional inequalities, in what we call an *ad hoc* intersectional planning approach.

We acknowledge the limited scope of this research, focusing on having an overview of social justice with a particular emphasis on gender issues. Future research directions could explore how different axes of inequality (like gender and sexual identities, dis/ability, socio-economic status, race, age, religious beliefs, among others) shape use and perception of greenspaces (differentiated from other public spaces) and how results can be incorporated into urban policies and governance processes. Besides, while our analysis was limited to official planning documents and practices, there is much space and need for research exploring community and grassroot led efforts, particularly outside Global North contexts. Future studies are needed to develop interdisciplinary contextual research of the potential pathways wherein green interventions can simultaneously contribute to social and gender-transformative change.

Lastly, we would like to include a final note in the light of the municipal elections of May 2023, which took place during the final stages of this article’s review. The election results revealed that most votes were obtained by a moderate conservative party campaigning against to Mayor Colau. We are yet to witness the implications of a likely

post-Colau leadership in Barcelona, and whether the transformation towards a just and inclusive model of public space, including green-spaces, will be successfully consolidated.

## CRediT authorship contribution statement

**Amalia Calderón-Argelich:** Conceptualization, Methodology, Investigation, Data curation, Writing – original draft, Writing – review & editing, Visualization. **Isabelle Anguelovski:** Conceptualization, Writing – review & editing, Supervision. **James J. T. Connolly:** Conceptualization, Supervision. **Francesc Baró:** Conceptualization, Writing – review & editing, Supervision.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.ufug.2023.127984](https://doi.org/10.1016/j.ufug.2023.127984).

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