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Nature-based solutions through collective actions for spatial justice in urban green commons

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ABSTRACT

Urban climate adaptation through nature-based solutions (NBS) requires collective action that incorporates spatial justice considerations. Collective actions reveal new ways of thinking about urban green commons and spatial justice by reframing conventional understandings of NBS, space, and climate adaptation. Three urban green commons examined in Istanbul demonstrate how the grassroots-supported NBS must navigate complex land ownership arrangements, spatial justice, and opposing urban development priorities and socio-spatial reconfigurations spurred by local and national political elites. Using qualitative data collected from fieldwork carried out in 2019, we find critical relationships between activists, academics, professional organizations, and local residents collectively acting to promote urban green commons. NBS do not rely on the dominant technological processes that generate primarily infrastructure-based climate adaptation solutions in Istanbul. While spatial justice and collective action scholarship often pays attention to how disadvantaged communities gain recognition and involvement in decision making - such as establishing formal channels to access environmental goods and services - climate adaptation through NBS opens spaces of opportunity for these groups to promote justice and resist the dominant economic development paradigm. Further studies must pay attention to what extent collective actions create new socio-political identities that are harnessed to resist dominant technological processes, and when are these emergent identities co-opted by local and national governments.

1. Introduction

What roles do activists and local residents play in nature-based solutions (NBS)? Green loss often is a result of the urban growth machine where a coalition of elected officials and developers seek profit from real estate development and property tax revenue (Molotch, 1976). While “green growth machine” increasingly is used to explain how development coalitions leverage greening initiatives and contribute to green gentrification (Gould and Lewis, 2016; Mullenbach et al., 2021); efforts to generate sustainable urban development projects also may result in re-greening practices that cause ecological gentrification and displacements (Dooling, 2009; Yazar, 2020a). The negative consequences of such urban sustainability fixes may be overlooked or even promoted by policymakers, as these ideas are often seen as “post-political” (Swyngedouw, 2010). NBS provide a means to advance the United Nations’ Sustainable Development Goals, such as SDG 11, “make cities and human settlements inclusive, safe, resilient, and sustainable.” However, policymaking processes often ignore the concerns and interests of

those most affected. Civic action and resistance are essential to the provision of just and liveable cities, including just NBS.

The concept of NBS stemmed from the European Commission’s and International Union for Conservation of Nature (IUCN)’s frameworks intending to address disaster risk reduction, sustainable urban development, and climate change adaptation while also advancing resilience of the socio-ecological and technical systems (SETS) through green infrastructure and sustainable water resource management (Raymond et al., 2017; Frantzeskaki, 2019; Cousins, 2021). Climate adaptation has been critiqued due to its preoccupation with technocratic fixes that are supported within existing institutional structures. Those adaptation decisions emerge through highly political processes with particular normative visions dominated by political elites who (largely) ignore justice concerns (Raymond et al., 2017). NBS must be seen as an opportunity to transform the existing rigid urban infrastructures toward climate-adaptative urban systems, and we argue that the justice dimension in urban climate adaptation through NBS, herein “just NBS”, must be prioritized.

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Environmental and climate justice literature examines three pillars of justice: fair distribution, recognition both socially and politically, and procedural inclusion; these pillars provide the necessary capabilities for just adaptation (Schlosberg et al., 2017; Yazar et al., 2021a). Increasingly, the expanding literature explores NBS with just city perspectives, but analyses fail to include spatial justice and examine underlying collective action mechanisms focused on just NBS (van der Jagt et al., 2021; Toxopeus et al., 2020). Spatial justice is the equitable distribution of socially valued resources such as power, environmental goods, and social services across space; it is not simply a focus on the pattern but also evokes necessary rights and power for equal opportunities to use these resources through time (Soja, 2013). Spatial justice scholars investigate how political decisions over multi-scale geographies shape diverse forms of inequalities; and how communities strive for justice amid institutional interventions (Heynen et al., 2006; Soja, 2013; Jian et al., 2020). The rich extant literature on NBS and spatial justice is primarily focused on Western cities such as Edinburgh, Utrecht, and Malmö (van der Jagt et al., 2021; Toxopeus et al., 2020) with less known about how cities of the Global South navigate equity and justice issues. Here, we aim to fill this gap by exploring the roles of activists and local residents in establishing and conserving urban green commons in Istanbul. By focusing on this question, we aim to contribute to the ongoing conceptualization of “just NBS” by leveraging critical components of the spatial justice and collective action literatures to examine three urban green commons in Istanbul, Turkey.

A long-term EU candidate, Turkey’s urbanization policy agenda diverges significantly from European Union environmental policies, such as Green Infrastructure and Biodiversity Strategies; instead, national policy has been most responsive to internal politics and economic development goals. Dominant policies have prioritized economic development in Istanbul (Yazar et al., 2020b), yet in-situ climate adaptation actions are needed to mitigate the impacts of climate-related risks in the city. Following the historic victory in the 2011 general elections, the current national government gained the majority in the parliament and passed the law that established the Ministry of Environment and Urbanization (MoEU). The MoEU was given primary authority – together with the Mass Housing Administration (TOKI) – to allocate and approve all urban renewal projects, housing production, and urban planning at all scales in Turkey. Since then, the economic development driven by new constructions has changed the façade of the city, leaving fewer green common spaces in the city where 15 million people live (Thornton et al., 2020).

Local resistance to the operationalization of these national policies came to the fore during the 2013 Gezi Park Protest, where thousands of people protested the local and national governments due to their decision to turn Gezi Park, one of the few green spaces in the urban core, into a shopping mall. The Gezi Park protests were among the most significant events in Istanbul’s recent history concerning urban development. The protests gathered multiple professional organizations, activists and local residents to collectively preserve the existing urban green commons and formed informal and formal organizations and networks to push nature-based activities and agendas in tandem with concerns around spatial and environmental justice.

In this study, professional organizations are referred to as guild, professional association, or professional body; these professional bodies exist to advance a particular profession, support the interests of people working in that profession or initiate to formal governance networks to serve and protect the public good (e.g., the Chamber of Urban Planners and Architects). The Gezi Park protest, a milestone in environmental justice activism in Turkey, increased solidarity between activists, professional organizations and local residents in focusing on conserving existing urban green commons and establishing new green spaces in multiple urban areas. In other words, NBS are highly intertwined with the local and national politics, policy, and actions in Istanbul and Turkey. Unravelling these dynamics are essential for understanding how seeking and operationalizing justice in specific urban locations could

inform “just NBS” strategies.

This study focuses on three urban green commons as case studies: Yedikule market garden, Roma community garden, and Kuzguncuk allotment garden. The megacity of Istanbul has incredibly diverse urban green commons in terms of age, size, design, location, use, and management. After the Gezi Park protests, dynamic and emergent solidarity networks spanned multiple urban actors including activities, locals, academics, and professional organizations in support of urban green commons. The three cases selected reflect diverse approaches to collective action for spatial justice in Istanbul. In the post-Gezi Park protests period, the increasingly authoritarian structure, and lack of public input, further fuelled resistance, activism, and collective action surrounding these three urban green commons. All the cases presented in this study depended on collective actions, especially activists’ and local residents’ motivation to seek spatial justice on the publicly owned lands. This study employs a systematic qualitative research method to unpack the spatial justice movements in Istanbul’s urban green commons and the case-specific conditions that outline more or less just NBS outcomes.

2. Theoretical context

2.1. Spatial justice, climate adaptation and NBS

The production and re-production of urban space echo local politics – a manifestation of access to political power. Consequently, better infrastructure and municipal services are distributed unevenly and in favor of wealthy communities (Soja, 2013; Fainstein, 2014). Therefore, spatial injustices are produced and reproduced by the existing institutions and norms within specific geographic areas across scales (Dikeç, 2011) reflecting inequalities within and between locales (Merrifield and Swyngedouw, 1997; Anguelovski et al., 2011; Daloğlu Çetinkaya et al., 2022). Environmental justice scholars show how spatial injustices manifest themselves across scales and political processes, such as through sustainable urban development projects that trigger displacement of vulnerable socio-demographic groups (Haase et al., 2017; Pearsall, 2010; Dooling, 2009), increased exposure to environmental toxins among traditionally deprived urban neighborhoods and communities of color (Bullard, 1990; Pellow, 2000), and green gentrification policies that compromise cities’ ability to promote sustainable development (Gould and Lewis, 2016; Yazar et al., 2020a). Climate adaptation also reflects the limitations of a top-down urban resilience planning approach in decision-making where power dynamics exacerbate spatial injustice by protecting wealthy communities while simultaneously increasing the vulnerability of disadvantaged communities (Fainstein, 2018; Broto et al., 2013). Inequitable distribution of urban green increases advantaged communities’ adaptive capacity to tackle changing weather events and decreases capacity in lower income neighborhoods that lack access to green amenities (Dai, 2011; Yazar et al., 2022a).

NBS serve multiple goals, such as addressing climate change adaptation challenges and improving human mental and physical health, yet projects’ benefits are rarely evenly distributed. Political processes to design and implement NBS often fail to consider spatial injustices. Just NBS must consider intersections between urban ecological design, planning, management, and socio-demographic factors such as race and poverty and how the NBS projects may result in disparate impacts over time, such as repression or disposition through green development (Rice et al., 2019). Cousins (2021) argues that just NBS must examine *race and class, transformative co-production, and value articulations* to engage scholars, activists, and planners for environmental governance and decision-making. We must also understand how the dominant hybrid governance structures affect just or unjust urban greening practices, including distributive, procedural, and recognition justice (Toxopeus et al., 2020). Spatial justice is still rarely considered by political elites in urban climate adaptation practices (Shi et al., 2016; Harlan et al., 2019; Yazar et al., 2021a); more typically, justice considerations are limited to

technocratic green infrastructures (Finewood et al., 2019; Heck, 2021). Access to the urban green infrastructure among vulnerable social groups is increasingly important amid changing climate (Broto et al., 2013). Increasing floods and droughts triggered by climate change severely affected low-income urban populations that are dependent on traditional farming activities in and around cities of the Global South (De Zeeuw et al., 2011; Lwasa and Dubbeling, 2015), but little attention is paid to urban agricultural practices in the urban Global South as NBS. Our work addresses this gap in understanding how hybrid governance processes include collective resistance. These collective actions are dynamic through time triggering shifts in power and agency over urban space, which may prevent spatial injustice and contribute to just NBS in cities.

2.2. Collective actions for spatial justice and urban green commons as NBS

Research on urban commons requires multi-spatial, temporal, and institutional scale analyses, as urban settings are embedded in complex socio-political and governance challenges (Kaika, 2005; Kornberger and Borch, 2015), as well as spatial justice (Soja, 2013). Urban green commons are defined as “physical green spaces in urban settings of diverse ownership that depend on collective organization and management and to which individuals and interest groups participating in management hold a rich set of bundles of rights, including rights to craft their own institutions and to decide whom they want to include in management schemes (Colding et al., 2013, p. 1042).” Specifically, urban green commons and its linkage to NBS are studied by scholars who used the concept of co-production for designing community gardens, urban parks, and eco-rings (Frantzeskaki, 2019; Wamsler and Raggars, 2018). Here, NBS manifest in urban areas by creating and developing urban green commons, yet these projects may perpetuate or exacerbate spatial injustices. We contextualize collective actions for urban green commons as the re-valuation of nature for ecological sustainability that inevitably contribute to public goods. Our theoretical approach, therefore, derived from Ostrom’s (1990) common pool resource governance, in which “beneficiary members” of natural resources collectively govern these natural resources. Since collective action is when individuals come together for a common purpose (Meinzen-Dick and Knox, 1999); collective actions for spatial justice in urban green commons include diverse participation beyond specific “beneficiary members.” Against this backdrop, the development, protection, and creation of urban green commons require more fluid forms of participation including, volunteering, institutional support, and activism.

The literature on urban greening has identified many actors and their characteristics in protecting, developing, and commoning urban spaces. Most cited and well-known cases are civic activism, as a social network beyond formal institutions (Scholz and Wang, 2006), in urban gardens in New York City, where broader participations of civic actors engaged in designing urban spaces beyond traditional power elites (Healey, 1998; Schmelzkopf, 1995; Smith and Kurtz, 2003). In general, social networks aim to facilitate diverse sets of knowledge not only to increase group outcomes (Carlsson and Sandström, 2008; Bodin and Crona, 2009; Galaso, 2018), but also mobilize and disseminate this knowledge to influence public authorities for effective governance learning (Newig et al., 2016; Yazar et al., 2022b). From climate change perspective, the public is motivated to engage in climate action via a wide spectrum of activism and networks, including issue salience (Bromley-Trujillo and Poe, 2020); in Western Europe and North America, civil society organizations lead and inspire climate justice movements in cities (Cheon, 2020; Martiskainen et al., 2020), especially among younger adults. Many community organizations also advocate for increased attention on spatial justice over exclusive focus on climate adaptation priorities to prevent inequities created through dominant technocratic climate adaptation planning, including international climate finance that exacerbate urban vulnerabilities (Long and Rice, 2020). Occupying and

commoning urban spaces, for instance, are being used by activists to resist the state and financial institutions amid uneven urban development (Bollier and Helfrich, 2015; Nightingale, 2019). Blok and Meilvang (2015) offer a more flexible understanding of urban sustainability activism in which activists engage urban sustainability issues by mediating their personal connection with the city – as locals – and translating that everyday experience by negotiating with public authorities, especially in urban planning processes. Such negotiations do not always entail agreement and generally result in contesting over a specific urban area and its function (e.g., either for public benefit or private development). In this case, professional organizations, referred to as guilds, may intervene the conflict between activists and public authorities by using their multiple levels of institutional orders, including laws, regulations, and courts (Ostrom, 2009; Rhodes et al., 2008) to enhance public goods in urban planning. In this case, close engagement and networks between activists, local residents, and professional organizations could inform public authorities to learn from and engage with activists. Yet, professional organizations’ intermediary and the brokerage role (Belso-Martinez et al., 2018) is not necessarily a panacea to resolving conflicts between activists and public authorities. Hence, it is essential to reveal the relationality of networks between activists, professional organizations, and public authorities to ensure that such networks do not trigger co-optation (Buijs et al., 2019; York and Yazar, 2022) and the market mechanisms that exacerbate uneven distribution of NBS (Remme and Haarstad, 2022).

Overall, our theoretical framework builds on assumptions drawn from the literature discussed above. To summarize our framework, we centre climate adaptation via NBS as a phenomenon that promote spatial justice in urban green commons through collective actions with urban actors including activists, locals, and professional organizations as illustrated in Fig. 1.

3. Research design and methods

3.1. Case studies

Urban development projects in Istanbul resulted in the forced eviction of socio-economically vulnerable people, specifically those without property titles, and redevelopment of local and state-owned green areas with high land values and proximity to the city centre (Yazar et al., 2020a; Kuokkanen and Yazar, 2018; Karaman, 2013). The 2013 Gezi Park protests were a significant milestone in Turkish environmental justice activism, particularly in Istanbul. Gezi Park, located in Taksim Square, is one of the few remaining green parks in the urban core. Beyond its location and green amenities, the Gezi Park symbolizes modern Turkey. Gezi Park has served as the location, and locus, of numerous protests, especially May Day labor movement rallies. The land in which the Gezi Park sits was the Ottoman Artillery Barracks; Gezi Park was built by the French architect and city planner Henri Prost in 1938 as a modern European-style green park. Since then, both the square and the park, a purpose-built urban space, represent the modern and secular republic that radically shifted from its Ottoman roots and values (Gül et al., 2014). Critics argue that the ruling national party’s – the pro-Islamic Justice and Development Party (Adalet ve Kalkınma Partisi, hereafter AKP) – agenda to build new monuments espouses a conservative and authoritarian vision. In 2012, the national government backed an urban development project on Gezi Park land that includes a shopping mall and the old Ottoman Artillery Barracks (Akçalı and Korkut, 2015). To stifle resistance to the economic development project, there was a ban on May Day rallies, May 1, 2013, which led to the demonstration in the Taksim Square. These protests escalated, resulting in suppression by the police; as bulldozers entered the park to cut trees on May 27, 2013, locals joined the resistance (Akçalı, 2018). The Gezi Park development proposal, and resulting resistance, provided the impetus to mobilize protestors to establish urban park forums that help activists and residents collectively act. The urban park forums identify

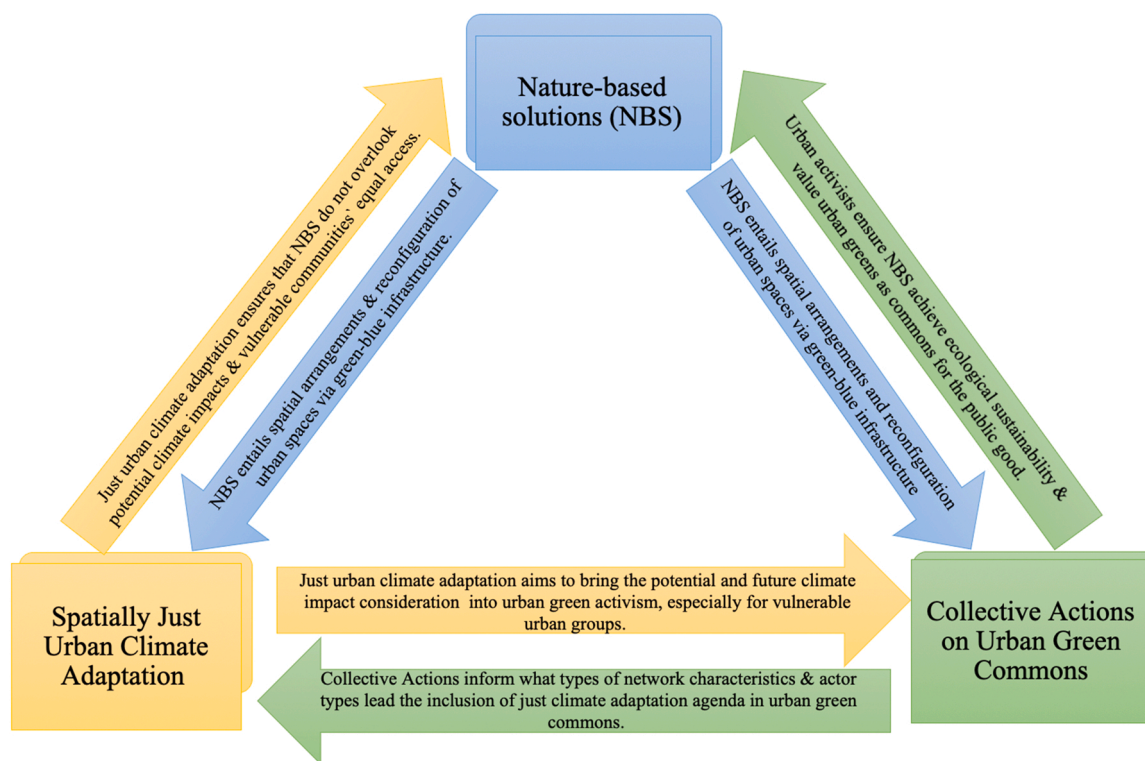


Fig. 1. Theoretical context in NBS via collective actions for spatial justice in urban green commons.

collective strategies to address spatial justice issues in urban development and to reassert collective rights to urban green spaces across Istanbul and other cities in Turkey (Inceoglu, 2013). The level of politicization in forums differs significantly dependent on the local context; for instance, in the upper-middle-class neighbourhood parks of Istanbul, well-educated professionals focused on environmental amenities and their management issues. In contrast, alternative economic models and social movements, and passive resistance were the focus in the forums of more working-class-dominated neighborhoods (Akçali, 2018).

In mid-2018, Turkey's long-standing parliamentary system shifted to a centralized presidential-parliamentary system that drastically affected cities by regressing urban governance mechanisms in the local governments (Yazar and York, 2021b). For instance, the national government withdrew local governments' electoral power; elected mayors of Turkey's major cities were replaced with trustees by the national government after the 2016 coup d'état attempt. This peculiar censorship was also used as a vehicle to expropriate the military and privately-owned lands in certain districts of Istanbul for profit-driven real-estate projects. In such a semi-authoritarian political environment, urban rallies, protests, and other forums in public parks and squares in Istanbul were dispersed by the police force for "safety" reasons. This repression facilitated urban development efforts and national government control of urban space. Since then, conserving urban green commons and urban agriculture and food networks have reached an age where numbers of neighborhood associations and groups have agendas for the urban landscapes. For some, the best-case scenario would be to conserve the urban green areas from real-estate projects; others want to help local agricultural producers.

For this paper, we select three urban green commons (See Fig. 2), across the Istanbul Metro Area, *Yedikule Market Garden*, *Roma Community Garden*, and *Kuzguncuk Allotment Garden*, to represent a diversity of spatial justice claims through urban NBS. The three selected cases represent grassroots based NBS are tightly linked to spatial and environmental justice movements. The case descriptions are listed below.

3.1.1. Yedikule market garden

Yedikule market garden is one of the largest urban agriculture spots within the city boundaries; it is constantly impacted by the political elites' rent-seeking decisions to negotiate with private construction companies for urban development projects. The lack of secure private ownership gives public authorities ability to make decisions to privatize or sell these urban green lands to developers for urban development. The fate of market gardens, therefore, is highly influenced by the rapid privatization of publicly owned lands for the real estate market. This happened in 2010, when a gated housing complex called "Yedikule Mansions" was constructed in one part of the Yedikule Market Garden. The construction of the residential area drastically impacted thousands of people and destroyed their only economic activity. The amount that the district municipality compensated farmers was significantly below their estimated costs and lost revenues (Emen and Ince, 2013). In addition, in 2013, the Fatih District municipality created a "sustainable urban plan" to transform the market gardens to "Urban Agriculture Theme Park", which include decorative pools, sport centres, and playgrounds for children, restaurants, and parking lots for the newly built Mansions (Emen and Ince, 2013).

3.1.2. Roma community garden

Since the 2013 Gezi Park protest, there has been increased awareness and collective action surrounding urban green commons. However, activism predates 2013, such as the effort to reclaim vacant land through the Roma community garden. The garden is in the Cihangir neighbourhood of Beyoğlu district, one of the high-income and tourist spots of the city. In contrast to the more formal character of the historically significant Yedikule market garden, the Roma community garden's origin is linked to guerrilla gardens (Schmelzkopf, 1995) or territories of solidarity (Durgun, 2019), which are self-organized by activists and volunteers. The Roma community garden constitutes heterogeneous environments for community activism, expression of freedom, food security, and solidarity.

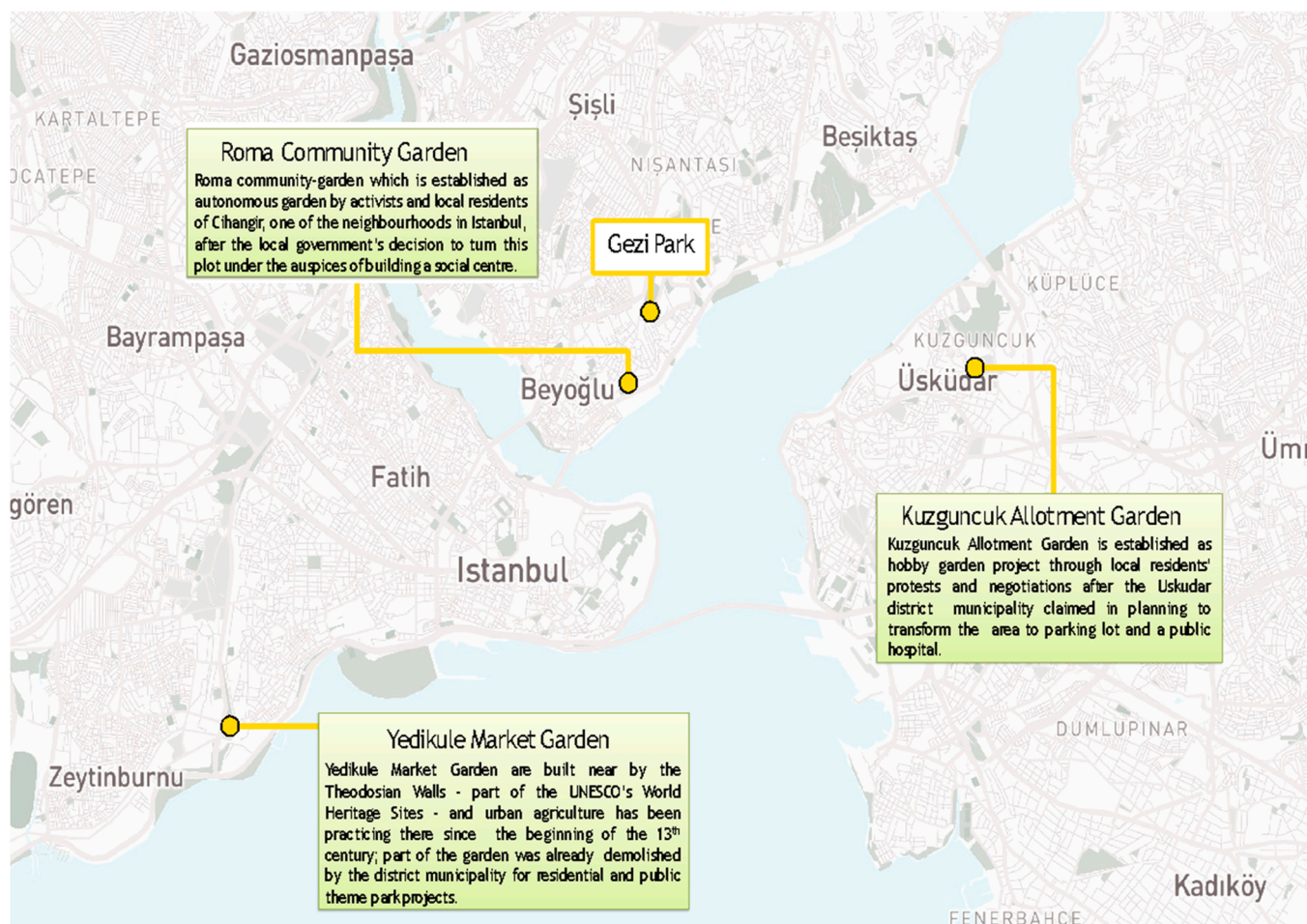


Fig. 2. Description of the selected cases shown on the map of Istanbul.

3.1.3. Kuzguncuk allotment garden

A long history of land use conflict over the Kuzguncuk allotment garden dates to the mid-1980s and early 1990s. The Kuzguncuk allotment garden is used as a market garden by residents of Kuzguncuk, a middle to a high-income neighborhood in the Üsküdar district of Istanbul. The Directorate General of Foundations, a national institution, owns the Kuzguncuk allotment garden land and gave developers a permit to build a school and a medical facility. The Gezi Park protests were a milestone in which the local conservation groups organized community gatherings that were used to leverage change in the direction to conserve the urban green common in the neighbourhood. Considering the emerging local collective actions sparked by the Gezi Park, the two development plans were cancelled after the residents of Kuzguncuk sued the Foundation (Durgun, 2019; Mills, 2010).

3.2. Methods

To answer our research questions: what roles activists and local residents play in contributing to the establishment and conservation of urban green commons in Istanbul, the snowball sample interviews were conducted from June to August and throughout December of 2019. We have also used secondary data sources (e.g., literature review, newspapers, municipal reports, and court cases) to complement the interviews. Methodologically, this study primarily relies on one-on-one interviews conducted with two public officers in local government, three local residents - one from each neighborhood where the urban green commons located-, three members from the Union of Chambers, two academics, two social entrepreneurs and two urban planning community

organization members who involved in outreach coordination in the three urban green commons, and finally six volunteers/activists in total (two in each urban green common) ($n = 20$) (See Annex I). In this study, we specifically identify certain groups of people as activists, local residents, and academics. Although, it is not always easy to draw such a distinction between the groups of people we have interviewed, activists were the ones that physically participated in the Gezi Park protests and were also volunteers, hence coded as volunteer/activists, in the selected urban green commons. Interviewees categorized other than volunteer/activists did not participate in the protest but aligned with the activists/volunteers by protecting and developing urban green commons in their districts (local residents) and provided their expert knowledge in the field of urban planning and architecture (academics). In addition, interviewees categorized under academic, social entrepreneurs, member of community organizations, and union members are all involved actively in the dissemination of activities and communications, knowledge exchanges, outreach coordination of the three selected urban commons in this study. Interviews ranged from semi-structured interviews, phone calls to informal conversations with the stakeholders, as mentioned above. The participants were selected through network sampling. Semi-structured interviews generally took 30–60 min, with some communications through e-mail or phone calls. Other sources included: newspaper articles, academic articles, and websites. To assess our semi-structured interviews, we developed codes to identify statements that emerged during the interviews about the Gezi Park resistance and its linkages to urban green in Istanbul, the perceptions of justice and spatial injustices in Istanbul, urban agriculture and NBS, and the roles of grassroots and professional associations in preserving urban green in the

city. We ran a systemic comparison of the coded statements within the same and across groups (Bernard et al., 2017) to identify emerging themes from the interviews.

In the results, we report two common themes emerged from the interviews across groups, specifically:

- 1) *the roles of professional associations (guilds) in navigating formal justice channels and encouraging community members to create associations.*
- 2) *solidarity networks for supporting community practices and knowledge dissemination,*

We provide exemplar quotes from our interviews (supplemented with field notes) and cited the existing literature to fill the gap and to provide a complete view of shared values and understandings about urban green, collective action, and spatial justice practices.

4. Results: practicing spatial justice in three urban green commons

4.1. *The roles of professional associations (guilds) in navigating formal justice channels and encouraging community members to create associations*

4.1.1. *Yedikule market garden*

According to the interviewees, there were heated debates among activists in terms of convincing professional associations, especially the Union of Chamber of Turkish Engineers and Architects (TMMOB), which is a confederation of all chambers of architects and engineers in Turkey established in 1954 by the Law no.7303 to sue the municipality and use other legal channels to protect the market gardens in the city [U1; U2]. However, in 2013, after the Gezi Park protests in which many members of the TMMOB took part, the AKP enacted a decree-law in parliament, which stripped the TMMOB and the Chamber of Urban Planners of its power to approve urban planning proposals and transferred that authority solely to the Ministry of Environment and Urbanization. An interviewee mentioned that they brought up the market gardens to the members of TMMOB a few times to get their help “at that time, they were only focusing to Gezi Park and park forums created in the city’s well-known neighbourhoods; no-one, including TMMOB, cared about Yedikule, they do not even know where it is in the city – V4.” The qualitative data also suggest that the proximity to and the quality of green parks in Istanbul’s well-known districts, especially where educated and high-income professionals live, were the main focus of the formal organizations’ efforts [V3].

A few activists and academics encouraged and guided the farmers of Yedikule market gardens to form an association to formally negotiate with the Fatih district municipality to seek their rights to ensure spatial justice. According to our interview data, Yedikule Market Garden Association was established by some farmers, but not all the farmers joined this formal organization because many farmers negotiated with the municipality to relocate their agricultural activity or accepted the compensation payments [V3; C2]. The Association remained weak due to the lack of organized leadership and buy-in amongst farmers. With farmers leaving the Yedikule market gardens and a lack of well-organized farmer-led resistance most of the market garden developed as an urban agricultural theme park, where a few of farmers were given rights to remain on their plots and continue their agricultural activities [LG1] albeit “with a narrower (romanticized) version of urban agricultural production that caters to urban elites in the new residential areas – V3.” Here, we are limited by the interview data, and other respondents’ views of farmer concerns about joining the Association. During the study period, most of the farmers that previously worked in the Yedikule market gardens had already relocated outside the case study area (and were disconnected from the existing solidarity networks and the Association). Thus, we were unable to reach displaced farmer respondents to ask about the reasons for their lack of interest in joining the Association,

or engaging in alternative forms of collective action.

4.1.2. *Roma community garden*

When the Beyoğlu district municipality announced its development plan to transform the municipally owned vacant land in the neighborhood into a social center building, activists collaborated and networked to establish the Beyoğlu City Defense Network (BCD) and sued the municipality over its development plan in 2011 [U3; V1]. According to an interviewee, it took two years for the court to cancel the development plan in 2013, but the decision was reversed after the state’s appeal, and another court case opened in 2013 [V2]. Similar to Durgun (2019)’s findings - our informants mentioned that an expert committee was established with a court order to make observations before the second court case. The committee visited the garden and was impressed with the activists’ and local residents’ work [L1]. With the help from the members of the Chamber of Urban Planning Istanbul chapter and agronomists, the BCD and activists prepared a report to be submitted to the court [N2; U3]. The collective actions led by the activist community and informal and formal organizations resulted in the district’s development plan’s cancellation in 2017.

4.1.3. *Kuzguncuk allotment garden*

The residents of Kuzguncuk formed a neighborhood association in 1992. They defended the garden for almost ten years, with the TMMOB and the Chamber of Urban Planners Istanbul branch’s support [L3]. As in the Roma community garden case, the organizations prepared reports and followed the court case closely to protect the land for public use. Supporters of the garden won their case in 2002 [V5]. The neighborhood association established a cooperative and rented the area from the Directorate to maintain the garden as an education center and for urban agriculture purposes [N1; V6]. Due to the lack of leadership and management issues, the neighborhood association agreed to rent out the garden to a nursery to keep its green status [N2; LG2]. In 2010, another development plan was generated for the area, a private school project. This time, the neighborhood residents came up with a new landscape project to design the garden for a multi-purpose allotment garden (Durgun, 2019; Özer, 2014; Mills, 2010).

4.2. *Solidarity networks for supporting community practices and knowledge dissemination*

4.2.1. *Yedikule market garden*

The Yedikule market gardens gained prominence amongst critical academics and activists concerned about the economic development project’s erasure of Istanbul’s history and the garden’s role as a means to increase food security. Academics and activists linked diverse platforms and movements to resist the market gardens’ loss, especially after the 2013 Gezi Park revolt. First, they used their individual networks to get domestic and international attention to promote market gardens as beneficial to public health by selling fresh and organic products to the locals [A1; A2]. Cultural heritage was another rallying point as these gardens date to Byzantium times, with communities maintaining rich local ecological knowledge through urban agricultural production [L2]. Second, activists, academics and social entrepreneurs created solidarity networks to distribute the products of the market gardens to different locations and spots in the city, including university campuses, local markets, and home-delivery to enhance the livelihood of the farmers but also inform the locals about the availability of healthy food produced in the city [N1; V3; V4]. Third, social entrepreneurs and academics made efforts to inform the public about the destruction of the market garden. They invited other civil society organizations to join the protests to stop the bulldozers aiming to develop the Fatih municipality’s theme park project, as one interviewee says, “feminist groups and animal-right advocates showed great support and joined us that day right after their protests in another locations – A1.”

4.2.2. Roma community garden

Right after the 2013 Gezi Park, the BCD and volunteers/activists decided to clean up the vacant land and turn it into an urban green common, where local residents, social entrepreneurs, and activists get together to practice urban farming and claim their rights to use publicly owned land [C1; N3; L1]. These efforts leveraged and expanded existing guerrilla gardens on vacant lands. The volunteers/activists are predominantly non-residents of the neighborhood drawn to the Roma community garden through their social networks. These non-resident volunteers/activists devoted time and energy to create the green commons, organized various events with academics to attract public attention within and outside the neighborhood, and their personal funds to transform the vacant land for public use [A1; L1]. The Roma community garden activists also interacted with regional and global networks for best in-situ gardening practices exchanging seeds to grow a variety of vegetables for their own consumption and to sell at organized public events to raise funding to maintain the garden [C1; N2]. Nevertheless, interviewees brought up their worries about losing the garden as it is located in the urban core, and eventually, developers will soon target it for their real-estate projects [V1; V2; N2].

4.2.3. Kuzguncuk allotment garden

According to our interviewees, expanded public interest toward Kuzguncuk allotment garden emerged after the 2013 Gezi Park revolts, where the garden was used as one of the urban forums by the activists, local residents, and academics to discuss the future of urban green commons in the city and the freedom of speech and public space in the country in general [A1; C2; U2; V5]. Meanwhile, the residents and activists occupied the land together to resist current development plans leading to the rejection of the private school project by the Parliament Commission in 2013 (Durgun, 2019; Dunderalp, 2017; Özer, 2014). Unlike in the cases of Yedikule and Roma, the district municipality of Uskudar agreed to collaborate with the neighborhood association and rented the area for allotment garden purposes in 2014 (Durgun, 2019). In addition to the plots built by the local government for educational and recreational purposes of the neighborhood schools, the allotment gardeners, who are the residents of the neighborhood, are registered members with legal access to the property and recognized rights to manage their designated plots independently. An interviewee described how ongoing collaboration with the municipality led to heated discussions among residents and activists about co-option, in which people from both sides were unhappy with the local governments' involvement as the garden has historically been a place of collective action against the local and national governments' short-term economic interests [V6]. Another interviewee added: "This was the least desired scenario but now at least we are happy to keep the allotment garden status' with the local government's involvement -V5." The municipality showcases the Kuzguncuk allotment garden in their public relations documents.

5. Discussions

This paper aims to understand activist and local residents' roles and their contributions in creating and conserving urban green spaces in Istanbul. The illustrated cases show that there are both formally and informally established urban green commons in Istanbul. Each has crucial collective action networks, including activists, locals, academics, and professional organizations that seek to create and maintain NBS. Urban green commons, as NBS, are not a phenomenon driven by policymakers but rather as a locus of resistance. The three cases examined from the Global South explore how violence against activists and failure in inclusive governance mechanisms due to power asymmetry favoring urban development projects in Istanbul profoundly impacts the future of NBS. Locals contesting the multiple effects of these relations re-frame spatial justice as participatory and productive ways of conserving and developing urban green commons in the city, and they refuse political marginalization and polarization. While the collective actions that

emerged in the three cases seek to spatially redistribute remedies amid urban development projects, spatial justice through NBS is not fully achieved. These collective actions reveal new ways of thinking about urban green commons and spatial justice by reframing conventional understandings of NBS, space, and climate adaptation. Collective actions to ensure spatial justice in the three urban green commons from the Global South are activities of struggle that aim to transform the socio-spatial relations, which are constantly being created and spurred by the national and local governments.

In all the three empirical cases, we observed that activists within and outside the neighbourhood attempted to unite vulnerable groups under formal structures (e.g., establishing associations) supported by locals, academics, professional organizations, and social entrepreneurs. These efforts included work with professional organizations that used formal and legal channels to open court cases against local and national authorities. The activists' efforts and the formal organizations' assistance to urban green common organizers were critical to efforts to seek justice within the existing judicial system. Conversely, the aforementioned institutions used the state apparatus, such as delaying court decisions, passing decree-laws, and dismantling collective actions. Thus, the conflict between citizens and the state (including local and national authorities) illustrates a need to pay greater attention to justice in which the judicial branch, as in our cases, plays a dominant role - even in Turkey, where recently judicial power has been reduced by the national government - in protecting citizens against the authorities' arbitrary decisions over urban space.

New forms of relationships between professional organizations, academics, locals and activists have led to the emergence of neighborhood associations, which have enabled activists and locals to interact with the formal local governance structures. Nevertheless, such forms of relationships do not necessarily alter the rigid governance structures, and the tensions between the two types of agents are observed in each case. In Yedikule and Roma cases, the established neighborhood associations did not work toward collaborative management of the gardens with government because activists/volunteers and locals were worried that if they collaborated with the local governments, their actions would have been co-opted by the authorities. In the Kuzguncuk case, however, an established neighborhood association had already dealt with multiple attempts at development plans from the local and national authorities resulting in an unenthusiastic willingness to collaborate with the local government. Although groups and individuals were reluctant to work with local authorities, more formalized associations in the district encouraged locals and activists to pursue the formal route that was amplified by external support from urban planning firms - collectively this coalition convinced the local government to support allotment garden practices. Nevertheless, the urban green commons movements have continued to resist the singular focus on local economic development that dominates national and local politics. The collective actions of civilians and their demands for greener and liveable urban areas were minimized or co-opted by nationally supported local officials. A lack of local autonomy and professional association control of economic development has been limited by the shift away from Istanbul's formerly hybrid governance structures; these hybrid governance structures facilitated diverse views from multiple stakeholders with greater local self-determination.

Overall, in this paper, collective actions for spatial justice through NBS position urban green infrastructures as an essential lever of climate adaptation. Urban green infrastructures are undoubtedly at the centre of urban planning, and concerns increasing amid climate change bring together coalitions of environmental advocates and locals that mobilizing to conserve and develop urban green commons is important to effecting spatial justice. In an era where climate adaptation in cities is embodied through urban green infrastructures (e.g., tree canopy), activism will no doubt be important to ensure spatial justice. Activists, locals, and particularly union of chambers recognized these issues and were constrained by increasing repression from the rise of the

authoritarian policies following the Gezi Park protests. Certain socio-political groups have historically been marginalized and excluded from the state apparatus’s decision-making processes. Lack of political capital and access means that marginalized groups will inevitably seek channels to be recognized and supported by the public and gain attention from the formal authorities, often resulting in co-option or elite capture amongst more vulnerable communities.

Collective action for urban green space has not addressed these justice issues, although nascent networks emerged across the city that could (in the future) serve these purposes with the inclusion of more diverse voices. Another important characteristic of the empirical cases is how the collective actions and formal organizations’ involvement are highly dependent on proximity to and the quality of green parks in Istanbul’s well-known districts, such as Cihangir and Kuzguncuk. Those neighbourhoods with highly educated and high-income professionals could more easily leverage existing (or build new) networks with professional organizations; these communities could parlay their power to act collectively. Selective focus on gardens in central, high-income neighbourhoods may reproduce inequity and spatial injustice. Further studies must focus on why such organizations acted selectively to defend certain urban spots over others.

6. Conclusion

This study illustrates that NBS generally and urban green commons, in particular, are highly intertwined with local and national politics, policy, and actions in Istanbul and Turkey. The promotion of spatial justice through resistance to the local economic development agenda is central to the Istanbul NBS narrative. Critically, the 2013 Gezi Park revolt was a bottom-up movement about much more than NBS; it informed and transformed national politics. Political retrenchment and increased authoritarianism resulted in authority over and control of professional associations. Based on the insights conveyed herein and considering the benefits of NBS as one of the many ways to mitigate Istanbul’s climate vulnerability, we must explore the spatial justice dimensions of NBS—who benefits, where, and why. Publicly owned lands in a megacity like Istanbul are increasingly privatized for the real estate market. Local and national policymakers need to carefully consider why cities need urban green commons to mitigate the impact of climate change and how collective actions for sustainable urban socio-ecological systems are directly linked to justice.

Annex I.

Table 1: Description of interviewee’s sectors and positions.

Identified Codes for the Interviewees	Roles
LG1	Environmental Engineer, Istanbul Metropolitan Municipality
LG2	Environmental Engineer, Istanbul Metropolitan Municipality
L1	Local resident in Cihangir
L2	Local resident in Yedikule
L3	Local resident in Kuzguncuk
U1	Urban Planner, the Chamber of Urban Planning
U2	Urban Planner, the Chamber of Urban Planning
U3	Environmental Engineer/Legal Advisor, the Chamber of Urban Planning
C1	Founder, urban planning community organization
C2	Staff member, urban planning community organization
N1	Founder/social entrepreneur
N2	Staff member/social entrepreneur
V1	Volunteer/Activists in Roma Community Garden
V2	Volunteer/Activists in Roma Community Garden
V3	Volunteer/Activists in Yedikule Market Garden
V4	Volunteer/Activists in Yedikule Market Garden
V5	Volunteer/Activists in Kuzguncuk Allotment Garden
V6	Volunteer/Activists in Kuzguncuk Allotment Garden

(continued on next page)

Addressing climate adaptation exacerbated by local extreme weather events calls attention to NBS; these solutions are often implemented as alternatives to more traditional infrastructure. Urban green commons are an important NBS and serve as a locus of collective action, forums for just climate action, and resistance to an increasingly authoritarian state. Marginalized communities and groups are side-lined by local and national governments from the decision-making processes; historically, well-connected professional organizations served as brokers in legal and political proceedings but increasing authoritarianism has limited pathways for redress. Collective action in the case of Istanbul urban green commons must also be seen as resistance to the dominant political and economic constellations that hold power to transform urban settings. Through collective actions, marginalized communities can regain agency by creating new socio-political identities to push local and national governments toward social inclusion and justice.

Local governments create engagement spaces, where policymakers, civic groups, and businesses are represented and function through hybrid urban governance mechanisms. More research is needed to understand whether these spaces of engagement facilitate cooperation among multiple stakeholders for policy change and implementations or are co-opted by local and national governments to serve their agendas, such as economic development. Further research on just NBS must focus on the importance of collective resistance and actions to transform hybrid governance processes to create, conserve, and develop urban green commons.

CRedit authorship contribution statement

Mahir Yazar: Conceptualization, Methodology, Writing – original draft preparation, Writing – review & editing. **Abigail York:** Supervision, Writing – review & editing.

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.

Data availability

The data that has been used is confidential.

(continued)

Identified Codes for the Interviewees	Roles
A1	Faculty Member
A2	Faculty Member

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