



# Perceptions of park visitors on access to urban parks and benefits of green spaces

Sukanya Basu<sup>a</sup>, Harini Nagendra<sup>b,\*</sup>

<sup>a</sup> Centre for Climate Change and Sustainability, Azim Premji University, India

<sup>b</sup> School of Development, Azim Premji University, India

## ARTICLE INFO

Handling Editor: S Silviya Krajter Ostoic

### Keywords:

Ecological justice  
Urban green space  
Gentrification  
Accessibility  
Urban ecology

## ABSTRACT

There has been limited research on understanding access to public green spaces in cities of the global South. In a study in Hyderabad, India, we interview visitors in four parks to understand their perceptions of and access to ecosystem services. Of these, two parks charge entry fees and two provide free entry or entry at minimal cost. Most users value the park as a recreational space, but are largely unable to access provisioning services such as food and fodder. This poses a particular challenge for low income residents. In the large parks with high vegetation cover, visitors could identify a variety of trees, plants, and birds, while in the smallest neighbourhood park which has the least amount of greenery, they could only identify a small number of species. Parks were visited more by men than by women, who cited challenges of lack of time, and lack of safety. Park entry fees also acted as barriers, for low income groups. The two parks located in wealthy and gentrifying neighbourhoods were almost exclusively accessed by middle class and wealthy visitors, because of the entry fee.

Surveys of willingness to pay found that wealthy visitors were keen to pay an entry fee and did not seem to understand the implications of such a fee on exclusion, low income visitors expressed negative views. A central role of the urban park as a 'public space' within a city is to nourish the sense of community. Yet some parks have been converted into landscaped and designed areas with high public investment, and entry charges, with limited provision for harvesting ecosystem services. Thus even in public spaces like parks, we observe stark gender and income inequalities, leading to the uneven access to green space.

## 1. Introduction

Cities across the world are extremely vulnerable to the loss of natural habitat. 68 % of the world's population will live in urban spaces by 2050 (United Nations, 2018). Accelerating urbanization has led to the rapid loss of green cover. Urban green spaces and parks help in microclimate regulation (Finaeva, 2017), resilience against natural disasters (Jayakody et al., 2018), improve soil fertility (Setala et al., 2017), support mental (Strum and Cohen, 2014) and physical health (Konijnendijk et al., 2013), maintain social cohesion and interactions (Peters et al., 2010), and improve social inclusion (Kazmierczak and James, 2007). Research across urban parks of diverse cities like New York (Sutton and Anderson, 2016), Singapore (Henderson, 2013), Tokyo (Kohsaka and Okumura, 2014), and Delhi (Paul and Nagendra, 2017) have demonstrated the importance of green spaces in regulating urban health, supporting biodiversity and enhancing livelihood opportunities.

The ecosystems present within and around cities are often adapted to

serve specific ecosystem services to urban dwellers (Gutman, 2007; Sandhu et al., 2013). The Millennium Ecosystem Assessment (MEA, 2005) defined ecosystem services as "the benefits people obtain from ecosystems" which are categorised into four categories, i) Provisioning services (e.g. food, water, raw materials and energy) ii) Regulating services (e.g. carbon sequestration, climate regulation, air and water purification, waste decomposition) iii) Cultural services (e.g. aesthetics, recreation, eco-tourism) iv) Supporting or Habitat services (e.g. nutrient cycle, primary production, soil formation, habitats). Urban ecosystems are valued as common resources that are accessed by local communities for livelihood and cultural uses as well as by used by urban residents largely for cultural services (D'Souza and Nagendra, 2011; Garnett, 2012).

Equitable access to urban green spaces is not found across different social groups. As David Harvey explains in his classical work 'geographies of need' (Harvey, 1973), access to public services are perhaps most important for disadvantaged residents, thus forming a core concern for

\* Corresponding author.

E-mail address: [harini.nagendra@apu.edu.in](mailto:harini.nagendra@apu.edu.in) (H. Nagendra).

urban planning from the perspective of environmental justice (Hughey et al., 2016). Thus, for instance, in Schenzen, China, there are ‘oases’ and ‘deserts’ of access to public green spaces, with low income areas particularly devoid of urban green spaces (You, 2016).

In contemporary cities, parks are a prototype of new public spaces, gated with fences and guards, and landscaped with food courts and cafes (Kohn, 2004). The application of entry charges restricts certain forms of earlier usage of these spaces and attracts white collar workers and wealthier residents. As a consequence, the sense of ‘commons’ is lost and experience landscape transformation from utilitarian value to recreational and aesthetic value (Monbiot, 1994).

The importance of parks as green spaces varies for different cities, and for different categories of residents depending on their social and cultural backgrounds (Priego et al., 2008). All urban residents are unable to access green spaces equally, facing disparities in access in terms of variables such as proximity to green space, size of park, quality and safety (Rigolon, 2016). In Berlin, neighbourhoods dominated by immigrants and by the elderly tended to have poorer access to urban green space (Kabisch and Haase, 2014). Gender also plays an important role in shaping access to parks. In Delhi, men accessed public parks more than women due to safety concerns expressed by women Paul and Nagendra (2017). In Guangzhou, China, women have also been shown to be more reluctant to engage in outdoor activities as compared to men (Jim and Shan, 2013).

An important element in the nature of use of these parks is the process of gentrification. ‘Gentrification’ can be defined as a process by which “working class residential neighbourhoods are rehabilitated by middle class real estate buyers, landlords and professional developers” (Hackworth, 2002). According to (Ley, 2011), the major concern of gentrification is the “perennial narrative of residential displacement”, a process in which lower income residents are successively replaced by middle class residents.

Urban greening seems to be an increasingly preferred strategy by planners in cities across the world, seeking to revitalise urban neighbourhoods. This often occurs through the exclusion of poor residents (Haase et al., 2017). Green gentrification can be defined as the process of displacement or exclusion of economically vulnerable classes of the society, enabled by the creation or renovation of an environmental amenity (Dooling, 2009; Gould and Lewis, 2012). Such renovation of environment can create an urban green paradox, by making the neighbourhood more desirable and attractive, escalating the cost of housing, and leading to the exclusion or displacement of certain classes of society (Wolch et al., 2014). The voices of long-term residents, the working class and lower income groups are seldom articulated when concerns for the environment are addressed. As Checker (2011) suggests, this forms a type of “environmental gentrification,” which appropriates expressed values of sustainability to serve profit motives, resulting in exclusion of the poor.

Despite increasing research on green gentrification and environmental justice implications of inequities in access to urban green spaces, there remain significant gaps in our understanding of how people relate to, and are impacted by such gentrification and exclusion, and their responses, especially in the context of the global south (Anguelovski et al., 2019). Smith (2002) suggests that cities in the global south form a new gentrifying landscape with a leading edge. Cities from the global south are predominantly located in low to middle-income economies, and have grown at significantly faster rates in comparison to the cities in developed nations (Nagendra et al., 2018). Unfortunately, there is little research on urban sustainability aspects from the urban global south, and this constitutes an especial knowledge gap (Nagendra et al., 2018).

This study seeks to contribute to the limited understanding of perceived benefits of urban parks and challenges to access green spaces especially for the lower income groups, in the urban global south context. The study focuses on Hyderabad, one of India’s largest cities. The parks selected for this study are spaces which serve the ‘global’ functions of Hyderabad, interspersed with the local working class

community that once dominated the neighbourhoods. The process of transformation varies across multiple parks, enabling a study of the nature of these parks and their accessibility to different sections of users. The focus of the research is to understand the multiple experiences of users of the park in terms of their accessibility to environmental benefits. In doing so, we seek to contribute to the growing body of ethnographic studies of urban ecological justice (e.g. Isehour et al., 2015), situating an understanding of gentrification in everyday lived experiences, as articulated by a diverse section of park visitors.

Our specific objectives are to understand: How do visitors perceived benefits that urban parks provide? How accessible are these services to all the sections of the city? And finally, how does the imposition of access fees in public parks change the accessibility of the parks?

## 2. Study area

Hyderabad is one of the largest megacities in India. Similar to Bengaluru, the city is envisioned as one of the aspiring “World-class” cities. We aimed to look at a city which is less explored with limited literature but at the same time facing serious threats due to massive growth and technocratic imagination of the growing city. The average temperature of Hyderabad is around 26.6 °C, with extreme hot summers where the temperature can exceed 40 °C. Green spaces like parks are perceived to be highly important to the city, as it is otherwise quite challenging for people to spend time outdoors due to the heat.

The city is located in a semi-arid ecological zone, with sparse forest cover (State of Forest Report, 2017), and a low per capita green space of 0.5 m<sup>2</sup> (Govindarajulu, 2014). As per the 2011 census, Hyderabad had an estimated population of 8.7 million with a population density of 18, 480 people per km<sup>2</sup>. The green cover of Hyderabad has declined from 2.71 to 1.66 % in 20 years (Ramachandra et al., 2016) therefore the municipality is now considering initiatives and policies to increase green cover. Like many other examples across the global south, city development in Hyderabad reflects local urban policies that integrate its green areas into its global economy, by focusing on making places green so that they are attractive for high income groups to live, work and play.

### 2.1. Sample area selection

The city has 49 large parks and one reserve forest. Of these, we selected 3 large parks and the reserve forest. Fig. 1 shows the selected parks for the study. The parks were selected to cover well known parks of the city with no entry charge, minimum entry charges and high entry charges, managed by different institutions, for comparison. Hyderabad, because of its location in a semi-arid environment, has a historically open landscape with minimal tree cover – most trees in these parks have been planted, and many are exotic. Each park has unique characteristic features, and is located in a different zone in the city.

Indira Park (Fig. 2a) is located at Lower Tank Bund Road on the bank of Hussain Sagar Lake. It covers an area of 76 acres, and was inaugurated in 1978. The park is operated by the Greater Hyderabad Municipal Corporation (GHMC). It is located in Domalguda, a resident colony lies along the Hussain Sagar lake. There is free entry to the park from 4 to 8.30 am. After this, there is a minimal entry fee of Rs. 10 for adults and Rs. 5 for children. The park remains open from 4 a.m. – 8 pm. It is one of the oldest public parks in Hyderabad and one of the most used public spaces. Tourists and visitors coming to the religious institution *Ramkrishna Math* opposite to the park often visit the park. The development of the region has been catalysed with many commercial and residential developments.

Kasu Brahmananda Reddy National Park (KBR) (Fig. 2b) or Chiran fort was approved as a national park in the year of 1998. It is located in Jubilee Hills, very close to the residential area. KBR covers an area of 400 acres of land and it is maintained by the Telangana Forest Department. The park charges Rs. 25 for adult and Rs.10 for children, and is open from between 5 and 10 am in the mornings, and between 4 and 7

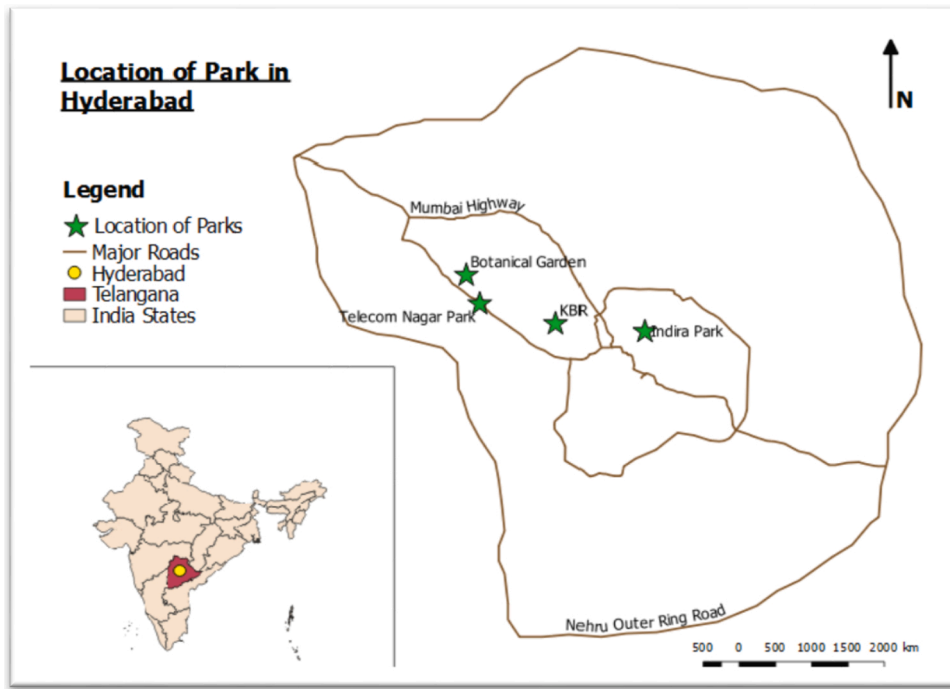


Fig. 1. Selected Parks in Hyderabad.



Fig. 2. Four Parks: a) Indira Park; b) KBR National Park; c) Botanical Garden; d) Telecom Nagar Park.

pm in the evenings.

The Botanical Garden (Fig. 2c) covers 274 acres in Kondapur. The park has different sections which include medicinal plants, fruit trees, timber trees, ornamental plants, aquatic plants, bamboos. The park has a

long walking trail, bordered by dense tree cover. After recent restoration, the park has been converted into an eco-tourist destination with cottages, canteens and other amenities. The entry charges are Rs. 25 for adults and Rs.10 for children. The charges for nature photography are



Rs. 500. A monthly pass for morning walkers costs Rs. 500.

Telecom Nagar Park (Fig. 2d) is a 2 acre land of park classified as an urban park by GHMC. It is a free public park with a children's playground and a walker's track. It is frequented by adults in the morning and evening, and children in the evening. It remains open from 5 a.m. to 8 pm and is surrounded by residential and commercial complexes, restaurants and cafes. Telecom Nagar Park is a very small park, used by a large number of people. Including this park in the study provides a useful contrast to the other parks, located in wealthier neighbourhoods.

### 3. Methods

We used qualitative design for this study. Individual interviews and focused group discussions with the park visitors were used as primary data collection methods by using an opportunistic sampling strategy (Sandelowski, 2000; Kim et al., 2017; Sefcik et al., 2019). This enabled us to get a descriptive and detailed understanding of the benefits perceived and challenges of users to access parks coming from various economic backgrounds.

Interviews were conducted with 208 visitors in these four parks (Table 1). In addition, 23 in-depth interviews were conducted with specific visitors who were willing to engage in a long conversation. The visitors were randomly approached, then engaged in conversations with those who were willing to talk. The first author of the paper (SB) conducted these interviews as part of her Master's thesis, from November 2018 to February 2019, as that period was allotted for data collection. November to February correspond to the cooler winter months in Hyderabad where there is more use of outdoor space. In other months the city is often too hot to use outdoor spaces like parks. Interviews were largely conducted during 6 a.m. and 10 a.m. in the mornings, and again during 4 pm and 8 pm in the evenings, when visitor frequency is high. The interviews were conducted on weekdays, weekends and public holidays. The language used was English or Hindi. Occasionally, evening interviews were not be conducted due to considerations of safety, especially at times when the parks had few visitors, keeping in mind the safety constraints that characterize urban fieldwork by women in many cities across the world. Each interview lasted between 20–25 min, while the in-depth interviews extended over an hour. Approximately 20 % of approached participants did not agree to be interviewed, mainly citing lack of time. In some cases, language posed an additional barrier, when the interviewees spoke a language (mainly Telugu) that the interviewer could not understand.

We approached individuals within the park space to obtain data on i) the directly perceived benefits of parks (provisioning services) ii) indirectly perceived benefits (recreational and cultural services) iii) ease or challenges to access park space. We asked questions about their preferences and uses, type of accommodations, household income, and their ability to pay and willingness to pay. These questions enabled us to assess perceived ecosystem services, accessibility and inequalities in access and use. The selected participants for in-depth interviews were long term residents or regular visitors of different age and gender groups. In our study, we have considered 'long term visitors' as people living in closer neighbourhoods for more than 10 years and visit the park

at least thrice a week whereas, the 'regular visitors' are people who lives in closer neighbourhood for less than 10 years or visit the park at least thrice a week. The proximity was determined by means of commute and time taken to reach the park. The 'long term visitors' are the ones who walked to the park and took less than 10 min to reach, whereas, the 'regular visitors' are the ones to use other commute and/or take more than 10 min to reach the park. The semi-structured questionnaire comprised both open ended and close ended questions. All the participants were provided information that clearly explains the basic aims of the research and promised confidentiality. Some of the interviews were recorded with the participants' permission, and for others, notes were hand written. As spatial demographic data (Sister et al., 2010) and Wolch (2014) on access was not available, a common challenge for many cities from the global south, we could not use methods of GIS analysis for this research.

### 4. Results

#### 4.1. Perceived benefits

Visitors valued parks highly for the multiple benefits they provide, expressing their affinity for parks in multiple ways, as the quotes provided in Table 2 demonstrate. Physical activities were most commonly mentioned by visitors (Table 2, Fig. 3). One of the most common activities performed in the green space was exercise - walking, jogging, running and yoga. The intensity of park use was highest in the early mornings and evenings. Many visitors valued the parks highly for the opportunities they provided for safe and accessible spaces for daily exercise.

Apart from physical activities, recreational services were also frequently mentioned. These included a leisurely pleasurable stroll in a green environment, meeting and socializing with friends and family, picnicking, watching children play, observing nature, enjoying solitude, and seeking a peaceful spot to recharge. These activities seem to play an important role in maintaining their mental health and wellbeing.

Many visitors seemed quite knowledgeable about park biodiversity. Indeed, the GHMC often consults with local residents on the choice of species to plant. Visitors seemed to have a fairly high knowledge of species. In particular, those who visited the Indira Park, with dense cover and a variety of tree species and bird life, were able to describe a number of different kinds of species – these visitors seemed to have the most knowledge of local biodiversity. On the other hand, most visitors in KBR National Park were only able to repeat the names of a few common species. Biodiversity knowledge was the least in Telecom Nagar Park, where the park was small, and intensely visited by people.

Overall, among birds, the native peacock (*Pavo cristatus*), and among trees, the native species neem (*Azadirachta indica*) were the most frequently identified. Apart from the neem tree, mangoes (*Mangifera indica*), and palms (*Arecaceae* sp.) were the most frequently named tree species, and rose (*Rosa* sp.) and jasmine (*Jasminum* sp.) were the most popular flowers (Table 3). Visitors from all the four parks identified plant species more frequently than birds. Older citizens knew the names of many more species than younger visitors. 30 % of older citizens

**Table 1**  
Details of parks studied.

S. No.	Zone Name	Name of the park	Category	Area in Acres	Foundation Year	Entry Charges	Operated by	Number of Interviews done
1	Central	Indira Park	City Level Park	76	1978	Adults: 10/- Children: 5/-	HMDA	51
2	West	KBR National Park	Reserve Forest	390	2010	Adults: 25/- Children: 10/-	GHMC	50
3	West	Botanical Gardens	Urban Park	270	2003	Adults: 25/- Children: 10/-	TSFDC	56
4	West	Telecom Nagar Park	City Level Park	2.5	1998	Free entry	Telangana Forest Department	51

**Table 2**  
Motivation for park visits as expressed by visitors.

Main motivation for visiting the park	Age	Gender	Park	Quote
Exercise and Meditation	38	Female	Telecom Nagar Park	My child is having tendency of obesity from past few years. Doctors prescribed vigorous exercise and lifestyle modification. I don't have time to take him to the activity classes like swimming or dance. So my neighbour brings my child along with hers. The kids enjoy and have good time together. I bring them on every weekend.
	32	Female	KBR National Park	Hardly get time to come to the place. But usually try to make it on every Sundays for the yoga and meditation sessions.
	31	Female	KBR National Park	This is a beautiful place in the city. I am coming here only from 2 months Earlier I used to live near old Hyderabad, there were no park or lake around. The area was affordable but this place is worth every penny I spend. Me and my fiancé wanted to live here. I am happy that I shifted, I don't need to pay for gym anymore.
	43	Male	Botanical Garden	Lovely to be a place where I can enjoy exercise in open fresh air.
Business	56	Male	Telecom Nagar Park	I come here everyday for a walk. I am diabetic with several other complications. So I come to the park like a routine. It is more effective than medicine for me.
	47	Female	Indira Park	It's friendly, not all respond the same way as people are mostly walking or running inside the park, but many people do sit and listen to me for the business. Few of them show interest. I made around 40–50 clients and some friends.
The missing connection	44	Female	Indira Park	I am from Kerala, Hyderabad is not green enough for me for obvious climatic conditions. I have grown up in forests; I don't find much connection here. But this park being a major reason for buying an apartment next to it. It helps me to survive Hyderabad.
	56	Female	KBR National Park	Life is better when I come and simply sit here with a cup of coffee. Experience whole new solitude. I always come here alone and sit here for hours after a half an hour walk.
Enjoy solitude	54	Male	Botanical Garden	I am from a very dry and arid part of Telangana, never had parks or playgrounds around us. I remember how difficult it was to walk to school, hardly any trees to sit under when tired. I enjoy being with myself here.
	58	Male	Indira Park	

**Table 2 (continued)**

Main motivation for visiting the park	Age	Gender	Park	Quote
Making new friends and playtime	79	Male	Indira Park	I come here for peace and patience. I belong to a village in Punjab. My home is a lush green farm, Hyderabad is hardly green. Although it is better than Mumbai. I bring my grandkids here every evening. We love coming here, pollution free, safe, so much space and amenities for children to play. Usually they don't have time to make friends in the colony at least get to make friends here.
	43	Female	Indira Park	I met so many new people here, my children made friends. Some of them live in my own community building but strangely never met there.
	41	Male	Botanical Garden	I get to meet friends here, relax. These days we only meet in restaurants or cafes, meeting in nature is also very fun.
Feel young	73	Male	KBR National park	I might look very old to you but you know this place makes me feel young. I come here with my friends. We are a group of 7 friends, our friendship started here. We are now a family.
	54	Male	KBR National Park	Interestingly, none of us are natives of Telangana. You won't understand it now, as you are too young for it, spending life at this age in a different city other than your birthplace is difficult and painful at times. But I am so glad to find a family here who are going through a similar crisis, so we can share and chat and connect to each other. This brilliant place keeps us in touch with nature.
Healing	54	Male	KBR National Park	I am doctor by profession (pulmonologist) but my mother and my 5yrs old daughter is suffering from chronic asthma (pulmonary disorder). We were living in Mehedipatnam (in our own home) for 27 years. The only reason I shifted here next to this place is because of KBR. Fresh air and a pollution free environment are all my child needs. I take mom and child here daily, make them exercise.
	67	Male	KBR National Park	One of the most lively places in the city. It is great to have a place like this. In spite of this place being so huge we almost know everyone, people pass a smile often. It feels a very close own place.
Safe place and home	29	Female	KBR National Park	I remember on the first day I shifted to Banjara Hills, I came to visit the park nearest my home. It was evening and I was lost - I was super scared

(continued on next page)

Table 2 (continued)

Main motivation for visiting the park	Age	Gender	Park	Quote	
Recreation and community spirit	76	Female	KBR National Park	in the middle of a jungle with no people around. Suddenly I saw someone coming. I was even more scared and started moving ever faster. And then I hear a voice saying it's the other way, pointing towards a road to the entrance. Now we are good friends. In spite of the massive dense area of trees you can feel completely safe here. This place is our second home we come here with friends have very long chat of various topics. You know, I found my daughter in law here. That's a funny story. It's a very special place in my heart. All the day long we usually stay in the home alone. Kids are all out. It's very lonely. I am glad I come here 15 min. walking from my home and spend great time with other people and friends. Having a picnic with family and friends is the loveliest thing about this place. I want to know why we don't have parks like this near our place. It's like a playground for my children. I bring them here everyday. If not me then I ask any of my neighbours to take them here. It's a very lively and happy place. We come here with my office colleagues during the snack break. We walk around, chat, play badminton, or simply sit. I am very happy it is very near to our office so that we can have a place to escape. All the people around are known faces, exchanging smile daily. I come with a cup of coffee and enjoy me-time here. I also bring some plants for the park whenever I visit a nursery. Isn't it great to see a plant that you have once planted is now a grown up tree? Most jolly and friendly place, always have someone to share and talk to. It is safe, we can stay back till the late of evenings.	
	68	Male	Botanical Garden	It feels good to walk around the wild and feel the nature around.	
	37	Female	Telecom Nagar Park	This is my favourite place in the whole city. The vibe and the ambience is so soothing and refreshing. I enjoy being alone here. It makes me feel connected to myself. Have you ever seen birds here? They will make you feel happy for no reason. I never wanted to live in Hyderabad, but had to shift here after marriage had to move in my	
	48	Male	Telecom Nagar Park		
	72	Female	Telecom Nagar Park		
	64	Female	Telecom Nagar Park		
	70	Male	Botanical Garden		
	Wilderness and Greenery	59	Female	KBR National Park	

Table 2 (continued)

Main motivation for visiting the park	Age	Gender	Park	Quote
Family time	66	Female	Botanical Garden	in-laws place. Here I found a home in the park. This place means a lot to me. My son brings me here whenever I feel like going out somewhere. I love trees and flowers. My son and everyone else are busy in the family. At times they drop me here on their way to the office. I enjoy being here, rarely get bored even when alone. We brought our children to the park as our first outing 3 years back, now the place is very different. It was lot more free and nice back then, Now the new rules and new space have changed the real flavour of the park. I don't connect any childhood memory or present. The place I live in have no parks anywhere near, so we come here at least once in 6 months to have family outing and picnic. I think these parks should be everywhere. I bring my mother here on the free evenings and spend a good time. It reminds me how my mother used to take me to the parks back in my childhood. Both of us feel nostalgic.
	36	Female	Botanical Garden	It's a treat to the eye and reminds me of my own childhood.
	28	Female	Indira Park	Bringing my grandchildren here everyday is my favourite job of the day. It's their favourite place turned out to be my favourite one. Feels like reliving the childhood again, we the grandparents meet and discuss our days and experiences. There are so many stories to share and hear. Love this place.
	31	Female	Telecom Nagar Park	
Nostalgia	41	Male	Indira Park	
	81	Male	Telecom Nagar Park	

interviewed stated that gardening was a hobby, and they had a keen interest in biodiversity.

4.2. Gender and access

We observed more male visitors (61 %) than female (39 %). Because Telecom Nagar is a small, community park with a limited boundary, where each part of the park is visible to others, women felt more comfortable, and this park seemed to have more women visitors. In contrast, the KBR National Park is very large, but the low number of tourists using the park and a limited community with access to the park leads to a feeling of safety. Both Botanical Garden and Indira Park are perceived to be unsafe for most of the women due to the sense of strangers visiting the park, and 'unknown' dangers. Another important frequently mentioned by women is that they have much less 'free time' to visit the park, compared to men. The selected direct quotations provided below give us a sense of the challenges perceived by users in their own words.

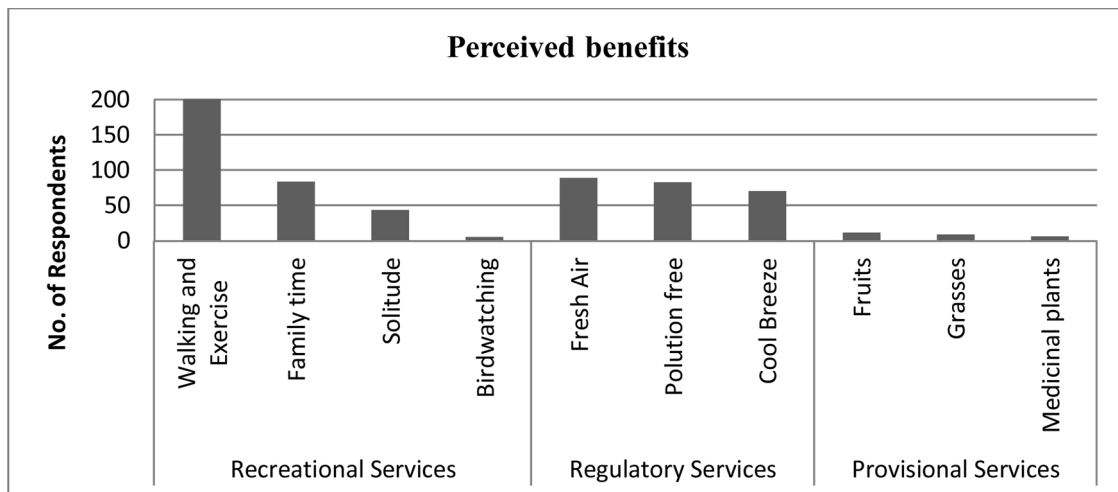


Fig. 3. Perceived benefits of all four parks.

Table 3  
Park visitors' knowledge of biodiversity.

Parks	Trees		Birds		Flower		Medicinal plant		Fruit	
	Species	(%) visitors	Species	(%)	Species	(%)	Species	(%)	Species	(%)
Indira Park	Bamboo	8	Sparrow	8	Rose	52	Turmeric	6	Khajur	12
	Palm	6	Crow	17	Bougainvillea	31	Neem	17	Badam	8
	Peepal	15	Pigeon	15	Jasmine	8	Aloe vera	4	Amla	12
	Neem	23	White owl	4	Bauhinia	2	Tulsi	12		
	Eucalyptus	4	Parrot	8	Golden shower	4	Amla	8		
	Banyan	27	Crane	6	Hibiscus	6				
	Mango	10	Eagle	10						
	Coconut	6	Hornbill	4						
	Jamun	8	Owls	2						
	Guava	4	Bat	8						
	Marri	2	Myna	2						
	Ravi	4	Cuckoo	6						
	Asoka	2								
	Papaya	2								
	Curry	4								
Sandalwood	6									
	<b>Average (min-max)</b>	<b>8 (2–27)</b>		<b>7 (2–17)</b>	<b>Average (%)</b>	<b>17 (2–52)</b>	<b>Average (%)</b>	<b>9 (4–17)</b>	<b>Average (%)</b>	<b>5 (4–6)</b>
KBR National Park	Bamboo	18	Pigeon	14	Rose	18	Tulsi	10	Guava	8
	Curry leaf	16	Parrot	8	Jasmine	6	Neem	24	Banana	4
	Banyan	63	Crow	16	Bougainvillea	14				
	Coconut	57	Bat	12						
	Neem	75	Peacock	94						
	Mango	24	Sparrow	14						
	Peepal	31	Bee-eater	2						
		<b>Average (min-max)</b>	<b>40 (15–75)</b>		<b>32 (2–94)</b>		<b>12 (6–18)</b>		<b>17 (10–24)</b>	
Botanical Garden	Eucalyptus	13	Bat	11	Bougainvillea	4	Alo vera	4	Banana	6
	Banyan	28	crow	17	Rose	4	Neem	9	Guava	4
	Peepal	17	parrot	6			Blue potter weed	2		
	Neem	47								
	Jamun	4								
	<b>Average (min-max)</b>	<b>14 (4–28)</b>		<b>11 (6–17)</b>		<b>4 (4–4)</b>		<b>5 (2–9)</b>		<b>5 (4–6)</b>
Telecom Nagar Park	Palm	33	Crow	10	Jasmine	14	Neem	18	None	0
	Neem	16	Sparrow	4	Rose	6	Tulsi	8	None	0
	Bamboo	18	Crane	10						
	Gulmohar	10								
		<b>Average (min-max)</b>	<b>19 (10–35)</b>		<b>8 (4–10)</b>		<b>10 (6–14)</b>		<b>13 (8–18)</b>	

“It isn’t easy to balance work life, family, and children and then find out a time for ourselves. I could only make it possible on the days when my children want to come”- woman, 43 years, Indira Park.

“I used to come to the park daily in the evening after dropping my daughter to her class, spend some here and pick her back to home. These days I avoid staying here in the evening because you don’t feel safe at all. Therefore, now instead of coming and waiting in the park, I go back home complete some of my work and come back again to pick her. My daughter and I go alone, so I can’t take the risk actually.” – woman, 41 years, Indira Park.

### 4.3. Income and access

The uneven access in terms of income disparities is also evident in these four parks (Fig. 4) KBR is located in one of the most elite neighbourhoods in Hyderabad. Botanical Garden is located in an area where development is very recent, and the neighbourhood is incompletely commercialised. Therefore, an economically poorer section exists in the nearby locality along with the richer neighbourhood. In fact, there is a clear isolation seen in this space, where the poor do not invade space of the rich.

“People don’t communicate much here, not a very friendly place.” – man, 68 years, KBR National Park

The neighbourhood around Telecom Nagar Park is also similar. In spite of this, because access to the park is free, this park sees a large number of low income residents who regularly visit the park, with their children. This park therefore promotes interaction across economic categories. A 30 year old woman spoke of how a group of elder citizens coming to this park helped rescue her from her abusive husband. She managed to get a job through the networks formed in this park, considers this park to be a life-saving space. In Indira Park, interactions among the poor and the rich are not as common with even the children segregated into different spaces for play. In this park, the participants from economically weaker sections said they are not regular visitors. They usually visit when their children force them or they have guests visiting their home.

Visitors stated they were unable to access these parks to extract food and fodder. According to the management of all parks, visitors are not permitted to harvest any products. In some parks, visitors developed a mutual understanding with security guards, who permitted them to harvest grasses to make garlands for specific religious festivals. Such an informal understanding was most frequently expressed by visitors to Indira Park.

“We used to live very near to the park, so we know the kaka (guard uncle) very well and we have the “setting”, we can get through easily without entry fee and collect badam from the tree (*Terminalia catappa*). No one else takes those usually.” – A group of children, 6–15 years, Indira Park

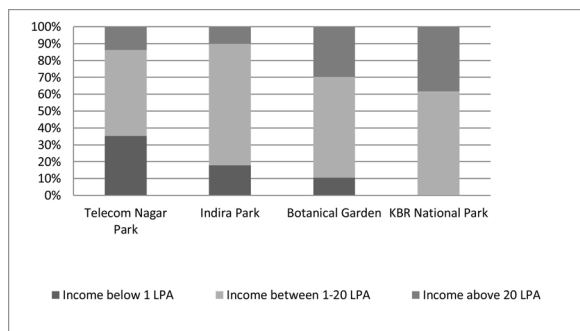


Fig. 4. Income range of respondents across parks.

“I collect grasses on Ganesh Chaturthi from the park, usually I am supposed to pay the GHMC for it, but I collect it without informing them for free.” – woman, 69 years, Indira Park

### 4.4. The imposition of user fees limits entry

Many visitors from low-income families stated that the imposition of user fees to enter the restored parks has made it difficult for them to access these spaces.

“It is only on special occasions we can bring our children in the park. We have to first pay for travel, then for the entrance for three children – it is very difficult for us to bear. If we bring our children, the neighbouring kids also want to come, it is sad to stop them.” – man, 41 years, wage labourer, Indira Park.

In Telecom Nagar park, where entry is free, even visitors from middle-class backgrounds indicated that this helped them to visit more often.

“This place is a great playground for our children, as well as a great space for running and exercise for me. I can bring my kids to play and exercise. Definitely, being it free encourages me to come here daily, had it been charged, I would not have probably come daily.” – woman, 36 years, IT employee, Telecom Nagar Park.

Very few participants from well-off economic backgrounds found user fees charges problematic - whereas most of the lower-income respondents wanted parks with a low or zero user fee. Some wealthier residents felt that imposing an entry fee was a good idea, and helped to keep the park safe and clean.

“Us, the people coming to KBR National Park, none of us have to bother about money, all we want is a good and safe environment. I feel charges should be kept high to maintain the integrity and safety of the space. It is our space and we won’t like it to get deteriorated.” – man, 67 years, local resident, KBR National Park.

The willingness to pay was linked to the ability to pay. 39 % of the respondents with an annual income below 1 lakh wanted free access to the parks. In contrast, only 10 % of those with an annual income from 1 to 20 lakhs, and 5% of visitors with an annual income above 20 lakhs wanted the entry to be free. Of these 34 % were willing to pay above Rs. 30 (Fig. 5).

## 5. Discussion

Green spaces like parks foster strong complex socio-ecological systems in an urban landscape. Parks in Hyderabad constitute essential public spaces in a rapidly growing city where nature is getting gradually pinched and squeezed out of the city. Corresponding to previous studies, from Indian cities like Swamy and Devy (2010); Paul and Nagendra (2017) and Swapan et al. (2017), we also find that the urban green

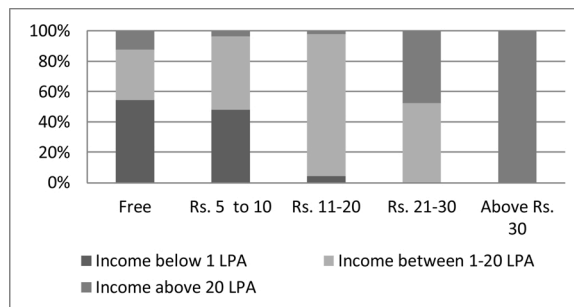


Fig. 5. Willingness to pay according to income category.



spaces are highly recognized for recreational services in Hyderabad. Parks are valued for the sense of community, the health benefits in terms of mental and physical health.

Older residents spent more time in the park, and valued parks for their contribution to their physical and mental wellbeing, corresponding to findings from studies in Jakarta (Mutiar and Isami, 2012), Chicago (Hutchison, 2009), Denmark (Schipperijn et al., 2010) and Delhi Paul and Nagendra (2017). In contrast to the elderly, women valued parks greatly, but were less likely to access parks in Hyderabad largely due to perceived problems of safety, as has been shown in Delhi previously, Paul and Nagendra (2017). Apart from safety issues, other aspects limit the capacity of women to visit parks for recreation – in particular the lack of time, due to the demands of domestic duty. In all our interviews, not a single man stated the lack of time as a deterrent. Many women did so, however, indicating that 'leisure time' or 'self-time' for women is very limited, irrespective of whether they are working women or homemakers.

Studies by Sister et al. (2010) and Wolch et al. (2014) offer important lessons on how the access to green space rights are disproportionately distributed among affluent communities residing closer to park vicinities, dislocating the lower-income groups to the periphery as a consequence of exponential hike in land prices. Using the case study of Hyderabad, we have identified a few critical drivers of gentrification which are different from other studies, which describe classical approaches, where residents from higher-income group move in and displace the socio-economically backward families (Sister et al., 2010; Wolch et al., 2014; Lees et al., 2015). Instead, we find environmental gentrification takes place through the reimagination or recreation of green spaces through public-private development strategies (Solecki and Welch, 1995; Dale and Newman, 2009; Pearsall, 2010). The imposition of a park entry fee has severely restricted access to users of low-income backgrounds, altering many of Hyderabad's parks to locations for wealthy and elite residents to use and shape. Several studies like (Whittington et al., 1990; Chen and Qi, 2018) evaluated how income levels significantly influence willingness to pay. While middle-class and wealthy residents are often willing to pay park entrance fees for better security and maintenance, our interviews demonstrate the impact that such fees have had on low-income residents, who are prevented from harvesting grass, flowers and medicinal plants, and reduce their frequency of visits because of the increased cost. Yet parks, as our interviews indicate, are important social security nets especially for women (as demonstrated by our interview with one woman who used the social networks she developed in the park to escape domestic abuse, for instance), children (who need open spaces to play) and the elderly (who especially value parks for the opportunity to connect with friends and reduce their sense of isolation and vulnerability). Restricting access to the park based on the willingness or ability to pay, as we demonstrate, can starkly exacerbate existing economic inequity, similar to the findings of another study in Bangalore (Unnikrishnan and Nagendra, 2014). As our interviewed visitors state, the implementation of an entry fee creates invisible walls around a public space. This contributes to a form of environmental gentrification. The imposition of entry charges is a clear indication of commodification/privatization of services of non-commercial resources (Muradian and Rival, 2012) and directly influence the income and access links as found in our results.

Parks are multifunctional ecosystems, and serve as common resources to the people living in the city. Parks provide both recreational (cultural) and provisioning services. The practice of harvesting non-timber forest products like wild greens promotes human-environment interactions and community practices which pushes the efforts of attaining a sustainable city (Hurley et al., 2015). It also enhances the ability of a park to contribute to the vegetation to an extent to support the livelihoods of marginalised communities. The vegetation in urban parks have a potential to facilitate insights on traditional conservation science practices and allows access to the communities who practice such conservation. In cities like Masvingo in Zimbabwe (Murwendo,

2011), Eastern Cape in South Africa (Shackleton et al., 2007, 2015) trees are found to provide diverse benefits to the urban residents, they collect products like firewood, herbal medicines and fruits as local common-ages. Similarly in Philadelphia and South California harvesting raw materials for sweetgrass basketry is perceived as an important role in maintaining cultural and material well being, mainly because these products are essentially free Hurley (2015). Many studies showed that urban parks are identified as potential areas to preserve vegetation and biodiversity by providing food and shelter (Heckmann et al., 2008; Barth et al., 2015; Mexia et al., 2018). But ironically urban parks, among the perceived benefits, recreational services are easy to access by joggers, runners and park visitors. Whereas provisioning services are significantly low overall, although, Indira Park shows a comparatively better picture among the other three. This study agrees with similar research in Philadelphia by Hurley (2015), that confirms the existence of informal understanding between the park users and security guards or park managers allows people to harvest and promote provisioning services. In contrast to that, huge urban parks like KBR National Park and Botanical Garden with strict rules and regulations restrict harvest from the park. Another potential reason for significantly low provisioning services could be the imposition of restrictions to entry. Our findings echo with a study on Bangalore lakes by Unnikrishnan and Nagendra (2014) which found restrictions in form of entry charges leading to exclusion of low income communities.

There are other components to restrict access to public spaces, as our study also finds. One such exclusion is visible in the recent renovation to the Botanical Garden for eco-tourism, with cottages, food courts, ornamental gardens and artificial flowers. This investment has altered the nature of the park, excluding a section of regular users. As a powerful reminder on rethinking displacement, (Davidson and Lees, 2010) mention that forms of displacement are often associated with a loss of sense of place. Such transformations are an effort to replace already existing practices of the users and reflect exclusion. The exclusive amenities with huge investment for the infrastructural (re)development aims to target the tourists' group which is limited in number. Our results resonate with (Ngom et al., 2016; Maia et al., 2020) which showed how accessibility and attractiveness are determining factors to identify ecological injustices and socio-economic inequity.

The potential range of benefits a park could provide to varied social groups in an urban landscape are seldom appreciated and incorporated into the planning practices and governance. To address these concerns, it's necessary to shift interests from opportunistic tactics of the governing institution to the adoption of adaptable and responsive planning strategies where all the user's preferences are considered and analyse the social trade-offs in relation to greening outcomes. Urban environmental justice research in global south needs to catch up significantly, hence, by examining people's experiences out research emphasised to provide critical insights to identify the drivers of exclusion and develop strategies to prevent further exclusion of the vulnerable social groups.

## 6. Conclusion

The structure, function and use of urban public landscapes such as parks is shaped by people who reside around them and use them, along with the rules, norms and institutions that govern usage. Our results from parks in Hyderabad finds that wealthier residents reap greater recreational benefits from urban parks, while the access of visitors from low-income backgrounds to important provisioning services are severely proscribed, along with limits to their access to urban green spaces because of park user fees.

For city planners in Hyderabad, and in cities in similar contexts in the global South, this research points to an important conclusion. Questions of accessibility, not just to recreational but also to provisioning services, need to be centre staged in our imaginations and planning of urban commons and public spaces. Urban planners need to engage with livelihood ecologies within the planning of a city (Hurley et al., 2015). Park

restoration must not be restricted to the upgradation of infrastructure, but requires a fundamental change in imagination and considerations of justice. There is an absolute necessity to involve local users in the process of management of common properties like parks (Shackleton et al., 2015). Adding an entry fee to the parks will significantly reduce access to the groups who use the space for traditional and livelihood uses (Unnikrishnan and Nagendra, 2014). Urban parks must be reimagined as resource commons. Managing urban green assets requires redesigning them as commons, including all sections of society – especially women, and low-income residents, who are often excluded. Only then will the urban green space maintained by the government actually be beneficial, not just for the ones who can afford it, but for the entire population of a city.

#### Author statement

HN and SB conceptualized the research, developed the methodology, conducted the analysis and co-wrote the paper; SB conducted the field research; HN was responsible for project administration and funding acquisition.

#### Declaration of Competing Interest

The authors declare that there is no conflict of interest.

#### Acknowledgement

We thank Azim Premji University for funding support.

## Appendix

Interview guide  
Personal characteristics

---

Age  
Gender  
Marital status  
Time of the interview

---

1. What is your Occupation?
2. What is your annual household income?
  - a) Below 1 lakh b) 1 lakh-19 lakhs c) Above 20 lakhs
3. Over the past twelve months would you say that your health has been?
  - a) Good b) Fairly Good c) Not good
4. Do you have any long-term illness, health problem or disability which limits your daily activities?
  - a) Yes b) No
5. If yes, is the use of park affected?
  - a) Yes b) No
6. If yes, then how?

#### Where do they live

(These questions were included in the questionnaire to build up a picture of the residents in the sample and also to see if any of these characteristics related to green space experiences)

1. What type of accommodation do you live in?
  - a) House b) Flat
2. What is your type of the accommodation? (Any other type of housing like tenure?)
  - a) Rented b) Own
3. How long have you lived in your present accommodation?
4. How many people live in your house?
5. What is the distance covered from you home to the park?
6. Do you have children (under 18) in the house?
  - a) Yes b) No
7. If yes, how many and how old are they?
8. Do they have access to the open area to play at your home?
  - a) Yes b) No
9. If yes, do you go there in your free time for walking or other activity?
  - a) Yes b) No

#### Use of Green Space

(This section is to understand the ways and extent of parks used. It can also trace differences in the use pattern in people living near the park and people living far.)

1. On average, how often do you visit the park?
  - a) Daily b) Weekly c) Monthly d) Once in 6 months e) Never
2. What activities are you likely to do in the park?
  - a) Walk b) Jog c) Rund) Supervise children e) Other sport f) Observe greenery g) Meet/Socialize h) Picnic i) Other activities (mention)
3. How often do you walk for 30 min. or more?

- a) 5 times and above per week b) 2–4 times c) Once a week d) few times a month e) Monthly f) Never
- 4. Apart from the activities, what are the other reasons why you visit this park?
- 5. How do you come to this place?
  - a) Walk b) Cycle c) Car d) Bus e) Other
- 6. How long does it take?
  - a) Upto 5 mins b) 6–10 mins c) 11–15 min. d) 15–30 min. e) More than 30 min.
- 7. What is the cost of coming to the park?
  - a) Daily
  - b) Monthly
- 8. Who would you usually come with?
  - a) Alone b) Friends c) Partner d) children e) Other- Specify
- 9. How long do you stay usually?
  - a) Less than 15 min. b) Less than 30 min. c) Less than 1 hr d) 1–2 hrs e) 2–3 hrs f) Over 3 h
- 10. How satisfied are you with the park overall?
  - a) Highly satisfied b) Satisfied c) Not satisfied Discuss.
- 11. How friendly do you find this place?
  - a) Very friendly b) Friendly c) Not friendly Give reasons.
- 12. Do you feel a community spirit in this area?
  - a) Yes b) No

Give reasons.
- 13. How safe do you feel in this place?
  - a) Very safe b) Safe c) Unsafe d) Very unsafe
- 14. Do you have or heard any experiences of crime in this area?
  - a) Yes b) No
- 15. If yes, please specify.
- 16. Do you harvest or take anything from the park? (Like leaves, medicinal plants, flowers, fodder, oilseeds, cuttings to plant etc.)
- 17. Do you know about any spiritual association or worship belief associated with this park?
  - a) Yes b) No

If yes, discuss
- 18. Are there any changes in the park you have observed over time? (For long term users)
  - a) Yes b) No

If yes, discuss
- 19. Name some of the species that you can identify in this park.

TREES	FLOWERS	BIRDS	FRUITS	MEDICINAL PLANTS
-------	---------	-------	--------	------------------

- 20. Can you tell me something about nature in your childhood and memories of growing up in nature?
- 21. Does this park stimulate any of these memories?
- 22. Are you interested in any environmental action?
  - a) Yes b) No c) Not sure
- 23. Have you adopted any “green practices” in your daily life? (For long term users)
  - a) Yes b) No

If yes, has visiting the park any way influenced this adoption of practices anyway? Discuss.

*Willingness to pay*

- 1. Do you think entry to the park should be priced?
  - a) Yes b) No
  - b) Why?
  - c) If yes, what would be the ideal price according to you?
- 2. Are you willing to pay more than the current charges to have cleaner and better quality park?
  - a) Strongly Yes b) Maybe Yes c) Definitely No
- 3. If yes, how much would you like to increase from current charges?
- 4. Would you like to relocate to an accommodation within 1 km of distance from the park even if there is rise in price/rent?
  - a) Yes b) No c) Not sure
- 5. If yes, how much would you like to pay?
- 6. How much would you like to increase your travelling cost from current one?

*Suggestions and remarks for the park*

- 1. What is the vision of a good city according to you?
- 2. What is a good life in a city according to you?
- 3. Any suggestions you would like to give to make the condition better.

## Appendix B. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.ufug.2020.126959>.

## References

- Angelovski, I., Connolly, J.J., Pearsall, H., Shokry, G., Checker, M., Maantay, J., Gould, K., Lewis, T., Maroko, A., Roberts, J.T., 2019. Opinion: why green "climate gentrification" threatens poor and vulnerable populations. *Proc. Natl. Acad. Sci.* 116 (52), 26139–26143.
- Barth, B.J., FitzGibbon, S.I., Wilson, R.S., 2015. New urban developments that retain more remnant trees have greater bird diversity. *Landsc. Urban Plan.* 136, 122–129.
- Checker, M., 2011. Wiped out by the "greenwave": environmental gentrification and the paradoxical politics of urban sustainability. *City Soc.* 23, 210–229.
- Chen, B., Qi, X., 2018. Protest response and contingent valuation of an urban forest park in Fuzhou city, China. *Urban Forestry and Urban Greening* 29, 68–76.
- D'Souza, R., Nagendra, H., 2011. Changes in public commons as a consequence of urbanization: the Agara Lake in Bangalore. *India. Environmental Management* 47, 840–850.
- Dale, A., Newman, L.L., 2009. Sustainable development for some: green urban development and affordability. *Local Environ.* 14 (7), 669–681.
- Davidson, M., Lees, L., 2010. New-build gentrification: its histories, trajectories, and critical geographies. *Popul. Space Place* 16, 395–411.
- Dooling, S., 2009. Ecological gentrification: a research agenda exploring justice in the city. *Int. J. Urban Reg. Res.* 33, 621–639.
- Finavea, O., 2017. Role of green spaces in favourable microclimate creating in urban environment (Exemplified by Italian cities). *IOP Conf. Series: Materials Science and Engineering* 262, 012141.
- Garnett, N.S., 2012. Managing the urban commons. *Univ. Law Rev.* 160, 1995–2189.
- Gould, K., Lewis, T., 2012. The environmental injustice of Green gentrification: the case of Brooklyn's Prospect Park. In: DeSena, J., Shortell, T. (Eds.), *In the World in Brooklyn: Gentrification, Immigration, and Ethnic Politics in a Global City*. Lexington Books, Lanham, MD, USA, pp. 113–146.
- Govindarajulu, D., 2014. Urban green space planning for climate adaptation in Indian cities. *Urban Clim.* 10, 35–41.
- Gutman, P., 2007. Ecosystem services: foundations for a new rural-urban compact. *Ecol. Econ.* 62, 383–387.
- Haase, D., et al., 2017. Greening cities – to be socially inclusive? About the alleged paradox of society and ecology in cities. *Habitat Int.* 64, 41–48.
- Hackworth, J., 2002. Postrecession gentrification in New York City. *Urban Aff. Rev.* 37, 815–843.
- Harvey, D., 1973. *Social justice and the city*. London: Edward Arnold. *Prog. Hum. Geogr.* 16, 71–74.
- Heckmann, K.E., Manley, P.N., Schlesinger, M.D., 2008. Ecological integrity of remnant montane forests along an urban gradient in the Sierra Nevada. *For. Ecol. Manage.* 255, 2453–2466.
- Henderson, J.C., 2013. Urban parks and green spaces in Singapore. *Manag. Leis.* 18, 213–225.
- Hughey, S.M., Walsemann, K.M., Child, S., Powers, A., Reed, J.A., Kaczynski, A.T., 2016. Using an environmental justice approach to examine the relationships between park availability and quality indicators, neighbourhood disadvantage, and racial/ethnic composition. *Landsc. Urban Plan.* 148, 159–169.
- Hurley, P.T., Emery, M.R., McLain, R., Poe, M., Grabbatin, B., Goetcheus, C.L., 2015. Whose urban forest? The political ecology of foraging urban nontimber forest products. In: Isenhour, C., Checker, M., McDonogh, G. (Eds.), *Sustainability in the Global City: Myth and Practice*, 187–212. New York.
- Hutchison, R., 2009. Women and elderly in Chicago's public parks. *Leis. Sci.* 16, 229–247.
- Isenhour, C., McDonogh, G., Checker, M. (Eds.), 2015. *Sustainability in the Global City: Myth and Practice*. Cambridge University Press.
- Jayakody, R.R.J.C., Amarathunga, D., Haigh, R., 2018. Integration of disaster management strategies with planning and designing public open spaces. *Procedia Eng.* 212, 954–961.
- Jim, C.Y., Shan, X., 2013. Socioeconomic effect on perception of urban green space in Guangzhou. *China. Cities* 31, 123–131.
- Kabisch, N., Haase, D., 2014. Green justice or just green? Provision of urban green spaces in Berlin, Germany. *Landsc. Urban Plan.* 122, 129–139.
- Kazmierczak, A., James, P., 2007. *The role of urban green spaces in improving social inclusion*. USIR Conference Paper. Web page available at: <http://usir.salford.ac.uk/11339>.
- Kim, H., Sefcik, J.S., Bradway, C., 2017. Characteristics of qualitative descriptive studies: a systematic review. *Res. Nurs. Health* 40, 23–42.
- Kohn, M., 2004. *Brave New Neighbourhoods: The Privatization of Public Space*. Routledge, New York.
- Kohsaka, R., Okumura, S., 2014. In print. Greening the cities with biodiversity Indicators: Experience and challenges from Japanese cities with CBI. In: Yahara, T., Nakano, S. (Eds.), *The Biodiversity Observation Network in the Asia-Pacific Region*.
- Konijnendijk, C.C., Annerstedt, M., Nielsen, A.B., Maruthaveeran, S., 2013. Benefits of urban parks: a systematic review - a report for IFPRA. Copenhagen & Alnarp.
- Lees, L., Shin, H.B., Morales, E.L., 2015. *Global Gentrifications: Uneven Development and Displacement*. Policy Press, Cambridge.
- Ley, D., 2011. Social mixing and the historical geography of gentrification. In: Bridge, G., Butler, T., Lees, L. (Eds.), *Mixed Communities: Gentrification by Stealth?* 53–68 (Bristol: Policy).
- Maia, A.T.A., Connolly, J.J.T., Calcagni, F., Angelovski, L., Langemeyer, J., 2020. Hidden drivers of social injustice: uncovering unequal cultural ecosystem services behind green gentrification. *Environ. Sci. Policy* (this issue).
- MEA, 2005. *Ecosystems and Human well-being: Synthesis Report*. World Resources Institute, Washington D.C., 137.
- Mexia, T., Viera, J., Principe, A., Anjos, A., Silva, P., Lopes, N., Freitas, C., Santos-Reis, M., Correia, O., Branquinho, C., Pinho, P., 2018. Ecosystem services: urban parks under a magnifying glass. *Environ. Res.* 160, 469–478.
- Monbiot, G., 1994. *The Tragedy of Enclosure*. *Scientific American*. available at: <http://www.monbiot.com/1994/01/01/the-tragedy-of-enclosure>.
- Muradian, R., Rival, L., 2012. Between markets and hierarchies: the challenge of governing ecosystem services. *Ecosyst. Serv.* 1, 93–100.
- Murwendo, T., 2011. Improving urban livelihoods at household level through sustainable utilization of peri-urban forests in Masvingo City. *Journal of Sustainable Development in Africa* 13, 299–313.
- Mutiara, S., Isami, K., 2012. Characteristic of public small park usage in Asia Pacific countries: case study in Jakarta and Yokohama City. *Procedia Soc. Behav. Sci.* 35, 412–419.
- Nagendra, H., Bai, X., Brondizio, E.S., Lwasa, S., 2018. The urban south and the predicament of global sustainability. *Nat. Sustain.* 341–349.
- Ngom, R., Gosselin, P., Blais, C., 2016. Reduction of disparities in access to green spaces: their geographic insertion and recreational function matter. *Appl. Geogr.* 66, 35–51.
- Paul, S., Nagendra, H., 2017. Factors influencing perceptions and use of urban nature: surveys of park visitors in Delhi. *Land* 6, 27.
- Pearsall, H., 2010. From brown to green? Assessing social vulnerability to environmental gentrification in New York City. *Environmental Planning C: Politics and Space.* 28 (5), 872–886.
- Peters, K., Elands, B., Buijss, A., 2010. Social interactions in urban parks: Stimulating social cohesion? Social issues of forest recreation 9, 93–100.
- Priego, C., Breuste, J.H., Rojas, J., 2008. Perception and value of nature in urban landscapes: a comparative analysis of cities in Germany, Chile and Spain. *Landsc. Online* 7, 1–22.
- Ramachandra, T.V., Aithal, B.H., Shivamurthy, V., Kumar, U., Rao, K.V., Joshi, N.V., 2016. Modelling and visualization of urban trajectory in 4 cities of India. Conference: 32<sup>nd</sup> Annual Symposium on Space Science and Technology, at: ISRO-IISc Space Technology Cell, 7-8 January 2016, 32.
- Rigolon, A., 2016. A complex landscape of inequity in access to urban parks: a literature review. *Landsc. Urban Plan.* 153, 160–169.
- Sandelowski, M., 2000. Focus on research methods- whatever happened to qualitative description? *Res. Nurs. Health* 23, 334–340.
- Sandhu, H., Wratten, S., 2013. Ecosystem services in farmland and cities. In: Wratten, S., Sandhu, H., Cullen, R., Costanza, R. (Eds.), *Ecosystem Services in Agricultural Landscapes*. Wiley-Blackwell, Oxford, pp. 3–15.
- Schipperijn, J., Ekholm, O., Stigsdotter, U.K., Toftager, M., Bentsen, P., Jorgensen, F. K., Randrup, T.B., 2010. Factors influencing the use of green space: results from a Danish national representative survey. *Landsc. Urban Plan.* 95, 130–137.
- Sefcik, J.S., Kondo, M.C., Klusaritz, H., Sarantschin, E., Solomon, S., Roepke, A., South, E. C., Jacoby, S.F., 2019. Perceptions of nature and access to green space in four urban neighborhoods. *Int. J. Environ. Res. Public Health* 16 (13), 2313.
- Setala, H., Francini, G., Allen, J.A., Jumpponen, A., Hui, N., Kotze, D.J., 2017. Urban parks provide ecosystem services by retaining metals and nutrients in soils. *Environ. Pollut.* 231, 451–461.
- Shackleton, C.M., Gambiza, J., Jones, R., 2007. Household fuelwood use in small electrified towns of the Makana District, Eastern Cape, South Africa. *J. Energy South. Afr.* 18, 4–10.
- Shackleton, S., Chinyimba, A., Hebinck, P., Shackleton, C., Kaoma, H., 2015. Multiple benefits and values of trees in urban landscape in two towns in northern South Africa. *Landsc. Urban Plan.* 136, 76–86.
- Sister, C., Wolch, J., Wilson, J., 2010. Got green? Addressing environmental justice in park provision. *GeoJournal* 75, 229–248.
- Smith, N., 2002. New globalism, new urbanism: gentrification as global urban strategy. *Antipode* 34, 427–450.
- Solecki, W.D., Welch, J.M., 1995. Urban parks: green spaces or green walls? *Landsc. Urban Plan.* 32 (2), 93–106.
- State of Forest Report, 2017. (Telanga Report). Forest Survey of India, Dehradun. Web Page available at pp-293. <http://fsi.nic.in/isfr2017/telangana-isfr-2017.pdf>.
- Strum, R., Cohen, D., 2014. Proximity to urban parks and mental health. *J. Ment. Health Policy Econ.* 17, 19–24.
- Sutton, P.C., Anderson, S.J., 2016. Holistic valuation of urban ecosystem services in New York City's Central Park. *Ecosyst. Serv.* 19, 87–91.
- Swamy, S., Devy, S., 2010. Forests, heritage green spaces, and neighbourhood parks: citizen's attitude and perception towards ecosystem services in Bengaluru. *J. Resource Energ. Develop.* 7, 117–122.
- Swapan, M.S.H., Iftekar, M.D.S., Li, Xiyuan, 2017. Contextual variations in perceived social values of ecosystem services of urban parks: a comparative study of China and Australia. *Cities* 61, 17–26.

- United Nations, 2018. Revision of World Urbanization Prospects 2018. Population Division of the United Nations Department of Economic and Social Affairs (UN DESA).
- Unnikrishnan, H., Nagendra, H., 2014. Privatization of the commons: impacts on ecosystem services in Bangalore's lakes. *Urban Ecosyst.* 18, 613–632.
- Whittington, D., Briscoe, J., Mu, X., Barron, W., 1990. Estimating the willingness to pay for water services in developing countries: a case study of the use of contingent valuation surveys in southern Haiti. *Econ. Dev. Cult. Change* 38, 293.
- Wolch, J., Byrne, J., Newell, J.P., 2014. Urban green space, public health, and environmental justice: the challenge of making cities 'just green enough'. *Landsc. Urban Plan.* 125, 234–244.
- You, H., 2016. Characterizing the inequalities in urban public green space provision in Shenzhen, China. *Habitat International* 56, 176–180.