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Public Space in the New Urban Agenda: Research into Implementation

Editors

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Editorial

Public Space in the New Urban Agenda: Research into Implementation

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Abstract
The New Urban Agenda is a landmark international framework for urbanisation for the next two decades, adopted by acclamation by all 193 countries of the United Nations. Nonetheless, implementation remains an enormous challenge, as does the related need for research evidence to inform practice. This thematic issue brings together research from a number of participants of the Future of Places conference series, contributing new research to inform the development and implementation of the New Urban Agenda, and with a focus on the fundamental topic of public space creation and improvement.

Keywords
evidence-based design; Future of Places; New Urban Agenda; public space; research into practice

Issue
This editorial is part of the issue "Public Space in the New Urban Agenda: Research into Implementation", edited by Michael W. Mehaffy (KTH Royal Institute of Technology, Sweden), Tigran Haas (KTH Royal Institute of Technology, Sweden), and Peter Elmlund (Axel and Margaret Ax:son Johnson Foundation, Sweden).

1. Introduction

This thematic edition of *Urban Planning* brings together research by a number of the international scholars and practitioners who participated in the seminal Future of Places Conference series, contributing their evidence-based research toward development of UN-Habitat's New Urban Agenda. That document was later adopted by acclamation by all 193 member states of the United Nations in 2016, establishing a historic framework for urbanisation policy for the next two decades—a time of unprecedented rapid growth of cities and suburbs around the world, with unprecedented challenges as well as notable opportunities.

A key focus of the New Urban Agenda is on the critical role of public space in the formation and regeneration of healthy, prosperous and equitable cities. That was also a key focus of the earlier Future of Places partnership, launched in 2013 between UN-Habitat, Project for Public Spaces, and the Ax:son Johnson Foundation, its NGO host. Beginning that year, the conference series brought together over 1,500 researchers, practitioners, officials and activists, representing more than 700 organizations, 275 cities and 100 countries from every continent except Antarctica, forming a collaborative platform for research, implementation, networking and advocacy. One of the key themes of the series was to shift the thinking about city-building "from objects to places" (Elmlund, 2016).

Over the first three years leading up to the Habitat III conference, the forum included 77 peer-reviewed academic papers, 96 sessions, and 71 plenary speakers. The 2015 conference was also the first UN-Habitat Urban Thinkers Campus, and the forum also influenced the Sustainable Development Goals (notably 11.7), the Charter of Public Space, and other related documents.

Incorporating the contributions of its participants, the forum generated a series of key messages that contributed to the New Urban Agenda and the other documents, emphasizing the central role of public

space frameworks as critical ingredients of healthy urbanisation:

> The Future of Places affirms the role of public spaces as the connective network on which healthy cities and human settlements grow and prosper. Public spaces enable synergistic interaction and exchange, creativity and delight, and the transfer of knowledge and skills. Public spaces can help residents to improve their prosperity, health, happiness and wellbeing, and enrich their social relations and cultural life. (Future of Places, 2015)

Most of the papers presented in the conference series dealt in some way with the challenge of public space—what it is, why it matters, how it functions, how it fails, and how it can succeed, applying shareable evidence-based knowledge and tools. We noted that the issue of public space not only cuts across disciplines, but it is also situated at the intersection of a wide range of critical urban issues: economic inequality, racial and ethnic diversity, political conflict, cultural identity and expression, social capital, public involvement, and governance, among others.

Yet at just the historical moment when many are finally recognising its great value, public space is facing an unprecedented decline: increasingly privatised, diminished, or degraded by adjacent developments. Old models of "urban renewal" still have far too much sway over policy and practice—a point made emphatically by the authors of *The Quito Papers*, a companion publication to Habitat III whose authors also participated in the Future of Places.

There is thus an urgent need to share lessons about the formation, improvement and maintenance of public spaces around the world, including streets, parks, squares, pathways, and other components. We must moreover share specific tools and strategies toward implementation of the New Urban Agenda, based on evidence, and persuasive as well as useful to local implementers.

2. Overview of the Articles

The articles herein represent an important—and we think impressive—first step in that larger process. Reflecting field research from around the world, they report on the impacts of a range of public space strategies, conditions and challenges. The majority of the articles are versions of papers submitted for peer-review and accepted for presentation at the Future of Places conferences, out of a larger group of several hundred. Additional articles were submitted by authors who have participated in the Future of Places or its successor research hub, the Centre for the Future of Places based at KTH Royal Institute of Technology at Stockholm, Sweden. All of the articles herein have undergone entirely new peer-reviews with final editorial decisions by ourselves as academic editors. We thank our authors for their patience with this additional review process, and for their valuable contributions to the literature. Following is a brief overview of the articles and topics.

Deore and Lathia (2019) address the critical topic of streets as public spaces and "engines of economic activities, social hubs, and platforms for civic engagement" (p. 138), in their article. Their field research examines "spatial analysis of 4,000 vendors at four different time points of the day, perception studies of their clientele disaggregated by gender, income and age, and their relationship with surrounding land-use and street hierarchy" (Deore & Lathia, 2019, p. 138). They conclude with a series of actionable recommendations, aiming to maintain an equitable development model for street vending and economic opportunity.

Mahadevia and Lathia (2019) examine the central goal (in both the New Urban Agenda and the Sustainable Development Goals) of women's safety and inclusiveness in public spaces. In their article, they report on field research results from the riverfront in Ahmedabad, western India, and conclude with specific recommendations on proposed activities and space design, including increasing formal and informal surveillance, increasing everyday governance of basic amenities (lighting, toilets etc), promoting additional activities and services (sports, festivals, transit, etc.) and elevating the gender dimension in planning and design.

Brain (2019) examines public space as an "urban commons", and surveys literature on the links between "the social processes at stake in urban places, the spatial ordering of urban form and the construction of the forms of agency that enable us to make better places on purpose" (Brain, 2019, p. 162). He concludes that urbanism ultimately must be a political project, aimed at healing the disruptions of the urban commons.

In her article, Chidambara (2019) concludes that "walk is the predominant mode for LMC to/from transit stations" (p. 192), particularly for the first or last mile or kilometre, and reports that, within the Delhi research area, "all such stations with higher walk shares, within the same urban fabric, exhibit better performance with respect to placemaking"—defined as "the presence of street crossings, attractive landscaping, tree cover and signalisation" and "aesthetic or safety features, such as cleanliness, interesting sights and architecture" (p. 193).

Ghavampour and Vale (2019) examine the literature on current working models of placemaking and sustainability. They conclude that these concepts are still unacceptably vague, and that "there is need for a shift from the current model of placemaking towards a strong model of progress and balance in creating quality places" (Ghavampour & Vale, 2019, p. 196). In particular, an over-emphasis on physical design under-emphasizes behaviour and meaning.

Papachristou and Rosas-Casals (2019) address measurement methodologies for Quality of Life (QoL), and report on an evolving "human scale development" paradigm to measure current levels of QoL. They pro-

pose a methodology that can be applied to public space projects under the New Urban Agenda.

Gubic and Baloi (2019) report a hopeful and important case study from sub-Saharan Africa in their article. They observe "emerging forms of innovative collaboration and partnerships for public spaces involving all levels of the Rwandan government, development partners, the civil society sector, and other stakeholders" (Gubic & Baloi, 2019, p. 223), but they note that additional innovative sources of funding are needed.

Ellery and Ellery (2019) survey existing research and conclude that a continuum of placemaking strategies is needed to improve the outcomes of public space projects. They propose a methodology based on Arnstein's ladder of citizen participation, aiming to increase the likelihood that a sense of place within the host community will be developed as an outcome of the planning and design process.

Finally, Del Aguila, Ghavampour and Vale (2019) describe a theory of place in public space, emerging in part from their survey of 160 users across four public spaces in Wellington, New Zealand. Drawing on previous research from E. C. Relph and others, they explore connections between physical settings and behaviour, finding that "anticipated behaviour in public space is defined by the affective and cognitive images of the physical setting" (Del Aguila et al., 2019, p. 250). They conclude that placemaking in design needs to shift emphasis, from articulating (fixed) preferences, to enabling interpretation and opportunity. In addition, they say, public spaces need marketing and promotion of activities to generate use and reuse, and to attract new users.

3. Further Research Toward Implementation

Work begun with the Future of Places forum continues, not only with the aforementioned Centre for the Future of Places, but with a range of other partnerships and projects. One project of note is a new database of research literature on public space, drawn from a range of disciplines including urban planning and design, geography, anthropology, environmental psychology, economics, and other fields. Unfortunately, the interchange of knowledge between these different disciplines on the subject of public space is minimal, and very few implementers are currently able to use this knowledge holistically. Therefore, the database will gather applicable empirical and field research into a working repository, and support the use of this resource to review, synthesize, draw new conclusions, and identify significant gaps in various areas of research. The mission will be to advance the creation of a new discipline called public space studies, which begins with the proposition that actionable knowledge about the ingredients of good public space exists and can be identified, shared and implemented.

In addition to our database project, we continue to partner with UN-Habitat and others on additional resources for implementation. One of these is the further development of new journal platforms such as the new *Journal of Public Space*, hosted by City Space Architecture in partnership with UN-Habitat. Another project is the development of peer-to-peer knowledge-sharing platforms, including a "wiki" for sharing of implementation tools and strategies. In addition, we are engaged with the development of a number of books, white papers and other publications as resources for implementation.

All of these resources are focused upon "research into practice" and back again: that is, applying an evidence-based approach, learning from actual outcomes, applying that to new practice, and drawing lessons back into research again. In this way, our knowledge and our effectiveness in implementing the New Urban Agenda can grow and mature. We can apply that knowledge to greatly accelerate progress on the challenges of the next several decades, including social and economic development for all, conservation of resources and critical ecologies, mitigation of and adaptation to the impacts of climate change, and improvement of the health and livability of cities around the world.

The Future of Places therefore continues to evolve as a platform, with a focus on public space and place—and with it our belief that public space offers a powerful framework to achieve a new generation of healthy and sustainable cities.

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Conflict of Interests

The authors declare no conflict of interests.

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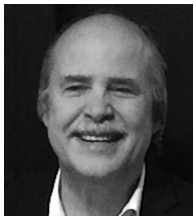

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Article

Streets as Public Spaces: Lessons from Street Vending in Ahmedabad, India

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Abstract
Public spaces go beyond the typical definition of being an open space. They reflect the diversity and vibrancy of the urban fabric and hold the power to create memories. Among all public spaces, streets emerge as the most public. Streets are engines of economic activities, social hubs, and platforms for civic engagement. They break socio-economic divides and foster social cohesion. Planning, designing, and managing better public spaces have become important global discussions. Sustainable Development Goals (8 and 11) and the New Urban Agenda emphasize the significance of inclusive and sustainable economy and safe, accessible and quality public spaces for all. The proposed article uses the case of street vending to understand the manifestation of these goals in an Indian context by assessing street vendors' role in Ahmedabad's urban fabric through extensive spatial analysis of 4,000 vendors at four different time points of the day, perception studies of their clientele disaggregated by gender, income and age, and their relationship with surrounding land-use and street hierarchy. It showcases how street vendors make the streets more vibrant by increasing activities, safer through ensuring inflow of people, and inclusive in its true sense by allowing people from different backgrounds to participate in the exchange of goods and services. It further argues that street vendors are vital elements of more equitable and exciting streets and public space.

Keywords
equity; India; public spaces; safety; streets; street vending

Issue
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1. Introduction

Rapid urbanization and population growth have initiated numerous urban planning, design, and management discussions worldwide. Many cities are struggling with lack of affordable housing, basic services, infrastructure, open spaces, increased vehicular traffic, air pollution and environmental risks. Thus, Sustainable Development Goals (SDGs) (especially 11) and the New Urban Agenda promotes cities and urban spaces that are more inclusive, safe, resilient and sustainable.

Many scholar and urbanists believe public spaces, historically known as open spaces, are the true reflection of the city's richness and diversity (Jacobs, 2002), "the window into a city's soul" (Zukin, 1995), "physical representation of democracy" (Thalis & Cantrill, n.d.) and the "measure of a city's greatness" (New Urbanism, n.d.). Across the globe, public spaces are known to be multifunctional areas that foster social interaction and inclusion, promote human health and well-being, boost cultural and civic expression, and support economic exchange.

Streets are the most "public": they are responsive, accessible, diverse, democratic and multipurpose (Carr, 1992). In all civilizations, streets have been the most widely used public space, with neighborhood commercial streets and bazaars being the most popular (Brower, 1996). Studies in contemporary context highlight that development pressure, increasing space demands, fast-moving vehicles, and hostile social and political environments have brought a "conceptual and physical shift" in urban public spaces, making the streets a highly contested space (Jain & Moraglio, 2014). Indian streets traditionally known to balance the need to support livelihoods with the need to manage space for other activities are struggling to maintain this balance much like other cities in the global South by often prioritizing automobiles over other users (Roever & Skinner, 2016). This has given rise to major street reclamation movements like "livable streets" and "complete streets" around the world (Mboup, Warah, & United Nations Human Settlements Programme, 2013). Recent literature emphasizes that this contested nature of streets constantly "criminalizes" and excludes the urban poor including street vendors, porters, traders, etc. through urban policies and government practices. SDGs (3, 8 and 11) and the New Urban Agenda show deep commitment to protect and include these groups while envisioning public spaces by all.

Given this background, this article evaluates the role of street vending in creating "good" public spaces. Following the introduction, this article presents a short review of good public space theories and the status of street vending globally, with an emphasis on the study area. It later discusses the case of Ahmedabad's street vendors, how they respond to land-use and street hierarchy and the perception of their clientele on street vending in a contested space.

2. Public Spaces and Street Vending

2.1. Attributes of a "Good" Public Space

Public spaces add economic, social, and environmental value to cities, and numerous studies have attempted to measure the value of public spaces and evaluate the components of successful public spaces (Kim, 2015). Jan Gehl (2011) described how the physical form and activities create a street scene. Determined by their physical space and environment, activities can be classified as necessary, optional, and social activities. Necessary activities are the mandatory activities formed around daily life such as going to work, shopping, or attending school. These activities occur year-round, and are barely affected by the physical environment. Optional activities are seasonal activities, mostly recreational in nature, and driven by a pleasant outside environment. Examples of optional activities are taking a leisurely walk, sitting in a park, and sunbathing. Social activities however rely on different degrees of social interaction in a space. These activities include a casual greeting between acquaintances in a residential area, or "passive contacts" between strangers in public areas. As per Gehl, "good" public spaces allow for all three types of activities. However, Brower (1996) suggests that land-use governs activity generation, and highlights how good mixed-use environments often have liveliness and a diversity of activities.

Vikas Mehta's (2007) Good Public Space Index is broadly divided into six measures: intensity of use, intensity of social use, people's duration of stay, temporal diversity of use, and variety of use. These indicators are calculated using variables such as the number of people engaged in groups, time spent, duration of stay, and number of activities in the space. The toolkit highlights how the diversity of users is an important measure, but one often difficult to capture.

Historically, public spaces were extensions of other spaces such as living spaces, religious spaces, and market spaces. Thus the "local distinctiveness" evaluated for a place's uniqueness if measured by character, continuity, sense of space, quality of public realm, legibility, and adaptability (Sasidharan & Prosperi, 2012).

Placemaking is changing the course of public spaces. Project for Public Spaces' (PPS, n.d.) Place Diagram divides the attributes of a successful space into Uses and Activities, Comfort and Image, Sociability and Access and Linkages. These attributes are further divided into intangibles and measurements that are qualitative, quantitative, or intuitive in nature. These models and analysis from previous literatures inform the evaluation criteria for a "good" public space in this study.

2.2. Street Vending: Global Status and Common Perceptions

Street vendors account for a considerable share of urban employment and revenue generation. Studies by WIEGO's StreetNet show that street vendors constitute 13–24 percent of workers in African cities, 11 percent in Chinese cities, 9 percent in Latin-American cities and 4–6.5 percent in Indian cities. A large share of street vendors are women, including 51 percent in Sub-Saharan Africa (Herrera, Kuépié, Nordman, Oudin, & Roubaud, 2012).

Most government institutions recognize street vendors as an integral part of urban economies globally. Per the Supreme Court of India, street vendors "considerably add to the comfort and convenience of the general public, by making available ordinary articles of everyday use for a comparatively lesser price." They are also self-employed, support other smaller businesses, employ others to package, transport or sell their goods and generate significant revenue in cities (Herrera et al., 2012). They decrease urban food insecurity by providing for the urban poor, and make goods and services convenient for other classes, particularly the middle class (Roever & Skinner, 2016). In addition, they make streets

more interesting and vibrant by adding color and offering diverse experiences. They make public spaces safer by acting as "informal surveillance," popularly known as "eyes on the street." Street vendors are key elements of a thriving urban economy and space (Benítez, Grice, & Harvey, 2018).

Despite this, street vendors are central to the debate of space, and are subjected to constant hostile negotiations with all urban pressure groups, such as the local body, police, clientele, private developers and real-estate agents, shop-owners, affluent resident organizations, or vehicle-owners (Ray & Mishra, 2011). Most urban pressure groups view street vendors as an "eye-sore" in their ambitious "world-class" city (Anjaria, 2006). This perception is rooted in the colonial mentality of urban planning, design, and governance. Studies of cities across the globe show that street vendors maintain a predominately strained relationship with the State. In Indian cities, the Urban Local Bodies and the Police often perceive street vendors as "illegal," "encroachers" and "tax evaders," who undeservingly occupy a city's prime public spaces and streets (Salès, 2018). Similarly, affluent resident organizations and business associations believe street vendors are the flag-bearers of "chaos" and "nuisance" in urban spaces and must thus be immediately removed from city street and public spaces (Anjaria, 2006). These groups further argue that street vendors belonging to 'lower' caste, class, minority religions, and different national origins break the homogeneity of their neighborhoods (Salès, 2018). Real-estate developers meanwhile believe that the presence of street vendors indicates an "impoverished" and "dirty" neighborhood, and depresses the real estate values of their property (Joshi, 2018). On the contrary, most shop-owners, especially in western India, believe that street vendors guard their shops and attract more customers. Thus, along many commercial streets, formal shop-owners, especially jewelry shop owners, rent out their shop extensions to street vendors (Roever & Skinner, 2016). They promise to protect street vendors from eviction and to provide access to water, sanitation, and electricity. Studies show that shop-owners often have long and strong relationships with the vendors working outside their shops (Roever & Skinner, 2016). Despite this possibility of a symbiotic relationship, some shop-keepers believe vendors are encroaching and competing against them and do not want the street vendors to conduct business in public spaces. These common perceptions interplay to create hostile environments for street vendors. As a result, an overwhelming majority of street vendors pay regular extortion money and bribes, or *Hafta*, to government officials and the police (Mahadevia, Mishra, Joseph, & Das, 2016). They pay protection money to local leaders who promise to negotiate with other pressure groups on their behalf or pay rents to shop-owners for the same protections. Many street vendors will negotiate with private security officials of near-by commercial or institutional properties to use their water stations and toilets. Ample evidence on current urban policies and administration practices show how street vendors are subjected to large-scale evictions, displacements, and structural violence across the world (Herrera et al., 2012; Roever, 2014; Roever & Skinner, 2016), causing anxiety and fear for the vendors and their families.

2.2.1. Street Vending in Ahmedabad

With a population of 6.35 million (Census, 2011) and an urban area of 466 square km, Ahmedabad is the commercial and cultural center of the state of Gujarat. Currently, Gujarat is considered India's "model state" for economic development and freedom by development driven school of thought (Bhaskar, 2019). This makes Ahmedabad the working laboratory to implement innovative urban planning, governance, and administrative solutions (Mahadevia et al., 2013). Once known as the "Manchester of India," the city experienced a steep decline in industrial growth during the 1980s, leaving over 67,000 textile mill workers unemployed. This crisis in the formal sector employment led to a boom in the city's informal sector (Mahadevia, Desai, & Vyas, 2014; Ray, 2010). Street vending is one of the most visible forms of the informal economy, and constitutes roughly 23 percent of the city's informal sector (Mahadevia et al., 2013). Ahmedabad has a population of about 100,000 street vendors, which is the fourth largest in India.

There is a strong culture of celebrating streets in Ahmedabad. This 'kaleidoscope of color and culture' constitutes famous bazaars like Law garden's handicraft market, Jamalpur's flower-market, jewelry markets in Rani No Hajiro, vintage markets of Ravivari, and numerous "khau-gallis" or street food markets like Manek Chowk. The markets in the city reclaim the streets for all and offer an "alternate nightlife."

Ahmedabad's growing population and increasing vehicle ownership (from 1.6 million in 2012 to 3.6 million in 2018; Statista, 2018) puts immense pressure on the city's physical and social infrastructure. While the city's historically vital public spaces such as its bridges, street bazaars, sidewalks, cross-roads, chowks or public squares, and roundabouts are constantly contested (Shah, 2009), the city has only 2 percent of its total land area dedicated to open space, or roughly 1.1 square meters per capita, compared to the universal standard of 8–10 square meters (Mahadevia, Bhatia, Abhilasha, & Patel, 2017). This creates an acute shortage of formal as well as informal public spaces.

Since the early 2000s, Ahmedabad's hunger to become a "world-class city" has produced an urban development model fueled by the aspiration of the city's upper class. Like most cities in the global south, Ahmedabad's world-class city vision has no space for the city's urban poor (Benítez et al., 2018; Mahadevia, Vyas, & Mishra, 2014). Several large-scale urban renewal projects, aimed at improving the city's image, evicted thousands of poor households and gravely impacted their livelihoods (Desai,

2014; Roever, 2014). A 2016 study by Roever and Skinner analyzed the challenges faced by street vendors and concluded that Ahmedabad has one of the highest workplace insecurity, incidences of evictions, and harassment rates among cities in the global south.

Ahmedabad Municipal Corporation's (AMC) Street Vendor's Scheme 2010 is the poster child of exclusionary local policies that thrive on loopholes in legislation to further exploit the urban poor instead of protecting them. The struggle for street vendors' rights in Ahmedabad began in the early 1970s. Self-Employed Women's Association (SEWA), a non-profit advocacy group, filed a petition in 1974 against the State of Gujarat, AMC and other related bodies responsible for exploiting and harassing the street vendors in *Manek Chowk* (Mahadevia & Vyas, 2012). To advocate for street vendors rights and protection, SEWA petitioned for allocated spaces, licenses, and basic services for vendors. Moved by SEWA's appeal and arguments, the High Court ordered AMC to provide 4ft by 4ft spaces, licensing, sanitation, electricity, shade, and access for all vendors in *Manek Chowk*. Despite this, AMC continued mistreating street vendors, and refused to comply with the Court's order (Mahadevia & Vyas, 2012). In light of increased and frequent harassment for nearly a decade, SEWA filed another petition 1987 to implement the Court's order in *Manek Chowk* and added six other prominent city level markets to the petition. While SEWA fought the case in Court for two decades, street vendors faced evictions, confiscation of goods, and exploitation. In 2006, SEWA filled a Public Interest Litigation (PIL) to implement the National Policy on Urban Street Vendors (NPUSV) in 2004, which is a national policy aimed at protecting the rights of street vendors. Rather than implement the NPUSV, the AMC drafted another policy that overlooked the concept of "Natural Markets," a phenomenon in which vendors locate themselves at places with high economic opportunity, often created by high demand, accessibility, and visibility. The AMC's 2010 scheme aimed to regulate vending through the provision of three vending zones: Green Zone, where vending would be permitted in residential areas on roads less than 15 meters wide from 7 am to 9 am; Amber Zone, where vending would be permitted in commercial areas on roads more than 15 meters wide from 6 am to 9 am and 6 pm to 9 pm; restricted vending on institutional area from 7 am to 7 pm and in the heritage area, provided that the vending occured 200 meters away from any heritage site; and Red Zone, where no vending is permitted on roads more than 30 meters wide or with heavy traffic, nor within 200 meters radius of heritage and major commercial areas. Implementing this scheme would adversely impact 129 out of the 174 natural markets, resulting in large-scale displacement, and the loss of economic opportunity and growth (Mahadevia & Vyas, 2012).

In 2014, India passed a national legislation called The Street Vendors (Protection Of Livelihood And Regulation Of Street Vending) Act to mainstream street vendors and protect their rights. A salient feature of the Act is that no ULB must evict street vendors from their natural markets without allocating space or issuing a license to conduct their business. Unsurprisingly, the State of Gujarat has the lowest compliance rate among all states in India (John & Sharma, 2018). Major cities in Gujarat have initiated mass-encroachment and eviction drives to remove street vendors from the city streets. These drives have collectively displaced several thousand street vendors, which adversely impact their economic stability and the city's revenue generation, and have sucked the life out of Gujarat's public realm. Between 2009 and 2012, over 4,000 street vendors in Ahmedabad were displaced to make space for large-scale infrastructure and development projects. In August 2018, another 5,000 street vendors were evicted from the streets of Ahmedabad (John & Sharma, 2018). Some sources show that the AMC removed over 19,500 structures to "free up" 48,000 sqm of land area (John & Sharma, 2018).

3. Methodology

The study is based in Ahmedabad City's West Zone, which is one of six administrative zones in the AMC. West Zone has an area of 56.53 square km, or 12 percent of the city's area, a population of 732,336, or 11 percent of the city and 24 percent of total street vendors population (Skinner, Orleans, & Harvey, 2018). West Zone has the most diverse socioeconomic characteristics and land-uses, which minimizes any potential biases. It also has the highest percentage of "formal" public space allocation in the city.

There are two predominate types of vending practiced in Ahmedabad: traditional, which occurs in the Walled City, and contemporary, which occurs in the city's western side. Studies usually discuss the socio-economic, legislative, and design challenges of "traditional vending," and seldom look at the impact of contemporary street vending on the city's public realm. This study aims to bridge that gap by providing a detailed account of the West Zone of Ahmedabad. The West Zone is distributed into ten wards, which are the smallest urban administrative unit. The study involved two rounds of data collection through mixed research methods.

Round 1 was the preliminary round. The aim of this round was to understand basic characteristics of street vending: location patterns, agglomeration types, nature, typology, duration and frequency of vending, good and services sold, as well as the personal characteristic of street vendors. Rigorous field visits were conducted between May 2014 and July 2014, and the data was collected on both weekdays and weekends during multiple time-slots throughout the day. 4,000 street vendors were marked in this Point-in-Time (PIT) survey, along with their characteristics through the observations mentioned in Figures 1 and 2. The observations were geocoded and cataloged in ArcGIS for further spatial analysis. This dataset was then analyzed with the city's street hierarchy, sidewalks, and canopy tree cover.

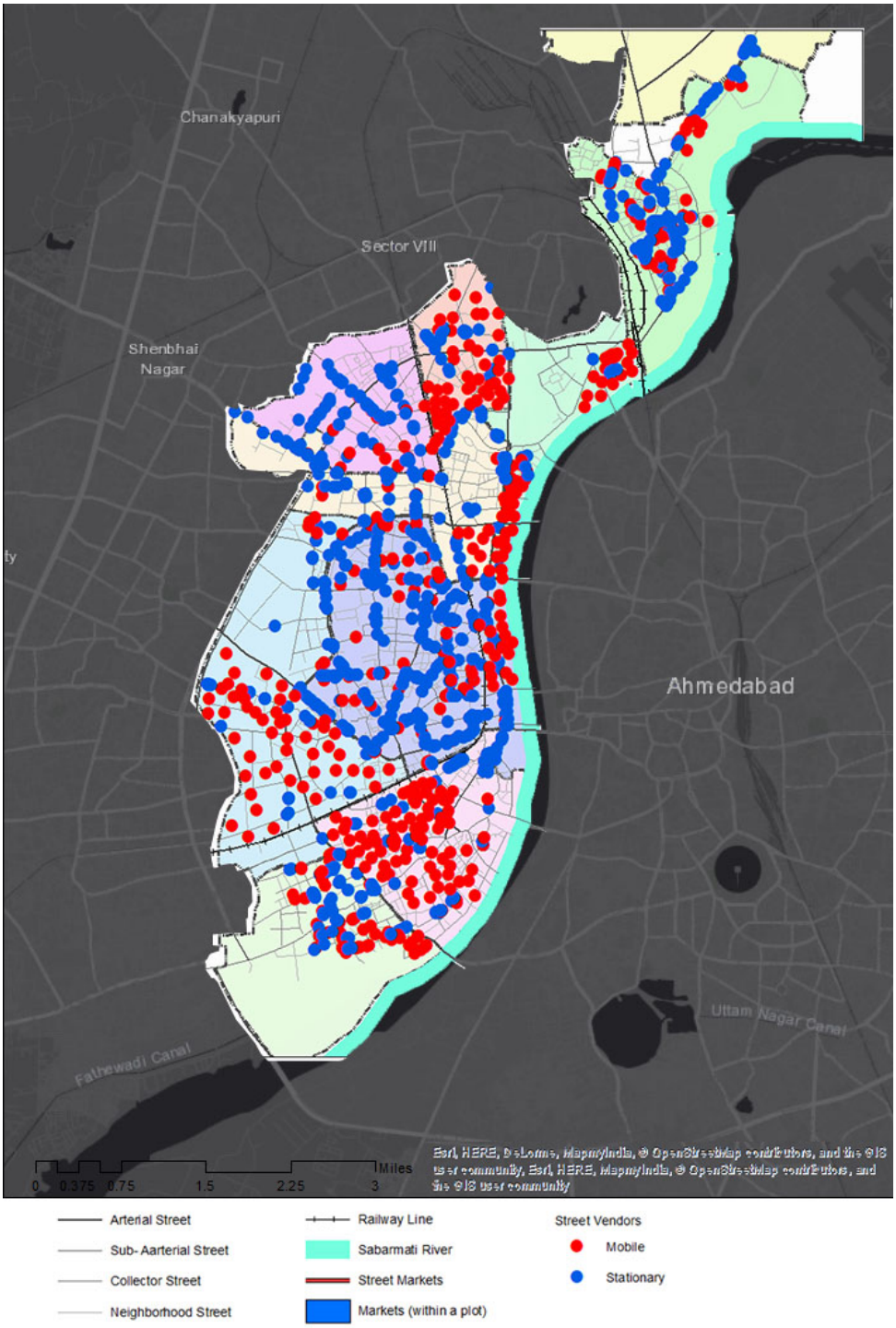

Figure 1. Nature of street vending: mobile and stationary. Source: field work.

Round 2 was the detailed assessment, which constituted of five cases selected for a detailed assessment based on a combination of the results of Round 1, the diversity of land-use, and vendor agglomeration. This in-depth assessment included observing the relationship between street type, land use and agglomeration of vendors, footfall, and clientele characteristics. Infrastructure provision such as public toilets, water stations, adequate lighting, and waste management were also noted. The clientele at all five locations were surveyed to understand their experiences of the space and perception of street vending. A total of 100 clients, or 20 at each location, were surveyed face-to-face through random sampling. The semi-structured questionnaire aimed at understanding what brings them to this space, their frequency of usage, how they spend their time in the space, their perceptions of the space, and their perceptions of street vending.

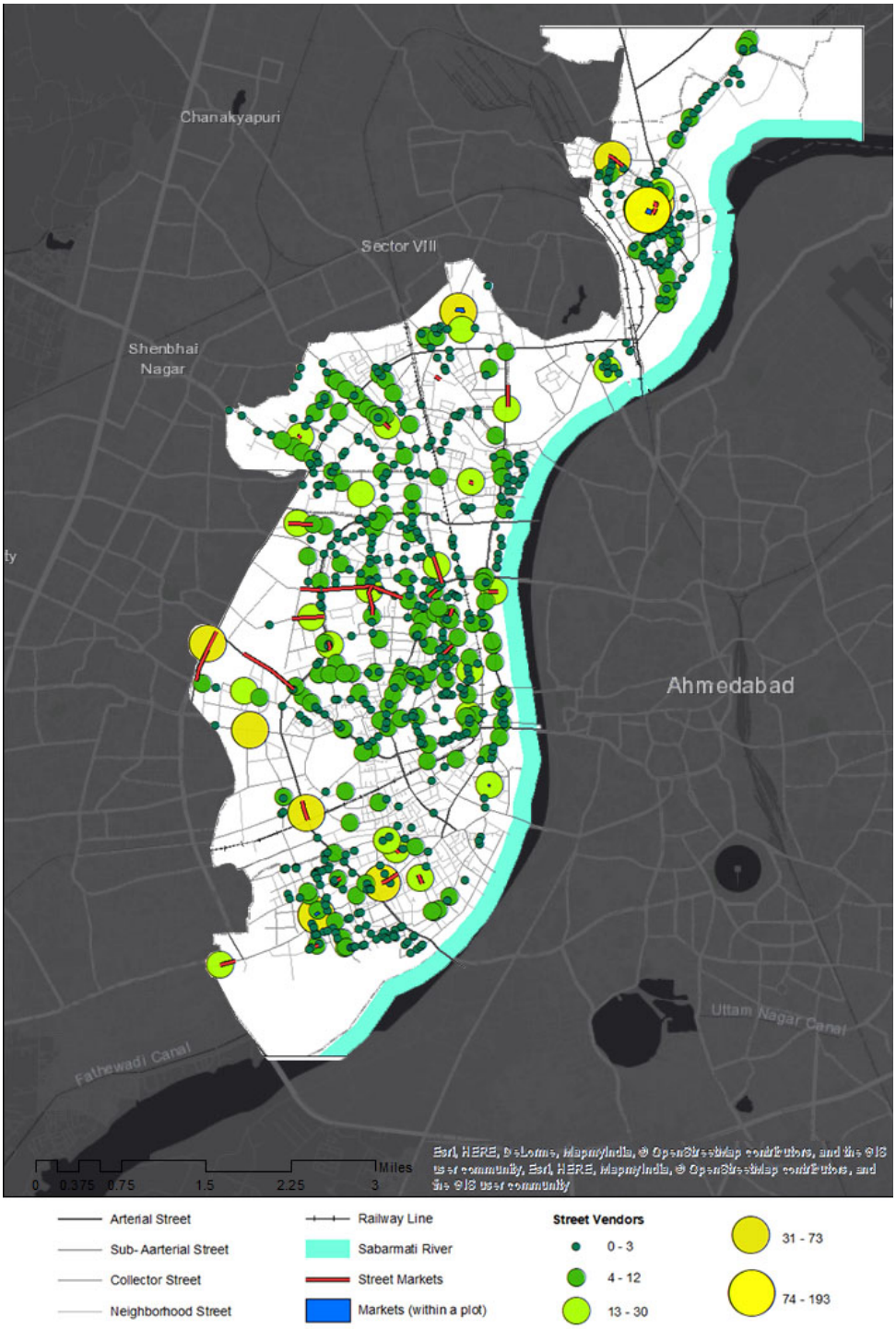

Figure 2. Street and cluster market map. Source: field work in Round 1.

4. Key Research Findings

The literature helps us dissect the study observations into five broad attributes of a "good" public space: vibrancy, access, safety, infrastructure, and equity. The following sections elaborate on each of these parameters using a specific case study. All these cases are used to highlight the role of street vendors in making streets more public. All cases look at land uses, street vendor's merchandise type, canopy cover, street type, and space use, along with other aspects, as displayed in Figures 3 to 7. Perception study conducted at each case study site was used to understand the contribution of street vendors to space even further.

4.1. Vibrancy

As mentioned previously, vibrancy is identified as an essential indicator of a "good" public space. Some qualitative and quantitative variables of vibrancy include activ-

Figure 3. Street vendors around Vasna local garden. Source: Field work.

ity generation, duration of stay, diversity of activity, and footfall. All five case studies in Ahmedabad highlight how the presence of street vendors make public spaces more vibrant and engaging. To understand these variables in greater detail, this study utilized the case of a neighborhood park in Vasna, Ahmedabad.

4.1.1. Vasna's Neighborhood Park

Vasna, one of the oldest wards in Ahmedabad, is predominantly a residential ward with a population of 100,000. Vasna is a classic illustration of the dichotomy in Indian cities. High-end and gated residential communities compose over 50 percent of the ward's land area, however roughly 30 percent of Vasna's population lives in slum settlements on 10 percent of the total land area. 23 percent of Vasna's low-lying, flood-prone land is vacant, leaving only 2 to 3 percent of the ward's land available for dedicated green or open space. The shortage of "formal" public spaces makes neighborhood parks such as this vital for the community's social, mental, and physical well-being.

This park was selected mainly for its location, scale, and nature. It is located amidst a mix of different building typologies, land-uses, and income groups. Compared to the open spaces located near high-end residential communities, this park is smaller in size and has fewer amenities. The park has rigid hours of operation and closes

Figure 4. Street vendors in and around residential area in Sabarmati ward. Source: Field work.

around late evenings. The vendors are clustered on the sidewalk along the park. Over 50 percent of vendors sell processed food, 30 percent sell fruits and vegetables, and around 20 percent sell clothes and accessories.

Residents use the park in the mornings for walking, jogging, and exercising, and later flock the stalls of food vendors located outside of the park. Blue-collar workers employed in the neighborhood purchase their lunch from the same food vendors, and eat in the park in warm afternoons. The shaded areas of the park are used by the men to relax or nap during the afternoons, who often buy tea and snacks from the food vendors in late afternoons. Evenings at the park are very active, as mothers bring their toddlers to the play area, older adults walk and buy tea, juices, or snacks, many middle-aged women come to buy fruits or vegetables and often gather near clothes and accessories, all staying longer hours. A young mother who frequents the park with her toddler stated: "I come here regularly! There's so much to do, especially outside the park. I often grab fruits and vegetables on my way back or glance through the jewelry on the street." The vendors drive the activity generation from late evenings till near midnight, ensuring footfall even after the park closes. Another male older adult explained: "I come here with my (male) friends every day to get fresh air. We gather near this tea stall and chat until we leave. He (pointing at the tea vendor) makes the best tea!" This study observed and mapped such tea and *pan* (mouth-fresheners made from betel leaf and areca) stalls all over the zone. Though they increase activity on the street late at night, they are often associated as a "nuisance" for being male-dominated spaces.

Figure 5. Street market on University streets. Source: Field work.

Figure 6. Street market at Law Garden. Source: Field work.

Figure 7. Street market at C.G. Road. Source: Field work.

PPS' Place Diagram Tool indicates how diverse activities can offer greater opportunities to engage with the public space and retain a higher volume of users. Gehl's (2011) and Cullen and Whiteford's (2001) theories emphasize the importance of social capital developed through social interaction in public spaces. Street vendors and the park function in synergy by offering more activities, which retains people from different age and income groups. This fosters a sustained social interaction in and around the space, making it more vibrant.

4.2. Safety

Safety has always been a core indicator of a "good" public spaces. There are numerous studies that measure the safety of different user groups based on aspects such as gender, race, age, religion. Many studies also draw attention to shopkeepers' and businesses' perception of safety through the context of streets and street vendors. Some variables of safety include "informal surveillance," activity generation, footfall, and familiarity. To understand the street vendors role in safety, this study examined the case of a residential neighborhood in Sabarmati Ward.

4.2.1. Sabarmati's Typical Neighborhood

Sabarmati Ward, known for its Railway Colony government housing, is one of the first residential wards in Western Ahmedabad. The residential area predom-

inantly has vertical mixed use on both sides of major roads. Over 40 percent of the ward's population lives in slums and squatter settlements. Less than 1 percent of the ward's land is dedicated to "formal" public spaces, all of which are poor quality, heavily polluted with solid waste. As a result, the streets are the community's preferred and possibly the only viable public spaces. There are three major bazaars along the vertically mixed-use streets of the ward.

The neighborhood is comprised predominantly of lower-class and middle-class residents, followed by employees of smaller commercial and institutional set-ups. Local streets constitute a significant component of the street network. Between 35 to 40 percent of street vendors are mobile in nature and provide goods and services for daily use like fruits and vegetables, or collect recyclable items such as old newspapers, tins, cans, or glass bottles. Stationery vendors agglomerate on the intersections of streets that have greater visibility and market potential. Most of these stationery vendors sell processed food like snacks, tea, lemonade, and *pan*. This case is representative of composition and location trends for mobile vendors throughout West Zone. This study's preliminary assessment indicates that local and collector streets are circulated by 35 and 38 percent respectively of the total population of mobile vendors. Specifically, most mobile vendors are found in predominantly residential neighborhoods where the demand for door-to-door services is the highest.

The mix of mobile and stationary vendors offer diverse experiences of sharing the street with them. Early mornings in the local streets are very busy with "necessary activities" (Gehl, 2011), children traveling to school and adults rushing to their workplace. Mobile vendors are the sole activity generators in the neighborhood from late morning through early evening, keeping the otherwise "dull" and inactive street interesting and safe. During this time, women who buy goods or services from the mobile vendors often find an opportunity to have a short conversation among themselves, extending the necessary activity to "social activities" (Gehl, 2011). A middle-class housewife explained: "My friends (women from other apartment blocks) and I often walk to this cross-road to buy fruits and vegetables. That is the only time we can catch up without taking out dedicated time from our daily schedules!" The mobile vendors slowly disappear by evening, and the stationery vendors on the intersections become major destinations. Children and youth flood the ice-cream and food stalls by evening, women buy fruits and vegetables, and older male adults sip tea at the tea stalls. Men and middle-aged couples are often found by tea or *pan* stalls during late evenings. These observations further cement the argument that the presence of these vendors generates activity in a relatively "dead" space, extends hours of use and provides informal surveillance, all of which make the neighborhood safer. The rich literature on safety in public spaces indicates that women, children, and older adults feel safer in the presence of familiar vendors and people (Phadke, 2007). Many shopkeepers and smaller businesses admit feeling safer in the presence of vendors when shopkeepers are away for some time, as the vendors "guard the area" and serve as "eyes on the street" (Anjaria, 2006; Jacobs, 2002).

4.3. Access

Rapid privatization and liberalization of public spaces have popularized gated green open spaces. Given this context, public spaces that are "accessible to all" are crucial for healthy and equal communities. Despite challenges, public spaces must allow for a range of activity for all users. The following case sheds light on physical manifestation of building activity and equity in a public space in the West Zone of Ahmedabad.

4.3.1. CEPT Khau Gali aka The Food Market

Khau Gali, popularly known as CEPT *Khau Gali* is in Navrangpura Ward, which one of the most affluent wards in the West zone. This ward consists predominantly of high-income residential, and has a large share of institutional, and commercial land-uses, which constitute 50, 20, and 18 percent of all land uses, respectively. Navrangpura also has the highest share of open space, with 7 percent of all land use. However, many of these open spaces are either gated or are underutilized. This ward receives a massive influx of floating population, as thousands of students and young professionals travel there throughout the day, which creates a larger need for a "good" public realm.

This street is located amidst educational institutions and was used only as a thoroughfare historically. The street vendors on this street were previously located on the perpendicular arterial street, called 120 Feet Ring Road. That arterial street was adopted as a "model road" by the local authority in the 1990s (Mahadevia et al., 2014). Their vision of creating a model road for the state only involved automobiles however. This resulted in truncated sidewalks and the large-scale displacement of street vendors, making 120 Foot Ring Road exclusive for vehicular traffic. After multiple eviction drives by local authorities, the vendors finally returned to two perpendicular streets, CEPT *Khau Gali* and LD College *Khau Gali*, which are both collector streets. The literature on "natural markets" suggests that vendors prefer to locate on streets with maximum footfall and activities, i.e. sub-arterial streets. But empirical evidence from surveying 4,000 street vendors in West Zone highlights that street vendors are more likely to be in a street market or a market inside a plot than alone. The greatest number of street markets are located along collector streets, which contain 38 percent of street markets. This is followed by local streets with 35 percent of street markets, and sub-arterial and arterial streets with 17 and 8 percent, respectively. Thus, street vendors are pushed away from their

natural markets on the sub-arterial and arterial streets, and forced to locate in the collector and local streets.

CEPT's *Khau Gali* is active throughout the day from early mornings until late nights. Food vendors line on one side of the street throughout the day, while vendors selling new clothes and accessories start clustering on the other side of the street beginning in early evenings. Food vendors are busy throughout the day, especially due to students from adjoining institutes flooding their stalls. Clothes and accessories vendors transform the street into a city-level market in the evenings. There are hundreds of people walking, eating, chatting, sitting, and shopping in evenings. Students working till late night at CEPT University purchase snacks, tea, and coffee from the food vendors, which keeps the street active in late hours. A nearby resident said "this place looked nothing like this a few decades ago! It was just any other road people zoom through, but now you can pause and enjoy the street!" A major criticism consistently facing this market is an increase in congestion due to haphazard vehicle parking by the clientele historically. Despite this conflict, the high service provision by street vendors has protected them from evictions in the past.

Street vendors make the otherwise thoroughfare street more multifunctional by generating opportunities for commercial, recreational, leisure, and mobility-related activities. They extend the hours of engagement and add color to deserted sidewalks defined by long, blank institutional walls, which makes it safer for people of all gender, age, and income. Thus, this study argues that the presence of street vending makes this street "accessible to all" (Sasidharan & Prosperi, 2012).

4.4. Infrastructure

Despite being a traditional occupation, street vending is constantly criminalized in the modern world. In instances when the street vendors are decriminalized and supported by the government, markets have flourished into more attractive spaces. State support and sponsorship is essential beyond legalizing the occupation. This can be done by providing space and basic infrastructure such as public toilets, access to drinking water, access to transportation, waste management, and electricity.

4.4.1. Law Garden

Situated in the Navrangpura Ward, Law Garden is one of the most celebrated public spaces in Ahmedabad. As mentioned previously, Navrangpura Ward has a large proportion of open space, with Law Garden being the largest area. There are two popular city-level street markets located in Law Garden: the handicrafts market and the food market.

Law Garden is located at the center of a bustling neighborhood, and surrounded by commercial, institutional and mixed-use developments. Traffic congestion and curbed vehicular mobility motivated the local authority to evict street vendors in Law Garden. The street market initially emerged as a seasonal market due primarily to the Garden's popularity, but soon became closely tied to the neighborhood's and city's image. Thus, the community constantly protested the eviction, and initiated several public dialogues to return the street markets. The community and the city abandoned Law Garden, which made it suitable for illicit activities. Many grassroots organizations such SEWA, local urbanists, and passionate citizens negotiated with the local authority to restore the street markets. This gave the state its first unique "organized" street market. The street around Law Garden was redesigned to build sheds as spaces for vendors. This included wide sidewalks, electricity provision, waste management, and access to the garden's water fountain and public toilets. All vendors were also provided a vending license. The newly improved Law Garden exponentially increased footfall and revenue generation.

Current mornings in Law Garden are busy with residents walking and exercising in the garden. After this, they move to the food market to purchase tea and snacks, which extends the public realm from the park. Youth from adjoining schools and colleges flood the garden and markets during the afternoons. The evenings are the busiest time period, with various users utilizing the area through activities including playing, socializing, shopping, eating or sight-seeing. A young student who frequents the place with his friends said, "these bazaars are so well designed and maintained…..It feels like a part of the park. I regularly come here to hang-out with my friends and eat my favorite pav-bhaji (Indian street food)!" A middle-aged visitor from another city said, "I've never been to bazaars like these. It's clean, bright, busy, colorful and so comfortable to be in!"

Many studies highlight how "organized" street vending spaces or zones with adequate infrastructure improve the user experience and provide workplace security and comfort to street vendors. Findings from this study's preliminary assessment also emphasized this same conclusion. Most street vendors prefer locating in a spot with tree shade or canopy cover and sidewalks. Unfortunately, 38 percent of collector streets and 55 of local streets in the zone have no sidewalks, and only 30 percent of collector and local streets have any canopy cover. This exposes most street vendors to the risk from vehicular traffic and harsh climate conditions.

Law Garden has been a focal point of legislative conflict over street space since the 1950s (TNN, 2018a). Despite several mechanisms, local policies, and governance systems formalizing street vending along both sides of Law Garden, the ULB continues to harass, evict, and displace street vendors in the name of abating parking issues, congestion, and menace. In Ahmedabad's latest eviction drive in 2018, the ULB and the police demolished formalized structures and evicted all licensed street vendors, citing street vendors 'encroach' upon street space used for traffic. This incidence highlights that legislation and local administration reforms do not guarantee the

preservation of street vending, and a change in narrative is greatly needed.

4.5. Equity

Equity is the basic principle to term any space as "public". Per previously discussed literature, good public spaces dilute all socio-economic barriers, and foster social cohesion. All five cases strongly demonstrate the contribution of street vending in diluting socio-economic and generational divides, promoting multipurpose and multimodal nature of streets, and making streets more equitable. This case presents an interesting take on equity through its unique interplay between the formal and informal sector.

4.5.1. C.G. Road's Commercial Stretch

Named after the business tycoon Chimanlal Girdhalal in the 1960s, C.G. Road is a prime commercial axis of Ahmedabad. Formerly planned as a residential neighborhood, C.G. Road now thrives with a wide range of commercial activities, including offices, retail shops, malls, restaurants, and cafes. It is surrounded by high-end residential and vertically mixed-use development. Once known as the city's favorite street for celebrating various festivals like Diwali and Christmas, the street is now dominated by motorized traffic. Its popularity and significance put it at the center of the city's placemaking initiatives. "Happy Streets" or "RaahGiri" (translated as a sweet rebellion to reclaim streets) is the State's first successful movement to reclaim street for all and began on C.G. Road.

As mentioned above, C.G. Road's is predominately commercial, with around 90 percent of the area's land use. It is surrounded by a rich network of streets, many of which are sub-arterial. Over 95 percent of street vendors are stationery, and around 60 percent of them are located on major intersections. Another 25 to 35 percent are located near malls and offices, and less than 5 percent are mobile vendors spotted close to mixed-use developments. 80 percent of vendors sell processed food, while 15 percent provide fruits and vegetables, services like shoe or bike repair, or sell accessories.

Vendors arrive on C.G. Road by late mornings. Soon most white-collar workers flood the food vending stalls for tea, lemonade, juices, and snacks. At noon, many blue-collar workers purchase affordable lunch from the same vendors and eat under the shade provided by trees on the street. From late afternoons to evenings, food vendors located close to the offices serve tea and snacks to the workers inside their office buildings. This is a rare situation where street vendors are valued and openly welcomed into formal work premises. People often stop by the vendors on their way back from offices and malls during evenings, creating a larger public sphere on an otherwise automobile dominated street. It is shared by a diverse group including street vendors, blue-collar workers, white-collar workers, and students from neighboring wards. Thus, the contested space becomes more equitable due to the presence of street vending (Jain & Moraglio, 2014).

CG Road's prime location, demand for space, tricky parking management, and dense population require a design and management update regularly. After 23 years since the last redevelopment, AMC's envisions to make CG Road the State's first "Smart Model Road" (Ahmedabad Mirror, 2018). This vision includes parking for 2 and 4 wheelers, bike lanes, green canopy, benches, paved blocks for pedestrians, CCTV cameras, WIFI-based LED street lighting monitoring system, Electric Vehicle charging stations, integrated commercial display boards, and speakers for announcements (TNN, 2018b). There is no provision for street vendors, rickshaw stops, nor other informal workers. The city's vision for redeveloping a key street, thriving on urban informality, again has no space for the urban poor.

5. Conclusion and Recommendations

Street vendors are a significant component of both the informal economy and public spaces. They are self-employed, support other small businesses, contribute to the city's revenue generation, and help reduce urban food insecurity. Although most governments across the globe recognize their importance, they are often misconstrued as 'illegal', 'flagbearers of chaos', 'nuisances' and 'tax-evaders'. Furthermore, they are perceived as 'encroaching' the city's prime land and contributing as a source of congestion and menace. There are a significant number of empirical studies highlighting how street vendors often pay extortion money, protection money, or provide free snacks, goods or services to various government bodies such as the ULB, the Police, the traffic police, the public health department for protection. Street vendors are central to the debate of space, especially in densely populated cities where land is a rare commodity. They constantly face the hardships of evictions, displacement, and confiscation of goods, especially during urban infrastructure and renewal projects. In states where street vending is not regulated, food vendors pose a public health challenge. Thus, formalizing street vending can address these concerns effectively.

The case of Ahmedabad highlights some interesting location patterns in relation to surrounding land-use, street, and amenities. Stationary street vendors are more likely to be in a street market or a market than alone. 38 percent of street markets are located along with collector streets, while 35 percent are along local streets, followed by sub-arterial and arterial streets with 17 and 8 percent, respectively. A rich literature on street vending in Ahmedabad depicts the eviction and displacement of street markets from "important" sub-arterial and arterial streets, prioritized by AMC for vehicular circulation, to local and collector streets, which further reinforces this finding. Mobile street vendors are more likely

to be found in predominantly residential areas where the demand for door-to-door services is greatest. Hence, collector and local streets contain 38 and 35 percent of mobile vendors, respectively. An overwhelming majority of street vendors prefer locating in spots with canopy cover and sidewalks. Unfortunately, 38 percent of collector streets and 55 percent of local streets in the West Zone have no sidewalks; and 70 percent of collector and local streets lack any canopy cover. This exposes street vendors to risks from oncoming vehicular traffic and harsh climate conditions.

The five case study pockets and perception study provide a fresh perspective to ongoing discussions on public spaces and street vending. Activities drive people to visit the place. The purpose of using the space ranged from necessary, to optional, to recreational activities (Gehl, 2011). These spaces were often a part of people's daily routines, but also constituted an opportunity to explore the city's amenities. The presence of street vendors enhances the experience of a space. The frequency of usage is independent of street vending but is closely tied to the type of activities offered. Daily activities such as buying groceries from neighborhood street vendors are an example of necessary activities, while, buying handicrafts from Law Garden can be a recreational activity. People enjoy the space in varied ways: in groups of friends or family, especially for activities like walking or jogging in the local park, shopping and eating at street markets or individually. Examples of individual interactions include a blue-collar worker eating lunch at a food stall, or a mother dropping off her child to school and buying fresh vegetables from the mobile street vendor on her return. Though the users in all 5 cases largely perceive the space in positive light, they often mentioned infrastructure related issues, such as parking, waste management, and congestion. These problems are true for most areas in the city with similar land use and density. However, their perception of the street vendors predominantly emphasizes the contribution of street vending in making the space more vibrant, the streets safer and their lives more convenient. Most users highlighted that street vendors allow them to reduce the number of trips by consolidating multiple purposes into one trip.

In conclusion, street vendors contribute to making streets truly "public." They act as a transition between the street and its adjoining properties by extending the public realm. Streets with dominant vehicular movement encourage greater pedestrian use due to street vending. Street vendors act as "eyes on the streets" and attract greater numbers of people. They foster platforms where people from different income groups, age groups, communities, and genders can interact actively or passively. They reclaim the streets and make them multipurpose in nature. A change in the narrative of the role of street vendors in public spaces and the larger urban system will help implement reformative legislation, local policies, and governance mechanisms.

5.1. Recommendations

ULBs and other local authorities should recognize the contributions of street vendors and support street vending to protect vendors from exploitation, harassment, and evictions. Incorporating an equitable urban development model that includes the city's urban poor with a focus on the working poor is crucial for building sustainable and resilient urban systems. Surveys on the economic contribution of street vending can be a significant motivator for preserving and promoting street vending in urban areas. A thorough survey of all street vendors in Ahmedabad that includes socio-demographic information, their locations, and their specific needs will aid the ULB in providing better services for vendors. Identifying all "natural markets" and striving to preserve them is crucial for effective implementation of the Street Vendors Act of 2014. Thus, a holistic survey identifying all the "natural markets" and all street vendors is key for an equitable integration of vendors.

All street vendors must be provided with licenses (vending and food handling licenses) and dedicated spaces close to their respective "natural market." The licensing process should be expedited, and current vendors must be given a priority over new vendors. The space allocation must respond to the needs, scale, and context of the community. All street vendors must have access to basic services such as potable water, clean toilets, proper lighting, and shade for protection from the elements. After identifying specific needs in markets, space and additional facilities should be made available to vendors. The local authorities should ensure the safety of street vendors, especially those who are more vulnerable ones such as women, "lower" caste vendors, and below poverty line vendors.

To ensure an equitable solution for any space conflicts, a fair representation of all stakeholders including residents, shopkeepers, business associations, street vendors, advocacy groups, etc. in the Town Vending Committee is essential. Furthermore, with the help of non-profits and advocacy groups, ULBs must aim to organize street vendors to form committees that can ensure smooth functioning and governance of street markets. With a focus on parking management and mobility, ULBs must collaborate with urbanists, design professionals, and enthusiastic community members to innovate space management solutions, along with proper waste management mechanisms.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

Women's Safety and Public Spaces: Lessons from the Sabarmati Riverfront, India

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Abstract
The Sustainable Development Goals 5 and 11, as well as the New Urban Agenda, emphasize gender equity and safe, resilient, and inclusive cities. The 'safe cities' idea for women includes their equal right to the city and public places within it, which includes their right to be mobile in the city at any time of the day, as well as their right to loiter in public spaces without any threats of harassment or sexual violence. These issues have gained importance in urban planning and design in contemporary India. This article is an assessment of how safe Ahmedabad city's largest public space, the Sabarmati Riverfront, is for women. Ahmedabad, a city in western India, has long carried an image of a safe city for women. The Sabarmati Riverfront is over 22 km in length, 11 km on both sides of the river. This assessment is made through mapping of space use disaggregated by sex and age at four different time points throughout the day and of 100 women's accounts of the experience of harassment on using the space. The article concludes with specific recommendations on proposed activities and space design along the riverfront to make these spaces safe for women throughout the day.

Keywords
gender; harassment; India; public space; riverfront; safety; women

Issue
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1. Introduction

The Sustainable Development Goals (SDGs) 5 and 11, as well as the New Urban Agenda, emphasize gender equitable and safe, resilient and inclusive cities. This implies women can enjoy city life in its fullest dimension as much as men. In other words, women have as much of a right to the city as men. Although the 'right to the city' is mediated by existing social inequities of class, religion, race, ethnicity, and caste in the Indian context (Kabeer, 1994), above all these equities is a layer of gender inequality. Gender refers to "culturally-mediated expectations and roles associated with masculinity and femininity" (Lips, 2015, p. 2). Gender roles are shaped by economic, cultural, and social norms and play a significant part in constructing unequal urban realities. Simply put, "women and men experience cities in different ways" (Beall, 1996, p. 10). Violence against Women (VAW), a global movement, captures how violence or the threat of violence against women fuels this differential experience. Another important aspect is the ability to 'loiter' in the city and seek pleasure without demonstrating a 'respectable purpose' (Phadke, Ranade, & Khan, 2009). While the forms of violence or its threat vary depending on social and political situations, these threats of violence, violence, and social stigma against purposeless loitering in the city are experienced by all women. Therefore, in this article, we use the term *women* and not *gender*.

The agenda of VAW addresses the fulfillment of two SDGs: gender equity (SDG 5) and safe, inclusive cities,

and resilient cities (SDG 11). Women across cultures experience violence in their day-to-day lives. The United Nation's (UN) 'Declaration on the Elimination of Violence against Women' states (UN Human Rights, 1993): "Violence against women is a manifestation of historically unequal power relations between men and women." It further states: "Violence against women constitutes a violation of the rights and fundamental freedoms of women and impairs or nullifies their enjoyment of those rights and freedoms." This UN Declaration defines violence against women as "any act of gender-based violence that results in, or is likely to result in, physical, sexual, or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life" (UN Human Rights, 1993). Hence, both actual violence and the threat of violence are construed as violence.

Although violence against women is legally prohibited in many countries, the veil of superstition and cultural and age-old religious practices continue to violate women's rights. Women's constant exposure to various forms of violence in their daily lives reinforces gender inequality and curtails their mobility in cities and urban spaces. This 'daily' and 'normal' nature of violence or the fear of it often restricts or alters their interaction with the city. It also undermines their 'right to public space' and, consequently, their 'right to the city', understood as a state where every citizen has an equal right and access to the city and its public spaces (UNHABITAT, Department of Women and Child Development, Government of NCT of Delhi, Jagori, & UN Women, 2010).

The women's right to a public place is embedded in the concept of 'safety'. What is women's safety? It is largely referred to in the societal narratives and policy discourses as a condition wherein they are free of sexual assault and harassment; while for men, the term safety refers to being free of all types of violence (Desai, Parmar, & Mahadevia, 2017). Although women also experience robberies and road accidents and hence are not safe, the preoccupied notion of associating women's bodies with their families' 'honor' makes their sexual safety of the utmost importance. Phadke (2007, p. 1512) argues:

> The insistence on sexual safety actively contributes to not just reducing women's access to public space but also to compromise their safety when they do access public space, by focusing more on women's capacity to produce respectability rather than on their safety. The discourse of safety then does not keep women safe in public; it effectively bars them from it.

Literature on women's safety in India indicates that women are under the threat of different risks while accessing public spaces, even if they haven't experienced direct violence (Phadke, 2007, p. 1511): (i) potential physical assault, including risk of life or injury causing physical or psychological trauma; (ii) risk of 'reputation', resulting in loss of matrimonial opportunity or questioning of sexual virtue (iii) risk of being blamed for being 'in the wrong place' or 'at the wrong time' (especially in cases of physical or sexual assault), resulting in the improbability of finding justice; (iv) risk of no or minimal interaction with the city, leading to a loss of opportunity and experiences. In case of any harassment, society often engages in victim-blaming (Sur, 2014), perpetuates that a potential act of violence annihilates a woman's 'virtue', instead of her 'autonomy', and teaches young girls to 'protect their virtue at all costs.'

Therefore, women often hesitate to be in a public space without a 'legitimate' reason, as they are always looked upon as 'illegitimate' users of public spaces. Women feel the need to demonstrate their 'purpose' for being in public space and rarely tend to sit in a park by themselves, or stand at a street corner, or smoke, or simply watch the world go by like men do. Many activists, scholars, and feminists believe true women empowerment lies in enabling women to 'loiter' in the city as discussed above (Phadke et al., 2009). In the quest to create safe spaces for women, entry-barriers are installed which, in effect, in a hierarchized society such as India, tends to exclude the 'undesirables', read men from low-income and caste or men from other social segments. Thus, women's activists in India also emphasize that the public spaces cannot be made safe for women at the cost of anyone else's ('undesirable' sections of the society like lower-class men) freedom. Public spaces should be truly 'public'; they must be accessible to everyone throughout the day. Translated into public space terms, this means that the right of every citizen—across class, caste, gender, religion, and sexual orientation must be protected. The city can only belong to the women, when it belongs to everyone (Phadke, 2007).

"How can we assert that women are at risk in public spaces while simultaneously rejecting representations that project women only as victims in need of protection, which will inevitably move towards restrictions, surveillance, and control?" (Phadke, 2005, p. 59). Across cultures, women's safety is usually considered to be the individual's responsibility rather than that of the state or society. Therefore, if women face violence in public spaces, they are either scolded for 'being out at the wrong time' or 'provoking the men' or are advised to protect themselves by carrying pepper sprays, small knives, heavy bags, key chains between their knuckles, wear heels or enrol in self-defence classes. Restricting women's mobility in the city cannot be a solution to women's safety; as women have as much right to loiter in the city as men (Phadke et al., 2009). This means that the issue of women's safety must be included in urban planning and design.

For us, women's safety in a public space, therefore, means both their safety from all forms of violence (including sexual harassment) and moving away from the patriarchal idea of honor; enabling women to freely engage with the city. It includes, first, creating safe public spaces, where women can move freely, at their will, at all times. This is important because

"space which causes fear restricts movement and thus the community's use of space. Lack of movement and comfort is a form of social exclusion" (UNHabitat Women in Cities International, SIDA, Huairou Commission, & CISCSA, 2008). It further includes:

> Strategies, practices, and policies which aim to reduce gender-based violence (or VAW), including women's fear of crime and freedom from poverty. This includes safe access to water, the existence and security of communal toilet facilities in informal settlements, slum upgrades, gender-sensitive street and city design, safe car parks, shopping, and public transportation. (UNHabitat et al., 2008)

There are multiple approaches to women's safety in the city. The first one is focused on better surveillance in the city, largely through policing efforts of the community or security personnel. Closed Circuit Televisions (CCTV) cameras are often referred to as an important aspect of formal surveillance, while some consider it to be intrusive of personal space. Next is the legal approach to make women's harassment a cognizable crime meriting strict and swift legal action. The third one is changing socio-cultural norms through gender awareness training and education. The last one focuses on strategies for built-environment, including gender-aware and gender-sensitive (borrowing from Moser, 1993) urban planning and design. This approach focuses on (i) land-use strategies such as mixed land uses, so that there are no parts of the city that are deserted at any time of the day; (ii) public transport strategies such as the provision of frequent and well-connected public transport as well as a station and stops that are safe at all times of the day; and (iii) designing of public spaces that feel safe. Additionally, studies in the Indian context argue that the presence of people and other users like street vendors that act as 'eyes on the streets', make travel on the streets safe (Jagori, 2007, 2010; Parichiti, 2012; SAKHI, 2011; Vishwanath & Mehrotra, 2007). In the next section, we turn to a discussion on the relationship between the built environment and women's safety.

2. Women's Safety and Built Environment

Built environment refers to the human-made structures that provide space for human activities, interactions, and community life. It ranges from buildings and neighborhoods to community gardens and green spaces, from water supply and drainage to the transportation system and so on. Modern built environment discussions also range from design & aesthetics, construction & management, and public health & safety, to its economy and policies.

Men and women experience spaces differently. Traditionally, men have occupied and therefore dominated public spaces. The traditional division of labor and gender roles often confined women to their homes. Rapid urbanization and modernization enabled women to engage with the public realm for various reasons. Although gender is not the only or primary axis of discrimination in public spaces, it is a significant one.

Women feel insecure in public spaces due to multiple factors like poor design and infrastructure, society's behavioral pattern, shortcomings of the education system (towards gender relations, sexuality), and economic disparity. Apart from the built environment elements—like streetlights, state of sidewalks, maintenance of public spaces, dark/abandoned buildings or areas, areas of visual or hearing isolation, etc.—the type of users and footfall largely affects women's perception of safety. Dhar (2013) states women feel safer with 'eyes on the street' (presence of people, vendors, drivers, etc.), a concept popularized by Jane Jacobs (1992) in the context of American neighborhood planning. Women in Delhi identified 'disrespect for women' as a major concern while using public transport:

> Girls and women who travel on RTVs (road transport vehicles/buses) face constant harassment from drivers, conductors, and their associates, who make vulgar comments, play loud suggestive songs, or crowd against women and push or rub against them. (Jagori, 2007, p. 36)

Similarly, most city streets are predominantly designed for automobiles and often comprise on the safety of pedestrians. To mitigate this, the cities build pedestrian crossings, foot over-bridges, or underpasses. These are usually poorly-designed, highly inconvenient to use, and perceived as unsafe for the fear of being mugged and sexually assaulted.

Based on numerous studies (ActionAid International, 2013; UNHABITAT et al., 2010; Jagori, 2007, 2010; SAKHI, 2011; Women in Cities International, 2010a, 2010b) conducted in both the developed and the developing world, the built environment factors that affect women's perception of safety are:

2.1. Proper Lighting

Dark street corners, entry/exit points, car-parks, and poorly lit spaces cause discomfort to women during early mornings and late evenings, increasing the fear of violence. Women across the world have reported being willing to take longer or different routes to avoid such spots and stretches (UNHABITAT et al., 2010). Safety audits in Delhi highlighted that women felt unsafe in almost all car-parks, which are generally poorly-lit and are less visually accessible from the entry/exit points. This scares women from getting into their cars after dark (Vishwanath & Mehrotra, 2007, p. 1546). Conversely, women tend to use well-lit spaces or routes.

2.2. Quality of Public Spaces

Poorly-maintained spaces like broken sidewalks, unfixed potholes, open defecation, streetlights blocked by over-

grown trees, etc. generate fear of violence, accidents, and health issues in women. Conversely, well-maintained and hygienic spaces make women, especially older or disabled women, feel safe. Wide, walkable sidewalks free of urinating men, cleaner spaces, shaded pathways, etc. increase convenience and safety in a public space.

2.3. Extent of Oversight in Public Spaces

Women prefer being in familiar areas, or in spaces where they can call for help or run away if they face violence, or spaces that are active and eventful. Hence, it bothers them to be in spaces that make them invisible. "Together for women's safety" (UNHABITAT et al., 2010; Women in Cities International, 2010a) articulates the three major concerns of women in public spaces very well: to see and to be seen, to hear and to be heard, and to get away and get help. Different user groups like 'middle-aged people', 'older adults', 'women', 'families', 'familiar vendors & shopkeepers', etc. make women feel more secure and safe (Jagori, 2011, p. 44).

2.4. Empty/Dilapidated Building or Plots

Women feel uncomfortable walking on streets with large empty walls or empty plots due to fear of not getting help in case of assault. Empty or dilapidated buildings are often favorable spots for men engaging in illicit activities, amplifying the fear of violence. In safety audits, the participants claimed to experience a greater fear of assault or rape in deserted spaces (Jagori, 2010, p. 17).

2.5. Extent of Familiar People/Shops/Vendors

The presence of people, familiar shopkeepers and vendors enhance informal surveillance in public spaces, making women feel safer. Plus, vendors and shops also ensure activity generation round-the-clock, ensuring more informal surveillance throughout the day (Vishwanath & Mehrotra, 2007, p. 1547).

2.6. Places with Visible and accessible Police Booths, Patrolling, CCTV Coverage, etc.

As discussed previously, deserted and visually inaccessible spaces make women feel unsafe. Hence, spaces that are well-patrolled, have formal or informal surveillance, or are close to emergency stations and police stations make women feel they can be heard and helped, and hence, safer (Jagori, 2011).

2.7. Male Dominated Spaces

Women find large groups of men intimidating and prefer avoiding those spaces, even if they are well-lit or well-maintained. Women feel safer around other women and men with their families. These unsafe spaces in the Indian context are cigarette shops, 'dhabas' (roadside tea and food stalls on highways), taxi stands, certain street corners, liquor shops, or certain deserted parks (Vishwanath & Mehrotra, 2007, p. 1547).

2.8. Status of Public Toilets

The inadequate public facilities make the lives of women from poorer/slum/resettlement areas acutely vulnerable. Public toilets in poor neighborhoods are often in a filthy and vandalized state, and hence unusable. Women have reported public toilets in those areas to be extremely unsafe as the male attendants often harass the women or frequently peek or break into the toilets. Men's and women's public toilets located close to each other increase instances of verbal and visual violence through the open roofs (Jagori, 2007; Parichiti, 2012), while the absence of toilets forces women to defecate in the open. To protect their modesty, women defecate in the open at night, falling victim to increased incidents of sexual harassment. Women report frequent encounters of flashing, staring, or stalking in these fields and public toilets (Vishwanath & Mehrotra, 2008).

3. Methodology

This article is an assessment of the largest public open space, a riverfront, from the perspective of women and the extent to which it is perceived as safe by women. Our inquiry questions were: (i) to what extent women use this public space, (ii) are there any preferred spots they use, (iii) are single women coming to this space, (iv) whether women users have experienced harassment while using this space, and (v) what interventions do women suggest to make this public space safer and more useable.

This study is in Ahmedabad City, with a population of 6.5 million as per 2011. The city is segmented by class, caste, and religion (Mahadevia, Desai, & Vyas, 2014). The Sabarmati River passes through the heart of the city. Eastern Ahmedabad, home to the Walled City of Ahmedabad is industrial and largely houses low-income populations. Western Ahmedabad is more globalized, with high-end real estate development and gated communities inhabited by the wealthy. Ahmedabad's transformation since the early 2000s has involved the spatial restructuring of the city through numerous beautification and infrastructure projects that aim at improving the city's image, attracting investment and boosting the quality of life for the city's middle/upper-middle class (Desai, 2014). The Sabarmati Riverfront Development is one such project.

The Sabarmati Riverfront, the city's award-winning project, is aimed at rejuvenating the Sabarmati River to create the city's largest public space. It is an artificially created riverfront which was carried out by reclaiming the riverbed. The project has created a riverfront area stretching 11.5 km along both sides of the riverbank. By channeling the river to a constant width of 263m, 202.79 hectares of riverbed land were reclaimed. This

project was supposed to create the city's first public space large enough to host multiple public activities. Various stretches of riverfront were still under construction at the time of this research.

Mixed methods have been used for the study. In the preliminary stage, activities were mapped along the entire 11.5 km stretch on both sides of the river between the months of January–March (2016). Through this mapping, four pockets, two on each side of the river, which had a footfall of people, were identified for detailed study. Thereafter, the elements (positive and negative) affecting the perception of safety, as identified in the literature review, were listed and mapped along with the activity mapping in the four selected pockets. This was followed by an in-depth study of the gendered usage of space for three different time slots of the day. Lastly, 100 female users (50 on each side of the river) were surveyed using a structured questionnaire as well as unstructured discussion wherein questions were asked about their social background, their experiences of harassment on the riverbank, their opinion about elements that made a space safe or unsafe, and what actions could be taken to improve the safety of women on the riverbank. We did not ask them what could be done to increase the use of this large public space by women as only during the survey did we find a high gender imbalance in the same. The sample size for the survey was equally distributed across all the pockets as well as all times of the day.

4. Preliminary Assessment

Riverfront rejuvenation planning started in the late 1960s, but its final plan was approved in mid-2000. After massive evictions and the displacement of 11,000 poor urban households living on the riverbanks (Mahadevia, 2014), riverfront construction began in 2009. The 11.5 km of reclaimed land along riverbed was distributed for open spaces, development sites, public utility, and roads. The Lower Promenade is designed at the low-tide line and submerges into the river during floods. The Upper Promenade is designed at the high-tide line of the river to prevent frequent flooding in the adjoining neighborhoods. Large roads on each side of the Riverfront were designed to increase accessibility to the river and reduce traffic congestion. This decision was criticized for underutilizing city's prime land for roads instead of city amenities and open space. Ironically, public transport and paratransit services are prohibited on these roads, limiting access to the Riverfront to those who own private vehicles. Furthermore, sidewalks on both sides of these roads are discontinuous and vary in size. The high volume of fast-moving traffic makes it unsafe to walk on the road or cross the same.

Parks on both sides of the river only have a few functional access points. People usually gather around the access points of the parks, leaving the linear ends of the park usually deserted. For maximum visibility into the parks from the streets, most parks (except the Flower Park on the west) have fences instead of compound walls. People prefer clustering in and around Ghats (stepped passage to the river) and other access points like stairways and ramps on the Lower Promenade. The Lower Promenade, in most stretches, especially towards the access points, is insufficiently lit and lacks bright signage. Stretches like A, B, I, parts of E and F, have largely damaged lighting, failing to attract larger footfalls and families (refer to Figure 1). The Upper Promenade on both sides of the river is comparatively well lit, better maintained, and more functional.

Once the proposed spaces are completely constructed, it is expected to draw large crowds. But at the time of our survey, large stretches, especially on the east were deserted (refer Figure 2). Many toilets were not functional and lacked bright signage and lighting. The western side of the Riverfront offered a wider range of spaces and amenities like MyByk Stations, Boating Stations, food kiosks, Events Ground, Sports Facility, Flower Park, Plazas, etc. attracting more people than the eastern side (refer Figure 2). The presence of MyByk stations on the western side enables more cyclists to bike on the Lower Promenade. Young men and couples use the vacant stretches of C, D, E, G & H for recreation. Families are usually near more planned spaces like the parks, plazas, etc.

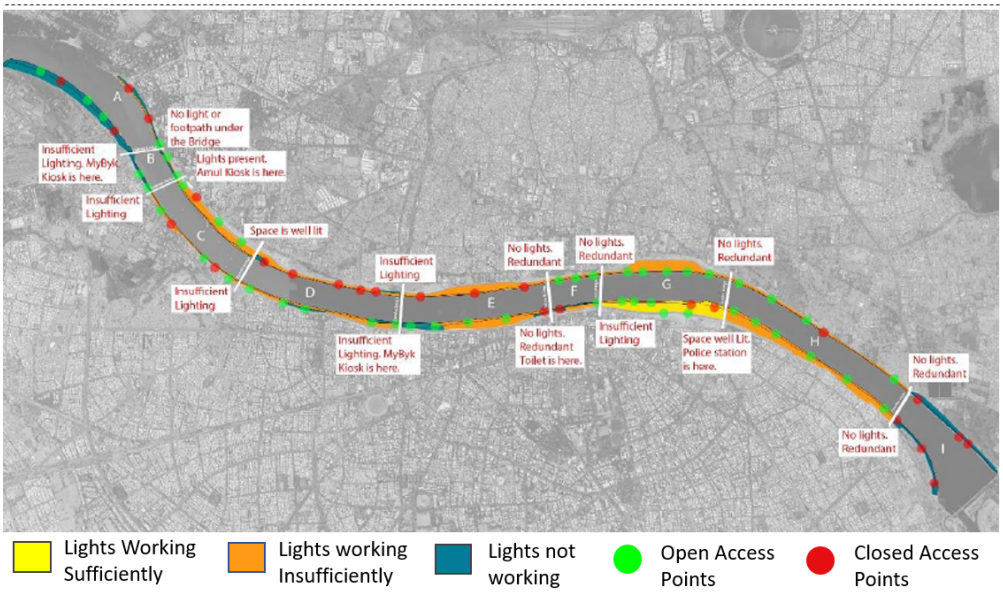
5. Specific Pocket Assessment

5.1. Pocket 1: Usmanpura Park to Vallabh Sadan (between Stretch C, D)

Located on the western side of the river, Pocket 1 is one of the most popular spots on the Riverfront. The pocket is divided in two because of a bridge (called Gandhi Bridge) connecting the west of the river to the east. An important religious place, namely Vallabh Sadan, is in this pocket along the Upper Promenade and has a large open space towards the river making this spot favorable for hosting major events in the city like concerts, kite festivals, etc. Towards the north of this pocket is a park, called Usmanpura Park, which is frequented by the city's college-going youth due to its proximity to the city's large University Area.

The Lower Promenade in Pocket 1 is extensively used by people to jog and exercise from early morning to around 9 am. After that, the parking area in the Upper Promenade is more active than other parts of the pocket. It is largely used by youth from adjoining colleges for recreation (refer to Figure 3a). Despite the pocket being active, many women reported facing harassment as they feel the pocket becomes a male-dominated space, especially on the Lower Promenade after 9 am. A 21-year-old Hindu respondent said: "During early mornings, people deliberately come closer and pass uncharitable remarks on the Lower Promenade or in the parking area! Especially if one is spotted in a couple! This has happened to me many times."

a. Used and Unused Spaces on the Riverfront
Original Image Source: Improving Women's Safety on Sabarmati Riverfront, Center for Urban Equity, 2017 `

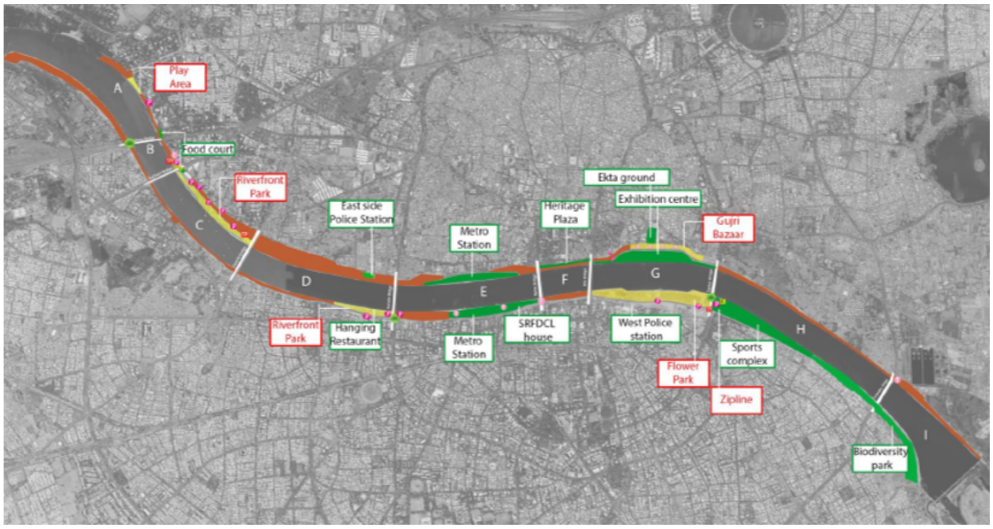


b. Status of Luminosity on the Riverfront
Original Image Source: Improving Women's Safety on Sabarmati Riverfront, Center for Urban Equity, 2017 `

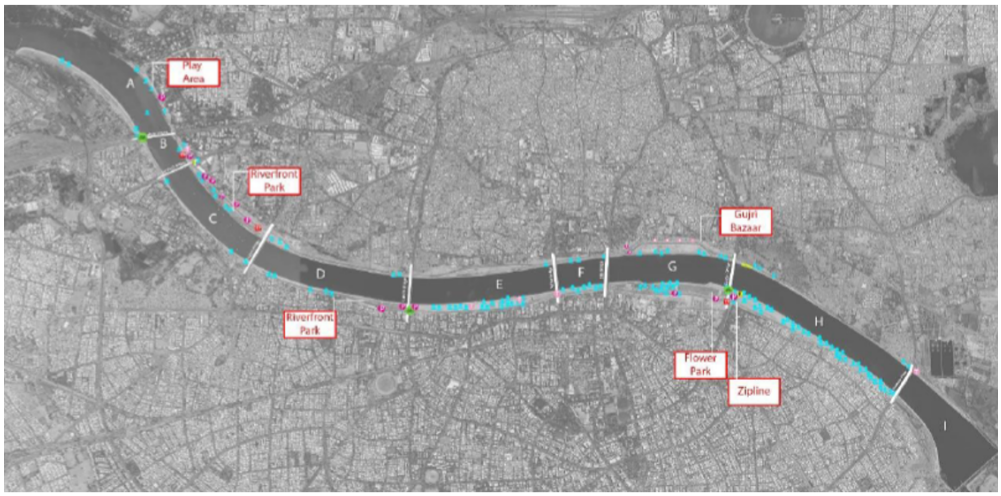
Figure 1. Status of infrastructure on the Riverfront.

Afternoons bring more people to the Pocket than the mornings, the predominant user group being the youth. The heat and weather conditions force most users to crowd in shaded spaces, such as the area under the bridge on the Lower Promenade. Except for that spot, most of the Lower Promenade is deserted. Young couples seeking privacy are found on the stairs between the Upper Promenade and Lower Promenade (refer to Figure 3b). The difference in elevation between both promenades in Pocket 1 is 12m. This massive height difference makes the Lower Promenade visually inaccessible and more prone to sexual harassment, robbery, and other unwanted advances. Many women reported being harassed on the Lower Promenade due to lack of people around them. The design element of this pocket creates a perception of lack of safety.

In the evening, the boat station and the food kiosks on the Lower Promenade are a major attraction. The Lower Promenade is densely populated with families, older adults, and children, making the space much more vibrant than at other times of the day. The Upper Promenade, especially towards the northern stretch, is



a. Existing & Proposed Activities on the Riverfront
Original Image Source: Improving Women's Safety on Sabarmati Riverfront, Center for Urban Equity, 2017



b. Footfall on the Riverfront
Original Image Source: Improving Women's Safety on Sabarmati Riverfront, Center for Urban Equity, 2017

Figure 2. Activity provision and footfall on the Riverfront.

poorly lit and mainly used for parking (refer to Figure 3c). Women reported feeling relatively safer in the evening due to the presence of more people, largely with families, on the Lower Promenade. Women feel safe here in the evening due to activities that bring in people.

Around 47% of the interviewed women in Pocket 1 reported being harassed. They identified "male-dominated spaces" and "absence of people/vendors" as the main causes of harassment, as also mentioned in the literature. The Lower Promenade's inability to attract higher footfall throughout the day and the elevation difference between the Upper and the Lower Promenades reduces visibility and encourages predators. Thus, 65% of women mentioned they were harassed on the Lower Promenade. Most young girls and women reported young boys engage in eve-teasing and catcalling in this pocket. A 19-year-old Hindu student pointed out: "The boys standing on the Upper Promenade frequently pass comments, whistle, and sometimes secretly take photographs of us (group of girls)!" Our mapping also showed that no woman was found using this space by herself. Women came to

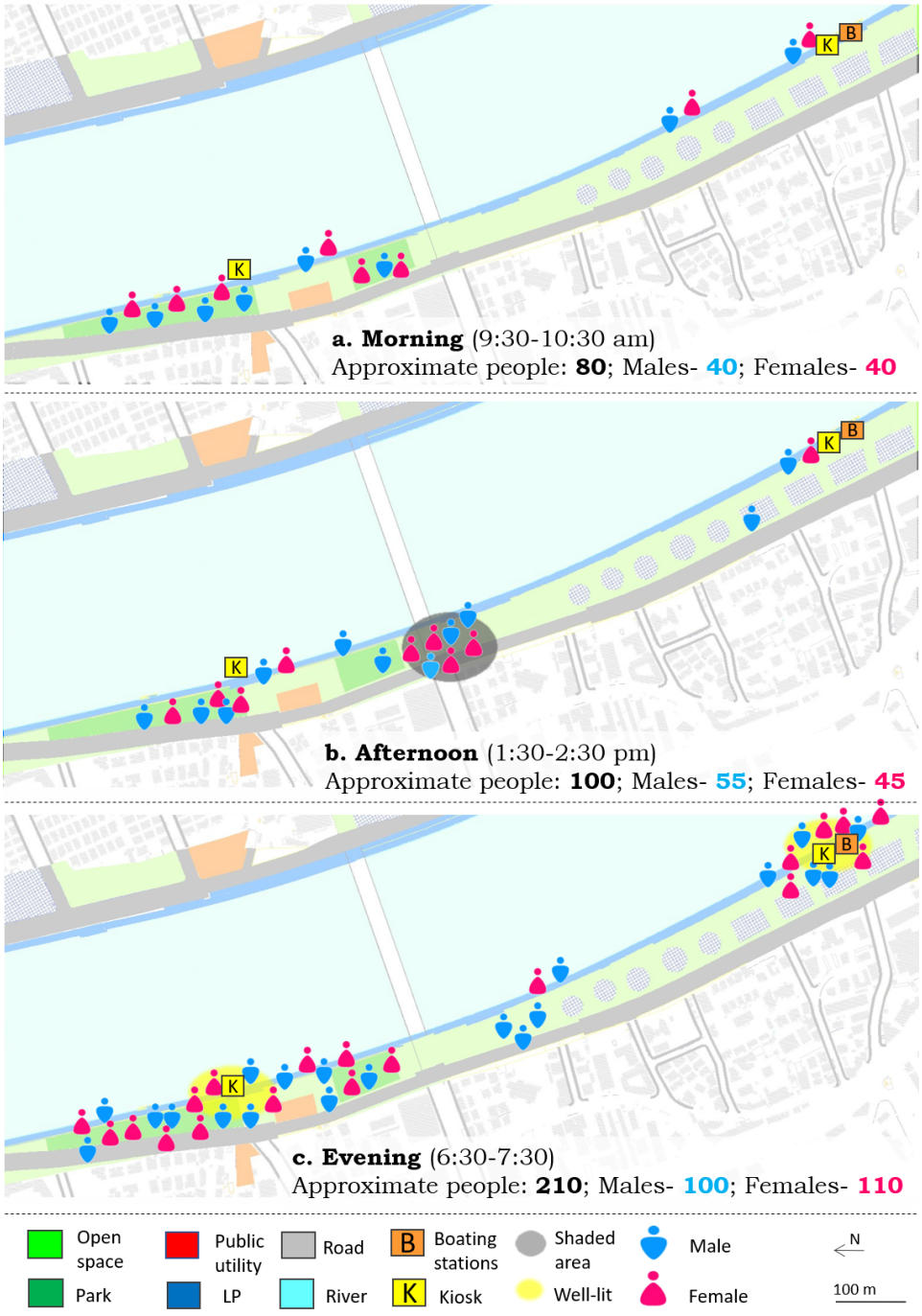


Figure 3. Gendered usage of space in Pocket 1.

this segment of the riverbank always accompanied by friends or family.

5.2. Pocket 2: Paldi Square (between Stretch G, H)

Pocket 2, Paldi Square, is one of the largest spaces on the western side of the Riverfront. Again, another bridge named Sardar Bridge divides the Upper Promenade into two very different parts. The Events Ground located north of Sardar Bridge is closed off to the public and is only rented out for mega-events like religious sermons, large-scale weddings or receptions, or used for medium-sized city activities like the Annual Flower Festival of Ahmedabad. The sports facility to the south of the Sardar Bridge regularly hosts local sports tournaments and matches. The Lower Promenade is designed as a huge public square that easily transforms into a 'Valentine's Day' and 'New Year's Eve' destination.

Mornings in Pocket 2 are very busy when the residents from the adjoining neighborhoods are found walking, cycling, and exercising on the Lower Promenade, after which they gather around the two food kiosks on

the Lower Promenade. The inner stretches of the Lower Promenade are poorly lit and usually deserted, making women prone to harassment. The sports facility is full of young and middle-aged men playing cricket daily starting at 5:30 am. Women in this spot are a rare sight, further intimidating any woman who wishes to play sports there (refer to Figure 4a). Most women admitted that they only use Pocket 2 when they are in a group or have male company. A 25-year-old Muslim housewife confessed: "In winters, the place is a bit dark….That scares me! I am very worried if I can't keep up with my husband while walking in the morning, as the thought of being alone is daunting!" Cultural norms dictate activities that young women can take up; and playing in an open space is not one of these. As discussed in the literature, better-lit spaces create the perception of safety and the congregation of many men creates the perception of lack of safety, which we find in this pocket.

As Pocket 2 is designed as a public square, it has a relatively more visibly accessible Lower Promenade. Despite that, the deserted space during afternoons makes women feel unsafe. The area below the Sardar Bridge is

Figure 4. Gendered usage of space in Pocket 2.

shaded and usually occupied by young students in groups or couples during this period. The Upper Promenade is sparsely populated, primarily due to lack of shaded area (refer to Figure 4b).

The evenings have large numbers of people flocking, who then sit on the stairs and Ghats. A large number of families gather around the food kiosks on the Lower Promenade and a children's play area on the Upper Promenade, both these areas being the only well-lit areas in this pocket (refer to Figure 4c). All other areas in this pocket are known for thefts and security issues. This pocket is infamous for the number of suicides attempted from the bridge. These factors have resulted in strict and constant surveillance through CCTV and Police patrolling. A policeman stationed close to Pocket 2 informed: "We installed around 70 cameras in the entire stretch….The moment we see any suspicious activity; we immediately reach there! There's nothing to worry about on the Riverfront!"

Despite this, an overwhelming majority of women admitted facing harassment or robbery. Women are not seen using the space by themselves in this pocket too. A 18-year-old local resident said: "What impact does patrolling alone have!? Accidents can take place anywhere at any time! I'm in constant fear, especially in the early mornings or late evenings, as there are fewer people around." 8 out of 10 women complained that men gathered in groups near the sports facility often pass lewd comments and whistle. 60% of women reported being harassed in the inner stretch (Lower Promenade) due to the reasons mentioned above and poor lighting. But the majority of the interviewed women mentioned feeling safe in the square. A 23-year-old, upper-class student summarized her experiences of harassment:

> I have been robbed twice! Cat-calling, eve-teasing….These things have happened multiple times! Earlier, I used to come alone in the mornings to exercise. Then, due to such experiences, I only come with my friends! It's very irritating how such things happen repeatedly in such a large public space! These security guards are also useless. Plus, who knows if these CCTV even works! Many of my friends (girls) have had such unpleasant experiences a lot of times.

5.3. Pocket 3: Subhash Park (Stretch C & Parts of D)

Located between two important bridges of the city, in the East Zone of Ahmedabad, Pocket 3 is one of the biggest Parks in Eastern Ahmedabad and is called Subhash Park. This is a gated park with a "nominal" entry fee. It is well landscaped and maintained and has features such as an Amphitheatre, a lotus pond, and a big tot-lot (kids playing area) that brings in diverse user groups.

The park has free entry from 6:00 to 8:00 am to allow nearby residents to use it for walking, jogging, and morning workouts. Despite Pocket 3 having the widest Lower Promenade on the Riverfront, residents seldom use it during the mornings (refer to Figure 5a). The youth, in groups and in pairs, are the predominant user group during late mornings. Heterosexual couples are often found behind the trees and bushes, near the Upper Promenade wall as it has the least visibility from the Park. Women reported feeling safer due to the park's 'gated' nature that "filters out nuisance-causing people." A young, upper-class female respondent pointed out: "The Riverfront is not safe, but Riverfront/Park is totally safe! Although, sitting on the Lower Promenade makes me feel quite insecure! Boys standing on the Upper Promenade keep staring (at me). They even whistle and hoot if there are fewer people around."

The footfall decreases considerably during the afternoons. Like the previous two pockets, clusters of people in Pocket 3 are also on the Lower Promenade, below the bridges. Most women have reported multiple cases of harassment during this time slot; mainly due to lack of activities and visibility (refer to Figure 5b). Again, harassment was reported despite no woman stating that she came alone to the riverfront. And again, the lack of activities increases the sense of lack of safety.

Pocket 3 has the most vibrant evenings on the Riverfront. Large clusters of different user groups like families, youth in pairs and groups, older adults, middle-aged workers, etc. can be found. Women cluster around the Tot Lot to keep an eye on their children while they play. The food kiosks and the Boating Station on the Lower Promenade are major attractions for families and youth (refer to Figure 5c). This pocket is lined with different kinds of lights, with an Amphitheatre, Lotus Pond, Tot Lot, food kiosks and Boating Station which are extremely well lit. The majority of women said they feel safe in the Park but there were spots in the inner stretches of the Lower Promenade where they experienced visual/verbal harassment.

Sixty percent of respondents reported experiencing harassment here, the highest among all pockets. Over 70% of women expressed fear of being alone in Pocket 3. They confessed to always moving around in large, mixed (gender) groups or with their families to reduce the risk of harassment. Women in this pocket reported facing multiple forms of harassment like visual, verbal, and stalking. 75% of the harassed women reported the incident occurred in the Lower Promenade. A 23-year-old professional mentioned: "They (young men) catcall, they constantly stare at us (girls) and at times, even stalk us. These things have now become like a part of our routine! And I feel that such nuisances are here to stay! What can one do about it?"

5.4. Pocket 4: Stretch near the Sunday Market (between Stretch F, G)

Pocket 4 is between the two iconic bridges, Ellis Bridge and Nehru Bridge, close to the Walled City of Ahmedabad, in eastern Ahmedabad. Unlike the other pockets, there are no major amenities and it is one of the

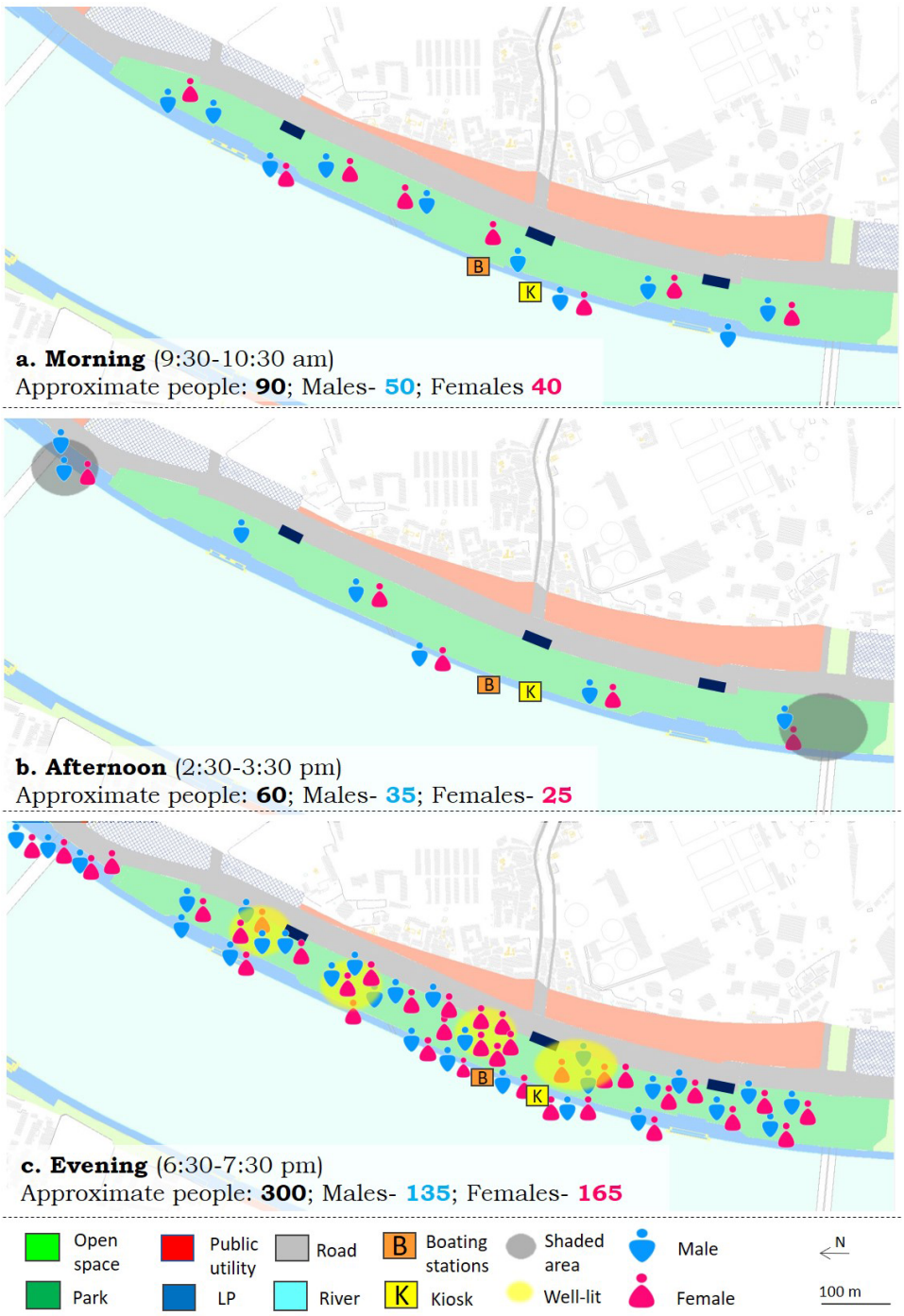


Figure 5. Gendered usage of space in Pocket 3.

most poorly maintained spots among all the four pockets. The stretch is active only on Sundays due to *Ravivari* (Sunday Market), which is held in the vicinity. The crowd from *Ravivari* (Sunday Market) often spreads on both sides of Ellis Bridge and all the way up to the central plaza in the Walled City.

Men openly defecate in the Lower Promenade of Pocket 4 during the early mornings. The Upper Promenade is often used for openly urinating and spitting. Very few women use Pocket 4 in the mornings as they find the spot "unpleasant" and "uncomfortable" to use. All women who walk or jog here prefer a male companion with them. This pocket is also poorly lit, making women feel more prone to harassment during the mornings (refer to Figure 6a). All women mentioned that the poor maintenance of walls, Ghats, promenades, and especially the polluted water in the river constantly bothered them. A 23-year-old Muslim housewife explained: "Lots of men openly defecate here in the morning! It really stinks, and if a woman witnesses any man in that state, it causes problems….People must understand and stop defecating like this! It's such a nuisance."

The afternoons are very deserted, with almost no women even on the Upper Promenade in Pocket 4. Women respondents surveyed in other pockets refer to this pocket as one of the "most unsafe" spaces on the Riverfront, mainly for being a "male-dominated space" and "abandoned" in the afternoons (refer to Figure 6b).

More women use the space in the evening as they bring their children here to play. Again, women use the space for a 'legitimate' reason and are accompanied by others. They mention that a lack of open spaces in their neighborhoods forces them to bring their children here despite the poor quality of space. The place is darker in the evenings due to lack of lighting (refer to Figure 6c). Most women reported feeling more unsafe in the evening than at any other time of the day. The nearby residents are the predominant users of Pocket 4 and return to their houses by sundown. This leaves the place totally empty at night, making it more prone to illicit activities and harassment. A 28-year-old housewife said: "I usually feel safe when I see more families or women around! All these young men cause all the trouble!"

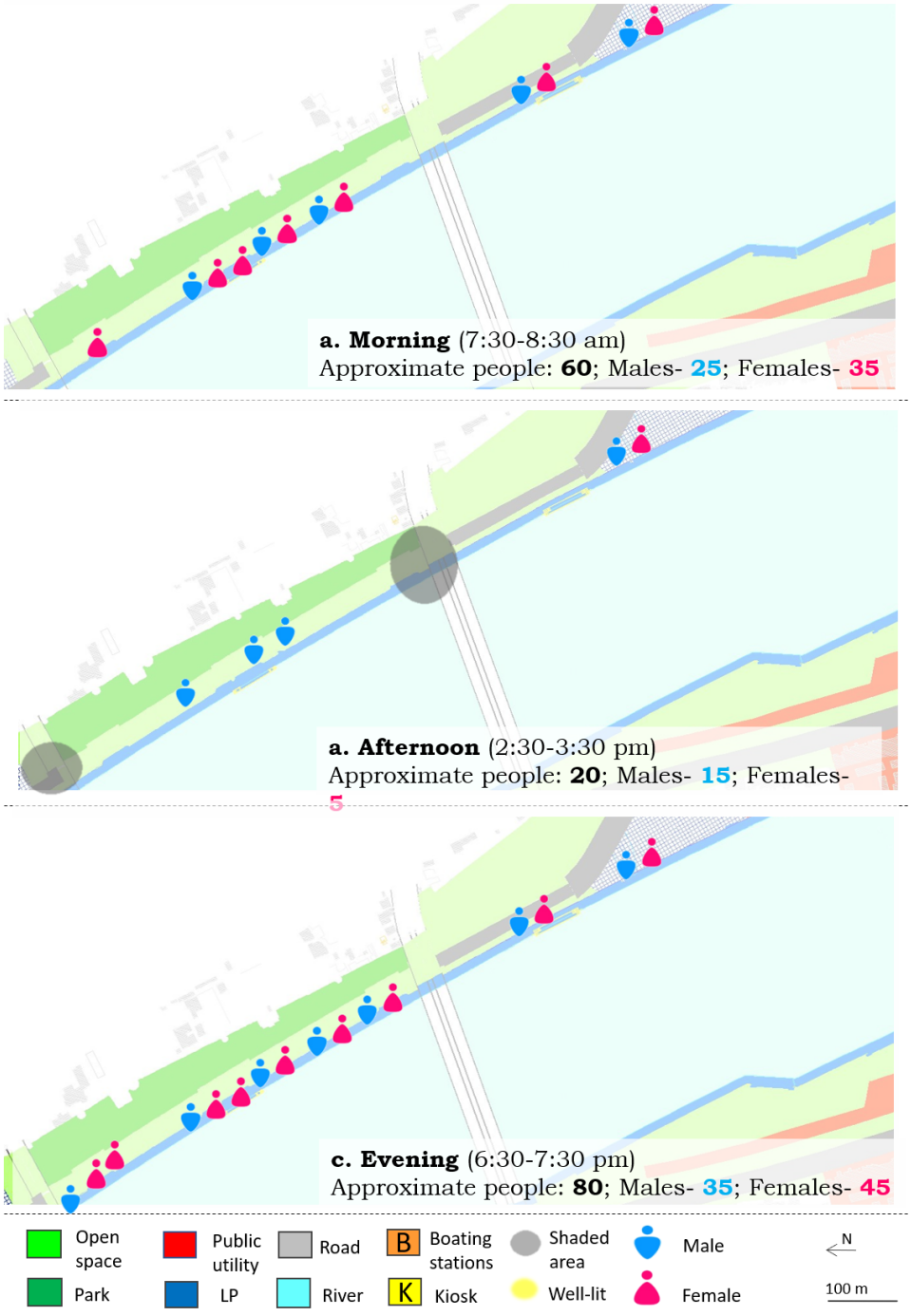


Figure 6. Gendered usage of space in Pocket 4.

35% of women reported facing harassment in this pocket, the lowest rate among all. The main reasons for this may be, first, very few women visit this pocket and when they do, they usually have male company. And second, this pocket has the shortest elevation difference between Upper Promenade and Lower Promenade, increasing visibility. So unlike other pockets, harassment on the Lower Promenade was rare. Instead, most women were harassed near and below the bridges, the darkest and polluted parts of the pocket. All women mentioned feeling uncomfortable when they encounter men openly defecating or urinating on the Upper Promenade. A 24-year-old practicing doctor expressed her coping mechanism for harassment: "Generally, there is no safe place for girls and women! So, I think it's better to not go out alone, especially to a deserted place, or after dark!"

6. Conclusions and Recommendations

Overall, of the 100 interviewed women, 52 of them reported being harassed at least 3–4 times. It is important to note that the samples were collected from the 'most active' spots/pockets of the Riverfront and that too, wherein women were always accompanied by a group of friends, male partners or family. 49 surveyed women reported verbal harassment, 46 visual harassment, and 11 stalking. During the study period, no cases of physical assault were reported in any of the pockets. As stated earlier, social and cultural barriers, requiring a stamp of virtuosity, and living in constant fear of harassment or sexually violation prevents single women from using this public space.

The main causes of harassment were identified as (a) male-dominated spaces (53%) and (b) fewer people and vendors around (38%). 51% of harassed women reported the incidents took place in the afternoon, followed by 37% in the evening, and 15% in the morning. It is interesting to note that most women reported feeling unsafe in the early morning and evening but were harassed the most in the afternoon. 67% of all women reported being harassed on the Lower Promenade. In almost all pockets, built environment factors that reduce visible accessibility, fail to bring and engage people, plus poor maintenance made the Lower Promenade favorable for predators. Also, perception of insecurity was enhanced by cultural factors such as male-dominated spaces because women do not loiter or sit in public spaces; women require a purpose to come out of their homes, as discussed in the literature. Land use planning and city policy of not allowing vendors in areas declared as 'no vending zones', e.g. the riverfront, has also created a situation of lack of safety for women.

Most women have accepted harassment as a part of their reality and have mechanisms to cope with it. Many women reported changing how and when they engage with the Riverfront. 90% of women believed that moving in "mixed-gender groups" or having male company reduced the risk of harassment/violence. Thus, the majority of women found the harassment as "not too harmful" and "not too bothersome". As observed in various studies of Mumbai (Phadke, 2007) and Delhi (Jagori, 2010), this normalization of everyday harassment and violence curbs women's "right to the public space" in Ahmedabad. The normalization of everyday harassment and the threat of violence, or violence, negate the possibility of achieving SDGs 5 and 11.

In summary, our study indicates that (i) women tend to avoid using the riverfront in the early morning and late evening. They are usually accompanied by their friends or family and use the space for leisure or recreation; (ii) women prefer spots that are well-lit, well-maintained, and receive more footfall or spots that are generally more active. As found in the literature above, these elements make them feel safer as they think they can be heard, seen, and get help; (iii) The societal notion of women's safety emphasizing on sexual safety to safeguard their and their families' honor prevents women from using the riverfront independently. Thus, single women are barely spotted in the large public space; (iv) 52% of women reported they were harassed, predominantly on the lower promenade during afternoons. Out of all the four pockets, Pocket 3 has the highest rate of harassment (60%); and (v) most women emphasized increasing informal and formal surveillance through regular activity generation, vending zones, police personnel, and CCTV cameras. As observed in the literature above, many women recommended better maintenance of all pockets and adding design elements that increase public convenience like water stations, accessible public toilets, seats/benches, and shaded spaces (trees, umbrellas, etc.).

6.1. Recommendations

To meet the targets of SDGs 5 and 11, increasing surveillance (that isn't unobtrusive) is essential in many parts of the riverfront, especially the LP, always. This can be done through both informal and formal surveillance. Increasing female police personnel in and around the visual and hearing isolation areas may be very effective in making women feel safe. In addition, the everyday governance of these public places needs to improve through timely waste management, improved lighting, providing enough clean toilets, and maintaining hygiene.

Offering a diverse range of activities like *Khao Gali* (food streets) on both sides, adding barrier-free sports facilities, a shopping street with shops which sell artisanware as well as traditional clothes, and more public parks with play areas for children, water sports, spaces for public institutions, town halls & community centers, will generate co-benefits of increasing footfall and improving women's safety, allowing more women to freely engage with and enjoy the Riverfront. The Riverfront is used for city-level events like Kite Festivals, a shopping festival (January 2019), and the Annual Flower Festival. Allotting spaces for performing arts (music, theatre, dance, etc.),

cultural activities, and Biological Parks can ensure regular activity generation. The Biological Park, community gardens, and other green spaces can be used for education and environment drives.

Considering the survey results, it is essential to introduce a gender dimension in the planning and design of this space. Improving the visual accessibility of the LP by repurposing spaces around the stairs, Ghats, etc. is vital. The city has proposed large-scale mixed-use developments along the UP. Thus, creating a larger public realm through careful urban design and building guidelines that maximize the visual and physical connection to the Riverfront is essential for women's safety. Lastly, introducing public and paratransit facilities like feeder buses and E-rickshaws will make the Riverfront accessible to people and reduce air pollution. Hence, an integrated transportation plan that links the feeder buses to the existing AMTS and BRT network and includes other clean mobility initiatives, like E-rickshaws and MyByk, is highly recommended.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

Reconstituting the Urban Commons: Public Space, Social Capital and the Project of Urbanism

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Abstract
This article outlines a framework for connecting design-oriented research on accommodating and encouraging social interaction in public space with investigation of broader questions regarding civic engagement, social justice and democratic governance. How can we define the "kind of problem a city is" (Jacobs, 1961), simultaneously attending to the social processes at stake in urban places, the spatial ordering of urban form and the construction of the forms of agency that enable us to make better places on purpose? How can empirical research be connected more systematically to theories of democratic governance, with clear implications for urban design, urban and regional planning as professional practice? This framework connects three distinct theoretical moves: (1) understanding the sociological implications of public space as an urban commons, (2) connecting the making of public space to research on social capital and collective efficacy, and (3) understanding recent tendencies in the discipline of urban design in terms of the social construction of a "program of action" (Latour, 1992) at the heart of the professional practices relevant to the built environment.

Keywords
design-oriented research; urban commons; public space; social capital

Issue
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1. Introduction

Over the last 30 years, the idea of public space has occupied a central place in both the critical theory and everyday practice of urbanism. This has become even more evident with the release of The New Urban Agenda by the United Nations, emphasizing the importance of public space and "cities for all" as a core component of a project of sustainable development (United Nations, 2016). The apparent erosion of public space by privatization and securitization has been regarded as symptomatic of issues related to economic inequality, racial and ethnic exclusion and environmental injustice. The repair and revitalization of public space has at the same time come to appear as a critical site where those issues are manifested in behavior and experience, and where there are opportunities for significant intervention. The revitalization of public space has become a central piece in efforts to create cities that are safe and supportive of the kind of social cohesion necessary to sustain an inclusive, just and resilient society.

For those with a professional interest in the design and planning of cities, growing interest in public space is an opportunity to bring renewed relevance to their expertise. Over the last half of the 20th century, planners and policy makers have struggled with social problems such as concentrations of poverty, neighborhood decline, disinvestment and gentrification. Where economic justice might be considered "above the pay grade" of the ordinary professional planner, the project of creating safe, comfortable and inclusive public spaces encompasses achievable goals with at least a rhetorical connec-

tion to broader social issues. In public space, complex social issues of power and inequality can be engaged indirectly and in safely delimited ways, comfortably subsumed in the immediate practical problems of design and management.

There are two contradictory reasons for the growing attention to public space, however. The first is its relationship to the idea of placemaking as an approach to attracting both investment and population to the urban environment. At the same time, the re-making of places sits problematically at the intersection of issues of power, economic inequality, environmental justice and the "right to the city". As cities have confronted the consequences of stark economic inequality, ethnic diversity and unevenly distributed environmental risks, traditional public space has been steadily eroded by privatization and securitization. The reason seems clear: the physical and the social qualities of the city have been undermined by urban decay, disinvestment and problems that go with deepening inequality. In public space, the poor and the powerless become visible, and their mere presence comes to be seen as a problem. The practice of placemaking occupies a political space where the police powers of the state are both activated and called into question.

We have a hopeful perspective that regards the repair of urban public space as a key to repairing the material and social environment of the city. And a critical perspective that highlights the way the repairs themselves become part of the problem, manifesting the essentially contested nature of urban public space and ultimately the dominance of powerful interests in a remaking of the city that systematically serves some and excludes others. Both perspectives share the idea that the quality and character of public space is essential to the quality and vitality of urban public life.

On both sides, the discussion of public space has often relied on unexamined normative assumptions and anecdotal accounts, rather than systematic consideration of available empirical research. This is understandable, given the gaps in the literature. Activists and professionals have an expressed interest in evidence-based approaches to transforming places, but the empirical focus in this work is necessarily narrow and often relies on borrowed and underdeveloped theoretical ideas. The academic literature that does take on the broader issues tends to be relatively disconnected from practice, both because its specialized focus means that it doesn't take up questions relevant to practitioners and because it may call the relevant practices into question in a manner that practitioners find unhelpful.

While planners and activists alike have focused on the implications of Jane Jacobs' insightful observations, there has been less attention to Jacobs' argument that American cities have suffered from a fundamental limitation in the way planners have understood "the kind of problem a city is" (Jacobs, 1961, p. 428). Ironically, Jacobs' advocacy of the city as a complex and emergent phenomenon that can't be reduced to invariant relationships between variables has inspired reform in planning that draws on many of her insights but has largely missed the point of her critique of the reductive tendencies in the supporting research. Limitations in thinking about public space have resulted from a combination of liberal preconceptions and methodological assumptions derived from regarding public space as what Jacobs called "disorganized complexity" (Jacobs, 1961, p. 430).

The purpose here is to suggest a framework for connecting the design-oriented research on accommodating and encouraging social interaction with investigation of broader questions regarding civic engagement, social justice and democratic governance. There are a number of questions underlying this effort: how can we simultaneously attend to the social processes at stake in urban places, the spatial ordering of urban form and the construction of the forms of agency that enable us to make better places on purpose? How can public space be connected more systematically to theories of democratic governance? Complete answers to such questions extend well beyond the scope of this article. An immediate concern is a narrower question of connecting academic research to practice: How can current sociological perspectives contribute to understanding the potential contribution of placemaking and public space to creating more resilient, equitable, and ecologically responsible cities?

This framework involves three theoretical moves that are not usually connected: (1) understanding the sociological implications of public space as an urban commons, (2) connecting the making of public space to research on social capital and collective efficacy, and (3) understanding recent tendencies in the discipline of urban design in terms of the social construction of a "program of action" (Latour, 1992) at the heart of the professional practices relevant to the built environment. Key contradictions in the literature on public space can be sorted out by bringing the discipline-based formation of agency into focus. For whom, by whom and according to what practical logic do we make places in the contemporary urban landscape?

The concept of an urban commons is not a new idea, but it is generally used somewhat superficially, as if it were a simple matter of shared access to space or resources. From a sociological perspective, the idea of a commons emphasizes a public realm that entails a normative order and a relational web that is both spatial and social. The concept of social capital can help to clarify the social processes that constitute a commons in this sense, connecting at the same time to contemporary empirical work regarding the foundations of effective democratic governance (Putnam, 2000). Less directly, social capital can also be connected to the visual and spatial order of the built environment (Sampson, 2013). Finally, the concept of a 'program of action' is a way to bring into analytical focus the implications of situating professional practice at the intersection between built form and social processes. As an illustration of this point, close analysis of

the example of the New Urbanist movement highlights possibilities and critical challenges associated with restructuring professional practice around urbanism as a normative project.[1]

A neo-liberal logic has been built into much of the conventional thinking about public space, and it is important to note at the outset that a professional reform movement is severely limited in its ability to transcend a logic that has been deeply institutionalized in its field of operations. This neo-liberal logic is implied by the underlying conception of public space, as well as in the preference for private sector and market-oriented solutions, a preference that is structurally defined and ideologically reinforced in the contemporary political economy of place. In order to transcend the limits of this logic, a sociology of public space can move beyond regarding it as a site for social interaction to exploring the active making of places itself as political practice and as potentially a critical component of contemporary "civic innovation" (Sirianni & Friedland, 2001). Focus on a civic ideal has been reflected in academic work on social capital, following Putnam (2000); implied in the reform of planning practice under the banner of the New Urbanism in the US (Brain, 2008); and called out explicitly in funding initiatives from the non-profit sector (see, for example, the Center for Active Design, 2018). By re-thinking public space as a form of civic practice that has material and spatial dimensions, it is possible open new avenues for research that offer theoretical and practical leverage on problems related not only to the design and management of public space, but to challenges we face in democratic governance of cities.

2. Public Space as a Research Problem

Michael Sorkin introduces a volume on the erosion of public space with this claim: "The familiar spaces of traditional cities, the streets and squares, courtyards and parks, are our great scenes of the civic, visible and accessible, our binding agents" (Sorkin, 1992, p. xv). Such claims are often the justification but not the focus of research on public space. The most well-known research on public space falls along a line that runs from Jane Jacobs' anecdotes to William Whyte's methodical observation of "the social life of small urban spaces" (Whyte, 1980). Throughout the literature, the concept of public space contains a useful but problematic ambiguity, as discussions slip from physical space to interactional space, and from an image of public sociability as characterized by Jacobs and others to an image of the idea of the "public realm" as a distinct field of social action (Arendt, 1958; Weintraub, 1995). These conceptions cut across political perspectives on the "grand dichotomy" of public and private, from the liberal/economistic distinction between the state and civil society to the "republican virtue" tradition that regards the public realm in terms of "political community and citizenship, analytically distinct from both the market and the administrative state" (Weintraub & Kumar, 1997, p. 7). This last move—from public space to the public realm—reflects the ways in which ideas about public space contain both deeply rooted liberal conceptions, and a critical impulse toward transcending that impulse.

Much of the design-oriented research follows Whyte's lead, engaging in behavioral observation, interviews, surveys and other tools to capture an empirical representation of "user" experience and behavioral outcomes. Gehl and his colleagues, for example, have pioneered careful observation of qualities of public space associated with accommodating activities that people find necessary, those that might be "optional", and those that are "social", and to be distinguished from the more utilitarian activities (Gehl, 2011, pp 11–12). This kind of research finds its most prominent academic home in environmental psychology, its unit of analysis typically the behavior of individuals in a social setting defined only as interaction with others. Although a broader significance suggested by theoretical discussions from Arendt (1958) to Sennett's "fall of public man" (Sennett, 1974) is often assumed, the dominant line of research effectively avoids confronting underlying political questions regarding the connections between "public space", "public life" and the public realm.

In contrast with the design-oriented literature, critical writing on public space is focused on its characteristics as essentially contested terrain, as both the site and sometimes the focus of conflicts rooted in structures of power and economic inequality, as a space of displacement and spatial exclusion in which underlying social contradictions are revealed and confronted. Such critical perspectives have benefitted from ethnographic approaches that enable rich and detailed exploration of the historical context and the complex layers of meaning at stake in the way such conflicts are played out in urban settings (Low, 2000). Where the tendencies toward securitization and privatization suggest the possible "end of public space", struggles over the "right to the city" point to its on-going importance (Kohn, 2016; Mitchell, 2003). A discourse of rights, however, can easily fail to escape from the core political dilemmas of liberalism—it is ultimately merely the other side of the logic that produces the problems it intends to solve.

Clearly the critical literature on public space tells a somewhat different story from the hopeful threads that run from Jacobs to Gehl, much less the activist organizations such as the Project for Public Space. The design-oriented literature reduces public space to a problem of shaping the behavior of individuals—encouraging social interaction by maintaining a safe, comfortable and lively setting that draws individuals and encourages them to

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linger. In pursuit of empirically defensible and eminently practical lessons, this literature aspires to identify discrete patterns of cause and effect, of intervention and outcome. On the other hand, the critical literature tends to defend the idea of public space by focusing on structural conditions and conflicts that interfere with its presumed normative functions, and on the erosion of those normative functions as a manifestation of the broader issues of structural power. The form and character of the space are only contingently relevant, with primary concern given to the underlying structures that determine the dynamics of group conflict.

3. From Public Space to the Urban Commons

The gaps and contradictions in the research literature leave us between the horns of a practical dilemma. The positive revitalization of public space, intended to enhance urban livability, is associated with gentrification, displacement and exclusion. Where public space is defined in terms of access and visibility, the problem of free and open access becomes a problem of social control. If public space is defined in terms of open access, its safety and comfort often come to depend on restricting who uses the space and for what purpose. These contradictions are at the heart of common conceptions of public space.

Securitization and privatization are regarded as eroding public space, and yet these two tendencies are precisely the logical solutions to the problem of public space when conceived as a problem of uses and rights in a free society characterized by cultural and class diversity. Although neo-liberal urban reforms are often cited as the culprit in the erosion of public space, they are logically implied by a conception of public space as an open-access resource. As a domain of 'users' to be accommodated, public space is reduced to a collection of individual rights to be asserted and defended without addressing underlying political questions regarding the social and institutional conditions under which rights are negotiated and recognized. Contemporary responses to the perceived problems of public space follow a logical trajectory with roots that go back to Bentham's panopticon—the dark side of the progressive impulse at the heart of classical liberalism (Bentham, 1988; Foucault, 1995). In the face of conflicts around the limits of legitimate police power, cities resort to environmental manipulations intended to discourage undesirable uses and people by increasing surveillance and installing hostile accommodations (e.g., uncomfortable benches to discourage loitering, random sprinklers to discourage sleeping in the grass). When policing and environmental design both prove insufficient to achieve the desired outcomes, privatization is the obvious strategy for expanding the range of legitimate authority to control and exclude.

The classical liberal conception of the public realm is reflected in the idea of the "tragedy of the commons" (Hardin, 1968). Hardin argued that there is an inescapable problem implied in any situation where there is open access to a resource held in common ownership. Given a world of actors oriented to optimizing their self-interest, the individual benefits of over-exploiting a common resource under the condition of open access outweighs the individual's share of the common cost of harm to that resource. Hence the tragedy: the inevitable destruction of the commons (defined here as common resources not encumbered by private interests) when we assume a condition of individual freedom. When the problem is formulated in this way, there are only two logical solutions: either strong regulation to protect the shared resource, or privatization in such a way that those who reap the benefits also bear the burden of the costs, and thus have an incentive to invest in protection, conservation and/or replacement of those resources.

There are two issues with this framing of the problem of public space. First, what Hardin describes is not a problem of the 'commons', but a problem of open-access resources. Even so, there are a variety of institutional responses to the management of "common pool resources" that go beyond the stark choice offered by Hardin (Ostrom, 1990). Secondly, although there are some aspects of public space that might be treated as a problem of open access, the essential quality of public space is not in fact defined by common pool resources. Key qualities of public space have to do with the emergent qualities constituted by the cooperative nature of co-presence and shared use.

A key part of the enjoyment, usefulness and meaning of public space is the way it embodies a normative order (Lofland, 1998). Those aspects of public space that are a manifestation of the public realm in the broader sense are not a common pool of resources that can be depleted but a domain of action the value of which is embodied in the norms, patterns of action and shared expectations sustained through shared use. To the extent that use undermines rather than sustaining the conditions necessary for such sharing, public space might be reduced to the problem framed by Hardin's tragedy of the commons. To the extent, however, that public space constitutes a public realm, questions of rights and usage, surveillance and social control, and power and domination are subsumed within a broader fabric of social relations in political society.

Newman's (2015) ethnographic study of popular mobilization around the Jardins d'Éole in Paris offers concrete examples of the way a fabric of social relations can be manifested in public space, in the context of a diverse society. A project to transform a former industrial site into an environmental park became the focus of neighborhood activism during its planning, the site of collective action when completed, and a spatial manifestation of a popular politics that Newman describes as "part of a broader reimagining of what nature, the city, its citizens, and political contestation mean at a fundamental level" (Newman, 2015, p. xv). Mobilization of a marginalized population of West African and Maghrebi

immigrants took the form of "manif-festives" (Newman, 2015, p. 48), events that combined political expression with carnivalesque celebration. Newman argues that this transformative collective action connected global environmental concerns with local issues of health, safety, and housing. In this way, activists created "a strengthened political consciousness of the 'neighborhood' as a force in favor of democracy" (Newman, 2015, p. 61), and went beyond addressing injustices "to forge a 'civic ecology'" (Newman, 2015, p. 36). In the context of the political culture of French republicanism, with its tendency to regard multiculturalism as social fragmentation and ghettoization, a spatially constructed neighborhood identity became a legitimate way to assert collective claims on behalf of "les gens du quartier" (Newman, 2015, p. 46).

Where it is common for urban redevelopment schemes to entail "displacement and exclusion", Newman sees a different outcome in this mobilization. The interchange between the top-down interests of the French state in transforming a contaminated industrial site into a showcase of French commitment to environmental issues, and the local struggles of an immigrant community in a marginalized neighborhood, produced a "radically vibrant urbanism" (Newman, 2015, p. 198). It is "vibrant" not because of a neutral sociability, but because of the web of engagement that emerged out of conflicts and the creative engagement of the inhabitants. The concept of a civic ecology, then, refers to the way spatial constructions allow for productive expressions of both identity and difference.

Newman suggests replacing the typical concept of "public space" with the concept of an "urban commons". His usage goes beyond the superficial idea of the commons as a space of open access, emphasizing that its character and consequences are the result of a complex process of social and political mediation (Newman, 2015, p. 198). Where the vitality of public space is typically understood in terms of peaceful and orderly social interactions, Newman characterizes the urban commons as a "convergence between conflicting interests, projects, and mediations that can even by marked by acrimony as the boundaries between public/private are blurred" (Newman, 2015, p. 199). More precisely the boundaries between public and private, between particularism and civic or national identity, are negotiated as a practical matter. This "radically vibrant urbanism" is actually the on-going project of social and political order, acted out and mediated in constructions of space and place, through an engagement with the built environment.

4. Public Space as Civic Ecology

The sociological literature offers theoretical as well as empirical support for the idea of a civic ecology, identifying social processes that operate in and through spatial practices and the representational qualities inscribed in built form. This support is not always obvious, however. Within the discipline of sociology, one tends to find research *in* public space rather than research *on* public space as a distinct socio-spatial phenomenon. Rejection of the functionalism of the Chicago School urban sociologists of the first half of the 20th century has left sociologists suspicious of any suggestion of a functional or deterministic relationship between spatial ecology and social order. The resulting gap in the discipline's attention has only gradually been rectified by the return to interest in the social production of space and place (Gieryn, 2000). In addition to the avoidance of ecological perspectives, Lofland (1998) observes that sociologists have been slow to accept:

> The idea that the public realm could be the setting for genuine interaction, the idea that individuals who have no personal relationship with one another—who are strangers to one another—the idea that such persons could, in any sociologically meaningful sense, interact. (Lofland, 1998, p. 26)

There are prominent exceptions, of course, in work exploring the orderly processes of interaction in public (Duneier, 1999; Goffman, 1963). Lofland draws a key insight from this line of inquiry: that human activity in the public realm depends on shared norms and expectations, on patterns of action that are sometimes implicitly rather than explicitly cooperative, and that it is comprised of regular forms of interaction that are not simply an impoverished version of what happens in more intimate personal relationships. The public realm is constituted by normatively constructed interactions that sustain a pattern of social relations of a qualitatively distinct type. As a distinctive "social territory", the public realm is a "relational web" that involves persons and places (Lofland, 1998, p. 51).

If the public realm is understood as a relational web that includes relations between people, relations between people and places, and relations between people mediated by place, it is possible to draw a significant theoretical connection to the concept of social capital. This concept has a long history in the social sciences but has been popularized by Putnam (2000) and others who have developed empirical measures and correlated its presence to positive outcomes ranging from civic engagement to reduced crime and even improvements in physical health. What is often lost in the popularization of the concept, however, is that social capital is an attribute of social life embodied not simply in the transactions between individuals but in the emergent properties of a web of associations that constrain and enable those transactions.

In some of the work on social capital, it is defined in terms of the characteristics of social networks that enhance the rational individual's capacity to act (Coleman, 1988). Lin offers a vivid definition of social capital as resources embedded in a network: "your friend's bicycle" (Lin, 2001, p. 56). At the other end of the theoretical spectrum, Bourdieu emphasized the extent to which so-

cial capital, as any form of capital, has value precisely because it is not evenly distributed (Bourdieu, 1986). For Bourdieu, the importance of social, cultural and educational capital is their role in the reproduction of class differences, in a way that is missed by the methodological individualism often associated with network theory. Where social capital has been regarded as a feature of social networks, or when it becomes a structural variable accounting for individual health or status attainment, the tendency has been to lose sight of a key point in Putnam's work: that empirical measures of social capital are measures of the community's associational cohesion related to the collective capacity for self-governance (Putnam, 1993).

Sampson (2013, p. 38) notes the tendency for social capital to be conceived narrowly as "embodied in the social ties among persons". In this regard, he suggests, social capital theory doesn't move far from the older "social disorganization" theories in explaining such things as crime and neighborhood disorder. Sampson finds, however, that the density of ties doesn't necessarily correlate with lower crime rates or other indications of social disorder. For this reason, he introduces a theory of "collective efficacy", focusing not on the presence of ties but on measures of social cohesion and shared expectations for social control (Sampson, 2013, pp. 151–152). Collective efficacy "elevates an active view of social life that goes beyond the accumulation of stocks of personal resources, such as those found in local ties or civic memberships" (Sampson, 2013, p. 153). According to this theory, "repeated interactions, observations of interactions, and an awareness of *potential* interactions that could be invoked all establish shared norms (a sense of 'we') beyond the strong ties among friends and kin" (Sampson, 2013, p. 153).

Sampson and Raudenbush (1999) argue that the causal process underlying a variety of correlations, including those that have supported the so-called "broken windows" theory (correlating visual and social disorder), is precisely a process by which associational life becomes a thing *sui generis*, with emergent properties. Sampson's conception of social capital manifested as collective efficacy refers to a quality of associational life that transcends the specific associations and is linked to place, in three ways: first, it is an empirically observable characteristic of neighborhoods and not necessarily correlated with social characteristics of residents as individuals. This argument is reinforced by evidence regarding the effects of "ecological networks", social connections that are mediated by connections to place (Browning, Calder, Soller, & Jackson, 2017). Second, it correlates with persistent rates of civic engagement events in a neighborhood (e.g., rates of significant civic memberships are correlated with rates of civic engagement a decade later), as part of a network of neighborhoods (Sampson, 2013, pp. 238–239). Finally, it is linked to the perceptions of visual order in a neighborhood. In this context, the visual order (or disorder) of the neighborhood is an objectified form of collective efficacy, the way we recognize and confirm our perception of the underlying social order (both within and between neighborhoods).

On the basis of systematic observation of neighborhoods, Sampson found that it is the perception of visual disorder and not the systematically observed frequency of the signs of disorder that correlate most closely with such things as crime, suggesting that both crime and visual disorder are related to collective efficacy as a dimension of the spatial logic of neighborhoods. Others have explored the importance of place-based visual cues in the construction of urban social order (Suttles, 1972). In his critique of modern cities, Sennett (1991) describes visual and spatial perceptions of order and disorder in the city as the "conscience of the eye", a more or less developed (or impoverished) capacity for visual and practical engagement with a normative order. In his evocative account, a personal stroll through New York neighborhoods becomes an exemplary engagement with collective life.

Accounts of urban settings from Jacobs to Sennett emphasize the complexity of the social patterns that comprise urban places, noting the way urban places accommodate an array of interactions from "durable engagements" to "fluid encounters" (Blokland, 2017) and that may be characterized by a mix of concerns that range from instrumental interests to sociability, in settings that range in character from private and parochial to public. Blokland describes community as consisting of "practices in which we convey a shared positioning, develop shared experiences, or construct a shared narrative of belonging" (Blokland, 2017, p. 88). We often focus on the ways that narratives of belonging are constructed as narratives of exclusion, but narratives of social distinction can also be simultaneously narratives of belonging. The concept of the "civic" is precisely a narrative of belonging that reflects sharing a commitment to place across the boundaries of differentiated groups.

To the extent that discussions of public space get caught up in the logic of the "tragedy of commons", they are caught within the dilemma associated with the paradoxical "logic of collection action" (Olson, 1971), and stuck therefore with a limited definition of the problem and an even more limited range of solutions. Escape from this dilemma requires introduction of a theory of institutions and organizations, not just individual interests and transactions. This is precisely the point where Putnam introduced the concept of social capital in his account of the foundations of a civic tradition (Putnam, 1993). Putnam quotes Geertz's observation that "cooperation is founded on a very lively sense of the mutual value to the participants of such cooperation, not on a general ethic of the unity of all men or an organic view of society" (Putnam, 1993, p. 168). According to Putnam: "most forms of social capital, such as trust, are what Albert Hirschman has called 'moral resources'—that is resources whose supply increases rather than decreases through use and which become depleted if not used"

(Putnam, 1993, p. 169). The sociological importance of public space, one might conclude, lies in its character as an urban commons where the most essential shared resources might be "moral resources" that reside in built form, in place itself as a form of social capital, and as a medium for social processes of conflict and mediation.

Social capital, then, is an aspect of the urban commons as a relational web, dependent not just on close interpersonal ties but on the ways in which people are embedded in a relations that span social distance from the most personal to the most impersonal relations. It is a quality of public life that is experienced in concrete associational contexts, manifested as norms of trust and reciprocity that carry over to others with whom one is not directly connected, and infused in the common world of strangers encountered in public space. With this in mind, we can see that the project of what has come to be called 'placemaking' in the professional jargon can be understood as a process of negotiating the inscription of narratives of belonging in spatial form and practices. Although this is often a contested process, Newman's analysis points to the ways that the processes of contestation, manifested in engagement with space and urban form, can produce an overarching relational order.

5. The Project of Urbanism as a Program of Action

One of the characteristics of any professional discipline is that the practitioner is trained to deliver certain kinds of solutions to certain kinds of problems. This implies a practice of defining problems in terms of the kinds of solutions the practitioner is prepared to offer. Such a practice depends on a disciplinary formation embedded in the matrix of institutions that define and sustain the professionals' field of operations and authority. In this setting, practitioners elaborate a "program of action" (Brain, 1993; Latour, 1992) that defines the site, those aspects of the site that are potentially in play, the practices of producing authoritative definitions of the problem, and the rhetoric of justification that ultimately authorizes a professional discipline.

For example, we can trace the outlines of the program of action that shaped professional engagement with the processes of urban development in the early 20th century. At the turn of the century in the US, as part of the effort to make sense of changes associated with urbanization, industrialization and immigration, the Chicago School sociologists defined urbanism as a distinctive object for sociological investigation. Starting with empirical exploration of social problems like the concentrations of crime, poverty, alcoholism, and juvenile delinquency, they built a theoretical conception of urbanism as a human ecology (Park, Burgess, & McKenzie, 1925). It was not accidental that Chicago School sociology developed concurrently with the broad pattern of urban reform associated with the Progressive Era and the early formation of an administrative state with tendrils of power reaching deep into social life.

As social scientists sought to define the city as an object of knowledge, this project was part of a general turn to technical expertise and professional authority in addressing social problems. Professional city managers were to displace machine politics from the business of civic administration. Professionalized social workers replaced the explicit class dynamics of the "charitable visitor" with an authority that was part of the incorporation of social welfare functions into the operations of state power, linking social science to social service (Lubove, 1965). In the first decades of the 20th century, we see the shift from the "city beautiful" to the "city functional", from a focus on visual and symbolic order to a focus on the city as a functional system and planning as the rational administration of that system. In this historical context, urbanism was defined a field of operations for technical rationality, to be informed by scientific knowledge and wielded by professionals whose discipline could impose an objective and practical order to the problems of managing growth and change in the city (Boyer, 1990).

By the late 20th century, professions involved in the planning and design of the built environment had become part of a division of labor deeply embedded in a development regime comprised by the organization of financial capital, the business models and routines of the development industry, a regulatory apparatus that reflected 50 years of bureaucratic accretion and political compromise, and a set of political expectations associated with the liberal "procedural republic" (Sandel, 1996). The program of action associated with professional planning was formed within an institutional matrix that defined the jurisdiction of public-sector planners, shaped business models related to a market for the professional consulting services, and set conditions for the professional division of labor as well as the technical languages and boundary objects that enabled cross-disciplinary communication. Clear examples of the embedded program of action are recognizable in the practices of Euclidean zoning, at the intersection of the police powers of the state and the dynamics of a market for land (Levine, 2006).

Within this institutional matrix, the division of professional labor associated with the production of the built environment both distributes agency and obscures structures of power. It also disconnects professional authority and practice from the experiential and social interactional dimensions of the construction of place, as each practitioner focuses on discrete and specialized problems within the division of labor rather than on an integrated process that engages places as concrete networks of people and things. Compare a traditional public space produced as the direct expression of power with the modern suburban landscape in the US. A public space that is designed in service to institutionalized power is a stage on which social life is played out but also an expression of a relationship of power, in symbolic form but also in the making of the place. Berezin (1997), for example, has explored the dramatizing of urban spaces by the Italian Fascists as part of the construction of their

power. Mukerji (1997) explores the ways the power of the French monarchy was not only represented but constituted in the form of the gardens at Versailles. In a different but parallel fashion, a four-lane arterial roadway lined with big-box retail set back behind large fields of parking and fast food restaurants on out-parcels manifests other forms of authoritative action and reproduces networks of power. Such spaces are an alienated and obscured but effective manifestation of power in which its workings disappear in a web of distributed authority and instrumental rationality. Furthermore, a neo-liberal logic is built into this institutional matrix, in so far as the division of labor involves routinized collaborations between technical experts and bureaucratic officials, in a context defined by the foundational conditions of the liberal state and markets for land, labor and capital.[2]

Both popular and professional responses to the decay of American cities and the failures of urban renewal programs of the early 1960s indicate the beginning of significant shifts in urbanism as a practice over the course of the following decades. Reception of Gehl's earliest work on public space (1966–1971) points to a turn to the idea of "place" out of a dissatisfaction with the abstract formalism dominating modern architecture. The emergence of "advocacy planning" in the US points to doubts and pressures underlying efforts to reconfigure the professional program of action in the 1970s and 1980s.

The formation of the Congress for the New Urbanism in 1992 reflected the coalescence of a number of professional reform tendencies organized around a critique of the dominant patterns of suburban development, a normative understanding of urbanism and a design-centered program of action. Given the multiple institutional layers and interlocking practices of the contemporary development regime, the movement found itself developing modes of practice that moved against the grain of the dominant institutional arrangements at different levels.

Both critics and advocates of the new urbanism often miss the implications of the critique of bureaucratic rationality in modern planning, as well as the implicit social agenda that has been at the core of the movement (Brain, 2005). In addition to identifying the economic, social and environmental consequences of "sprawl", and behind efforts to recover a nostalgic imagery of traditional places, New Urbanists focused on the unintended consequences of a highly rationalized system that combined bureaucratic rigidity with the fragmented perspectives of specialized expertise. A focus on urban design brought new centrality to their professional role, while they mobilized a normative theory of urbanism in the effort to re-orient planning practice to substantive rather than procedural concerns, focusing on human experience, quality of life and an encompassing (if vaguely defined) conception of a sense of community. Peter Katz, the first executive director of the CNU, characterized the new urbanism as an "architecture of community", articulating a design-centered program of action as a re-forming of human settlements around the social character of places (Katz, 1994).

The key point here is the logic of this strategy, not necessarily its substance. If we look beyond the specifics of New Urbanist projects to the underlying conception of the project of 'urbanism', it is apparent that New Urbanist practitioners found themselves pushing against the limits of the conventional development regime while ultimately remaining embedded within the institutional structures that sustain a professional practice in the context of the contemporary political economy of place (Logan & Molotch, 1987). Four central ideas run through New Urbanist practice, with implications for a program of action: (1) the neighborhood as the crucial unit of analysis and planning practice, (2) the interconnected patterns of urban form at different levels of scale, from the building to the block, block to the neighborhood, neighborhood to city, city to region, (3) the varied articulation of the relationship between public and private as a defining component of place, and (4) the crucial role of shaping transportation and mobility as a shaping of opportunities for social engagement. A universalized conception of the neighborhood was privileged as a humane scale at which to understand the import of space and place to a pattern of human interactions and relationships. The concept of the urban transect framed the importance of the linkages between built form and social life at different levels of scale, in terms of an ecology of places (Duany & Brain, 2005).

New Urbanist principles give particular attention to the importance of what they refer to as the public realm, understood in terms of the way the articulation of public and private (e.g., in building frontages) defines the character of public space and manifests a practical responsibility of private actors for the shared world of the street. Pedestrian orientation and multimodal mobility reflect the idea of extending the web of human-scaled relationships from face-to-face interactions in public spaces of the street to a broader civic and even regional connectivity. This orientation toward transportation is set in direct opposition to the mid-century modernist notion that part of being modern is to design for functional efficiency, with particular regard to movement. The impact of the emphasis on place and character in transportation planning has been most dramatically evident in the shifting program of action of traffic engineers (Institute of Traffic Engineers, 2010).

In New Urbanist practice, concern for public space is focused on the idea that the private realm should be arranged in a manner that constitutes a common world, with cumulative and mutual benefits. In addition to setting aside land for parks and plazas as well as civic uses, all private interventions are expected to be mindful of their cumulative effect on their shared setting. Hence the quintessential spaces of urbanism, in this perspective, depend on the way buildings define and give dis-

[2] In this sense, a neo-liberal logic is manifested in the tendency for reformist solutions to accept the conditions of a capitalist market, and generally to look for ways to move toward policies directed at private rather than public action.

tinctive character to the ordinary space of street and sidewalk.[3] This conception is manifested in New Urbanist form-based codes as a guide to developing neighborhoods and towns (Parolek, Parolek, & Crawford, 2008). The effect of a form-based code is to establish a range of defined responsibilities to the common world that anyone choosing to build in the community is expected to take on. In other words, form-based codes regulate the private realm in terms of its role in defining public space.

A normative understanding of urbanism is reflected, then, in two components of New Urbanist practice. First, buildings are expected to contribute to the character of a street, to reinforce the structure and identity of a place, and to enact a shared responsibility in sustaining the quality of a built environment. Second, the quality of urbanism depends on a complex orderliness that can emerge from the diverse contributions of many individuals, over time. Just as one of the satisfactions of the social life of public space is the experience of social order in unplanned encounters, in the accomplishment of social order even in the face of the unexpected disruptions, the New Urbanists have sought to cultivate an appreciation of urbanism as a practice of creating and sustaining places over the long term, of managing change and conserving the sense of identity, coherence and continuity—the work, as they say, of many hands, rather than a design to be attributed to a single author or a technical achievement dependent on an overarching authority.

If this logic could be fully translated into a reconfiguration of the relationship of professional discipline to social and political practice, the implications are potentially profound. The focus on design enables gathering up the fragmented domains of expertise relevant to urban development under a guiding vision grounded in a discipline of urban form. From the standpoint of the sociology of the professions, it can be seen as an effort on the part of design-oriented practitioners (originally, those trained as architects) to assert dominance in the division of labor of expertise in planning. For our purposes here, the point is that the capacity of the designer for integrative problem-solving, when reconceived in the context of engagement with the substantive concerns of citizens and stakeholders, is intended to provide the disciplinary basis for intentional achievement of a normative urbanism. This begs a whole series of questions, of course, regarding the nature of that engagement with citizens and stakeholders.[4] However, it also contains the seed of a substantive politics of placemaking.

New Urbanist practitioners, in the face of political and economic resistance to their goals, found themselves stepping back from conventional reliance on technical authority in order to find external political leverage necessary to carve out a new role. As a result, practitioners sought a different relationship to the clients/users/citizens of the city. Such a concept of urbanism as a particular kind of design problem, requiring substantive exchanges with non-professionals as well as between the practitioners of relevant expertise, suggests a shift in the locus of agency associated with the production of urban space, and looks to ground its practices in the formative aspirations of a community (rather than the technical issues of civic administration). This tendency appears in the New Urbanist re-invention of the tradition of the *charrette* (originally distinctively associated with architecture) as a collaborative design process that requires engagement in real time with community members, elected and appointed officials, and other experts (Brain, 2008). Although early successes of a charrette-based process quickly gave way to a scaling back and routinization in practice, it nonetheless raises the question of how one might create a space for genuine and inclusive collaboration in the formation of an intentional urbanism. Even the modest successes of the process with respect to building consensus around design solutions suggest the ways that a design vocabulary and approach can become part of the way people think about public space as a manifestation of a civic politics in which the boundaries of private interest and public good can be negotiated as a practical matter.

Ultimately, however, the very success of the New Urbanist movement, and its ability to articulate a rhetoric of justification that has become a kind of orthodoxy in public sector planning in the US, has meant that practitioners have been compelled to craft an accommodation with the dominant institutional and ideological arrangements of American urban development—i.e., the organization of capital in the development industry, the regulatory apparatus associated with the liberal state, and the division of professional labor among experts. Although there are currents of concern for issues of social and environmental justice in New Urbanist discourse, for example, these concerns are blunted and often washed out entirely in settings where the logic of neo-liberal reform holds political and economic sway.

In many respects, the New Urbanist movement has been a beneficiary of the failures associated with the policies of urban renewal of the 1960s. By offering a marketable image of urbanism associated with a variety of social benefits, the movement could provide compelling justification for policies that turned from the much-criticized "top down" responses to urban decline to the strategic enlistment of private capital and market dynamics to spur reinvestment and redevelopment. This aspect of New Urbanist success has been the focus of much of the criticism leveled at New Urbanist projects. Even so, the success of this rhetoric of justification has also depended on its ability to evoke a narrative of urbanism as a collaborative project, in terms that have had the

[3] Obviously the New Urbanists cannot claim a monopoly on this idea. The point is that it forms a critical piece of the New Urbanist account of urban placemaking.

[4] Even the language here is problematic, of course. Both "citizen" and "stakeholder" have been associated with drawing boundaries of inclusion and exclusion from such processes. Referring to people as "users" has other problems.

capacity to engage and resonate with community members. In the absence of a clear articulation of a civic politics linked to this project of urbanism, however, rejection of top-down policy solutions slips all too comfortably into neo-liberalism.

David Harvey (2000, p. 169) has suggested that the New Urbanism "does battle with conventional wisdoms entrenched in a wide range of institutions (developers, bankers, transport interests, etc.)". He writes: "It attempts intimate and integrated forms of development that by-pass the rather stultifying conception of the horizontally zoned and large-platted city. This liberates an interest in the street and civic architecture as arenas of sociality" (Harvey, 2000, p. 169). At the same time, he observes that New Urbanists have put too much faith in the ideal of community without coming to terms with "the darker side of communitarianism" (Harvey, 2000, p. 170). Harvey also points out that many of the mistaken presumptions of the New Urbanists—the lack of clarity that comes with the conflation of neighborhood and community, the difficulty with resolving problems that occur at different scales, even the difficulty addressing underlying structural challenges—have to do with the fact that "the 'new urbanism' must, if it is to be realized, embed its projects in a restrictive set of social processes" (Harvey, 2000, p. 173). This constraint, however, is predicated on the extent to which its practices remain embedded in the institutional arrangements that sustain a particular matrix of professional disciplines—both the fee-for-service consultancies and the integration into the administrative state. The analysis here suggests that there might be another way for this to play out. The effort to materialize what Harvey calls a utopian vision—or what we might refer to as an urban ideal—suggests a pragmatic conception of community that can be productively aligned with current sociological thinking regarding social capital.

The tension between this urban ideal and the processes for its realization have manifested as internal contradictions and struggles within the New Urbanist movement, illuminating core contradictions in the embedding of a professional practice of urbanism in a broader development regime. In the last few years, these contradictions have motivated several tendencies that attempt to move beyond the conventional limits of professional planning and urban design. It has been manifested in the emergence of tactical urbanism (Lydon & Garcia, 2015), and in the initiatives for Lean Urbanism (Dittmar & Kelbaugh, 2019) and incremental development (Brain, 2019). The contradictions are far from resolved but appear with growing clarity. Lean Urbanism, for example, has not always confronted the implications of what becomes at times a libertarian distrust of the bureaucratic state. With respect to tactical urbanism, its significance has tended to shift as it has moved from the creativity of unsanctioned "guerilla" interventions toward being reduced, in the worst case, to somewhat cliched gestures with only superficial connection to bottom-up engagement.

A critical limitation of the New Urbanist movement has been its tendency to oscillate between top-down policy intended to manipulate market outcomes and bottom-up faith in the market itself—essentially, in political terms, the inability to move past the limits of contemporary liberalism. In the US, this tension is reflected in the arguments between the advocates of "Smart Growth" who focus on policies intended to incentivize different development patterns, and the advocates of traditional neighborhood design who focus on designing compact neighborhoods that can offer people that choice. Neither top-down policy nor design-based approaches are able to take up the underlying structural issues that are rooted in the political economy, nor are they able on their own to find a way out of this bottom-up/top-down dichotomy. Those who operate in the domain of policy, as well as those who operate in the domain of a market for professional services, are structurally constrained when it comes to confronting the fundamentally political character of the normative urbanism to which they aspire. To a large extent, this can be understood as a problem of agency.

Even with its shortcomings in practice, the normative theory of urbanism at the heart of the New Urbanist movement implies what Sandel (1996) has referred to as a formative vision that points beyond its limits as a professional movement and suggests a connection with efforts to re-create the foundations of democratic political capacity, in and through self-conscious and (one would hope) inclusive practices of placemaking. Such a normative theory of urbanism implies situating a practice of design in explicit relation to the native processes of social connection to place, and to places as a way to sustain social meaning. This is not an easy thing to accomplish, and has generally produced a reductionistic tendency, if for no other reason than the need to shore up a professional role. The New Urbanist movement has highlighted some of the challenges in its efforts to resolve issues that might seem exclusively the specialized domain of urban designers: for example in the effort to come to terms with the idea of tradition, and the difficult relationship between self-conscious formal intentions and vernacular building (Krier, 2009). Even the idea of the new urbanism as 'neo-traditional' might be read as an urge to go beyond nostalgic references toward engagement with the social processes of constructing meaning over time. New Urbanist work has brought some of the dilemmas of design to the surface, although it has fallen short of the potential for to play a more profound transformative role.[5]

6. Conclusion: Urbanism as a Political Project

At the heart of the New Urbanist project, even where it falls short of its aspirations, one can identify a call to heal

[5] The discussion of so-called "everyday urbanism" has also recognized the importance of bottom-up processes of placemaking but tends ultimately to lack the transformative capacity associated with the critical components of any sort of utopian vision (Chase, Crawford, & Kaliski, 2008).

the disruptions of the urban commons as a spatial realization of social connection and collective intentions, disruptions that have been the result of the way institutionalized patterns of urban development in the 20th century have fragmented the processes of placemaking. Implied in a normative conception of urbanism, New Urbanist or otherwise, there is a recognition that the way we articulate the intersection of public and private space in the city is a consequential enactment of a structure of social relations. It can be structurally and institutionally determined, an artifact of a history that operates over our heads and behind our backs, or it can be more or less the product of intentional and self-conscious action. The theory and research cited above suggest that the way we give form to urban space is not simply a cause of behavior, but itself a form of human action that embodies social relationships. In this respect, design matters because it is itself a form of action involving a process of making significant choices and inscribing intentions in a visual and spatial order. It matters what kind of intentions are presumed to be relevant and possible, as well as for whom and by whom they are to be articulated and implemented.

The idea of placemaking has gained wide currency since Gehl first used a focus on place as a starting point for articulating a practical alternative to the abstraction of modernist architectural practice (Gehl, 2011). As a concept, placemaking is often invoked precisely because it allows for a slide between different dimensions of place without necessarily being compelled to clarify how they are (or are not) related. This also helps to avoid the question of agency in placemaking—who is doing what, for whom?

This conceptual slippage is apparent in a lot of the talk by activist organizations. The Project for Public Spaces describes "placemaking" as "a collaborative process in which people come together to create vital public spaces that bring health, happiness, and social connections to their communities (Project for Public Spaces, 2018, p. 40). When they break down the 11 principles of placemaking, the first principle is "the community is the expert" (Project for Public Spaces, 2018, p. 43). However, this principle simply reflects the circular insight that places that engage people are places that the people occupying them are engaged in making. What is really at stake in the formation of placemaking as a program of action? How is such a practice constructed and situated in the matrix of institutions on which it inevitably depends? There are, as we can see, many ways in which it can go astray from the ostensible goal of inclusivity, equity and empowerment.

Arefi (2016) has sorted placemaking into a three-part typology of needs, opportunities and asset-based approaches. Placemaking can be a response to local needs, as when a government chooses to build a settlement to accommodate rural-to-urban migration, or it can be a response to an opportunity, as when squatter settlements form as a direct response to the same needs (Arefi, 2016, p. 6). The asset-based approach has grown out of the work of community organizers who have recognized that community resilience and prosperity are best served by cultivating social, economic and political capacity from within a community, rather than relying on either experts or outside institutions to address needs (Kretzmann & McKnight, 1993; McKnight, 1996; McKnight & Block, 2010). This approach has been articulated in direct opposition to the needs-based approach to social problems by conventional social service agencies and the liberal state.

Arefi's typology identifies different modes of agency associated with each type of placemaking. The first distinction is between the top-down agency of governments or other organized entities, typically relying on technical experts, and agency mobilized from the bottom up, relying on local knowledge. The asset-based approach reflects a third way, in which agency is constituted by social connection that activates assets already present in the community in ways previously unrecognized, underutilized or simply not accessible in a manner relevant to the community's needs and aspirations (i.e., the skills and knowledge of individuals, the resources of organizations and associations from businesses and churches to civic associations, and the assets available through public and private institutions). An important aspect of this approach is that it avoids a misleading dichotomy of top-down and bottom-up resources, allowing for communities to use the power of association to mobilize assets in a manner that also optimizes their capacity to take advantage of external connections and partnerships with institutional actors who bring resources, broader connections and access to expert knowledge (i.e., connections that Putnam refers to as "bridging" social capital).

From the sociological perspective presented here, the urban public realm is a relational web of people and places, and a moral resource of civic life sustained by the formation of social capital and sustaining the foundations for collective efficacy as well as relational narratives of belonging. It is constituted by the ability to give objective form to the quality and character of collective life across the range of social encounters from private to public, with all their conflicts, ambiguities and complexities. This sociological conception parallels the idea of a civic ecology that is realized in relations and interactions mediated by their inscription in built form, and potentially activated by engagement in the processes of giving intentional form to places. It is more than a domain in which individual action is aggregated, more than just a space of pedestrian traffic and sociability. It is a normative universe that is sustained by the action within it. If public space is reimagined as an urban commons understood in terms of the social structures and processes that shape and sustain it, we need to re-think what we imagine ourselves to be doing when we seek purposefully to create, improve or revive urban public space.

In the research on public space that focuses on the relationship between design and behavior, the agency and

the authority of the designer are assumed rather than examined. Critical and ethnographic studies of public space situate the formal intentions of designers and other social actors in the context of structures of power and conflicting interests, in the context of broad cultural patterns, and in relation to historical contingencies. There is a significant gap between research agendas that focus on the social character of place and those that regard place as a material and spatial phenomenon with social and behavioral impact. One way to bridge that gap can be understanding the formation of the socio-technical program of action that enables placemaking to become a self-conscious practice, and that constitutes the discipline and role orientation of the professionals involved.

The practices of design involve a certain set of skills and expertise in a process of articulating self-conscious and purposeful choices in the built environment. Such practices might be integrated more deeply with the practices of asset-based community development, in the context of a theory of public space as civic practice that self-consciously articulates the connection of social relations to place. Toward this end, design-oriented research needs to draw on the insights from research that links the production of visual order/disorder with the formation of social capital and collective efficacy.

Typically, the professional practitioner relies on linking expert action to technical rationality, framed within a discipline that offers a rhetoric of justification for professional solutions (and particularly situated definitions of the problem). A program of action that conceives of urban design in terms of a normative theory of urbanism reinforces its potential as a civic art—not in the older sense of artists acting in service to civic goals, but design as a process that engages the narrative building processes and production of symbolic capital in the urban setting as sites of contestation and mediation in diverse communities. In this way, design practitioners can help to activate a civic sensibility, to motivate and inform civic innovation, in and through the integration of the practical perspective and boundary-crossing resources of the outside expert with local knowledge in a reflexive and critical fashion.

We might ask, then: what kind of design practice would make this self-conscious and purposeful, a formative project that is also inclusive, a city that is both for all and by all? This is perhaps the most significant promise at the heart of the turn to placemaking: the possibility of an intentional urbanism capable of transforming public space into an urban commons. This research needs to bring into focus the active connection between professional discipline, cultural traditions, historical conditions, and the purposeful engagement of citizens. If it is possible to liberate, as Harvey suggests, the physical space of the city as a domain of sociality, what might it take to re-configure planning practice around urbanism as a domain in which design intelligence becomes part of broader processes of civic engagement and political action?

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Article

Walking the First/Last Mile to/from Transit: Placemaking a Key Determinant

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Abstract
Sustainable mobility concerns have seen cities introducing mass transit systems, but travel choice factors such as accessibility, convenience, comfort and safety cannot be addressed through a transit system alone. A trip made on a transit system requires commuters to utilise more than one mode of transport. Walking is generally the most common transport mode to access and egress transit stops. While there is evidence on the pedestrian environment influencing transit ridership, only a few studies have explored how it affects the share of people who walk to/from transits, especially in the context of the developing world. This article postulates that the pedestrian environment influences users' decision to walk the last mile, substantiating it with the findings of a study of transit users across the metro stations of Delhi, India. A pedestrian environment index is developed by including elements of the built form and activities adjacent to the network of streets, in addition to the pedestrian infrastructure quality. Interestingly, the route environment is found to have a significant and much higher correlation with walk share in contrast to pedestrian infrastructure availability. Within the route environment, the sub-indicator that impacts walk share the most is placemaking. It highlights the significance of planning for an enhanced pedestrian environment in a larger context of the catchment area, in contrast to the current myopic approach of station-centric pedestrian infrastructure provisioning.

Keywords
last mile connectivity; non-motorised transport; pedestrian environment; placemaking; sustainable mobility; walkability

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1. Introduction

One of the ways in which cities are trying to shift the tilt from increasing dependence on private modes of transport to public modes is through the provision of transit systems. Even with a fairly expanded network of state-of-the-art transit systems criss-crossing the city, it is inconceivable to connect each commuter to his/her doorstep of home, office or elsewhere through it. A trip made on a transit system usually requires the commuter to utilise more than one mode of transport. It is now fairly researched upon that an out-of-transit experience can play an influencing role in travel choice and in the overall appeal of transit systems. Efficient transit connectivity in cities cannot be addressed through a myopic lens of just focusing on building the metro network; it should encompass, within its framework, a very important and often neglected aspect, that of providing good accessibility to the metro. This is where attention is drawn to the issue of last mile connectivity (LMC) of transit systems. In this context, LMC can be defined as both the initial and final leg of delivering connectivity—from origin to transit nodes and from transit nodes to the destination. In this article, LMC signifies both, first and last mile, unless specified. Issues related to LMC can arise from various reasons: lack of adequate walking and cycling infrastructure, unfavourable walking and cycling conditions, service reliability, waiting time and the absence of direct routes

of feeder bus services, lack of adequate and economical modal interchange options as well as the quality and facilities available at transit nodes (Tay, 2012). Collectively, these become the weak links that can have a ripple effect on the usage of transit as opposed to private modes of transport.

The lack of suitable or adequate last mile (LM) options discourages commuters to shift to public transit. At the same time, it can also affect transit users' LM behaviour, a subject that has not been widely researched. An LM environment that is unconducive may compel transit users to avail of unsustainable transport options for LMC in the form of private modes, such as cars and motorcycles, thereby creating a massive parking demand at transit stations. The space needed for parking and access of private modes of transport adds significantly to the cost of transit stations (Pucher & Buehler, 2009; Steiner & Butler, 2006) and attenuates the environmental and traffic benefits of transit service (Bartholomew & Ewing, 2008). Several factors are known to influence users' LM travel choices—the user's socio-cultural/economic characteristics, trip characteristics and built environment. This article focuses on the pedestrian environment, which can be considered as both a subset and derivative of the built environment.

There is a body of literature establishing the link between transit ridership and the built environment surrounding transit stations (Cervero, 1996; Marshall & Grady, 2005; Newman & Kenworthy, 1989; Sung, Choi, Lee, & Cheon, 2014). The urban fabric surrounding a transit stop is an important decisive factor in whether transit users walk, cycle or take the feeder bus and other paratransit or private modes for their LM commute. Through their *Theory of Urban Fabrics*, Newman, Kosonen and Kenworthy (2016) have demonstrated that different types of cities have combinations of walking, transit/public transport and automobile/motor car fabrics and that strategic and statutory planning need to have different approaches in each of these. The authors further elaborate that the automobile fabric that overlaps all the walking and transit urban fabrics can even obliterate them, as has been the case in some cities of the US, such as Detroit. Urban streets are a component of the built form. The absence of an adequate walking-friendly environment can discourage walking even in areas with a walking fabric; conversely, good walking conditions in an automobile fabric can encourage walking. This is especially relevant for LM mode choices where a significant share of LM trips is within walkable distances.

The most common access mode to urban transit, cited in literature, is walk. Cervero (1995) and Loutzenheiser (1997) have concluded that walk access dominates city transit. Olszewski and Wibowo (2005) also observe that walking is the most common and natural transport mode for access to and egress from public transport. They further state that the level of the walking environment may influence public transport usage. In the context of cities in the developing world, research points out that the type of mode used for access/egress depends on the distance of the origin point to the transit station (Loutzenheiser, 1997), yet the same studies and other researches (Cervero, 2001; Cervero & Kockelman, 1997; Ewing, Haliyur, & Page, 1994; Özbil & Peponis, 2012; Rodriguez & Joo, 2004) also indicate that the use of non-motorised transport (NMT), especially walking, for LMC, can greatly be influenced and their catchments enhanced by other factors such as density, land use, street and network design as well as layout and the overall environment.

Although substantial literature exists on linking the surrounding built and the pedestrian environment with transit ridership, there is not much evidence on how these affect the LM travel behaviour of transit users, particularly lacking in the context of cities in the developing world. The difference in LM behaviour patterns of transit users in the developing and the developed world needs to be examined on account of several aspects: the first being the poor condition of walking and cycling infrastructure in the latter; second, the difference in vehicle ownership and income levels and the third, a very important factor, the availability of a wide variety of paratransit modes for both individual hire and shared mobility. In light of these, it is important to study LM trip behaviour (especially with respect to sustainable modes such as walking) in the context of the developing world. It is also believed that cities in the developing world have by and large captive walkers; so the role that the pedestrian environment plays in user behaviour (of walking as LM choice or in terms of enhanced walk catchment sheds) is often underplayed. The key research question that this article addresses is whether the pedestrian environment affects the users' LM trip behaviour and, if yes, which aspect/s of the pedestrian environment are more significant in determining this behaviour. It contends that a more in-depth understanding on the specific aspects of the pedestrian environment that affect LM user behaviour is crucial for long-term sustainable mobility and for better LM planning around station catchments. The article presents the findings of the influence of the pedestrian environment on LM user trip behaviour, which is derived from a broader study on the comprehensive LM planning approach to transits for the city of Delhi, undertaken by the author.

2. Research Design

2.1. Case Study Area Profile

The Delhi Metro rail has the most expansive network, excluding suburban rail, in the country. Since its operation in 2002, the network has been extended to cover 213 km of length in seven lines (DMRC, 2018). The average daily ridership of the metro has risen from 0.12 million in 2004–2005 to 2.2 million in 2013–2014, and 2.76 million in 2016–2017. There has been a significant addition in both network length and total ridership between

the period 2012–2013 and 2016–2017. While the annual growth rate of ridership has seen a decline from 14% in 2012–2013 and 2013–2014 to 5.8% in 2015–2016 and 2016–2017, the Compound Annual Growth Rate (CAGR) for this four-year period is 9.3%, which is considerably good. The average daily ridership per km network length has also grown consistently, from 10,158 to 12,958, for this four-year period.

The study was carried out at 10 select stations of the Delhi Metro network in the National Capital Region (NCR) of Delhi on two of its busiest lines, namely, the blue and the yellow lines, and a relatively new heritage line (extension of the violet line). Figure 1 shows the location of the case study stations on the network. The network passes through four NCR towns, Noida, Ghaziabad, Gurgaon and Faridabad, of which two stations in Noida have been included.

The criteria used for station selection were station typology (interchange, mid-block and terminal), ridership, density and types of land use in the surrounding vicinity as well as the kinds of LM mode options available to the users. The selected stations included four in the medium-high ridership, four in the medium ridership and two in the low ridership categories. Interchange stations were not considered in the selection of stations as the majority of the trips here do not need to access the catchment area outside the stations. The profile of these stations and contextual environment are indicated in Table 1.

Stations with varying types of adjacent land use and activity density in the surrounding context were selected to understand how they affected LM travel behaviour. The population and employment densities around each case study station in Delhi were computed from a transport demand forecast study (RITES, 2010) and classified from low to high activity density (which is reflective of population and employment densities). The land use ranged from purely residential (with varying densities) to a mix of residential-commercial-institutional (also with varying densities), residential-industrial-institutional, mixed use (vertical mixing with high activity densities) and heritage.

The metro network of Delhi passes through all the three urban fabrics discussed in the introduction section: the core Central Business District (CBD) areas, characterised by dense mixed use and narrow streets, which qualifies them as having a walking fabric; other medium to high density transit (outer and inner) fabric and low density peripheral areas with an automobile/car-oriented urban fabric. Out of the 10 selected case study stations, the context areas of two, namely, Chawri Bazaar (CB) and Red Fort (RF), correspond to the walking fabric. Six stations, Vishwa Vidyalaya (VV), Green Park

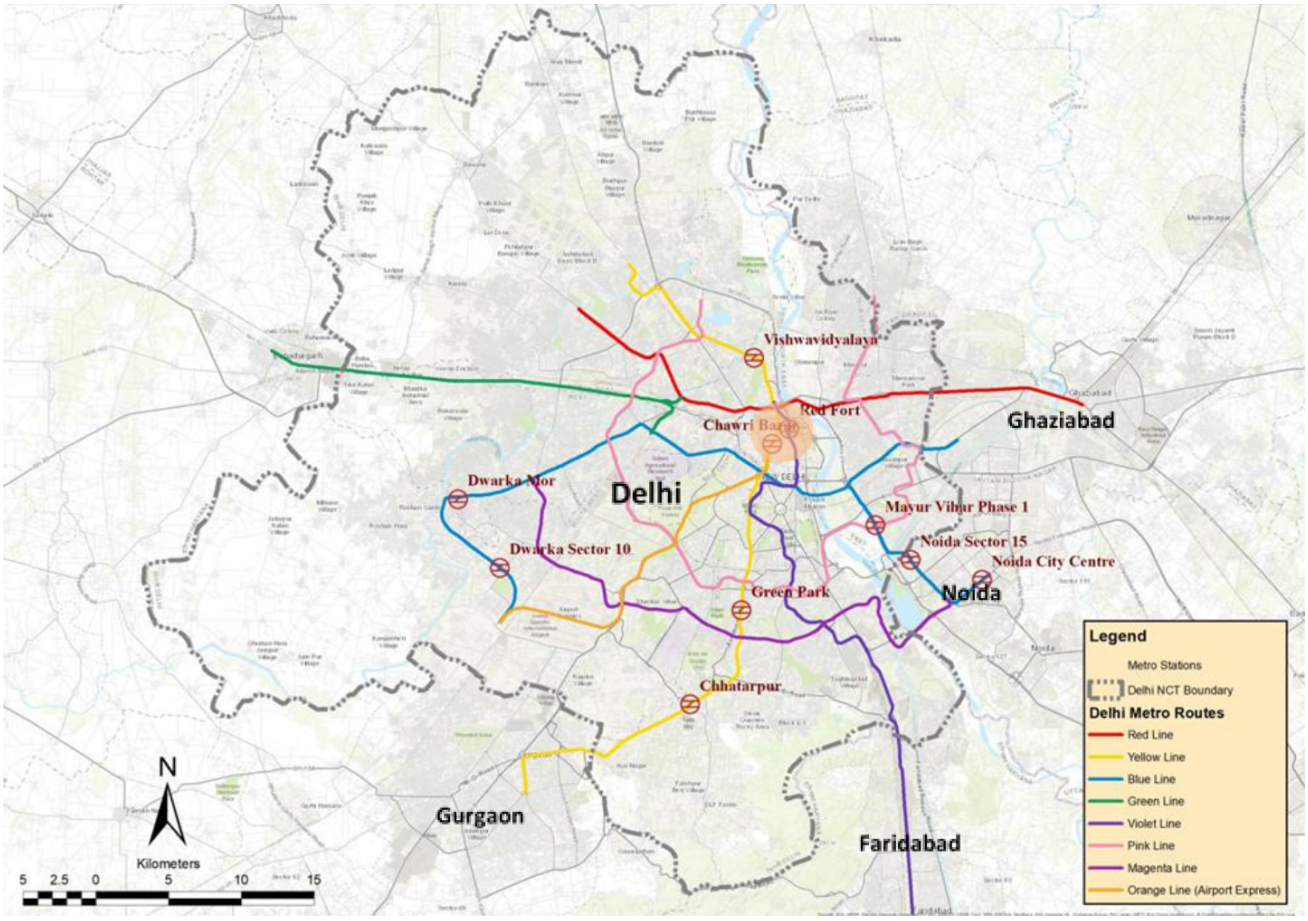

Figure 1. Metro network in Delhi NCR and case study stations.

Table 1. Profile of case stations, Delhi Metro.

	Operational		Physical Context	
Station Name	**Avg. Daily Ridership* (Line Name)**	**Typology**	**Adjoining Land Use**	**Activity Density**
Chawri Bazar (CB)	30,798 (Yellow)	Mid-block	Mixed use Commercial	High
Red Fort (RF)	Low** (Heritage or Violet line)	Mid-block	Commercial Mixed use Heritage	High
Vishwavidyalaya (VV)	23,802 (Yellow)	Mid-block	Residential Institutional	Medium
Noida Sec-15 (N15)	29,220 (Blue)	Mid-block	Residential Industrial Institutional	Medium High
Green Park (GP)	27,900 (Yellow)	Mid-block	Residential Institutional Commercial	Medium High
Dwarka Sec-10 (D10)	9,761 (Blue)	Mid-block	Residential Institutional	Low
Dwarka Mor (DM)	42,928 (Blue)	Mid-block	Residential	Medium High
Mayur Vihar-I (MV)	19,413 (Blue)	Mid-block	Residential	Medium
Chhatarpur (CP)	36,036 (Yellow)	Mid-block (last stop in Delhi)	Residential	Low
Noida City Centre (NCC)	37,733 (Blue)	Terminal	Residential Commercial (partially developed)	Medium

Notes: * Source: DMRC (2018); ** The station being recently inaugurated, official ridership figure was not available, but falls in low.

(GP), Mayur Vihar-I (MV), Dwarka Mor (DM), Dwarka Sector-10 (D10) and Noida Sector-15 (N15), correspond to the transit fabric, while the last two stations, Noida City Centre (NCC) and Chhatarpur (CP), correspond to the automobile/car fabric. NCC and CP are classified as lying in the automobile fabric on account of being terminal stations or lying in the city periphery along with low/medium population density.

2.2. Survey Design and Implementation

Transit commuters were surveyed at 10 selected case study stations through direct questionnaires/interviews, using the pen and paper interview (PAPI) method. In all, 1,000 samples were collected for the 10 stations. The direct questionnaire interview was chosen over other methods, such as online survey, survey through post (self-addressed envelope), because of contextual limitations. First, given the wide diversity of users with respect to literacy and e-literacy levels, language, attitude towards responding on mail, or by post and internet access, there were greater chances of errors on account of not comprehending the question properly, low or poor response rate and exclusion of certain categories of users. Second, targeting transit users for the specific case study stations would not be possible in an online or web-based survey. Surveys were conducted at entry/exit points of the stations. Although users responded in a much more relaxed and patient manner in on-board surveys, compared to those conducted at entry/exit points, the challenge in an on-board survey was to distinguish the commuters that boarded the train at that particular station. The use of probability methods in this context was not a practical option. In order to avoid selection bias, care was taken to cover all entry/exit points with as many first mile (FM) as LM users and continue till at least some representation of each available LM mode option at the case study station was covered. Surveys were conducted on weekdays, three hours in the morning and three in the evening, which covered the peak ridership hours.

The survey questionnaire included information related to the user's trip characteristics for the undertaken trip, socio-economic characteristics, ranking and rating of indicators considered important for available LM mode choice and the walking environment. The trip characteristics of the FM, the main haul transit trip and

the LM were covered with respect to mode, time, cost, distance, purpose, frequency and trip-end type at origin/destination. Information on socio-economic characteristics included the user's gender, age, marital status, education level, occupation, individual and household income and personal vehicle availability. For the purpose of this article, the information related to only LM mode choice, trip length and ranking of important indicators for the walking environment are relevant. The LM mode choice of users gave the overall mode share for each station and that was used as the dependent variable (DV) in the models. The ranking of the walkability indicators by the users helped to identify the relative importance placed by them on the different indicators. The sub-indicators 1 to 12, shown in Table 2, were listed and the users were asked to rank them in order of priority, which they felt was important in deciding whether to walk the FM/LM or use any other mode. These were further used to assign weights to each pedestrian environment indicator in developing the pedestrian environment index (PEI).

Apart from a transit user survey, an assessment of the pedestrian infrastructure and the environment was conducted around case study stations. The audit was carried out for approximately 1 km length of all major streets (six to eight) adjoining and leading to/from the stations. The components of the pedestrian environment assessed in the audit are discussed in the subsequent section.

2.3. Pedestrian Environment Indicators

The understanding of the pedestrian environment has been derived from an exhaustive set of indicators identified through different literature sources discussed in this section. Several studies, although not specifically carried out with the objective of studying LM pedestrian environment, are available. They have incorporated these elements in associating them with walk behaviour or active living. Different studies take different approaches to assessing walkability; some focus on infrastructure provision and quality while others also consider the importance of the overall environment.

Özbil, Yeşiltepe and Argin (2015) have considered aesthetic qualities, signage, sidewalk design, pedestrian crossings/traffic lights, ground floor uses as well as housing plot-level (parcel-level) land use, density and street-level topography, street network configurations as well as connectivity measures. Pedestrian safety is another important element in studies on walkability assessments (Boarnet, Anderson, Day, McMillan, & Alfonzo, 2005; Brown, Werner, Amburgey, & Szalay, 2007; Gehl, 2011). Other studies have used a wide range of variables such as the dimensions and design of sidewalks, the frontages of retail or the prevailing levels of environmental comfort that may encourage pedestrian movement (Badland & Schofield, 2005; Ewing & Handy, 2009), the presence of street crossings and signalisation, attractive landscaping and tree covers (Agrawal, Schlossberg, & Irvin, 2008; Cao, Mokhtarian, & Handy, 2007).

The focus on the pedestrian environment has gained further momentum with new urbanism and studies pointing out that improved walking conditions significantly increase the extent of walking and walking-derived activities (Gehl, 2010). The present study thus identifies and includes variables that assess the overall pedestrian environment, featuring elements of the surroundings adjacent to the network of streets and not merely the streets' quality. Most of the elements discussed above were considered while designing the broad indicators and sub-indicators for assessing the pedestrian environment.

The pedestrian environment, thus, in the context of this article, relates to the availability and quality of infrastructure for pedestrian movement between stations and the trip-ends within walking distance. It also considers aspects that are direct derivatives of the physical environment such as the nature of activities, the presence of obscure nooks/stretches, eyes on the street, among others. Direct indicators of the built environment such as land use, densities and network characteristics are not reflected in the pedestrian environment assessment undertaken in this study. These indicators were considered separately as the built environment variables of the broader study from which this article is derived.

The pedestrian environment has been assessed in terms of two broad categories: pedestrian infrastructure and pedestrian route environment. The indicators for each of the two categories and the sub-indicators representing the indicators are given in Table 2. Pedestrian infrastructure was assessed in terms of their availability, condition and quality. The assessment of the route environment was carried out first, in terms of the connectedness (whether the paths connected the metro stations to important destinations of the commuters) and continuity of the paths (whether the paths were continuous and part of an overall network). The second aspect of assessing the route was based on the walking experience for which elements of placemaking were taken into account. These are based on Gehl's human-centric approach to urban design. However, instead of taking exactly the same criteria, indicators that were more suited to the context city and to the objectives of assessing LMC were assimilated from other sources discussed above as well and bunched together. For instance, the aspect of protection, safety and security was considered more important vis-à-vis micro-climate. It is also worthwhile to mention here that none of the areas under study have taken conscious placemaking initiatives; however, some of these areas possess inherent traits underlying the principles of placemaking, while others are lacking in them.

Further, each of these sub-indicators has measurable sub-sub-indicators, which were used in designing the audit pro forma. For instance, sub-indicator 1 was measured with respect to the presence (or absence) of footpath, width, kerb height, physical barrier between the

Table 2. Pedestrian environment indicators.

Categories	Indicators i	Sub-Indicators
Pedestrian Infrastructure	1 Availability	Footpath 1 Crossing 2 Wayside Amenities 3
	2 Condition & Quality	Obstructions 4 Surface 5 Universal Accessibility 6 Ease of Crossing 7
Route Environment	3 Continuity & Connectivity	F.P Continuity 8
	4 Placemaking	Safety & Security 9 Activity & Liveliness 10 Crowdedness 11 Aesthetics 12

vehicular and pedestrian path and clear access to path. Similarly, sub-indicator 2 was assessed on the type of crossing facility. Sub-indicator 3 had a list of amenities; sub-indicator 4 included the minimum and maximum effective width available to pedestrians and listed various types of obstructions on the path; sub-indicator 5 comprised the type of paving, maintenance and ramp quality. Sub-indicator 6, universal accessibility, covered aspects such as the presence of tactile paving and surface quality suitability for prams and wheelchairs. Sub-indicator 7 was measured through waiting time for crossing and threat from adjacent traffic. Sub-indicator 8 measured footpath continuity in the area, based on the percentage of streets that had continuous paved footpaths. Sub-indicator 9, safety & security, was assessed in terms of threat from adjacent traffic, presence of obscure areas, presence of nuisance activities, eyes on the street (assessed in terms of presence of active frontage, minimum and maximum front setbacks, direct openings on the streets such as doors/windows) and adequate lighting at night. Sub-indicators 10 and 11 included ratings for activity and liveliness and crowdedness during the day and after dark. Sub-indicator 12, aesthetics, rated the streets in terms of cleanliness, landscaping/visual elements and overall appeal.

Based on the indicators shown in Table 2, a PEI was developed. The weighted factor method has been used to arrive at scores for each indicator of the overall PEIs. All the sub-attributes were assigned scores, based on either how well or poorly they met the norms and standards, or on a five-point Likert Scale rating for qualitative sub-attributes. The scores have a maximum scale of five, with one signifying very poor and five representing very good. For instance, the absence of a footpath would denote one and the presence of a footpath without obstructions and a good level of service would denote five. Similarly, an area that is desolate would get a score of one whereas an area that has a lot of activity, but is not overcrowded, would get a score of five. Weights have been assigned to the indicators, based on the users' ranking of indicators for the walk environment. This is derived from the percentage of respondents identifying a particular indicator as most important. Pi is the weighted score for each indicator and station. The weighted scores are then obtained by multiplying the individual scores (minimum one and maximum five) for each indicator, with their corresponding weights. The individual scores of a particular indicator of a particular station is the average score of all the streets surveyed around it and the average of all the sub-sub-indicators.

The final PEIs represent converted percentage scores and have been computed as per Equation 1:

$$[\text{PEI}]\text{s} = \sum_{\text{i}=1}^{4} \text{Pi} \ [\text{max: 100 pts}]$$

Notes: s: station; i: indicator.

The study involved bivariate regression of LM user travel behaviour with the weighted scores of the overall pedestrian environment and each of its components. Bivariate models were considered over multi-variate models because the data set was small (10 points representing values for each of the 10 stations) as each station represented the aggregated values of both the DV and the independent variable (IV). The DV signifying user travel behaviour used in the study is the percentage mode share of walk trips observed at the case study stations and thus has one value for each station. Similarly, each of the IVs represents average scores of all the streets audited around each station. Further, the objective of the study is to see how each aspect of the pedestrian environment independently influences LM walk behaviour and as such a bivariate analysis is considered.

3. Study Results

3.1. Last Mile Mode Shares

Fifteen different types of mode choices are observed for LM transit users at the case study stations in

Delhi. These include walk, bicycle, cycle-rickshaw, e-rickshaw, auto-rickshaw (individual/shared), taxi (individual/shared), feeder bus, city bus, chartered/company bus, car (park and ride/pick or drop) and motorbike (park and ride/pick or drop). However, all these modes are not available or used at all the 10 stations. As seen in Figure 2, walk is the predominant mode for FM or LM (32.5%), followed by auto-rickshaws (24.6%), shared auto-rickshaws (12.9%) and e-rickshaws (11.1%).

The mode shares of FM or LM trips also vary with respect to the urban fabric typology surrounding the stations. As can be seen from Figure 3, there are some distinct patterns emerging when the stations are grouped in terms of their location on the network. The share of walk trips has the most distinct pattern, with the stations located in the walking fabric (first group)having the highest share, followed by the transit fabric (second group) and the least share observed in the automobile/car fabric (last group). Private mode shares are observed as the maximum in the last group and negligible in the first group of stations. It can also be seen that, within the last group, the station with a higher share of private mode

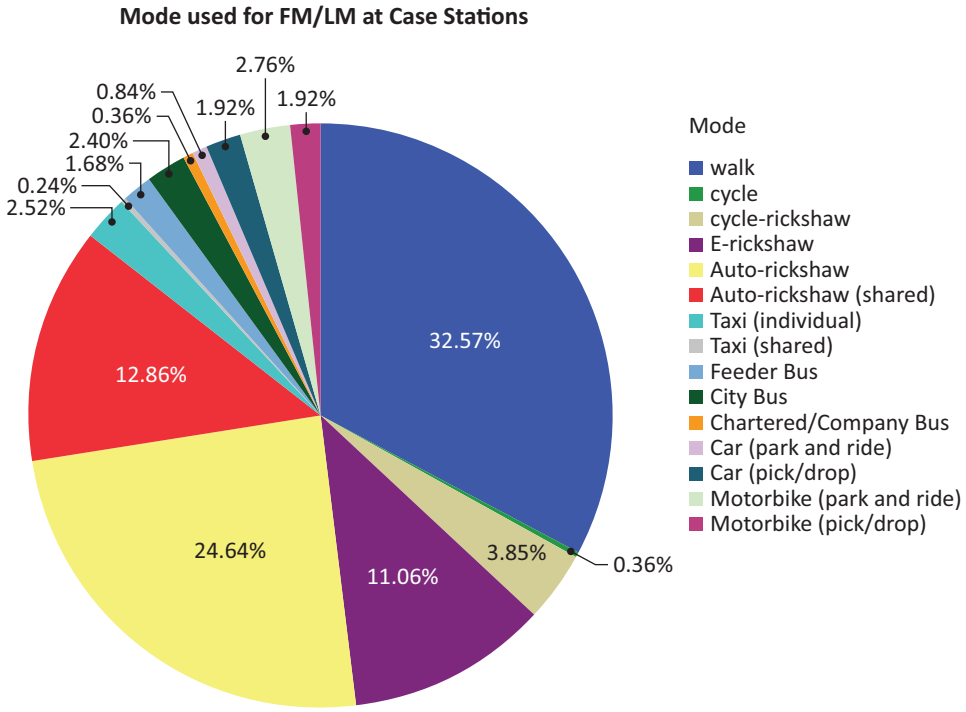

Figure 2. Mode shares for FM or LM.

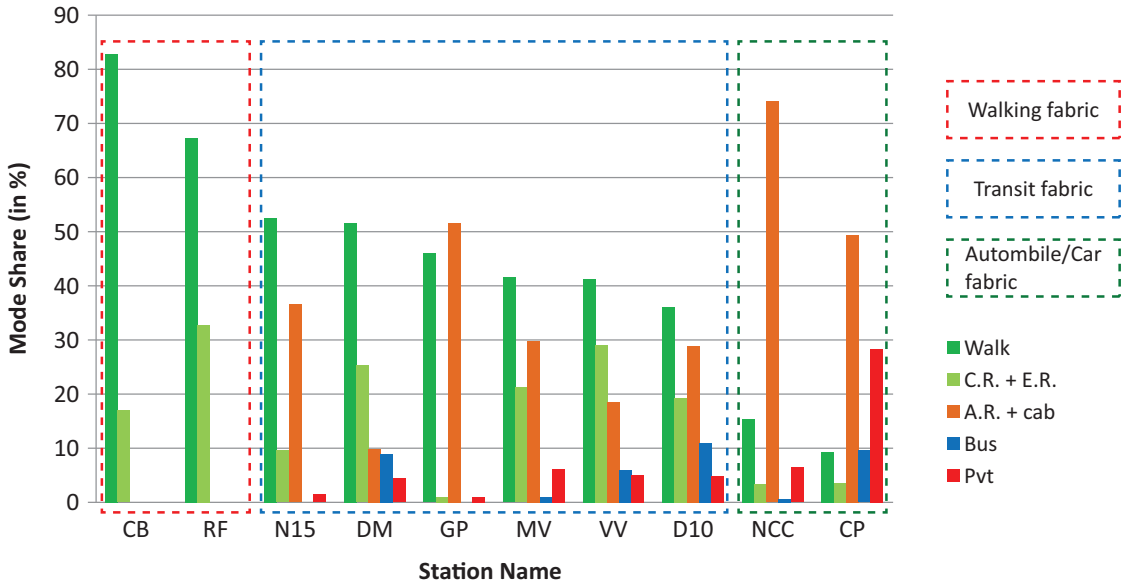

Figure 3. Mode shares for FM or LM for stations in varying urban fabric. Notes: C.R.: Cycle-Rickshaw; E.R.: Electric-Rickshaw; A.R.: Auto-Rickshaw; Pvt: Private Modes.

trips (CP) has a lower share of walk trips compared to NCC. The stations lying in transit fabric display a mix of various modes of usage for LM and the usage by private modes is lower than that of the stations in the last group. Among the stations lying in the transit fabric, a higher share of walk trips is also observed in those stations that have higher activity density, namely, N15, DM and GP. These findings are indicative of the fact that within the same typology of the urban fabric, there are factors that stimulate a higher share of walk trips.

3.2. Last Mile Pedestrian Environment

The scores for all the streets audited around each case study station were averaged out with respect to each of the four main indicators: availability of pedestrian infrastructure, condition and quality, route continuity and connectivity and placemaking. These are shown in Table 3.

The detailed computation of the scores for one station, CB, is discussed below.

Pedestrian infrastructure availability [Pi_1 Availability]$_{CB}$ = Average of scores (Footpath availability, Crossings availability, Amenities availability) = 3

Footpath availability = Average of scores (presence/absence of footpath—4, footpath width—3, kerb height—3, physical barrier between vehicular and pedestrian path—5, clear access to path—2) = 3.4
Crossings availability = Average of scores (presence and type as per road type—3) = 3
Amenities availability = Average of scores (benches—1, trash bins—3, kiosks—5, drinking water—3, public toilets—1, streetlights—3, trees/sheltered walkways—2) = 2.6

Pedestrian infrastructure condition & quality [Pi_2 condition & quality]$_{CB}$ = Average of scores (obstructions—2, surface—2, universal accessibility—1, ease of crossing—4) = 2.2

Obstructions = Average of scores (minimum and maximum effective width available to pedestrians—2, nature of obstruction—2) = 2
Surface = Average of scores (type of paving—3, maintenance—2, ramps quality—1) = 2
Universal accessibility = Average of scores (presence of tactile paving—1, surface quality suitability for prams and wheelchairs—1) = 1
Ease of crossing = Average of scores (waiting time for crossing—4, threat from adjacent traffic—4) = 4

Route continuity & connectivity [Pi_3 continuity & connectivity]$_{CB}$ = Average of scores (continuous and unbroken footpaths—2.6, connection to important destinations in the areas—3) = 2.8

Placemaking [Pi_4 Placemaking]$_{CB}$ = Average of scores (safety & security—5, activity and liveliness and crowdedness—5, aesthetics—3.5) = 4.5

Safety & security = Average of scores (threat from adjacent traffic—5, presence of obscure areas—5, presence of nuisance activities—5, presence of active frontage—5, minimum and maximum front setbacks—5, direct openings on the streets such as doors/windows—5, adequate lighting at night—5) = 5
Activity & liveliness and crowdedness = Average of scores (activity & liveliness and crowdedness—5)
Aesthetics = Average of scores (cleanliness—3.5, landscaping/visual elements—3, overall appeal—4) = 3.5

As discussed in Section 2.3, the weights for each indicator were based on the percentage of respondents identifying that particular indicator as most important in their decision to walk the FM/LM. This resulted in the indicators 'availability of pedestrian infrastructure', 'condition and quality of pedestrian infrastructure', 'route continuity and connectivity' and 'placemaking' receiving weights of 30, 15, 5 and 50, respectively. The indicator 'placemaking' got a very high weight since a large number of users identified safety & security and activity and liveliness as very important, both of which are sub-indicators of 'placemaking' in this study. The scores indicated in Table 3 are multiplied by the corresponding weights of each indicator to obtain station-wise weighted scores for each indicator. The weighted scores, along with the final index, the share of walk trips for LMC and the average trip length of walk trips observed at the respective case study stations are shown in Table 4.

From Table 4 it can be seen that the stations VV (located in a university area) and CB (located in the CBD) top the chart in terms of overall pedestrian environment. It is interesting to note that while VV fares better in terms of

Table 3. Average scores of indicators for all streets surveyed around the case stations.

Indicators	CB	RF	N-15	DM	GP	MV	VW	D10	NCC	CP
Pi_1Availability	3	2.5	3	2.5	4.2	4	4.5	4	3.6	3.7
Pi_2Condition & Quality	2.2	2.1	2	1.5	3	3	4.5	3	2.5	3.5
Pi_3Continuity & Connectivity	2.8	3	3	2.8	4	3.2	5	3.8	3.5	3
Pi_4Placemaking	4.5	4.1	3.8	4	3	3	3.1	2.8	2.6	2

Table 4. PEI for the case stations.

Categories	Indicators i	Weight	CB	RF	N 15	DM	GP	MV	VV	D 10	NCC	CP
			Weighted Scores									
			Pi	Pi	Pi	Pi	Pi	Pi	Pi	Pi	Pi	Pi
Pedestrian Infrastructure	1. Availability	30	90	75	90	75	126	120	135	120	108	111
	2. Condition & Quality	15	33	31.5	30	22.5	45	45	67.5	45	37.5	52.5
	Overall Pedestrian Infrastructure		123	107	120	97.5	171	165	203	165	146	164
Route Environment	3. Continuity & Connectivity	5	14	15	15	14	20	16	25	19	17.5	15
	4. Placemaking	50	225	205	190	200	150	150	155	140	130	100
	Overall Route Environment		239	220	205	214	170	166	180	159	148	115
PEI_overall (Max Score 500)			362	327	325	312	341	331	383	324	293	279
$[\mathbf{PEI}]\mathbf{s} = \sum_{1}^{4} \mathbf{Pi}$ **[max: 100 pts]**			**72.4**	**65.3**	**65**	**62.3**	**68.2**	**66.2**	**76.5**	**64.8**	**58.6**	**55.7**
Walk share for FM /LM(in %)			82.9	67.3	52.4	51.6	46.0	41.6	41.3	36.1	15.4	9.4
ATL (Walk) for FM /LM (in km)			.76	.84	.80	.70	.76	1.18	.73	.71	1.26	.43

Notes: The station codes are given in Table 1 earlier; ATL: average trip length.

infrastructure availability, its condition and quality, route continuity and connectivity, CB, despite not faring well in these respects, gets a very good overall score solely on account of its placemaking features. The difference in the pedestrian environment of these stations can be seen in Figure 4 and Figure 5.

Stations such as CB, RF and DM score better in terms of 'placemaking' because the range of activities, eyes on the street and the overall liveliness of the place contribute to a sense of safety & security and activity & liveliness to the areas, which are very important for creating conducive walking environments. The first two stations, CB and RF, are located in the CBD area of the city and have different types of retail and wholesale commercial and tourism activities. The stations lie in the heritage area (Shahjahanabad walled city) of Old Delhi, known for its rich cultural heritage, both of a tangible and intangible nature. It is a high intensity activity area with high resident as well as floating population. The area is lined with narrow winding lanes and closely-packed built mass, originally designed for non-motorised traffic. The many principles underlying 'placemaking' are inherent to the area: mixed use activities, the main street as well as the by-lanes with active frontage or buildings with no front setbacks abutting directly onto the streets, a variety of activities taking place on the streets as well as in the buildings along the streets. The station DM, despite not being in the CBD area, also fared well in terms of 'placemaking' because it has a tight built mass with small block lengths, small front setbacks and a host of formal and informal activities happening along its streets. However, these three stations lose out on the aspect of aesthetics, cleanliness and infrastructure quality.

The last two stations, NCC and CP, which are located in the automobile fabric, also throw some interesting results. A comparison of the walk mode share of these two stations indicates that the station with a higher walk mode share fares better in terms of 'placemaking' and overall route environment, despite scoring lower on the pedestrian infrastructure component.

3.3. Model Results

A bi-variate regression analysis of the DV mode share (of walk) was carried out with each of the IVs, which included scores of each of the two broad categories, 'pedestrian infrastructure' and 'route environment', and the scores of the sub-categories, namely, 'availability', 'condition and quality', 'continuity and connectivity' and 'placemaking', respectively. The model results are indicated in Table 5. 'Overall pedestrian environment', 'route environment' and 'placemaking' were observed to be significant, $p < .05$. Although regression with IVs pedestrian infrastructure 'availability', pedestrian infrastructure 'condition and quality', exhibited low/moderate correlation, they were statistically not significant.

There is a moderate ($R^2 = 0.40$) relationship between walk share and overall pedestrian environment. Interestingly, route environment is found to be significant with a much higher correlation with walk share in contrast

Figure 4. Streets adjoining the VV metro station. Good pedestrian infrastructure, aesthetics and overall cleanliness at the station and in the adjoining streets, but long desolate stretches, lack of visual access from adjoining land uses, large setbacks, long block lengths, very low level of activity and liveliness lower the 'placemaking' scores. Photos credit: Anshika Singh.

Table 5. Models summary.

Model	DV	IV	R^2	ANOVA (P value)	Coefficients	Intercept
1	Mode Share (walk)	Overall Pedestrian Environment	0.4	.05	0.45	−104
2	Mode Share (walk)	Route Environment	0.89	.000	0.55	−55
3	Mode Share (walk)	Placemaking	0.89	.000	0.53	−42
4	Mode Share (walk)	Pedestrian Infrastructure	0.35	.093	−0.48	112

to pedestrian infrastructure availability. A high linear correlation is observed between walk share and route environment ($R^2 = 0.89$). This exhibits the importance which pedestrians in cities of the developing countries attach to the route environment over pedestrian infrastructure availability.

Further, within the route environment the indicator that impacts walk share the most is placemaking. A high linear correlation was observed between walk share and placemaking ($R^2 = .89$). Continuity and connectivity exhibited a low linear relationship and was not statistically significant. The sub-component, pedestrian infrastructure, in fact, exhibited a low negative linear correlation ($R^2 = 0.35$) and was also not statistically significant, $p < .1$. The reason for this, probably, could be explained by the fact that stations (selected as case studies) that had a very high share of walk had poor infrastructure, yet their route environment was exceptionally good. These stations also had a relatively higher activity density.

4. Conclusion

The study indicates that walk is the predominant mode for LMC to/from transit stations located in walking and transit urban fabrics, with a higher share observed in the former. It is also seen that some stations show a comparatively higher share of walk despite being located in a similar urban fabric. All such stations with higher walk shares, within the same urban fabric, exhibit better performance with respect to placemaking. This is true for stations located across all the three—walk, transit and automobile—urban fabrics.

Figure 5. Streets adjoining the CB and RF metro stations. Active frontage, minimum or no front setbacks, a range of continuous formal and informal activities, mixed land use, low vehicular speeds and well-lit pedestrian paths add to the 'placemaking' quality; however, poor aesthetics, infrastructure and lack of cleanliness reduce their overall scores. Photos credit: Nitin Sankhla and author.

The pedestrian environment variables with the most significant influence on walk share were observed to be route quality and its indicator, placemaking. The other indicators of PEI, namely, infrastructure availability, infrastructure condition and quality as well as route continuity and connectivity, exhibited low/moderate correlation and were statistically not significant. Placemaking, which has sub-attributes such as safety & security, aesthetics, liveliness and activity (a manifestation of activity density) has a significant influence on the user's decision to walk the LM in contrast to just the presence of infrastructure.

The findings of this study are corroborated by other studies undertaken on walkability across various disciplines. Researchers in health and urban design have found pedestrian safety and pleasant conditions to be major factors in determining physical activity levels and in encouraging walking (Boarnet et al., 2005; Brown et al., 2007). The presence of street crossings, attractive landscaping, tree cover and signalisation (Agrawal et al., 2008; Cao et al., 2007), as well as aesthetic or safety features, such as cleanliness, interesting sights and architecture (Appleyard, 1982; Gehl, 2011), have shown higher levels of walking in adults and children.

Further, researches in transportation are also in sync with this study's findings. Shay, Spoon and Khattak (2003) note that measures of accessibility, aesthetics, connectivity and safety are elements that may increase walkability. However, they also observe that the specifics are still open to debate. For instance, while there is general agreement that the provision of sidewalks will improve walkability, there are a host of sidewalk variables that may be important: connections to surrounding destinations, crosswalks, safety features, width, surface quality, lighting and more.

There is enough conclusive evidence indicating that a better pedestrian environment encourages higher levels of walking. In light of the above findings, it is important that the aspect of placemaking is taken more seriously by planners and metro agencies while drafting their plans for improving the LMC of transit hubs. Most metro stations have considerably good pedestrian infrastructure within the station precinct; however, these need to be extended beyond the station precincts to the catchment areas of the stations. Enhancing walkability around stations needs to be dealt with through a multi-pronged approach. Stations located in the walking fabric, especially in the cities of the developing world, intrinsically possess several elements of placemaking and have a tremendous potential to translate to great streets through focusing on enhancing the aesthetics and infrastructure. However, for stations that are not located in the walking fabric, conscious placemaking interventions become crucial for imparting a better feel of safety and security to walkers. The focus in these areas, even more than, perhaps, infrastructure provision, should be on the application of the concepts of new urbanism for better placemaking.

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Conflict of Interest

The author declares no conflict of interest.

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Article

Revisiting the "Model of Place": A Comparative Study of Placemaking and Sustainability

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Abstract
The literature on sustainability policies and placemaking strategies reveals the inadequacy of both concepts to address current urban issues suggesting the need for new approaches. Sustainability researchers and policy makers are seeking an integrated approach to sustainability within which placemaking is a powerful tool in achieving sustainability goals. However, despite this rising awareness of place and its value, there is growing concern that the value of place and its urban meaning is declining. Placemaking appears to have changed from being an authentic everyday practice to a professional responsibility, and the understanding of the intangible character of place is mainly lost in the modern making of places. The emphasis of designers on physical design attributes assumes a fragile model of causality, underestimating the other necessary components for placemaking—behaviour and meaning. Comparing models of sustainability and place, this article suggests that there is need for a shift from the current model of placemaking towards a strong model of progress and balance in creating quality places. The article also describes the implications of the new model for design practice and how it could be used with the goal of achieving both placemaking and sustainability visions.

Keywords
community building; model of place; place; placemaking; sense of place; sustainability

Issue
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1. Introduction

Over the last few decades awareness of sustainability has increased significantly among governments, industry and the general public. Policymakers worldwide have sought to incorporate sustainability considerations into urban and industrial development. However, evidence from climate change science, a decline in public health, and an affordable housing crisis in several developed countries make it clear that recent development paths are not achieving the goal of sustainability (Myrick, 2011). Earlier Adams (2006) saw the problem lying in the dependence of the current paths to sustainability on natural science and economic issues. He argued these approaches to sustainability lacked emotion and ignored the citizen. However, both then and since others have argued that although there is nothing wrong with such—aspirational values of sustainability, most definitions are too loose to drive effective change on the scale required (Donovan, 2017; Fiksel, 2006; James, 2015), especially given the Food and Agriculture Organisation of the United Nations claimed the world had 60 harvests left.

Placemaking is also receiving more attention in the search to identify a more defined and human centred tool that could help to find a path to being much more sustainable (Donovan, 2017; Myrick, 2011). Both sustain-

ability researchers and policy makers are looking for an integrated approach to sustainability within which placemaking has been identified as a powerful tool in achieving sustainability goals (Donovan, 2017; Marsden, 2013; Myrick, 2011). New concepts of sustainability seek for a process that engages the community in the design process, while concurrently aiming to achieve sustainability goals at a more manageable scale. For example, Marsden (2013, p. 215) argues that because sustainability solutions are essentially based on the climate and resources of each particular location there is a need to create sustainable places. This article argues that such creations also need to deal concurrently with placemaking.

The term placemaking has appeared as one of the main visions in many city design guidelines (City of Adelaide, 2018; City of Victoria, 2012). Around the globe organizations are also advocating for placemaking, examples being the Project for Public Space (PPS; 2018), tactical urbanism (Lydon & Garcia, 2015), and temporary place activation (Bishop & Williams, 2012). These initiatives have also created much debate and discussion on the necessity of having community participation. In recent decades the latter, which has been claimed to be a core part of placemaking (Kalandides, 2018; Strydom & Puren, 2013), has gained in popularity. However, despite this rising awareness of place and its value, placemaking appears to fail to create meaningful places (Arefi & Triantafillou, 2005; Inam, 2002). Placemaking projects have been criticized as being a set of visual aesthetics that are replicated everywhere, and that reflect uniformity, standardization, and disconnection from the context (Corkery, 2016; Crommelin, 2016). Instead, placemaking process should be based on identifying needs and issues, and local community assets and capacities in order to allow for community engagement (Arefi, 2014) and hence the creation of meaningful places.

This article argues that the need for place-based design as raised by different disciplines is a clear indication that the current version of placemaking has been diverted from its original meaning and purpose. It begins by reviewing the evolution of models of sustainability and placemaking and their similarities and differences. It argues that if placemaking is to be a tool with which to achieve the goals of sustainability there needs to be a shift from the current model of placemaking towards a well-balanced model that more represents its original concept. This model implies a revolution of thought in the way experts currently study and involve themselves in placemaking practice.

2. Placemaking and the Evolution of Urban Design Thinking: The 19th and 20th Century

2.1. The Visual Artistic Tradition

Placemaking is as old as human civilization as people have always found ways to make their places meaningful (Crowe, 1995; Heidegger, 1971; Schneekloth & Shibley, 1995). However, placemaking as practiced today only dates back to the late twentieth century and can be viewed as the evolution and synthesis of two main traditions of thought—the visual-artistic and the social-usage (Carmona, 2010; Jarvis, 1980). While the former focuses on visual forms, the latter puts emphasis on people's use and experience of a place. This distinction in these two main streams of thought can be seen in current placemaking practice (Arefi, 2014). In this section, different traditions of thought and the concepts and theories that have influenced them are described, as a means of revealing the origin of the concept of placemaking.

In Greek philosophy, place is the foundation of everything, there being no separation between place and existence, as to exist means to exist in a place (Aristotle, 384–322 BC). However, it was not until the late 19th century that place became associated with a philosophical concept, mainly through the work of Heidegger (1889–1976) and his notion of dwelling (Cresswell, 2009). In Heidegger's view, dwelling is a representation of the way people make the world meaningful. Indeed, Heidegger's theory tries to bridge the gap between subject and object. This view affected the future work of human geographers who went on to develop the concept of place. Before then spatial science had looked at the world and the people in it as objects rather than subjects (Cresswell, 2009). Since the late 19th century the visual artistic tradition in urban design, although not directly influenced by a specific view of place and more driven by theories of aesthetic perception and the spatial presentation of art in urban design, concentrated on the visual qualities and aesthetic experience of an environment. In doing this it failed both to reference people's activities and discuss the public perception of places (Carmona, 2010). The aesthetic appreciation of the environment is a product of each person's perception and cognition, or how they judge and feel it. Different visual qualities stimulate different feelings for the viewer. For example, contrast can stimulate delight and interest (Cullen, 1961, p. 9). Sitte's (1889/1986) *City Planning According to Artistic Principles* and Cullen's (1961) *Townscape* were two influential publications that supported this tradition. Sitte (1889/1986, p. 30) even claimed spaces should be arranged based on visual experience.

2.2. The Social-Usage Tradition

The years between 1960 and 1970 saw the development of the rational view of space in reaction to the absolute view. Behavioural geographers who looked to psychology stated that space was not an object and that the mental process of each individual shaped their understanding of space (Kirk, Lösch, & Berlin, 1963). Since the 1970s place has been conceptualized as a location that has acquired a set of meanings and attachments (Cresswell, 2009). Human geographers (Relph, 1976; Tuan, 1977) have increasingly turned to ideas that concern the sense of place. For human geographers, place acquired mean-

ing through lived experiences. They put less emphasis on the physical location and more on relationship between people and the environment. Relph's (1976) relational view of place saw it not as a bounded territory but as a unit that was shaped by its social, cultural, and economic context. For him, sense of place arose from human feelings and their interaction with physical spatial elements. Earlier, Barker (1968), from the field of ecological psychology, had introduced the concept of behaviour setting. Behaviour setting included a physical pattern (the milieu), and a standing pattern of behaviour (a recurrent behaviour of a group, such as a football game or a piano lesson) that worked as a unit in a period of time. Later, this approach led on to using observation to understand people's preferences and was adopted by urban designers as a method of studying a place (Gehl, 1987; Whyte, 1980). Around the same period of time in the urban design field, the reaction against the creation of new locations which were mostly mono-functional (Jordaan, Puren, & Roos, 2008) led to a move towards the theories emanating from human geography in order to understand the problems modernism had created for the city. The social usage tradition of thought emerged from this concern about placelessness. It focused on how people use space and became two strands of thinking. The first had a focus on the psychology of place and the second on activity and the quality of place.

Looking at these two strands in more detail, the first stated people rely on their senses and internal guidance to help them define places as safe, comfortable, and quiet, while recognising that spaces need activities. Alexander, Ishikawa and Silverstain (1977) and Lynch (1960) claimed a person's image of the city was related to memories and meaning. This tradition was mostly focused on how people gathered information through their senses and how in turn this information was then assimilated in a cognitive process (environmental cognition). The underlying idea was that in order to understand the environment, people connected individual symbols in the form of a cognitive map. As (Rapoport, 1982, p. 68) explained "meanings are attached to both the physical and the social environment, and are represented as such in their cognitive maps". In his study, Lynch (1960) showed how environmental meanings were spatially represented in the form of edges, nodes, paths, districts, and landmarks. In contrast to the visual tradition, instead of examining the physical form, Lynch believed it was necessary to study perception and mental image. In *The Phenomenon of Place*, Norberg-Schulz (1996), who was partly influenced by Heidegger (1971), reintroduced the concepts of character, identity, and spirit of place. He established a strong link between the distinctive sense of place and genius loci. In the second strand of social-usage thinking, pioneers like Jacobs (1961), Whyte (1980), and Gehl (1987) placed more emphasis on activity, stating that places were meaningful because of the activities that took place in them. Where the quality of spaces was poor the social activities declined or disappeared. They believed the level of activity both produced and mirrored the quality of the built environment (Montgomery, 1998).

2.3. Placemaking

Placemaking has attempted to synthesise both traditions. Here, the meaning of the environment has led to attachment to a place. Physical space, sensory experience, and activity making should be combined to produce successful space. This is more a balanced view of placemaking that also put emphasis on the process. These traditions of thought had interrelationships and overlaps and suggested a broad and complex framework for the effects of quality of environment on the social aspects of quality of life (Figure 1).

Since 2000, the community-based design approach to placemaking has gained in popularity. In urban design literature Whyte (1980) and Jacobs (1961) are often mentioned as the pioneers of the placemaking movement, although neither used the term placemaking in their publications (Relph, 2016). Relph (2016) argued that much of the current enthusiasm for placemaking seemed to stem from the work of Schneekloth and Shibley (1995), who reintroduced the concept of placemaking and claimed that placemaking was not just a relationship between people and places but also the way to create relationships between people and places (Schneekloth & Shibley, 1995).

2.4. Industrialisation, Globalisation, and Placemaking

Schneekloth and Shibley (1995) provided a broad definition of placemaking. To them placemaking included all the ways human beings transform the places where they live. It encompassed cultivating land, planting gar-

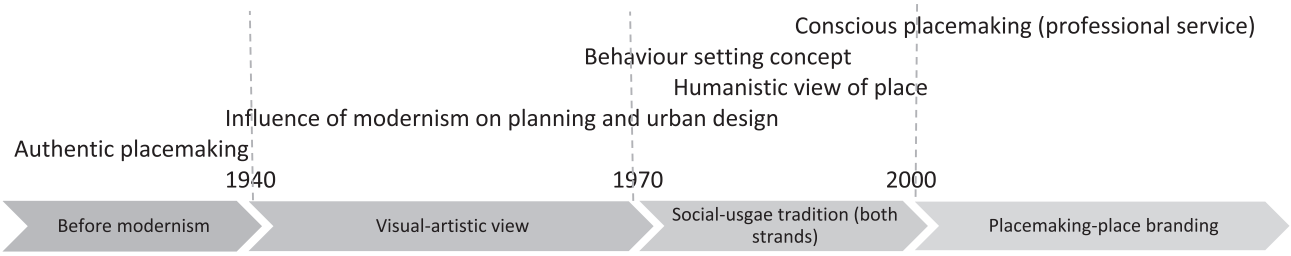

Figure 1. Evolution of urban design thinking. Dates are only approximate as there is overlap between them. Source: authors.

dens, the everyday acts of renovation and maintenance, and making neighbourhoods. However, since design and planning have been assigned to professional placemakers (Figure 1; e.g., landscape architects, urban designers, urban planners, and architects), it seems much of the ability to create meaningful places has been lost (Arefi & Triantafillou, 2005; Inam, 2002; Schneekloth & Shibley, 1995). The prevailing model of recent design strategies for places based on the approach of expert-users is mostly focused on place as a visual end product (Rozentale, Jong, & Kinasts, 2015). Planners tend to think about urban problems in physical terms and attempt to address such problems in a rational way. The result is a product with specific elements that are claimed to be the answer to a complex problem (Arefi & Triantafillou, 2005). In this industrialised structure of planning and placemaking, experts deliver the product to the agent who commissioned the work (Rozentale et al., 2015). The allocation of work to such a small group of people (designers) essentially disables others, such as the local community, something that had been recognised many years previously (Francis, 1999; Schneekloth & Shibley, 1995). The conscious attempt of designers to create a sense of place can "easily end up as manipulative corporate formulae or nostalgic ideologies written rather literally into space" (Dovey, 2010, p. 3). This seems to stem from reducing the understanding of place to the study of physical setting, form, and morphology. The understanding of the intangible character of place so that residents will associate with it, has mostly been lost in the modern making of places. Simply relying on expert opinions will not lead to an understanding of the meaning of place, which instead needs a long term study of the experience of its residents in order to create the story of the place, as the meanings people assign to their environment are not easily detectable by an outsider (Arefi & Triantafillou, 2005). Most current community consultation in the design process has been made mandatory by the local council. Healey (2007, 2012) has argued that although this does not prevent public consultation, it has only led to a minimal standard of socially inclusive decision making.

Globalisation also affected the practice of placemaking. In most placemaking projects, standardized landscaping and applying what is often referred to by designers as best practice to different locations without incorporating local knowledge and involving local people, has led to a decline in the sense of place and social capital in urban areas (Arefi & Triantafillou, 2005; Inam, 2002). The technique, model, or policy related to a recognised set of benchmarks has been applied to another setting to achieve the same desired improvements (Beza, 2016). In this transition, the social context of the new setting has usually been overlooked, and the designer has only transferred a set of designs focused on aesthetic outcomes. For example, flowing the decision to use tactical urbanism as a temporary solution in the city, Placekit (Figure 2) which is a set of modular planters and seating, was introduced in Auckland, New Zealand. The set was designed in collaboration with New York's Street Plans Collaborative and has been used in various locations in the city for temporary place activation or creation of spaces. Although, it is an interesting concept, it suggests the belief that one solution does fit everywhere. This raises the question of how well these global solutions fit with the local context and how much the local community care about them.

In the context of globalisation more cities have been competing to attract creative talent. Place branding (Figure 1) and focusing on talent attraction and retention has in turn led to gentrification (PPS, 2013). Places have been competing to draw creative people, based on the argument that the place will benefit from the cut and paste of lifestyle, cafés and artesian markets. PPS (2013) argued that neighbourhoods need to define their own priorities and discover their own local opportunities instead of bringing in foreign talent. This suggests the need for a different approach to and view of place-

Figure 2. Placekit, is an example of using global solutions for local issues. Only few weeks after installation, the plants dried out, no local community of care existed amongst the businesses and residents living on the street to support the success of the installation and the Council agency didn't follow through to maintain the planters in support of a care for place.

making, which sees place as a physical setting inseparable from its social, cultural, and meaningful context. There is a need for a model that empowers the community and engages them in all stages, from identifying local opportunities, to development of place, and its maintenance (Dempsey, Smith, & Burton, 2014; Nettler, 2013; Schneekloth & Shibley, 1995).

2.5. Twentieth Century Models of Place

The common models of place are presented as three overlapping circles of activity, form (physical setting), and concept (image). Although stemming from different points of view, all models suggest physical setting, conception or image of space, and activity work together in creating a sense of place (Bishop & Marshall, 2014; Canter, 1977; Cresswell, 2009; Tuan, 1977; Relph, 1976; Stedman, 2003). Early on, a balance between these three components was seen as forming a sense of place, which in turn was fundamental for a place to be well used over time (Relph, 1976; Tuan, 1977).

Relph (1976) suggested the three components of place were physical setting, activities, and meaning. Canter (1977), as an environmental psychologist, considered action, conception, and physicality to be the three main elements for creating place (Figure 3). His model offered a more balanced view between the tangible and intangible attributes of place and showed that place was a consequence of the relationship between action (activity), conception (a person's perception), and physical attributes. Punter (1991) suggested another diagram for enhancing the identity of place that would be more useful for urban designers (Figure 4). Later, Montgomery (1998) reworked the diagram (Figure 5).

Although these models of place suggested the need for a balance between place attributes, there was no way of ensuring this would happen in practice. Earlier, Agnew (1987) coming from a social and political viewpoint identified the three components of place as locale, the setting in which social relationships are constituted, location, the geographical area encompassing the setting for social interaction, and sense of place, the local structure of feeling. In order to capture the meaning of place fully, he stressed that all these three elements should be taken into account. Thus, meaningful places would emerge in a social context and through social relations that were geographically located and at the same time related to their social, economic, and cultural surroundings. Only then would they give individuals a sense of place. Although, Agnew presented a more comprehensive view of place, through the emphasis on the social and geographic context, this model has not yet been fully considered or acted upon in urban design principles. The Marxist geographer David Harvey (1996) also wrote about social construct of place, disagreeing with the idea of place having fixed entities. It thus seems there are many ideas

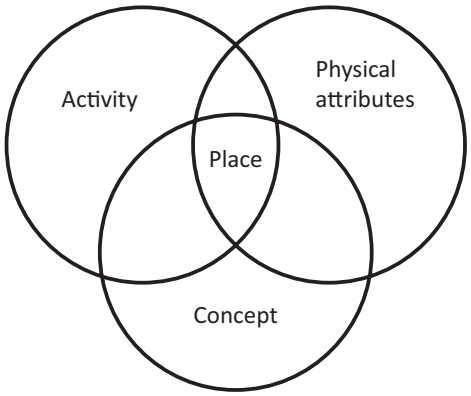

Figure 3. Canter's (1977, p. 185) model of place.

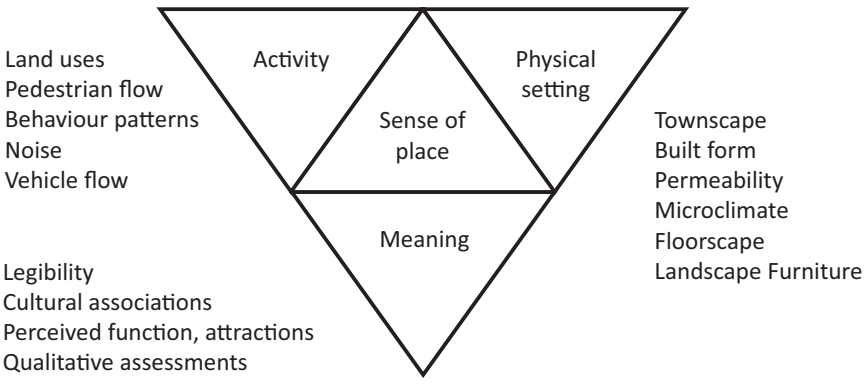

Figure 4. Components of sense of place (Punter, 1991, p. 27).

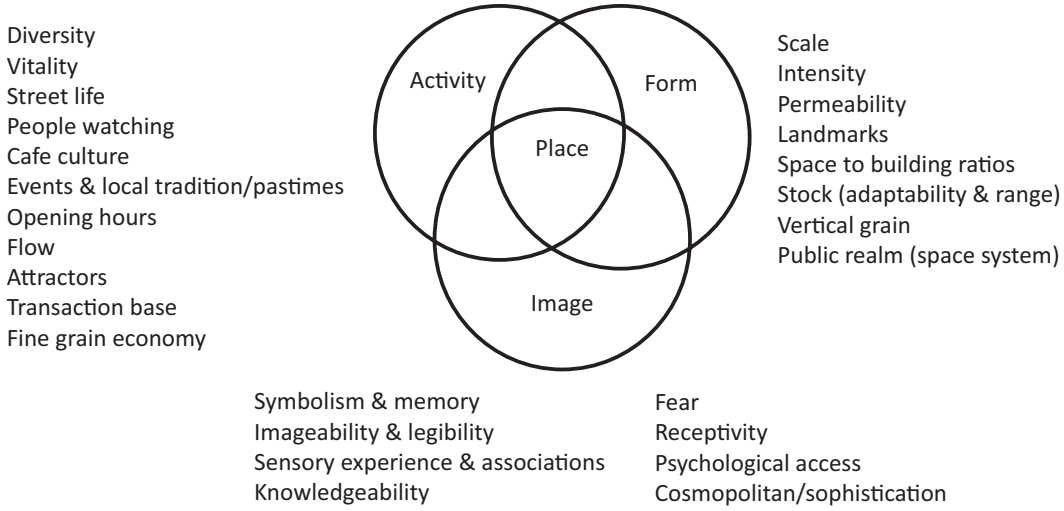

Figure 5. Policy direction to foster place making (Montgomery, 1998, p. 98).

about the theory behind placemaking, some building on each other, while others stemming from different disciplines emphasise different aspects. It is also clear that the model of place as incorporated by many in the urban design discipline has not been always practiced based on the concept of place as a social construct and a process.

3. Sustainability

Historically, human civilisation has been sustainable (Bovill, 2014) in the terms that humanity lived within the environment of the planet in a way that did not destroy its ability to sustain human existence, even given the changes that people made to it. McHarg (1992) considered the Renaissance as the turning point in the power of humanity over the land, when it rejected the cosmology of the golden age. In his view primitive society respected natural laws and was aware of the environment, this being intertwined in their religion and life, but after the 16th century, with the idea of palpable power, this rule began to be ignored and nature was seen as material to be used. In the 19th and 20th centuries human beings changed nature through using larger tools. The changes people make today and continue to make are unlike the changes people made in the past, as these did not have a global effect (McKibben, 1989).

The idea of sustainability as introduced by ICUN in 1969, and as discussed at the 1972 United Nations Conference in Stockholm, has later been seen as a way to achieve economic growth without environmental damage (Adams, 2006). At the time, the focus was on thinking about ways to extract more from the environment without destroying it beyond the point where it could continue to support human life on earth, this being termed sustainable development (World Commission on Environment and Development, 1987). In the view of that time, sustainable development was to be a process that integrated environmental, economic, and social considerations while respecting the fact that global resources were limited, and that this could affect the type of economy and the resultant lifestyle. However, this idea had consequences, as sustainable integration of environment, economic, and social goals implied change for many in the world.

Clearly, human perception of nature has changed over the years, being based on the belief of each individual, and being influenced by where they live, and their knowledge. Williams (1988) simplified these man-nature relationships into three main ideas: intrinsic in the 13th century, universal from the 14th century onwards, and exclusive nature from the 17th century, acknowledging that there was always an overlap. Intrinsic in this context is essence or the essential characteristics of a thing, viewing the environment as something separate from humanity, or the man-nature relationship. External nature is seen as the external, unmediated material world, nature that has not been touched by man. Universal nature includes all-encompassing force controlling things in the world like natural laws or Mother nature. Table 1 summarises attitudes to nature, including the modern idea of sustainability.

3.1. Sustainability Model

The three dimensions of modern sustainability (economic, social and environmental) have been represented three overlapping circles (Adams, 2006; Figure 6), which stressed the importance of the intersection between the three areas (Todorov & Marinova, 2009). Earlier Murcott (1997) claimed this model would not serve the needs of sustainable development, as it assumed one of the three aspects could be substituted for another, whereas if the environment were damaged beyond the point where it could sustain human existence, this must mean the model was faulty. This has normally been called the weak model of sustainability. In contrast, in the strong model the environment is more important and encompasses both society and the economy (Vale & Vale, 2009). In

Table 1. Different views of nature. Source: authors.

	Perception of nature				
Period of history	Intrinsic nature	External nature	Universal nature	Awareness of power to change	Working with nature
Hunter gathering			x	Low	High
Greek thinking	x			Moderate	High
Renaissance thinking		x	x	Moderate	Moderate
Modern thinking		x		High	Low
Sustainability theory	x	x	x	High	High

this model maintenance of the environment function is essential for the life of an ecosystem. Sustainable development is thus development that synchronises and harmonises economic, social, and ecological processes (Todorov & Marinova, 2009; Figure 6).

3.2. Sustainability and Placemaking

Reed (2007, p. 674) argued that current sustainability practices were based on doing the same thing more efficiently to reduce the damage done to the planet. He encouraged designers to go beyond this and base their design on the health of the ecological systems involved. He used the term "regenerative design" as a place-based design process that emphasised engagement with all stakeholders (people, biotic systems, the earth as a system) in any design intervention as the path to sustainability (Reed, 2007, p. 677). He then argued that place-based engagement could be a way of managing global scale issues like global warming and the need to change energy use and generation. Like some placemaking theories, this puts the emphasis on working with the local, so making a connection with placemaking could be a significant opportunity for forwarding the move towards sustainability. The Sustainable Places Research Institute (Marsden, 2013) put forward this idea using the term "sustainable placemaking" to emphasise the current lack of what they describe as active and engaged placemaking, which integrates communities, ecologies and economy:

> Therefore, that one significant scholarly opportunity for sustainability science is to embrace concepts of contingent and contested 'placemaking'; whilst one equally significant challenge for the human geography and planning community is to embrace 'sustainable placemaking' as a central feature for development. (Marsden, 2013, p. 214)

Marsden (2013) also argued that in order to move toward sustainability a model of placing making is required that would bring the energies of the community and nature together. This again raises the question of whether the current placemaking model could support a move toward a more integrated approach to tackling the current issues facing cities, including the need to be part of a sustainable society.

4. Conclusion

Both sustainability and placemaking are terms that are perhaps overused, and without being comprehensively understood. While the concept of sustainability has been revised through introducing new models and promoting integrated approaches, placemaking practice has yet to

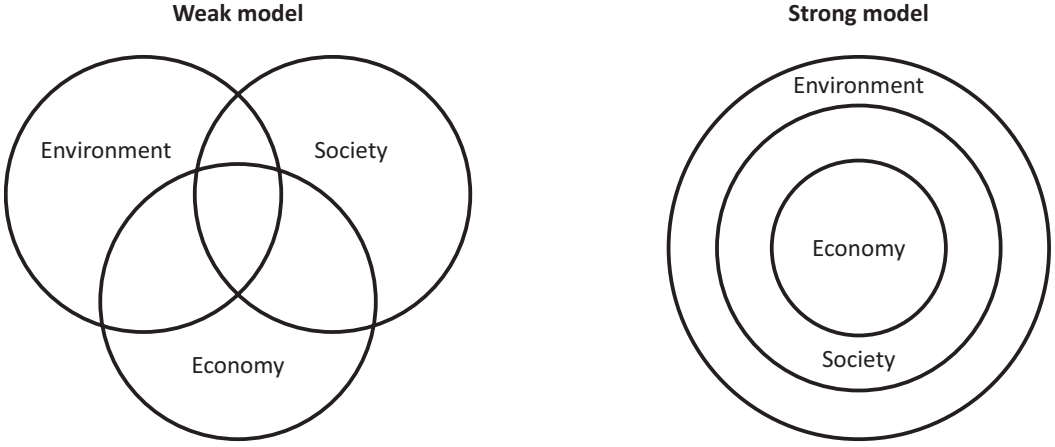

Figure 6. Weak and strong models of sustainability.

respond in a similar way. The current model of place as used by most designers remains a psychological or geographical definition and is yet to be updated to the more recent concept of place as a process and social construct. The review of attitudes to sustainability and placemaking reveals significant similarities between two concepts. In fact, new views of sustainable development bring these two concepts even closer together.

Meaningful places which are recognized as having a sense of place depend on achieving a balance between several criteria and not just on the physical design of the space. Of equal importance are what happens in that space and how this leads to a set of memories that invest the space with meaning. Here a useful comparison can be made with the theoretical models of sustainability. In these, there must be a balance between the three issues of environment, society, and economy. Sustainability will not be achieved by preservation of the environment alone, even if this were possible. Equally, sustainability will not be achieved unless the economy is in balance with what the resources of the planet can sustain. Moreover, society must change in response to this need for balance. It is not possible to continue 'business as usual' and think this will lead to sustainability. Equally, this balance is also always changing. Sustainability is not a fixed state but a goal of all humanity living within the resources that the planet's ecosystems can provide, which will change as nature changes over time. The current models of place have interesting similarities with the weak model of sustainability, which suggests that sustainability occurs at the overlap, or integration point of economy, society, and environment. However, as discussed above, the weak model of sustainability is not a true reflection of the meaning of the word. Could there, therefore, be a nested model of placemaking, similar to the strong model of sustainability?

By referencing Canter's (1977) balanced view of place and Agnew's (1987) definition the authors propose a nested representation of place as below (Figure 7). Such a model would see meaning nested within social context and social context nested within physical setting.

As Aristotle believed, location is both the basis of place and of being sustainable in that place. The definitions of both placemaking and sustainability emphasise the importance of location, as this is where the process of place production happens, based on the local ecology and landscape. For a place to be balanced and in harmony with its context, it is important to be a fit with its physical setting. Physical setting is where social interaction, policy, power, and the resultant economy can define people's relationships with each other. Placemaking is not just about physical making, remaking, and unmaking of the material word (Schneekloth & Shibley, 1995), but is rather an inextricably intertwined knot of spatiality and society. Meaning and sense of place is the core of place (Agnew, 1987; Relph, 1976; Tuan, 1977). It is through connection with each other and the local ecology that people assign meaning to the environment. This may well be the hardest point to reach, but it is an essential of sustainable placemaking. While the current model of place introduced by Canter (1977) represents a balance between the elements of place it does not support sustainable placemaking, as its element can be substituted for each other.

The model of place as a set of nested attributes aligns with the integrated ideal of sustainability, calling for place-based design that engages with its local community. While any changes need to be cognisant about the physical setting, the social interaction and meaning of place also play a crucial role in creating places that people are attached to, and in the choices, they make regarding the environment where they live. Sustainability is a very broad concept that mainly focuses on the global or national scale rather than the local. However, sustainability projects must be grounded in human experience, hence socially sustainable projects must begin by reimagining the place-bound connections between the big and the small (Donovan, 2017). This is the area

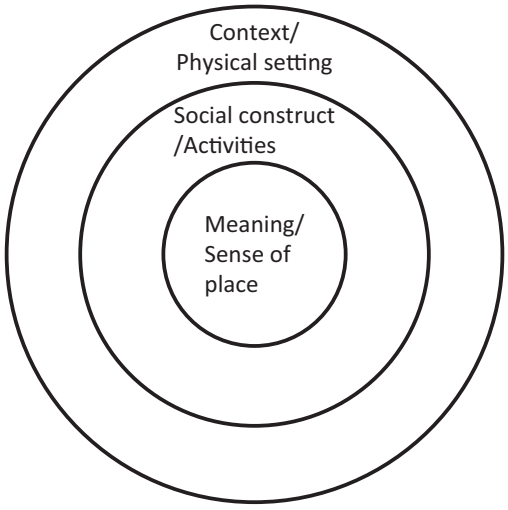

Figure 7. Proposed strong/nested model of placemaking. Source: authors.

where placemaking coincides with moving towards sustainable living.

The suggested model has two major implications for placemaking practice. First, meaning and sense of place are core to placemaking and should be the fundamental drivers behind all placemaking projects. Any physical intervention is a tool to add in understanding, retaining, or strengthening people's connection with place. This is in contrast with the current process of placemaking that puts physical change at the heart of the process in the belief that places will continue to be used and loved and will remain active in the long term (PPS, 2013). The second implication is that the focus should be on the local scale, just as place has always been bounded by its location. Although the static sense of place that comes from the humanistic view has been criticized, there is no doubt that building community, liveable neighbourhoods, and cared for and active public spaces is only possible if local people make connection with the place. The more people are attached to the place and ascribe meaning to it, the more they would come to concern themselves with the environmental challenges in their surroundings. If it is obvious that what sustains life comes from the immediate location, then the instinct is to care for that location to make sure that it can continue to sustain life. This could be a fundamental in moving to sustainability, just as it could be fundamental in creating places that have meaning for people. However, the local community has to be engaged with such changes, and this is the challenge for both sustainability and placemaking.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

Maximising the Degree of User Choice: A Simple Tool to Measure Current Levels of Quality of Life in Urban Environments

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Abstract
In this article, we present a simple methodology based on Max-Neef, Elizalde and Hopenhayn (1991) "human scale development" paradigm to measure current levels of Quality of Life (QoL) for urban environments. In this procedure, fundamental human needs form the study domains. We assess their fulfilment with a set of questions reflecting the subjective dimension of QoL. We sort questions into needs after two consecutive processes: a qualitative one involving local communities and/or expert groups, and a quantitative one involving the definition of weights for each question and per need. Complementarily, we add objective indicators to reflect the objective dimension of QoL. This way, we make possible a comparison between the two dimensions and a definition and computation of an integrative QoL. We argue that this method can be used to define more holistic urban quality indexes to improve decision making processes, policies and plans. It can also be seen as a tool to enhance bottom-up approaches and processes of urban analysis to create more liveable places for the dwellers.

Keywords
human scale development; integration; need satisfaction; quality of life; urban environments

Issue
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1. Introduction

Urban environments have traditionally attracted people as they offer a wide choice of positive stimuli and opportunities for housing, work and leisure (Bonnes, Scopelliti, Fornara, & Carrus, 2013). This attraction has led to the creation of big urban settlements that accumulate today 55% of earth's total population, a number that is expected to grow up to 68% in 2050 (United Nations, 2018). The present worldwide trend toward urbanisation is intimately related to economic development and to profound changes in social organisation, land use and patterns of human behaviour (Angel, Sheppard, & Civco, 2005). The demographic scale of these changes is unprecedented (Berry & Okulicz-Kozaryn, 2009; D'Acci, Haas, & Bardhan, 2016) and will lead to important but still partially understood impacts on the global environment.

An increased number of negative—and potentially occurring—aspects of urban living can be identified. Examples are road traffic noise, poor air quality, high temperature and crowding, to name just a few. These sources of environmental stress have various physical and psychological consequences, including health-related problems, annoyance, negative emotions and diminished cognitive functioning (Bilotta & Evans, 2013; Bonnes et al., 2013). In addition, environmental stressors can negatively impact social behaviour (Moser, 1988; Page, 1977). For example, noise and crowding may increase avoidance reactions and aggression and

decrease prosocial behaviour (Regoeczi, 2003). It seems thus clear that the continuous accumulation of the population in cities worldwide, along with uncontrolled urban sprawl, is leading to degraded urban habitats, seriously affecting the emotional and physical state of city dwellers (Costanza et al., 2007; Kennedy & Adolphs, 2011; Lederbogen et al., 2011; Moro, Brereton, Ferreira, & Clinch, 2008; Veenhoven, 2007).

However, the last few decades have witnessed a tendency to consider the increasing complex spatialities of the globalising world, including spatialities of power and changing identities (Paasi, 2008). Both the perception of citizens and the conception of planners (Lefebvre, 1974) on space have been changing slowly, mainly due to the increasing aforementioned environmental, social and economic problems encountered in urban conurbations. Although places are being seen both as progressive (open to the wider world) and regressive (self-enclosing, defensive, inward-looking, and reactionary; Antonsich, 2011), urban environments are being re-evaluated and reconsidered as valuable for health, social integration and well-being of the individuals (Townsend, Maguire, Liebhold, & Crawford, 2010). At the same time urban space is being seen as a material, constitutive element of daily life, economy, and politics (Martin, McCann, & Purcell, 2003), an unavoidable social product created from a mix of legal, political, economic, and social practices and structures (Lefebvre, 1974). In this sense, Quality of Life (QoL) forms a subject of increasing interest and several empirical studies have been developed in order to characterise, either by means of subjective or objective indicators, the links between QoL and urban societies (see Berry & Okulicz-Kozaryn, 2009; Easterlin, Angelescu, & Zweig, 2011; Marans, 2012; Massam, 2002; O'Brien, 2005; van Kamp, Leidelmeijer, & Marsman, 2003; Wenz, 1977, and references therein). It is then important to examine the relationships between the characteristics of urban environments and the perceived QoL of the residents. Following this rationale, this article introduces a method of measurement of QoL for urban environments, based both on the perception of people using the urban space and data on existing objective spatial indicators. To check the levels of QoL per domain, Max-Neef et al.'s (1991) conceptual framework on "human scale development" (HSD) is used.

This article is organised as follows. Section 2 presents a literature review on human needs, the HSD paradigm and QoL. Section 3 includes the methodology proposed for the compilation of data and the comparison and measurement of subjective and objective dimensions of QoL in order to achieve an integrative result. Section 4 corresponds to the discussion section. The article ends with Section 5, conclusions.

2. Literature Review

The "human development" concept has its philosophical roots in Amartya's Sen capability approach (Alkire, 2002b; Nussbaum, 2000; Robeyns, 2005; Sen, 1999). The conceptual swift towards this type of development with a human face was embraced by the UNDP report of 1990 entitled *Concept and Measurement of Human Development* (UNDP, 1990). It was a breakthrough to the mainstream thinking of development solemnly as economic growth. Although the capability approach has since became the reference point to all practical approaches regarding human well-being evaluation, in this article we will focus on the HSD approach. Their main differences can be found on the way they define dimensions (Alkire, 2002a), their philosophical bases (Schumacher, 1973), the terminology and meaning of main concepts (i.e., needs and satisfiers versus functioning and capabilities) and the evaluation schemes (Cruz, Stahel, & Max-Neef, 2009).

The HSD notion appeared for the first time in an article published by the Dag Hammarskjöld Foundation in 1986 (Max-Neef, Elizalde, & Hopenhayn, 1986, 1989). It was then suggested that the best development process would be the one that enables improvement in people's QoL, allowing people and their communities to be self-coherent within themselves (Max-Neef, 1986). The axis of this central thought is that HSD concentrates on, and is sustained by, (1) the satisfaction of fundamental human needs and the generation of growing levels of self-reliance, and (2) the construction of "organic articulations of people with nature and technology, of global processes with local activity, of the personal with the social, of planning with autonomy, and of civil society with the State" (Max-Neef, 1992, p. 197).

The HSD approach differs from other need theories popular in previous decades such as Maslow's (1954), the International Labour Office's (1976) and Streeten's (1981), mostly because of the utilitarian view observed within them (Cruz et al., 2009). Utilitarianism is known to be looking only at the individual level, favouring whatever maximises individual happiness as the best choice, and misleading the evolution of the satisfaction of needs in time, implying that more is always better. It promotes selfish decisions rather than collective ones (von Borgstede, Johansson, & Nilsson, 2013) and when a large number of people makes selfish choices, negative outcomes accumulate, creating a situation in which everybody would have been better off if they had not acted in their own interests (Dawes, 1980). HSD takes a different appreciation acknowledging that because of our common human nature, we must satisfy a set of fundamental needs—common to all—to maintain a rich and meaningful life. These needs can indicate at the same time both "deprivations and individual and collective human potential" (Max-Neef et al., 1991, p. 30). They are seen as "finite, few and classifiable" (p. 18), changing in a slow pace along with the evolution of our kind (Elizalde, 2003; Max-Neef et al., 1989).

The fulfilment of all needs is considered equally important since any unsatisfied or not adequately satisfied human need reveals a form of human poverty, hindering

happiness and therefore developing potential pathologies (Cruz et al., 2009). What changes over time and between cultures are the satisfiers of these needs. There is no one-to-one correspondence between needs and satisfiers: one satisfier may contribute simultaneously to the satisfaction of different needs or, conversely, a need may require various satisfiers in order to be met, and these relations are not fixed, they vary according to time, place and circumstance (Max-Neef et al., 1991). Each economic, social and political system adopts different methods for the satisfaction of the same fundamental human needs. In every system, needs are satisfied (or not satisfied) through the generation (or destruction) of different types of satisfiers.

QoL is directly related to obtaining the necessary conditions for happiness throughout a society (McCall, 1975). These conditions can be identified with the availability of means for the satisfaction of human needs rather than human desires, and any lack of them may lead to unhappiness. QoL represents how well human needs are met or the extent to which individuals or groups perceive satisfaction or dissatisfaction in various life domains (Costanza et al., 2007). It forms a multi-scale, multi-dimensional concept that contains interactive objective and subjective elements. Recent research in QoL focuses on either of these two elements to construct quantitative indicators (Veenhoven, 2000). But, if QoL is to embrace the totality of human life, then both, objective and subjective dimensions should be considered (Cummins, 2000) as much as the cross-level interactions between them (Berry & Okulicz-Kozaryn, 2009).

Previous research demonstrated that the relationship between variables measured within each dimension is complex. Especially, for the urban contexts it is shown that although relationships between objective and subjective indicators of QoL can be weak, care should be taken when making inferences about improvements in subjective QoL based on improvements in objective QoL (McCrea, Shyy, & Stimson, 2006). The combination of both objective and subjective measures towards an integrative QoL assessment enable the capture of a more holistic and effective image of the multiple social, special and temporal scales a place may have. QoL can then be related to the opportunities that are provided to meet human needs in the forms of built, human, social and natural capital (in addition to time) and the policy options that are available to enhance these opportunities (Mulder, Costanza, & Erickson, 2006; Vemuri & Costanza, 2006).

3. Research Methodology

We present the main steps of our methodology for the QoL assessment in Figure 1. The first four steps form the preparation process, the next two the classification and weighting process and the final three the final process toward an integrative QoL.

3.1. Preparation Process

We suggest starting from the definition of the place corresponding to the study case. Seeing this place as a system and defining its boundaries in terms of time, space, culture, history, etc., is essential for the second step of the methodology, the definition of the satisfiers. To do so, we should respond to the following question: what do we consider important to assess, focusing on the socioeconomic and geographical characteristics of our study case?

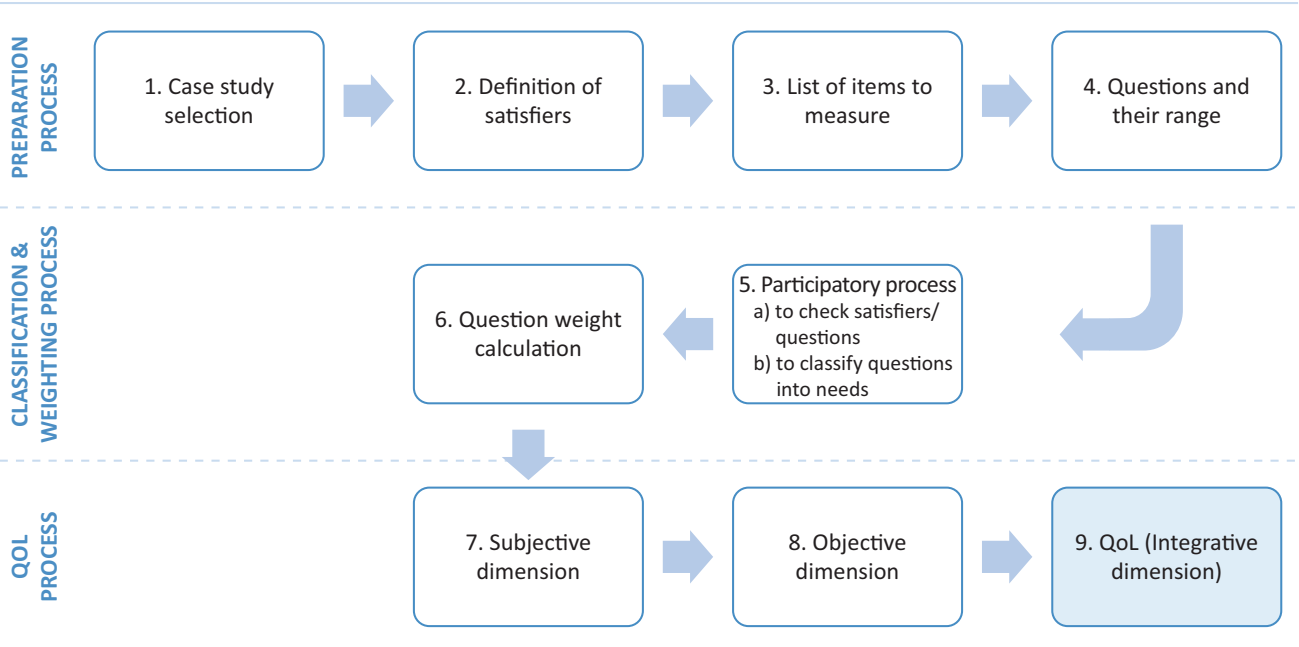


Figure 1. Methodology steps.

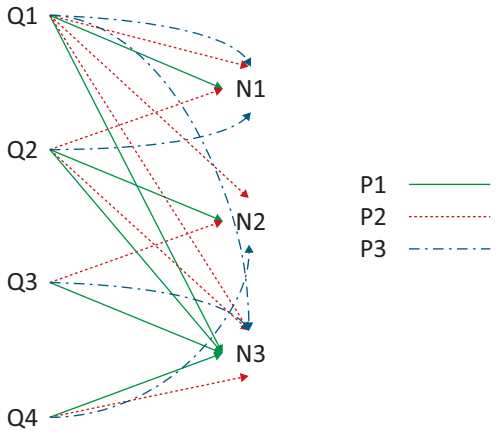
The satisfiers, whether of individual or collective nature, include all things that, by representing forms of being, having, doing and interacting, contribute to the realisation of human needs (Max-Neef et al., 1989). "Being" refers to personal or collective attributes (usually expressed as nouns related to the subject's intrinsic attributes as our biological constitution, character and values); "having" registers institutions, norms, mechanisms, tools that can be expressed in one or more words (i.e., exosomatic tools, laws and information); "doing" is related with actions, personal or collective, that can be expressed as verbs. And "interacting" refers to locations and milieus (as times and spaces) and the way people relate to and articulate their environment (Max-Neef, 1992).

After completing the list of the satisfiers we should ask ourselves what we would like to measure related to them. This list of items corresponds to step 3. We should also think of how we want to do so. The second question will give us the questions and their thresholds we will later incorporate in our survey to complete the subjective dimension (step 4). In Table A1 of the Appendix we include an example of some satisfiers with their items and questions.

3.2. Classification and Weighting Process

Steps 5 and 6 suggest a participatory process to (1) check if the satisfiers, items and questions are corresponding to the place selected as our study case, and (2) to classify and weight the questions inside each need. The process should involve the local community and/or experts. We will call them our study group. Their engagement depends on the study case: it could be the neighbourhood committee of a neighbourhood we would like to study, an interdisciplinary group of experts with special interest to these subjects, an emerging social group wanting to give life to a public space, etc. They shouldn't necessarily be the same participants of the survey, but people with knowledge of the needs of the place in question. We will focus here in point 2) which is more complicated. The main function of the study group is to classify the survey questions into the human needs. We have already mentioned that in this study we are building on the HSD paradigm (Max-Neef et al., 1991), taking into consideration the suggestions made by Costanza et al. (2007) on measuring QoL. We suggest the use of the axiological needs, corresponding to subsistence, protection, affection, understanding, participation, leisure, creation, identity and freedom. Protection is changed to security, as suggested by Costanza et al. (2007), and subsistence is considered within reproduction, being the latter understood as a part of the former. Spirituality/ transcendence is also included because of its importance, both in QoL studies and in the assessment as a need (Moberg & Brusek, 1978; O'Brien, 2005; Peterson & Webb, 2006; Van Dierendonck, 2011).

The matching of the questions to one or more needs is a subjective choice related to personal understanding and interpretation. Consequently, we should ask the study group to individually classify the questions to each need. The easiest way to do so would be to match each question only to one need, but, as questions may be related to more than one need, it is recommended to give the freedom of selection to the participants. The categorisation of questions performed by the study group implies a subsequent process of weighting, where the importance of each question in the definition of a need will depend on the aggregated results of all members of the study group. To clarify this weighting process, a hypothetical example is given in Figure 2, where a study group composed by three people (P1, P2 and P3) is asked to classify four questions (Q1, Q2, Q3 and Q4) into three needs (N1, N2 and N3). Regarding need N1, all three members of the study group consider it is assessed by question Q1, while only two of them consider that it is also assessed by question Q2. The question weight is the ratio between the number of people who considered that question (Q1) related to that need (N1), and the total number of people who considered a question (Q1 and Q2) for that same need (N1). In this case, the weights



Need	Question	# People	Question weight
N1	Q1	3	3/5
	Q2	2	2/5
N2	Q1	1	1/4
	Q2	1	1/4
	Q3	1	1/4
	Q4	1	1/4
N3	Q1	3	3/9
	Q2	2	2/9
	Q3	2	2/9
	Q4	2	2/9

Figure 2. Hypothetical example of correspondence of four questions (Q1, Q2, Q3 and Q4) into three needs (N1, N2 and N3) according to the perceptions of three individuals (P1, P2 and P3) belonging to the study group.

for questions Q1 and Q2 would be 3/5 and 2/5, respectively. In this sense, same questions may have different weights for different needs. For instance, bearing in mind the study group's classification of questions for need N2 in our example, all four questions would have the same weight corresponding to ¼, which is different from the weight assigned to them in assessing need N1 (i.e., 3/5 and 2/5 respectively).

If the number of questions is large, the study group may use the items (see Table A1 of the Appendix) for the classification or even work directly with the satisfiers.

3.3. Towards Integrative QoL

Step 6 points to the subjective dimension. To do so we start from the realisation of the survey, created using the corrected list of questions. It should be answered by a random and diverse sample of the target population related to the study case. It should be anonymous and may be completed both online and in person (Papachristou & Rosas-Casals, 2015b). The web survey mode is proposed because it has several advantages. It does not suffer from interviewer bias, and responders may feel more comfortable answering sensitive questions or moving through a survey at their own pace (Pearce & Ozdemiroglu, 2002). Moreover, a vast improvement in response speed over traditional mail surveys is widely reported and the financial expenditure (Wolfgang, 2002) and environmental impact of surveys on the Internet is smaller due to the elimination of postage, printing and data entry (Dillman & Bowker, 2002). The lack of any clarification of questions (MacKerron & Mourato, 2009) and the over-participation of responders with degrees in higher education, that tend to belong mainly to middle class and be more liberal (Brenner, 2002; Wolfgang, 2002) can be catalogued as some of the disadvantages of web surveys. Using only online surveys thus can cause some bias and may considered as non-representative. Therefore, the use of in-person surveys is also suggested by the authors. To complete this dimension, we should calculate the statistics regarding each question's answers. A good interpretation of the accumulated data may lead to the creation of a visual representative image of the sample and foresee in it what is missing, what goes wrong and what is affecting personal well-being (Papachristou & Rosas-Casals, 2015b).

Once the subjective approach is completed, the objective one should be added (step 7). It consists of adding related objective indicators and their values for every question of our list. After doing so, thresholds should be also added for every objective indicator (see Table 1). Although it is sometimes difficult for the researcher to obtain data at a local scale, depending on the available data source, actual final considered threshold values should be obtained in decreasing order from the local to the regional scale. Objective thresholds come also in decreasing order from established local, regional or world legal limits and regulations.

Generalised thresholds and norms do not always work for all (urban) environments, and should be adjusted to our selected study case: space, place and its residents' culture, habits, customs and traditions. And even doing so, subjective perceptions and thresholds do not always coincide with the objective reality, where thresholds are usually quantified under unbiased assumptions. This fact might influence QoL and the perception that people obtain from their surrounding space and environment, curtailing initiatives that would be otherwise beneficial. Consequently, objective and subjective indicators and their thresholds should be considered altogether to detect possible deviations (step 9). This can be done with a matrix (see Table 2), where columns are identified in the following way:

1. Need.
2. Questions, related to each need. Each need is assessed by means of a number *n* of questions. Same questions can be used to assess different needs (i.e., question 2 is included to assess need A and need B).
3. Question weight, includes the partial weight w_n as % of each question, following the weighting process conducted by the group of experts and/or the community (see Section 3.2). Recall that a need is related to a particular group of questions, and weights for these questions must add up 100%.
4. Subjective dimension of QoL measurement, with:
    a. Answer, expressed in terms of the highest satisfaction percentage (i.e., related to values 4 and 5 in the case of a 1 to 5 scale, or Yes in the binary case).
    b. Threshold, normally when more than 50% of the sample answers positively to a question.
    c. Satisfaction related to this threshold, identified with the binary variable b_n^S, showing whether the percentage of satisfied people is higher than the threshold (with a numerical value of 1) or not (with a numerical value of 0).
    d. Subjective score (S_N^S), for each need, and as the summation of the product of each question weight (column 3) by its satisfaction (column 4c).
5. Objective dimension of QoL measurement, with:
    a. Actual value of the item (i.e., current level of air quality, etc.).
    b. Threshold, being it an upper or lower legally admitted limit for a particular dimension (i.e., maximum levels of NOx concentration in ppm, etc.)
    c. Satisfaction related to this threshold, identified with the binary variable b_n^O, showing whether the current value of this dimension is lower/higher than the threshold (with a numerical value of 1) or not (with a numerical value of 0).

Table 1. Subjective, objective and integrative dimensions matrix.

(1) Need	(2) Question	(3) Weight	(4) Subjective				(5) Objective				(6) Integrative	
			(a) Answer	(b) Threshold	(c) Satisfaction	(d) Score	(a) Value	(b) Threshold	(c) Satisfaction	(d) Score	(a) Check	(b) Score
A	1	w_1			b_1^S				b_1^O		β_1	
	2	w_2			b_2^S	$S_A^S = \sum_n b_n^S w_n$			b_2^O	$S_A^O = \sum_n b_n^O w_n$	β_2	$S_A^I = \sum_n \beta_n w_n$
	...	...			...				...		...	
	n	w_n			b_n^S				b_n^O		β_n	
B	2	w_1			b_2^S				b_2^O		β_2	
	3	w_2			b_3^S	$S_B^S = \sum_n b_n^S w_n$			b_3^O	$S_R^O = \sum_n b_n^O w_n$	β_3	$S_B^I = \sum \beta_n w_n$
	...	...			...				...		...	
	n	w_3			b_n^S				b_n^O		β_n	
...	...	...	...	...	...	...	...	...	...	...	...	...
N	*i*	w_i			b_i^S				b_2^O		β_i	
	j	w_j			b_j^S	$S_N^S = \sum_n b_n^S w_n$			b_3^O	$S_N^O = \sum_n b_n^O w_n$	β_j	$S_N^I = \sum \beta_n w_n$
	...	...			...				...		...	
	n	w_n			b_n^S				b_n^O		β_n	
QoL						$\overline{S_N^S}$				$\overline{S_N^O}$		$\overline{S_N^I}$

Table 2. Example of comparison between subjective and objective indicators of QoL. Results extracted from a study for a neighbourhood of Barcelona.

(1) Need	(2) Question	(3) Weight	(4) Subjective			(5) Objective			(6) Integrative	
			(a) Answer	(b) Threshold	(c) Satisfaction	(a) Value	(b) Threshold	(c) Satisfaction	(a) Check	(b) Score
Subsistence	How satisfied are you with the air quality in the neighbourhood?	1.65%	4–5: 9,20%	4–5 > 50%	No	ICQA average (2010) = 52[1]	50<ICQA<75[2]	Yes	0.5	0.83%
Security	How satisfied are you with the air quality in the neighbourhood?	2.01%	4–5: 9,20%	4–5 > 50%	No	ICQA average (2010) = 52[1]	50<ICQA<75[2]	Yes	0.5	1.01%
Subsistence	How satisfied are you with the green spaces in the neighbourhood?	1.65%	4–5: 8.62%	4–5 > 50%	No	Urban green: 6,55 m2/hab[3] 10–15 m2/hab[4]	S. Europe cities average:	No	0	0%

Notes: [1] Air quality index (ICQA) for Barcelona (Idescat, 2013); [2] Generalitat de Catalunya (2019); [3] Ajuntament de Barcelona (2008); [4] Fuller & Gaston (2009).

d. Objective score (S_N^O), for each need, as the summation of the product of each question weight (column 3) by its satisfaction (column 5c).

6. Integrative dimension of QoL measurement, with:
   a. The integrative dimension of QoL includes a ternary variable β_n for each question in order to check whether the final value of the comparison between the two types of measurements for each question is positive, negative or neutral. When both, subjective and objective, indicators are satisfied, this result equals to 1 unit. When both are not satisfied, the result equals to 0 units. When only one of the two thresholds is satisfied, the result equals to 0.5 units.
   b. Integrative score (S_N^I), for each need, as the summation of the product of each question weight (column 3) by its check variable (column 6a).

The score per need corresponds to the sum of all the total scores of the questions classified under that same need. Totals above and below 50% are considered as strong and weak satisfaction respectively. Final QoL scores for objective ($\overline{S_N^O}$), subjective ($\overline{S_N^S}$) and integrative ($\overline{S_N^I}$) dimensions (Table 1, last row) correspond to the average of the individual objective, subjective and integrative scores per each need, respectively.

4. Discussion: Assessing QoL in a Neighbourhood of Barcelona (Spain)

We tested the methodology on Vila de Gràcia, a neighbourhood of Barcelona (Spain), with the aim of validating and discussing its steps and usefulness. We constructed the survey based on the satisfiers and questions listed in Table A1 of the Appendix. Our study group was formed by a group of experts of the Sustainability Measurement and Modelling Lab (summlab.upc.edu/en) and the University Research Institute for Sustainability Science and Technology of the Universitat Politècnica de Catalunya (UPC)—BarcelonaTech (is.upc.edu/en). They were responsible for (1) the validation of the survey questions, and (2) the classification of the different questions into needs. Their work allowed us to compute the weight of each question per Need. We also established objective indicators and both objective and subjective thresholds related to each question.

A filled example of the matrix introduced in the previous section (Table 1) is shown in Table 2, where we omitted results for the objective and subjective scores to avoid overloading the table with excessive data. We observe that one same question (i.e., "How satisfied are you with the air quality in the neighbourhood?") has a different weight for two different needs (i.e., subsistence and security). Experts have given to this question a higher importance inside the security need. Regarding the subjective thresholds, questions included answers in a scale range from 1 to 5 and, the thresholds in these cases are satisfied if more than 50% of the population sample rates them above 3. Objective values correspond to local (and in this example, environmental) indicators, and their thresholds correspond either to (a) limits pre-established by the indicators or (b) globally established limits.

The same process was followed for the rest of the questions to achieve the total score (i.e., satisfaction) per need and dimension, and the final QoL score for this study case. These values are shown in Table 3 and Figure 3(i). Results show a significant difference between total objective and subjective scores on average terms, with the objective score well below the subjective one, indicating that either people answered trying to appear more satisfied than they really are, or objectively established thresholds are rather strict related to the reality and they do not correspond to what people truly need or feel. Regarding the subjective dimension, all needs obtain a medium level of satisfaction (around 50%), exception made for two extremes: spirituality/transcendence, with the lowest one (46.1%), and participation and iden-

Table 3. Example of a QoL assessment for Vila de Gràcia (Barcelona, Spain).

	Scores (%)		
Human needs (Domains)	**Subjective**	**Objective**	**Integrative**
1. Subsistence	59.2	37.4	35.4
2. Security	58.3	29.1	34.6
3. Affection	57.3	12.3	29.8
4. Understanding	56.9	19.3	31.7
5. Participation	67.3	17.7	35.5
6. Leisure	50.0	13.0	27.9
7. Creativity	51.9	10.7	27.5
8. Identity	71.5	37.0	40.9
9. Freedom	58.6	25.8	32.9
10. Spirituality/ Transcendence	46.1	8.8	23.6
Total	**57.7**	**21.1**	**32.0**

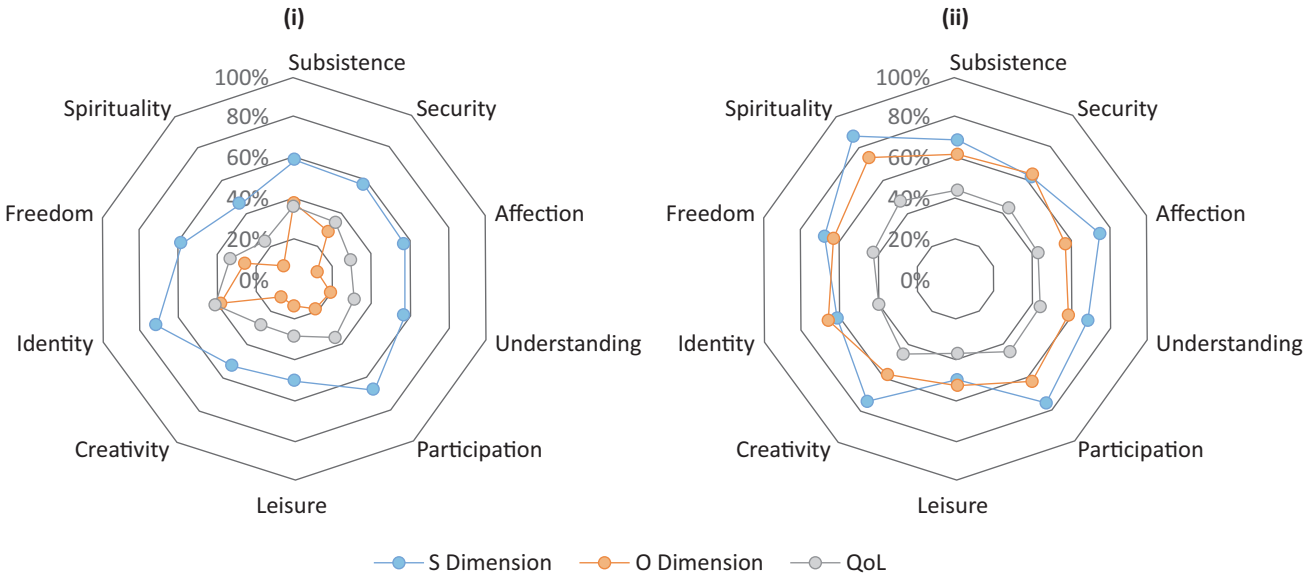


Figure 3. Graphic representation of the QoL assessment in Vila de Gràcia neighbourhood comparing subjective (s), objective (o) and integrative (QoL) results per need, (i) for the real case and (ii) for the hypothetical case that excludes questions without objective indicators.

tity, with the highest ones (67.3% and 71.6% correspondingly). In the objective dimension, needs obtain a much lower satisfaction than in the subjective one. The lowest satisfaction corresponds again to spirituality/transcendence (8.8%), followed by creativity (10.1%) and leisure (13.0%). Since the final integrative result depends on the value of β_n for each question, integrative results do not necessarily correspond to an average of both previous dimensions (i.e., objective and subjective). In our study case, integrative QoL stands between subjective and objective scores. At the need level, integrative satisfaction appears between subjective and objective dimensions, but with no need over 50%. Spirituality/transcendence reaches again the lowest satisfaction level (23.6%), indicating the poorest fulfilment of this need for the Vila de Gràcia neighbourhood.

As mentioned previously (see Section 2), in the HSD paradigm the fulfilment of all needs is considered as equally important and any unsatisfied or poorly satisfied need reveals a form of human poverty. The low satisfaction of spirituality in all dimensions, and creativity and leisure for the objective dimension, suggest the prioritisation of future policies and plans related to the fulfilment and satisfaction of these needs. The steps in which this methodology unfolds allow, at least, two different options to help defining future policies and plans. On the one hand, the identification of intervention axes and actions for each affected need and based on their satisfiers. The low representation of these needs in the objective dimension indicates that these domains are mainly connected to the individual and in these cases, literature indicates that linking objective and subjective measures of QoL may be relatively straightforward (McCrea et al., 2006). In other words, by making interventions in the urban grid of the neighbourhood, like adding establishments and equipment or ameliorating the existing ones, a higher perceived satisfaction will also be obtained. In the specific case of spirituality/transcendence the example of satisfiers organised in forms of being, having, doing and interacting can be taken into consideration: actions such as facilitating access to nature and the creation of green spaces or the promotion of social centres and athenaeums would probably help in generating feelings such as calmness, compassion, peace, and understanding, directly connected to the need in question. Regarding leisure and creativity, these two spheres are considered as highly interrelated by the modern societies. In fact, Max-Neef et al. (1991, p. 17) state that "idleness" (leisure in our case) "and creation" (creativity in our case) "seem to be inseparable if the former is understood as the state of mind and spirit that is inviting to the muses". It seems that our present-day extremely (pre)occupied and stressed way of life clearly affects the satisfaction of these needs. In the actual economic model, human creativity (i.e., thinking of novel and productive ways to do things) is generally declining and being replaced by high-tech apparels and gadgets (Csikszentmihalyi, 1996; Johnson, 2010). Hours spent on television, on the internet, using smart phones, video games along with the low participation to productive processes might be the possible answer to the low creativity and leisure scores. Actions such as the promotion of free time activities in the neighbourhood, or the forwarding of creative collaborative communities would probably lead to higher subjective scores in both needs. On the other hand, when the methodology is slightly extended to make use of weighted networks and dependence coefficients, it can be used to (1) reveal connectivity pat-

terns between needs and to (2) allow the identification and use of more strongly satisfied needs for the fulfilment of others less so favoured (Papachristou & Rosas-Casals, 2016).

The application of this methodology for Vila de Gràcia revealed one particularly difficult task related with the search of objective data and indicators. For this specific case study only 36% of the questions appears to have corresponding objective values public and openly accessible. If we excluded questions with no objective corresponding data, results would have been those shown in Figure 3(ii). All needs of the three categories in this case would have had higher scores. However, integrative results would not have been between the two dimensions as in the original case, but they would have had lower scores. This fact indicates that (1) most questions are satisfied either subjectively or objectively, and (2) that previous results were too low mainly because of the missing objective values (especially in the case of spirituality and creativity, that could be considered as more subjective needs). The fact that self-reported happiness is subjective, does not mean that it is unrelated to relatively objective variables (Lyubomirsky, Sheldon, & Schkade, 2005). In this sense, the scale of reference also affects the result and should be considered of great importance. It is true that researchers often encounter difficulties in finding legal limits and regulations or data at a local scale. However, it is recommended to always concentrate their inquest from the local to the regional and the global in order to maintain the same reference scale and to enable a comparison with the subjective data. At the same time, further caution should be taken both (1) during the selection of the objective indicators, as they cannot be based in subjective perceptions (Papachristou & Rosas-Casals, 2015a), and (2) while making inferences about improvements in subjective QoL based on improvements in objective QoL (McCrea et al., 2006).

Last but not least, it is important to recall that this type of measurement represents a snapshot in time. Urban environments are dynamic (Batty, 1971) and open systems (Sennett, 2006) and should be studied as such. From a social point of view, even though the methodology contains objective data, it depends mostly on the researchers' and/or study group's perception and criteria, both during the selection of satisfiers and the shaping of the survey question and the question classification process. Therefore, it is mandatory to try to incorporate all different options and aspects that may affect somebody's well-being and QoL, and the fulfilment of her needs (Papachristou & Rosas-Casals, 2015b). In terms of policies, any measurement data used for predictive purposes related to the QoL in our system would have to be repeatedly collected over sufficiently long time and samples, to successfully capture the co-evolution of humans with their environment, in order to develop an effective knowledge base and to be able to define improvement scenarios (Costanza et al., 2007).

5. Conclusions

Adding the possibility of expression of citizen voices to policy processes would deliver the much sought-after openness, transparency and inclusive dialogue missing in regular institutional and political practice. The subjective perception and feelings that a city dweller obtains from its surroundings is usually more than the mere sum of its isolated, and objectivised, forming parts. Thus, an integrative assessment is needed to conflate objective and subjective spheres to evaluate QoL in the particular case of the urban environment, keeping always in mind that, as society–nature relationships are characterised by complexity, uncertainty and political contentiousness, a complete and impartial view is rarely, if ever, possible. The methodology presented in this article allows the integrative approach considering both aspects and incorporating different questions into axiological domains and under the HSD frame of reference. By these means, it favours a small-scale, human-oriented, democratic approach, potentially leading to a more social design of urban space, while respecting the urban environment.

The use of human needs as domains of study aims at understanding the category in which a problem may be concentrated. Needs indicate deprivations and at the same time individual and collective human potential. Each economic, social and political system adopts different methods for the satisfaction of the same fundamental human needs. In every system, they are either satisfied or not through the generation or non-generation of different types of satisfiers. Therefore, the method here presented may also be of significant help when having to decide the focus of a decision-making process, concerning future policies, plans and measures of improvement. At the same time and keeping in mind that the fulfilment of all needs is considered equally important, this methodology can be considered as a useful tool both to evaluate and to improve the current urban environment, concentrating the efforts on the QoL of the dwellers.

Urban design and planning must be focused on the making of places for people and precisely on the process of making better places for people than would otherwise be produced. To achieve QoL, there is a need for a more democratic and enriching environment to maximise the degree of user choice, giving emphasis on the correlation between designed space, activities and use. We hope this methodology could help scholars, researchers, decision makers and citizens to finally understand that urban planning should be about planning for people who live in the city rather than planning for the city.

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tion of the survey questions and their classification into needs.

Conflict of Interests

The authors declare no conflict of interests.

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Appendix

Table A1. Example of questions (and groups of questions) associated to satisfiers before being weighted into needs. Source: Proper elaboration based on Costanza et al. (2007).

Satisfiers	Groups of questions	Questions	Response range
Food, shelter, vital ecological services, healthcare, rest	Caloric intake, access to clean air, water, facilities	Are you satisfied with the quality of water in your area?	1 (no)—5 (a lot)
		Are you satisfied with the quality of air in your area?	1 (no)—5 (a lot)
		How satisfied are you of the sanitation facilities in your area?	1 (no)—5 (a lot)
		How satisfied are you of the green spaces in your area?	1 (no)—5 (a lot)
		How satisfied are you of the pedestrian areas in your area?	1 (no)—5 (a lot)
		How satisfied are you of the noise in your area?	1 (no)—5 (a lot)
		How satisfied are you of the traffic in your area?	1 (no)—5 (a lot)
		How satisfied are you of the quality of food at your area (natural, biological, no-transgenic, etc.)?	1 (no)—5 (a lot)
		Are you satisfied of the house quality at your area (density, m2 by habitant, humidity, extreme conditions of temperature, etc)?	1 (no)—5 (a lot)
	Access to health care	How satisfied are you with your health?	1 (no)—5 (a lot)
		Do you have any long-term disabilities, health/mental problems?	Yes/No
		If yes does the long-term disability restrict your activities?	Yes/No
		Do you have access to public or private health care?	Yes/No
		If yes, how satisfied are you of your health care?	1 (no)—5 (a lot)
Nurturing of children, pregnant women	Maternity leave/child care	Do you have in charge children from 0 to 14 years old?	Yes/No
Transmission of the culture	Family provision for care	Time dedicated to the education of children	1 (no)—5 (a lot)
		Do you think that the time you dedicate to your children´s education is adequate?	Yes/No
Homemaking	Household and child care allocation within the household	Do you own your home?	Yes/No
		Do you believe that your living environment (house/apartment) favours the feeling of home?	Yes/No
		Do you feel ”at home” when you go home?	Yes/No
Enforced predictable rules of conduct		Do you think that the existent rules and leys for your safety are sufficient?/Do you feel safe at your area?	1 (no)—5 (a lot)
Safety from violence at home and in public	Interpersonal violence experiences	Have you ever experienced violence in your familiar environment?	Yes/ No
Security of subsistence into the future		Do you think you can make plans for the future?	Yes/ No

Table A1. (Cont.) Example of questions (and groups of questions) associated to satisfiers before being weighted into needs. Source: Proper elaboration based on Costanza et al. (2007).

Satisfiers	Groups of questions	Questions	Response range
Maintain safe distance from crossing critical ecological thresholds	Environmental practices	Do you: recycle, save energy, don't spare water, share your car, share your apartment, use the bicycle, prefer walking to the destinations or use the public transportation?	Yes/ No
Stewardship of nature to ensure subsistence into the future			Yes/ No
Care for the sick and elderly	Who provides care for aged parents etc./in case of acute, chronic illness	Do you provide care for aged parents/ family or to somebody with a chronic illness?	Yes/ No
Being able to have attachments to things and persons outside ourselves	Level of attachment to significant others	Do you have or planning to form a family?	Yes/ No
		How much do you depend on your family?	1(no)—5 (a lot)
		Do you have friends?	Yes/ No
		How much do you depend on your friends?	1(no)—5 (a lot)
Solidarity, respect, tolerance, generosity, passion, receptiveness, …		How often do you experience compassion, calmness, forgiveness, contentment, generosity, respect, passion, tolerance, solidarity, receptiveness?	1 (occasionally)—5 (really often)
		How often do you experience selfishness, jealousy, fear, worry, loneliness, anger, stress?	1 (occasionally)—5 (really often)
		Which of the above do you think that may change in a different urban environment?	
Access to information	Newspaper, radio, TV, internet, usage for news information	How often do you check the news on the newspaper, radio, television, and the internet?	1 (no access)—5 (continuously)
Intuition and rationality	Education	What is your education level?	no studies—doctoral
To act meaningfully in the world	Volunteering, association memberships	Do you or have you ever worked as a volunteer?	Yes/ No
		Do you participate to any association?	Yes/ No
		Are you a member in any social group?	Yes/ No
Contribute to and have some control over political, community and social life		Do you contribute to and have some control over political, community and social life in your area?	Yes/ No
Being heard		Do you express your opinion or speak publicly?	Yes/ No
Meaningful employment		Do you consider your job meaningful?	Yes/ No
Citizenship		Do you participate to the local assemblies of your neighbourhood?	Yes/ No
		Do you vote at the elections?	Yes/ No

Table A1. (Cont.) Example of questions (and groups of questions) associated to satisfiers before being weighted into needs. Source: Proper elaboration based on Costanza et al. (2007).

Satisfiers	Groups of questions	Questions	Response range
Recreation, relaxation, tranquillity, access to nature, travel	Time use, activities pursued, money spent	How satisfied are you of your free time?	1(no)—5 (a lot)
		How many hours do you work, spend with family/ friends, dedicate to yourself and dedicate to commuting?	0 → 8h
		How happy are you with your time distribution?	1(no)—5 (a lot)
Play, imagination, inventiveness, artistic expression	Free time use	With what frequency do you: go out, go to an excursion to the nature, go to spiritual or religious celebrations, watch TV, use internet/ computer at home, participate to an artistic activity, do sports, go to the cinema, see your friends, go to a museum, concert, play music, writing, drawing, sculpture?	1 (never)— 5 (every day)
	Sense of play in work, etc.	Do you consider your time spent to work as creative?	Yes/ No
Status, recognition, sense of belonging, differentiation, sense of place	Major statuses, sense of "place"	Specify you relationship with the area	Live there, lived there, live close, work there, visit, etc.
		Specify your gender, age, type of occupation, salary per month.	
		How satisfied are you of your life, work, money, the place you live, family life, social life, social status?	1 (no)—5 (a lot)
		Do you feel like forming part of the place you live?	Yes/ No
		Do you think that with the money you earn you would live better in a different part of the city?	Yes/ No
Being able to live one's own life and nobody else's.	Personal freedoms in various social contexts (family, work, religion, etc.)	Do you feel free as a person?	Yes/ No
Mobility		Is the connection with work satisfying?	Yes/ No
Engaging in transcendent experiences	Spiritual/ transcendent experiences spiritual organization membership	How spiritual do you consider yourself?	1 (no)—5 (a lot)
		How often do you meditate/ pray?	1 (no)—5 (a lot)
Access to nature		Do you have access to the nature?	Yes/ No
		Do you feel the need to occasionally visit the nature?	1 (no)—5 (a lot)
Participation in a community of faith	Time spent on spiritual activities	How much time do you spend in spiritual activities?	1 (1-2 times per year)— 5 (everyday)

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Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans, R., . . . Snapp, R. (2007). Quality of life: An approach integrating opportunities, human needs, and subjective well-being. *Ecological Economics*, *61*(2/3), 267–276. https://doi.org/10.1016/j.ecolecon.2006.02.023

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Article

Implementing the New Urban Agenda in Rwanda: Nation-Wide Public Space Initiatives

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Abstract
Rwanda, with its population of 12,600,000, growing 2.8% yearly, and significant investments in infrastructure and construction in its capital Kigali and six secondary cities identified as economic poles of growth, aims to achieve a 35% urbanisation rate by 2024. Kigali and Rwanda's secondary cities are currently revising their master plans in response to the pressure of rapid urban growth in infrastructure and services. To address the lack of public spaces in its cities, the Ministry of Infrastructure, the Rwanda Housing Authority, local authorities, the Global Green Growth Institute, and other stakeholders have committed to deliver a range of activities in this area. Their commitments include the assessment of public spaces, which will be used as a baseline for the purpose of reporting on the Sustainable Development Goals public space indicators (11.7) and further revision of the master plans of Rwanda's secondary cities. This article firstly builds on the existing knowledge and understanding of public spaces in Rwanda's planning documents, followed by an examination of how multiple actors in Rwanda interact in order to promote a nation-wide public space agenda. The main findings indicate emerging forms of innovative collaboration and partnerships for public spaces involving all levels of the Rwandan government, development partners, the civil society sector, and other stakeholders. The article concludes that, as planning documents and strategies on public spaces are in place and in line with the recommendations of the New Urban Agenda, given the limited budget for its development, Rwanda needs access to innovative funding sources in order to effectively implement public space initiatives across the country.

Keywords
climate change; master plan; New Urban Agenda; public space; Rwanda; secondary city; Sustainable Development Goals; urban design; urban planning

Issue
This article is part of the issue "Public Space in the New Urban Agenda: Research into Implementation", edited by Michael W. Mehaffy (KTH Royal Institute of Technology, Sweden), Tigran Haas (KTH Royal Institute of Technology, Sweden), and Peter Elmlund (Axel and Margaret Ax:son Johnson Foundation, Sweden).

1. Introduction

For more than two decades, Africa has been the world's most rapidly urbanising region, with 40.4% of its population now in cities. Within Africa, while East Africa is still the least urbanised sub-region, its annual rate of urban growth of 4.17% is very high, with Rwanda among the fastest urbanising countries at 4.5%. Two decades ago, Burundi and Rwanda were the least urbanised countries in East Africa with just 7.2% and 9.8% of the population living in urban areas, respectively (UNDESA, 2018). While Burundi has remained the least urbanised country in East Africa, Rwanda is poised to become one of the region's most urbanised countries if it achieves its urbanisation target of 35% by 2024. In East Africa, the main driver of urban growth is the natural increase of the population (Fox, 2017), together with growth from rural to urban migration: cities, therefore, need to ensure that their in-

creasing number of residents are adequately housed and their basic needs met, but also that they are engaged in supporting their city's prosperity.

Against this backdrop of rapid urban growth, public spaces are a key element in ensuring social cohesion (Peters, Elands, & Buijs, 2010) and wellbeing in East Africa's cities, with wide-ranging benefits to security (Nail & Erazo, 2018), public health (Cicea & Pirlogea, 2011; Hoffimann, Barros, & Ribeiro, 2017), the environment (Rakhshandehroo, Tahir, Yusof, & Yunos, 2017), and others. While research on public spaces and the increasing threat posed by unplanned urbanisation is already well developed in Kenya (Makworo & Mireri, 2011), elsewhere in East Africa, in-depth studies on public space in cities are limited. This may be explained by the general interest of research institutions and development partners in the provision of basic services such as electricity, water supply, and waste management, while public spaces may still be regarded more as a commodity in least developed countries.

In this context, most work on public spaces in East Africa is led by the United Nations (UN) and other development partners. For example, the UN Human Settlements Programme (UN-Habitat) is promoting the participation of youth, women, and girls in the design of public spaces to improve urban security: in Kalobeyei Town, Kenya, it partnered with women's groups to install lighting in areas identified as unsafe by focus groups. Across the world, research has shown that crime rates drop significantly with public investment in public spaces (Kondo, 2016). The importance of public spaces for development is also demonstrated by numerous other initiatives by UN agencies, from gender-sensitive design to improve women's safety by the UN Entity for Gender Equality and the Empowerment of Women (UN Women) and shared community resources by Food and Agriculture Organization (FAO), to healthy green space by World Health Organization (WHO) and hubs for creativity and innovation by the World Bank. This reflects an increasing focus on public spaces following the adoption of the Sustainable Development Goals (SDGs) in 2015 and the celebration, that same year, of "Public Spaces for All" as the theme for World Habitat Day (UN, 2015), with then Secretary-General of the UN Ban Ki-Moon reminding governments and stakeholders that "public spaces can also provide basic services, enhance connectivity, boost economic activity, and raise property values while generating municipal revenues. Successful public spaces do not just happen; they require careful collaboration among local authorities, local inhabitants, and other actors" (UN Web TV, 2015).

2. Public Spaces in Development Agendas

The adoption by UN Member States of Agenda 2030 in September 2015 was a major milestone: for the first time there was clear recognition from the international community of the need to focus on sustainable urbanisation, with SDG 11, "make cities and human settlements inclusive, safe, resilient and sustainable", dedicated to this aim. This included a specific provision on public space (SDG 11.7): "By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities" (UN General Assembly, 2017). A number of targets under SDG 11, as well as other SDGs, are linked to functional, well planned and designed public spaces to ensure urban development responds to climate change and promotes safety, inclusivity, and public health. The following year, countries across the world adopted the New Urban Agenda (NUA) during the UN Conference on Housing and Sustainable Urban Development (Habitat III) in October 2016 in Quito, Ecuador. The NUA was the culmination of three years of preparation involving a wide range of governments, observers, and stakeholders, with public spaces identified as one of the main priority areas (Habitat III Secretariat, 2016). The Habitat III process generated a compendium of summary documents and recommendations on the most pressing urban issues (Zivanovic Milic & Trkulja, 2017), including an issue paper prepared by UN-Habitat with contributions from UN Women and the Secretariat of the Convention on Biological Diversity (CBD) on public spaces (Habitat III Secretariat, 2017). During the preparatory process, Barcelona's local authority hosted a thematic meeting on public spaces: this resulted in the Barcelona Declaration, calling on governments to include public spaces in the NUA (UN General Assembly, 2016). The Barcelona Declaration also calls for the democratic co-production of urban space, for all inhabitants, whether temporary or permanent. There was also a great deal of momentum from local authorities, civil society groups and other stakeholders in shaping inputs on public spaces for the NUA not discussed here. These initiatives helped shape the final text of the NUA, with its emphasis on promoting safe, inclusive, accessible, green and quality public spaces. The NUA mentions public spaces in paragraphs 36, 97, 99, and 109 through the lens of urban sustainability and as stand-alone commitments in paragraphs 13, 37, 53, 67, and 100. It is important to ensure adequate means of implementation and a sound monitoring framework to catalyse action on public space (Andersson, 2016).

3. Research Questions and Methods

This article, drawing on research on public spaces in Rwanda's six secondary cities—Huye, Muhanga, Musanze, Nyagatare, Rubavu, and Rusizi—examines whether current initiatives are embedded in a collaborative planning framework that meaningfully incorporates interaction among different stakeholders. It explores three questions around the issue of public spaces in Rwanda: 1) How does Rwanda's current approach to urban planning reflect concerns around public space issues, and do they align with NUA recommendations?

2) How are emerging partnerships on public spaces in Rwanda managing to raise awareness of the benefits of public spaces to all actors in the urban sector nationwide? 3) To what extent do government decision makers and Rwanda's development partners prioritise public space initiatives? Firstly, a literature review and analysis of Rwanda's planning documents were conducted in order to understand the general context of urban development in the country and to what extent the existing national legislation addresses public spaces. Secondly, to present an in-depth understanding of the current trends in public spaces in Rwanda, field visits were conducted in Rwanda's six secondary cities to assess their public spaces. For this research, the authors chose the secondary city of Nyagatare as a case study. Thirdly, the authors drew on the results of more than 1,000 surveys with citizens of the secondary cities, as well as more than 10 semi-structured interviews with government officials from the Ministry of Infrastructure, the Rwanda Housing Authority, and other public institutions.

4. The NUA Implementation in Rwanda: Focus on Public Spaces

During the Habitat III Process, the Government of Rwanda presented their Habitat III National Report (NR). Given that more than 40% of member states did not submit Habitat III NRs or organise National Committees, as advised by the UN, this indicated a clear interest from the Government of Rwanda in localising the NUA. Habitat III NRs are seen as a baseline for monitoring and evaluating the NUA implementation. The only analysis of public spaces in the Habitat III NR prepared by the Government of Rwanda, however, was through a discussion of a safer cities project run by one of the contributing stakeholders, the Rwanda Women's Network (RWN). After the adoption of the NUA in October 2016, the Government of Rwanda undertook a review of its existing laws and policies against the NUA as part of the Rwanda State of the Environmental Outlook, prepared by the Rwanda Environment Management Authority (REMA) with support from the Ministry of Infrastructure and other stakeholders (REMA, 2017), though so far, no policies have actually been revised to localise the NUA. In this respect, the NUA should be seen as an additional tool for the operationalisation of the adopted legal and policy framework, but also for the design and implementation of other spatial and urban planning documents to be prepared and adopted in the future (Zivanovic Milic & Trkulja, 2017).

Nevertheless, the Government of Rwanda has taken a positive step through the organisation by the Ministry of Infrastructure of the National Urban Forum (NUF), a multi-stakeholder platform to support sustainable urban development by promoting awareness raising, participation, coordination, engagement, and discussion in this area. For the NUF's "Implementing the New Urban Agenda", a number of stakeholders including the World Bank, the Global Green Growth Institute, the International Growth Centre (IGC), and UN-Habitat, led by the Ministry of Infrastructure, prepared a background paper on Government of Rwanda's work to date on various urbanisation issues, including public spaces, with projects in Rubavu public beach and *Mount Rubavu* highlighted as notable achievements in this area. The report also mentioned an on-going assessment of public spaces in Nyagatare, Huye, and Rubavu (Ministry of Infrastructure, 2019) that will be presented as a case study in this article. Other initiatives, also held as parallel events to the NUF, included Urban Walk and Inclusive Cities Talk, organised by the Global Green Growth Institute, all linked to the importance of public spaces and the inclusion of residents in their planning, design and implementation, as suggested in paragraph 97 of the NUA. During the NUF, emphasis was also placed on how to mobilise financial resources and fully localise the global urban development agenda, as well as enhancing capacities through the exchange of best practices.

5. Public Space in Rwanda's Planning Documents

In the Vision 2020 and Vision 2050 blueprints, an emphasis is placed on developing basic infrastructure in urban centres to enable the decongestion of agricultural zones, investment in job creation, and service provision to ensure a good quality of life. The latter anticipates that the proportion of Rwandans living in cities and towns will increase to 35% by 2024 and has as its main goal the transformation of Rwanda's agriculture-based economy to industry and services. Following the 2nd Economic Development and Poverty Reduction Strategy 2013–2018 (Ministry of Finance and Economic Planning, 2013), which focused on urbanisation and the promotion of six secondary cities as poles of economic growth, Rwanda (currently classified as a low-income country) initiated the 1st National Strategy for Transformation 2018–2024 (NST 1; Ministry of Finance and Economic Planning, 2018) as a first step to achieve its objective of becoming a low middle-income country by 2024, middle-income country by 2035, and high-income country by 2050. Rwanda refers to World Bank's classifications of economies according to gross national income (GNI) per capita, whereby low income is $995 or less; lower middle income $996–3,895; upper middle income $3,896–12,055; and high income $12,056 or more. All countries bordering Rwanda—Burundi, Democratic Republic of Congo, Tanzania, and Uganda—are also low-income economies. Urbanisation is identified as one of the main ways to achieve this transformation in Rwanda. To implement the urban component of NST 1, the Government of Rwanda, through the Ministry of Infrastructure, has elaborated the Urbanization and Rural Settlement Sector Strategic Plan 2018–2024. The Government of Rwanda also adopted the National Urbanization Policy (NUP) in December 2015: this emphasises urbanisation as an engine of economic development and sustainable growth.

5.1. Provision of Public Space in Rwanda's Urban Legislation

The main legislation regulating urbanisation is the Law Governing Urban Planning and Building in Rwanda of 2012 and its implementing orders of 2015. Local physical development is regulated based on clear procedures. Master plans are guided by the National Land Use and Development Master Plan of 2010 which provides the general directives and principles for land use development including densification, mixed land use, mixed housing, green design, and participation. Unfortunately, of the above-mentioned policies, laws, and district development strategies (DDSs), only a few documents define public spaces specifically.

In Rwanda National Land Use Planning Guidelines "public spaces are all places publicly owned or of public use, accessible and enjoyable by all for free and without profit motive" (Ministry of Natural Resources, 2017). According to that definition, it would be hard to identify such spaces since access is often restricted or fully prohibited, especially in green open spaces. Socially vulnerable groups create a very high demand for urban green public spaces (Rahman & Zhang, 2018). Furthermore, paragraph 100 of the NUA recommends well-designed networks of safe, accessible, green, and quality streets and other public spaces that are accessible to all. In Rwanda, most sidewalks, markets, and similar areas may be considered as public spaces freely accessible to all. Rwanda Building Code does not define public space uses specifically but refers to "recreational land use" (Ministry of Infrastructure, 2015a). In that document, recreational land use "includes public open space, greenways and green areas, recreation and sports facilities. It can be distinguished between spaces for passive recreation and spaces for active recreation" (Ministry of Infrastructure, 2015a). Related to recreation, outdoor gyms may be built in an open public space to promote structured physical activity: these are increasingly seen as an important strategy to realise public health agendas (Hoffimann et al., 2017; Lee, Loo, & Ho, 2018).

The National Land Policy stated that green spaces, as well as valleys, would be protected, and suggests that the creation of parks and protection of existing green areas in urban zones could eventually be transformed into accessible open public spaces (Ministry of Lands, Environment, Forests, Water and Mines, 2004). The policy also presents a general framework for the future urban development of Rwanda, with reference to public space: "Rwanda's urban agenda encourages multi-institutional cooperation for the development of safe public space, quality education, medical and transport facilities, and a friendly city ambience offering public services and infrastructure" (Ministry of Infrastructure, 2015b). The Rwanda National Land Use Planning Guidelines have also set guidelines for the promotion, protection and creation of public, open and green spaces in Rwanda (Ministry of Natural Resources, 2017). The Guidelines stipulate that "open spaces, natural beauty, and environmentally sensitive areas should be maintained and developed for financial value" (Ministry of Natural Resources, 2017). Financial value of public spaces is discussed in paragraph 53 of the NUA as a commitment to:

> Promote safe, inclusive, accessible, green, and quality public spaces as drivers of social and economic development, in order to sustainably leverage their potential to generate increased social and economic value, including property value, and to facilitate business and public and private investments and livelihood opportunities for all. (UN, 2016)

The document, in conformity with the Urban Planning Code (UPC), states that small neighbourhood parks should provide access to basic public space functions. This context is determined by the needs and behaviour of users, but also by land ownership, design, and the impact of the public space on the city-wide system of open spaces (Harteveld, 2017). The UPC serves as the basis for the sustainable development and management of land use for human settlements in Rwanda: for instance, it recommends that at least five% of urban residential areas should be allocated to public spaces and facilities and provides recommended standards on the widths of sidewalks when designing intra-urban roads (Ministry of Infrastructure, 2015c).

In the upgrading and renewal of urban informal settlement, the guidelines stipulate that in conformity with Ministerial Order no. 04/Cab.M/015 of 18/05/2015 determining urban planning and building regulations and the Rwanda UPC, trees, green areas and spaces should be preserved and restored. Paragraph 97 of the NUA calls for the provision of public spaces in the upgrading of slums and informal settlements (UN, 2016). Furthermore, article 46 of the Organic Law no. 04/2005 of 08/04/2005, determining the modalities of protection, conservation, and promotion of the environment in Rwanda, calls for the government and citizens to "establish, maintain, and manage parklands and green spaces". The same law elsewhere calls for clean public spaces. Ministerial Order no. 04/Cab.M/015 of 18/05/2015, determining urban planning and building regulations in Rwanda in articles 3, 5 and 14 calls for "quality public space and greening" in urban planning. Green public spaces could offer a wide range of activities and features, functioning as local landmarks and connecting to pedestrianised zones where possible. The Order also determines various public space typologies: these are numerous and include public parks, communal gardens (Nikolaidou, Kloti, Tappert, & Drilling, 2016), public spaces associated with public buildings and others (Sandalack & Alaniz Uribe, 2010), and are aimed to be evenly distributed throughout urban residential areas, sport related spaces, and others (Johnson & Glover, 2013).

Another planning document is the Green Growth and Climate Resilience National Strategy for Climate

Change and Low Carbon Development. Designed to support Rwanda's development into a climate-resilient, low-carbon economy by 2050, the strategy suggests favouring the creation of high-density, walkable cities to avoid excessive sprawl and long commuting times. The strategy also recommends corridors for pedestrians and cyclists, and green public spaces to improve the population's quality of life (Government of Rwanda, 2011). Such wording aligns with paragraph 118 of the NUA, calling for the provision of adequate pedestrian and cycling infrastructure. The national strategy also calls for urban areas that are attractive with trees, parks, and public spaces to promote low-carbon transport, improve quality of life, and reduce the risk of flooding (Government of Rwanda, 2011). The experiences of other countries regarding flood prevention measures, where investments can be four times more cost-effective than post-disaster reconstruction (Lochhead, 2017; Silva & Costa, 2018), highlight the importance of public spaces and resilient development in Rwanda, given the climate-induced challenges already evident in the country, particularly droughts and floods.

The Ministry of Infrastructure, with the Global Green Growth Institute, developed the National Roadmap for Green Secondary City Development (NRGSCD; Ministry of Infrastructure & Global Green Growth Institute, 2016). Since the six cities are experiencing similar urban problems to those observed in Kigali, the Government of Rwanda deems that planning for the growth of those cities in a sustainable framework will increase benefits and avoid negative consequences such as urban sprawl, traffic congestion, the growth of informal settlements, and inadequate public services. To support green urban development in the six secondary cities, the authors of the NRGSCD recommend that they increase financial resources and local revenues to support investment in improved public spaces: these would, in turn, generate more public income. However, since public investment is solely addressed to priorities other than public space, the need for external resource allocation could be explored to ensure public spaces are developed in Rwanda's secondary cities.

In the absence of a clear definition of "public spaces" in the Rwandan context, different terms, though they do not have the same meaning, are used interchangeably in different governmental publications to mean "public spaces". This inconsistency in the definition of public spaces, evident in various documents at a national level, is also found in documents related to the planning and development of public spaces in the six secondary cities of Rwanda. This results in an uneven interpretation of what constitutes public space across government departments and impedes the delivery of such services. Laws and regulations need to be reviewed to create an enabling regulatory environment to create, revitalise, manage, and maintain public space, including participatory processes to define their use and manage access to public spaces (Andersson, 2016). To overcome the lack of clarity, the Ministry of Infrastructure, the Rwanda Housing Authority, Global Green Growth Institute, and the University of Rwanda are working on a review of existing laws and policies to support the development of a common and localised understanding of public space.

5.2. District Development Strategies Recognising Public Spaces as Development Priorities

DDSs 2018–2024 are layout guidance for Rwanda's 30 districts to achieve their development vision and objectives, Vision 2020 and Vision 2050, emphasising strategic interventions to implement the current NST 1. DDSs were the result of a year-long consultation process reviewing what remained from the 2013–2018 District Development Plan and developing new strategic interventions. While for 24 Rwandan districts the Ministry of Local Government (MINALOC) hired consultants to facilitate discussions and draft strategies, in Rwanda's six secondary cities, Global Green Growth Institute seconded its technical district assistants to facilitate discussions. During the facilitation process with stakeholders, public spaces were identified as one of a number of important socio-economic public assets (Table 1). While there are on-going initiatives on public spaces in Musanze, their DDS does not reflect these as stand-alone commitments. With regards to economic transformation, the Musanze DDS identifies the limited green public spaces available as a weakness and proposes a 40% allocation of green space in real estate developments to meet this shortfall. To support the implementation of strategies, the Ministry of Infrastructure and the Rwanda Housing Authority have included public spaces as part of the yearly performance contract. The government-led mainstreaming of public spaces in the six secondary cities and districts is part of efforts to improve the response of cities to challenges induced by rapid urbanisation and implement the country's transformational strategy NST1.

6. Initiatives by the Government of Rwanda Addressing Public Spaces

A number of initiatives related to urbanisation are being implemented by the Government of Rwanda through the Ministry of Infrastructure and other line ministries and agencies. Currently, such initiatives are the Review of City of Kigali and secondary cities master plans, implementation of smart transport systems, elaboration of local urban development plans for emerging urban centres, promotion of car-free zones, and implementation of early warning systems, among others. Through the Rwanda Housing Authority, the Ministry of Infrastructure is supporting the implementation of concepts for green and smart cities and villages. A number of policy and action programmes related to urban infrastructure and construction are being implemented with support from multilateral partners and organisations, in particular regarding the upgrade of infrastructure to re-

Table 1. Provision of public space in DDSs 2018–2024 for six secondary cities.

Secondary Cities	**NST-1 Pillar** **NST-1 Priority Area**	**NST-1 Outcome**	**DDS Outputs**	**DDS Strategic Interventions**
Nyagatare	**1.4:** Accelerate Sustainable Urbanisation from 17.3% (2013–2014) to 35% by 2024.	**1.4.1:** Increased economic opportunities and social facilities.	**54:** Six green open spaces developed in cities emerging centres and schools.	Green open spaces developed emerging centres and schools.
Huye	**1.2:** Accelerate Sustainable Urbanisation from 17.3% (2013–2014) to 35% by 2024.	**1.2.1:** Developed and integrated urban and rural settlements.	**6:** Basic infrastructure developed.	Green urban public spaces established.
Rubavu	**1.2:** Accelerate Sustainable Urbanisation from 17.3% (2013–2014) to 35% by 2024.	**2.1:** Develop flagship projects in a secondary city.	**2.1.1:** Flagship projects developed in Rubavu City.	Public open space created.
Muhanga	**1.2:** Accelerate Sustainable Urbanisation from 17.3% (2013–2014) to 35% by 2024.	**1.2.1:** Developed and integrated urban and rural settlements.	Livable, well-serviced, connected, compact, green and productive urban and rural settlements with a cultural identity.	**1.2., 2.3:** Green open public spaces established.
Musanze	N.A.	N.A.	N.A.	N.A.
Rusizi	**1.2:** Accelerate Sustainable Urbanisation from 17.3% (2013–2014) to 35% by 2024.	**1.2.2:** Increased economic opportunities in urban areas.	**1.2.2.6:** 5 hectares of Kivu lake shores developed, two stadia and one gymnasium constructed to serve for recreation and leisure.	Development of one hectare of lake shores (public gardens). Development of beach to provide recreational and leisure facilities.

spond to challenges induced by rapid urbanisation and climate change. The Government of Rwanda's initiatives, or those supported by it, promote new forms of cooperation between the national, district, and city governments, development partners, civil society, women's and youth groups also used to create a new approach to urban planning and the governance of public spaces.

6.1. Master Plans Revision

The Global Green Growth Institute has worked in collaboration with the Government of Rwanda to develop the Green Climate Fund (GCF) Readiness Proposal for the Republic of Rwanda to access global funding for climate action. This readiness programme will strengthen the National Determined Authority's coordination capacity to align on-going climate finance efforts with green city and sustainable infrastructure development, through stakeholder engagement. The project objective is to improve collaboration and programme development in directing financing opportunities for green city development. For example, it will provide a detailed physical plan of secondary cities, incorporating low emission and sustainable development strategies in line with national policies. Public space is one component of these much-needed resilience frameworks, contributing not only to climate change adaptation and disaster risk prevention but also bringing socio-economic, physical and psychological benefits to urban residents in a context of densification and growth. As an output, these physical plans will create an enabling environment for public and private investment in climate change adaptation and mitigation at the city level. The assessment of public spaces in six secondary cities undertaken by the Ministry of Infrastructure, the Rwanda Housing Authority, Global Green Growth Institute and University of Rwanda informed the revision of the existing master plans for these secondary cities.

6.2. Sector Working Group

The government-led Sector Working Groups aim to improve the coordination of programme development and delivery across multiple government institutions and organisations. The Sector Working Group on urbanisation and rural settlements is led by the urbanisation division of the Ministry of Infrastructure and World Bank. Members of the Sector Working Group are other line ministries and government agencies including other stakeholders such as UN-Habitat, Global Green Growth Institute, RWN, the University of Rwanda, and others. One of four thematic sub-sector working groups is focusing on urbanization and public space, co-chaired by the Ministry

of Infrastructure and Global Green Growth Institute. The first meeting of the thematic sub-sector working group was held in October 2018 to ensure the programmes of actions were aligned to the national priorities and commitments, as well as the identified priority areas for urban development (Ministry of Infrastructure, 2018). The thematic sub-sector working group on urbanization and public space is an important step in mainstreaming the needs and opportunities for public space in Kigali and secondary cities.

6.3. Car Free Zone

The City of Kigali has designated a "car-free zone" in the city centre to reduce greenhouse gas emission levels and encourage greater use of public space. However, the redesign of the road to accommodate this was not fully implemented due to a lack of allocated funds, and the car-free zone is used mainly for weekend markets and other irregular events. The City of Kigali is also promoting car-free zones in other neighbourhoods in a bi-monthly event, inviting urban dwellers to spend time outside for events such as sports activities, exhibitions, and performances. The initiative is to be replicated in other cities in Rwanda to promote public space and non-motorised transportation options.

6.4. Importance of Public Space: Advocacy, Outreach, and Communications

Innovative events such as Urban Walk, Inclusive Cities Talk, Urban Cinema and others aim to engage general and expert communities in the importance of public spaces through participation and consultation in its planning, design, and implementation. While at first events were organised as "pilot events", they have now been institutionalised by being incorporated into the Ministry of Infrastructure's performance contract for 2019–2020.

6.4.1. Urban Walk: Know Your Public Spaces

Urban Walks, an initiative piloted by Global Green Growth Institute, is organized in Kigali and Rwanda's six secondary cities with the intention of highlighting pressing urban issues to residents (Global Green Growth Institute, 2018a). One of the Urban Walks, themed around urban forests, routed participants through green areas of Rwanda's secondary city Nyagatare, where organisers explained how forestry can support the city by providing environmental services such as air and water purification, wind and noise filtering, micro-climate stabilisation, managing storm water, storing carbon (i.e., removing atmospheric carbon dioxide), and promoting urban biodiversity (Figure 1).

The Urban Walks also provided information to citizens on how urban forests contribute in many other ways to quality of city life: as attractive sources of shelter and shade, with aesthetic qualities that increase property values and therefore tax revenues too. With well-considered planning and design, urban forests in Nyagatare could be transformed into public spaces hosting recreational and leisure activities. Access to public open space is important to increase recreational walking: while this is commonly referenced in high-income

Figure 1. Urban Walk in Nyagatare. The District's Executive Secretary joined citizens in exploring green areas in the urban core, in October 2018.

countries, there is little mention of this in middle-income and least developed countries (Florindo, Vizeu-Barrozo, Cabral-Miranda, & Quieroti-Rodriques, 2017), hence the value of engaging citizens through this form of activity. The Urban Walks were also organized in Kigali, where Global Green Growth Institute with the University of Rwanda introduced participants to the historic business district and the public space in front of Kigali City Hall.

6.4.2. Inclusive Cities Talk: Cities for All

The Inclusive Cities Talk, another initiative by Global Green Growth Institute, aims to mainstream social inclusion into urban development. Through keynote sessions, dialogues, and related programmes, the focus is on public space that is safe, inclusive, and accessible. Talks are set up to discuss issues related to women and children, the elderly, and persons with disabilities, living in rapidly urbanising cities in Rwanda. The Inclusive Cities Talk sessions also serve as a platform for gathering diverse urban actors and helping to identify collaborative opportunities (Global Green Growth Institute, 2018b). Speakers included the Executive Director of UN-Habitat, the Executive Director of the New York City Public Design Commission, and others who shared with participants their experiences of engaging various stakeholders and communities into the planning, design, and implementation of public spaces.

6.4.3. Urban Cinema

Urban Cinema is an initiative by Global Green Growth Institute and the Rwanda Film Institute, supported by the Government of Rwanda, to promote urban cinematography addressing urbanisation issues. The initiative was designed through public participation and interaction with a panel of government representatives and experts, with an audience composed of practitioners, young graduates and students of urban development, artists, private sector representatives, and the general public. The panel discussion and interaction with the audience is streamed online.

6.4.4. Social Media

In Rwanda, government and non-government organisations are using online platforms such as Twitter and Whatsapp to share information and receive feedback on public information and decision making. These platforms provide authorities with a virtual space to consult with citizens and on a number of occasions, government initiatives have been revised based on the feedback received online through social media. The use of smartphones is on the rise in Rwanda, and such platforms complement radio, TV shows, and community consultations. With the public space initiative in Nyagatare (Figure 2) and other plans, draft designs were shared via social media and

Figure 2. Photoshopped street in Nyagatare where public space elements were added, shared via social media to initiate discussion, in July 2018.

comments from citizens were received to inform the final design of these spaces.

7. Case Study: Nyagatare, Rwanda's Secondary City

The Ministry of Infrastructure, the Rwanda Housing Authority, and the Global Green Growth Institute undertook citywide public space surveys in Rwanda's secondary cities of Huye, Nyagatare, and Rubavu (Figure 3) to better understand the needs of citizens for public spaces as well as what facilities and utilities these spaces should include. These surveys followed on a series of stakeholder consultations facilitated by Global Green Growth Institute in preparations for the Huye, Nyagatare, and Rubavu DDSs 2018–2024, where public spaces were identified as one of the priorities to support sustainable urbanisation. The initial survey results indicated that Huye, Nyagatare, and Rubavu residents were in favour of safe, inclusive, and accessible green and public spaces and would prefer spaces with child-friendly playground equipment and leisure facilities. The citizens are willing to walk and ride bicycles to and from public spaces and to maintain the cleanliness and functionality of these public spaces, thus contributing to their overall sustainability.

The surveys were conducted between August and November 2018. The survey was accompanied by a short training session by Global Green Growth Institute staff to surveyors with background information about the project and the types of questions that surveyors might receive. All respondents were asked if they consented to the survey before being asked the first question. The face-to-face surveys were designed to cover more than one theme and included 20 multiple choice and open-ended questions. There was no incentive for those who completed the survey. On average, survey response rates were above 85% of those approached in Nyagatare and Huye, and 60% in Rubavu. This is especially encouraging given that the survey was conducted with a wide range of residents including the urban poor, women, and youth, many of whom did not have access to formal education and would have had no previous knowledge or experience of public spaces benefits.

The working hypothesis of this article is that the high response rates are in large part the result of the surveys being conducted face-to-face, helped by the involvement of the RWN, an organisation widely known by residents, and an initiative being led by the Government. Overall, some variations are detected in response rates in terms of the time of day and location where surveys are conducted. Most of the surveys were conducted close to the market, school, and border crossing with the Democratic Republic of Congo in Rubavu, all of which are known for their vibrant social scene. The distribution of responses across the city is largely uniform. Some important takeaways from the study include:

- The importance of face-to-face surveys: conducting face-to-face surveys was important in building respondent trust;
- Training: delivering a short training to surveyors, who then provide information to respondents on expectations of the initiative, contributed to alleviating anxiety and made people more likely to respond;
- The lack of gender bias in response rates: the absence of any significant differences in response rates between men and women is very encouraging;
- Geographic distribution: despite some clustering in sectors located further away from the city centre, overall the geographic distribution of responses is fairly even across cities.

In addition to the survey, a technical assessment of public spaces in Rwanda's six secondary cities was undertaken to gather information on what facilities and util-

Figure 3. City-wide public space survey being conducted in Nyagatare, in August 2018.

ities were currently available in public spaces or their surroundings to support the next steps of the planning process.

Following these processes, the city of Nyagatare (Figure 4) hosted a two-day public space participatory design workshop organised by the Ministry of Infrastructure, the Rwanda Housing Authority, and Global Green Growth Institute. Local authorities assisted with site identification by analysis of land ownership and master plan and defined the boundaries of the public space: the selected areas belong to the central government and are surrounded by public buildings and commercial areas that would benefit from well-maintained public space (Figure 5).

The main climate change impacts in Rwanda are drought and floods. In drought-prone areas similar to Nyagatare, studies show that despite the fact that properties close to well-maintained green public spaces are valued 10% higher, in times of drought irrigation of green public space is subject to restrictions (Fam et al., 2008). In Nyagatare, the area assigned for the city's public space is part of the water management system,

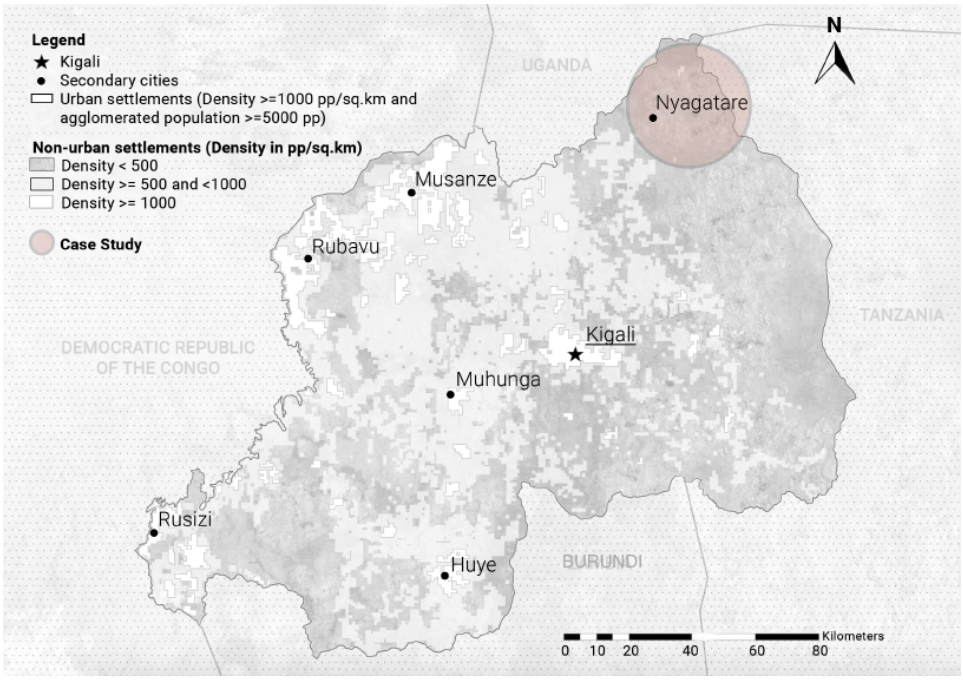

Figure 4. Location of Nyagatare within Rwanda.

Figure 5. Location of public space within the city of Nyagatare.

containing drains. These facilities can integrate multi-layered approaches to urban systems, combining public space design with urban water management: for example, through the creation of retention ponds, the water runoff from slopes is reduced while the presence of water can be used for design purposes and for irrigation. In the context of Rwanda, where rapid urbanisation is resulting in densification, meaning reducing the residential garden size, there should be increasing availability of public gardens and open areas for both water management and public space. A study comparing "business as usual" with an innovative irrigation system showed that the use of locally sourced, untreated water was more efficient for irrigating community gardens, public parks, and recreational landscaping if the neighbourhood was designed in a water-efficient way (Dhakal, Syme, Andre, & Sabato, 2015). In implementing Rwanda's urban agenda to enable green public spaces to add economic value to the neighbourhood, multi-institutional cooperation is required as well as water-efficient neighbourhood design.

An important concern for the current owner of the site, namely the Ministry of Agriculture, is that the intended purpose for the space was tree planting and harvesting, hence the site could be upgraded as public space as long as the design elements do not interfere with the growth of trees and production of forest material (Figure 5). Land ownership related to potential public spaces might appear to be a challenge in Rwanda, yet through collaboration, these hurdles can be overcome.

The public space design workshop in Nyagatare mobilised citizens from different backgrounds to engage in the participatory design process, with each group listing the main elements that should be incorporated in the public space to ensure they do not affect the functioning of the existent ecosystems. The participatory design included a "live" advisory session where all participants reached a consensus on where the public space design elements should be located within the site (Figure 6).

In Nyagatare, although the DDS refers to resilience in terms of agricultural production, in an urban context, the master plan revision process defines resilience in terms of actions at the household level (such as rainwater harvesting systems), in construction and building (though the promotion of green building codes), water management systems and public spaces that can be used for improving climate resilience. For example, in Nyagatare, public space, coupled with agroforestry and water management, can support water retention for longer periods and its use for community gardens and public space maintenance, important in particular during the pro-

Figure 6. Public space participatory design workshop in Nyagatare, in November 2018.

longed drought periods (Dhakal et al., 2015). The allocated site for public space is part of the proposed city-wide resilience infrastructure that could include a series of open spaces (Parker & Simpson, 2018), water and infrastructure works, and a green network linking the peri-urban ecosystems with urban green areas. While supporting increased resilience, the public spaces will also support the absorption of greenhouse gas emissions (Andriono, Hanafi, & Yanuwiadi, 2013) and so reduce the heat island effect, improving microclimate and regulating temperatures in particular in the dry season. At the same time, this approach is promoting greater gender equality and socio-economic inclusion through safe, accessible public spaces for all.

The GCF readiness supports the implementation of the Nyagatare master plan revision and is a climate-related intervention which also supports adequate planning and design for urban communities at risk of climate-induced disasters (Global Green Growth Institute, 2018c). Given that the government regards other types of city infrastructure as a priority, the GCF and other climate finance facilities could be considered as a means to mobilise resources for the implementation of public spaces in cities such as Nyagatare.

8. Conclusion

In Rwanda's current stage of rapid urbanisation, public spaces could play an important role in determining quality of life, especially as there is a trend for such spaces to be privatised and their use restricted. Although there is no clear definition of what constitutes public space in the context of Rwandan culture and development, the government's main regulatory planning documents highlight the necessity of creating and maintaining public spaces. As Rwanda is eligible to receive support from climate and other international funds, and as the government realised the role that public spaces could play in climate change adaptation and absorption of greenhouse gas emissions, there is an opportunity to collaborate with the global climate finance institutions to support development of public spaces as part of the urban resilience systems. The social benefits of public spaces in cities, on the other hand, have yet to be fully recognised by national and local authorities in Rwanda.

Despite the government's policies and initiatives, however, the development and management of public spaces fall between the mandates of different governmental entities and the Government might prefer private investment, as public space is not considered a priority for public investment. As the government's policies openly favour public spaces, the implementation of public spaces could logically be delivered through public investments since public spaces are supporting land value increase and performance of socio-economic activities. While research on public spaces in the Rwandan context is being completed, designs developed through participatory approaches and laws adopted to support their implementation, what Rwanda lacks is adequate funding to realise these public spaces in practice. As a country that is still predominantly rural, with the majority of the population without access to electricity, sanitation, or clean water at the household level, its available budget is limited and generally allocated towards increasing basic services coverage rather than public space provision. Although the social, economic, and environmental benefits of public space are clear, innovative ways of funding their implementation through other means should be identified.

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Conflict of Interests

The authors declare no conflict of interest.

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Article

Strengthening Community Sense of Place through Placemaking

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Abstract
The concept of community involvement and the effect that the act of "making" has on the community itself is a key consideration in the placemaking discussion (Project for Public Spaces, 2015a; Silberberg, Lorah, Disbrow, & Muessig, 2013). From a historical perspective, community development has been placed in the hands of individuals who are considered experts in the creative process. This approach often results in targeted criticism of the proposed development by the host community and a lack of trust in the motives and priorities of the professionals involved (Nikitin, 2012) and diminishes community involvement in the development of public space, a practice that empowers communities and fosters a sense of place among community members. This article discusses the theoretical foundations of community participation and the value of coproduction in the planning and design process, explores the role of placemaking as a strategy for developing a host community's sense of place, and proposes a continuum of placemaking strategies based on Arnstein's ladder of citizen participation to increase the likelihood that a sense of place within the host community will be developed as an outcome of the planning and design process. This continuum is designed to help planning and design professionals better understand how they might include the community in a co-produced process and to highlight the degree to which a placemaking approach to community planning and design promotes a sense of place as an outcome of the process.

Keywords
community-centred design; community development; community participation; placemaking

Issue
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1. Introduction

Sense of place is a concept that encapsulates the many different ways in which people form connections with the environments they occupy (Cross, 2001; Ruddick, 2014). Definitions for sense of place are primarily based on the context in which they are being examined and include: anthropological perspectives related to the symbolic relationship people have with a piece of land (Low & Altman, 1992); environmental perspectives that describe the experience an individual has when in a particular setting (Low, 1992); geographical perspectives and the aesthetic, tactile, or emotional bonds individuals form with a geographical place or setting (Steele, 1981); historical perspectives or the connection individuals create through the presentation and repetition of events within a certain place (Tuan, 1974); and sociological perspectives that consider community attachment and local sentiment based on how individuals both understand and are oriented toward a place (Jackson, 1994). The National Academy of Sciences report *Community and the Quality of Life* (2002) notes that community is often used as a synonym for place and that creating a sense of place is important because it also develops a strong sense of

community among those who live there. This report supports the work of others suggesting that sense of place or community is a form of social capital that shapes the residents' personal identities, fosters a degree of community member rootedness in a place, provides us with a measure of liveability for that place, and creates a sense of well-being within us (Australian Local Government Association, National Heart Foundation of Australia, & Planning Institute of Australia, 2008; Junot, Paquet, & Fenouillet, 2018; National Academy of Sciences, 2002).

Creating a sense of place has become an essential part of contemporary community planning and development practice and can be achieved through the use of participatory strategies and placemaking (Aravot, 2002; Friedmann, 2010; Madanipour, 2006; Mahjabeen, Shrestha, & Dee, 2009). Bringing placemaking into the discussion, Project for Public Spaces ([PPS], 2015a) defines placemaking as the act of strengthening the connection between people and place through the creation of public spaces that act as a centre or focal point for the community. While an ambitious and optimistic goal, placemaking seeks to build or improve public spaces so that they also serve physical, cultural, and social objectives. These objectives include the promotion of public discourse, civic pride, neighbourhood connections, community health and safety, social justice, economic development, and environmental sustainability, to name a few (Silberberg, Lorah, Disbrow, & Muessig, 2013).

Central to the tenet of placemaking is the transformation that occurs when the community members participating in the process, or host-community, are actively involved in that process. By having community members engage in the deliberative and communal processes associated with planning and developing public spaces, citizens assume a more active political voice and influential role in the revitalization of the landscape in which they live (Silberberg et al., 2013). This active involvement not only empowers community members but also nurtures community capacity and local leadership. Silberberg et al. (2013) note that placemaking creates a virtuous cycle and mutual stewardship between a community and its environment. Within this cycle, the community transforms and reshapes the place in which they live, while concurrently, the place is influencing and transforming the way in which the community exists within it.

This growing conversation around placemaking, community empowerment, and community sense of place is important because it suggests that the way in which change in communities takes place also has the potential to produce social benefits like the development of a sense of place within the community. Expanding upon this discussion, this article will investigate how placemaking has the potential to create a sense of place as an outcome of the planning and development process by exploring the question, can an understanding of the connection between placemaking and sense of place be used as a rationale for increasing citizen control during community change efforts?

This will be explored by summarizing findings related to participatory approaches as represented by diverse organizations in varied disciplines, highlighting the value seen when community members are at the forefront of community change processes, and connecting citizen power and community engagement to create a framework for thinking about a sense of place as an outcome for community change efforts. This understanding of the connection between engagement and sense of place that emerges will allow community planners and developers to embrace a coproduction process as more than just a way of developing spaces that meet the needs voiced by a host community. If effectively implemented, placemaking may be able to strengthen the community's tie to the places that are created and empower community members to take more active roles in managing and maintaining their environments and in thinking toward the future.

2. Placemaking, Community Engagement, and Collaboration

For many years, citizen participation has been encouraged as a feature of urban development processes. In 1969, Arnstein offered a visual metaphor for citizen participation (see Table 1) when describing a typology of eight levels of participation organized on the rungs of a ladder (Arnstein, 1969). The bottom rungs are *manipulation* and *therapy* and are identified as non-participatory practices. These only involve the community as spectators while providing the powerholders, or experts leading the process, the opportunity to educate and cure. *Informing* and *consultation* follow on the ladder. Progressing to this level of participation, identified as "tokenism", allows "the have-nots to hear and have a voice" in the process (Arnstein, 1969, p. 217). The fifth level on the ladder is *placation*, a higher level of tokenism where "the ground rules allow have-nots to advise, but retain for the powerholders the continued right to decide" (Arnstein, 1969, p. 217). The final three levels, *partnership*, *delegated power*, and *citizen control*, are all identified as providing genuine degrees of citizen power, ranging from negotiating rights to full managerial power. As such, they accord community members with varying degrees of decision-making ability in the planning and design process.

Community involvement has also been discussed and debated by many groups, including the Association for Public Participation (International Association for Public Participation, 2018). Their proposed spectrum of public participation offers five levels of community involvement that include *inform*, *consult*, *involve*, *collaborate*, and *empower*, with each practice level increasing the opportunity for community members to impact decision-making (see Table 2). The *empower* end of this continuum has a public participation goal of placing the final decision-making in the hands of the public and holds a promise that the professionals leading the project will then implement the decisions the community makes.

Table 1. Adapted from Arnstein's Ladder for Citizen Participation (Arnstein, 1969).

Citizen Participation Levels	General Thematic Description of the Type of Participation at that Level
8. Citizen Control	Citizen Power
7. Delegated Power	
6. Partnership	
5. Placation	Tokenism
4. Consultation	
3. Informing	
2. Therapy	Nonparticipation
1. Manipulation	

Table 2. The spectrum of public participation types based on the degree to which the participation impacts decision making (International Association for Public Participation, 2018).

	Inform	Consult	Involve	Collaborate	Empower
Public Participation Goal	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
Promise to the Public	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

An accompanying set of core values define the expectations for each of these participation levels in the planning and design process. These range from public participation being "based on the belief that those who are affected by a decision have the right to be involved in the decision-making process", to a promise that "the public's contribution will influence the decision" (International Association for Public Participation, 2019). Building from this model, the Clinical and Translational Science Award Consortium (2011) proposed a Community Engagement Continuum starting at *outreach* and extending to *shared leadership*. This conceptualization has each level (*outreach*, *consult*, *involve*, *collaborate*, and *shared leadership*) accompanied by an increasing level of community involvement, impact, trust, and communication flow. One benefit highlighted by this health-related approach is that:

> While community engagement may be achieved during a time-limited project, it frequently involves—and often evolves into—long-term partnerships that move from the traditional focus on a single health issue to address a range of social, economic, political, and environmental factors that affect health. (Clinical and Translational Science Awards Consortium, 2011, p. 7)

The concept of coproduction can also guide our perceptions on engagement and its ability to develop a sense of place within a community. Traditionally, public goods

and services are "potentially produced by the regular producer and by those who are frequently referred to as the client" (Ostrom, 1996, p. 1073). In this process, the term client is considered to be passive and most often the entity being acted upon. Coproduction, however, "implies that citizens can play an active role in producing public goods and services of consequences to them" (Ostrom, 1996, p. 1073). Ostrom and her colleagues at the Workshop in Political Theory and Policy Analysis coined this term in the late 1970s while struggling with the dominant urban governance theories and policies related to massive decentralization. Their studies of metropolitan police services failed to uncover a single instance where a centralized department was able to provide better direct services or lower costs to neighbourhoods (Ostrom, 1996). They also realized that:

> The production of a service, as contrasted to a good, was difficult without the active participation of those supposedly receiving the service. If students are not actively engaged in their own education, encouraged and supported by their family and friends, what teachers do may make little difference in the skills students acquire. If citizens do not report suspicious events rapidly to a police department, there is little that department can do to reduce crime in an area or solve the crimes that occur. (Ostrom, 1996, p. 1073)

In a collaborative learning system, and with the role of "experts" reconsidered to include community members as experts on their communities, the value proposition of coproduction can be reimagined as progressing from professionals engaging with communities to communities engaging with professionals (Goerner, 2007).

Cross-sectoral collaboration also plays a role in working to coproduce change. Working with multi-sectoral partners and the community to coproduce goods, services and policies can provide new and additional perspectives to the planning and design process, can help with the identification and addressing of community needs, and can aid in the development of planning and designing solutions that are best suited to addressing those needs (The Public Health National Center for Innovations, 2018). Recent work from Climate Interactive, a group using systems analysis to help people address climate change, introduced the practice of "multi solving". When multi solving, "people pool expertise, funding, and political will to solve multiple problems with a single investment of time and money" (Swain, 2018, p. 1). While there are different multi solving approaches, three key principles and three practices emerged from the related research. These three principles include: 1) everyone matters, and everyone is needed; 2) we can succeed by addressing tough problems in an integrated fashion; 3) large solutions start small and growth results from learning and connecting. The three practices involve: 1) welcoming; 2) learning and documenting; and 3) storytelling (Swain, 2018). Placemaking, citizen science, and community development, like many other collaborative approaches, typically value these same principles and practices, and along with multi solving will be critical in addressing many of the global issues that have been identified in the United Nation's Sustainable Development Goals (United Nations, 2016).

The ideas presented in this section are not new. Contemporary organizations continue to build on the work of Jane Jacobs (1961), Jan Gehl (1971), William "Holly" Whyte (1980), and other urbanists who, over the years, have advocated for bringing the public into the design process. The voice of the community is regularly sought at the level of tokenism but fewer examples are available that represent true levels of involvement. While not all projects require authentic community participation, and community dialogue and engagement can be time consuming and messy, many initiatives would gain value from spending the time needed to move further up Arnstein's Ladder and further toward citizen control and co-production.

3. The Value Proposition

Antonovsky (1979) discusses at length the value of being involved as a participant in the processes that shape both our destiny and our daily experiences. Participatory approaches are now an integral part of many planning processes and have the potential to positively impact an individual's sense of coherence (SOC). This involvement exposes community members to new challenges and allows them to continue to develop their skills and relationships. Typically, the outcomes and products from these person-centred initiatives closely match the needs and interests of the individuals who were involved in the process, rather than the needs and interests of those who were not included in the process. This approach is also highlighted in IDEO's Field Guide to Human-Centred Design and emphasizes the importance of person/human involvement in the design process:

> Embracing human-centred design means believing that all problems, even the seemingly intractable ones like poverty, gender equality, and clean water, are solvable. Moreover, it means believing that the people who face those problems every day are the ones who hold the key to their answer. Human-centred design offers problem solvers of any stripe a chance to design with communities, to deeply understand the people they're looking to serve, to dream up scores of ideas, and to create innovative new solutions rooted in people's actual needs. (IDEO, 2015, p. 9)

Examples of the value community engagement in placemaking can be seen in projects like the revitalization of Congress Square in Portland, Maine (Cronstein & LaCasse, 2014). Congress Square was developed through an Urban Development Action Grant in the early 1980s and was designed to add vitality to the city as a public

space. Through the 1980s and 1990s, the park was actively programmed with events like dances, movies and concerts, and became a gathering place for local residents and visitors to the city. As public and private investment in the park declined, the space and its use deteriorated leaving the park looking unkept, unwelcoming and unsafe (see Figure 1).

By the early 2000s, the park was on the verge of being sold by the city, and a grassroots organization called the Friends of Congress Square Park was formed bring the community together and revitalize the park. The group raised money, attention, and a great deal of interest in the park through the use of signs like "I want…in Congress Square" that were left around the city, and that the general public could write on all to share their aspirations for the park's future. The community group then started cleaning up the park and adding amenities (see Figure 2).

Figure 1. Congress Park, Portland, Maine, before community interventions in the early 2000s (image courtesy of Project for Public Spaces, retrieved from https://www.pps.org/article/the-story-of-congress-square-park-how-a-derelict-plaza-got-a-new-identity-downtown).

Figure 2. Friends of Congress Park during the park clean-up and revitalization of the park (image courtesy of Project for Public Spaces, retrieved from https://www.pps.org/article/the-story-of-congress-square-park-how-a-derelict-plaza-got-a-new-identity-downtown).

These changes were further enhanced through the addition of moveable furniture, free WiFi, and access to food trucks. In time, more and more people began coming to the park just to site outside, enjoy a cup of coffee, read the paper, or even work from their computers. Since then, the park has grown in popularity and use, and is now beginning to be programmed again with events and activities that keep the park alive and meaningful to the community. These events include dancing, live concerts, movie nights, and even hosted a live telecast of the world cup in soccer (see Figure 3). As community member Maureen Hannigan explained:

> I especially loved the swing dancing event. It was magical. Everyone was dancing—hotel guests, kids from the neighbourhood, people just passing by stopped to listen or dance. It was so moving. I almost got out of my wheelchair and started dancing too! I also loved the world cup soccer games. There was such a diverse mix of people. Congress Square Park knocks down social walls and brings the community together. It's a village. (Cronstein & LaCasse, 2014)

PPS has also noted that the Friends of Congress Park have brought life back to the park through the use of lighter, quicker and cheaper (LQC) approaches to revitalizing the space and that has given them the opportunity to assess and reassess their success, first with art installations, movable furniture and WiFi, and then with food trucks events, and vegetation and tree planters as they have moved forward, and now this community group is looking to extend past the parks physical boundaries as they consider work and other projects they can engage in.

This community engaged, placemaking approach to design utilizes a three-step process that involves inspiration, ideation, and implementation phases. The inspiration phase encourages designers to interact with the community in a number of ways including group interviews, community activities, and immersion within the community. Each of these techniques helps gather relevant information from the community in ways that do not appear intrusive to the community members. These techniques also provide a sense of empathy and understanding for the community. As the Field Guide to Human-Centred Design states, "the Inspiration phase is about learning on the fly, opening yourself up to creative possibilities, and trusting that as long as you remain grounded in desires of the communities you're engaging, your ideas will evolve into the right solutions" (IDEO, 2015, p. 30). This matching of the design solution with community's desires and needs addresses the meaningful aspect of Antonovsky's SOC within the space undergoing the change.

Placemaking, as proposed by PPS, also embraces a participatory approach to change and offers this description:

> Placemaking refers to a collaborative process by which we can shape our public realm in order to maximize shared value. More than just promoting better urban design, Placemaking facilitates creative patterns of use, paying particular attention to the physical, cultural, and social identities that define a place and support its ongoing evolution.
>
> With community-based participation at its centre, an effective Placemaking process capitalizes on a local

Figure 3. Swing dancing in Congress Park Square, Portland, Maine (image courtesy of Project for Public Spaces, retrieved from https://www.pps.org/article/the-story-of-congress-square-park-how-a-derelict-plaza-got-a-new-identity-downtown).

> community's assets, inspiration, and potential, and it results in the creation of quality public spaces that contribute to people's health, happiness, and wellbeing. (PPS, 2015b, paras 1–2)

The value of participation is further expressed in the first of the *Eleven Principles for Creating Great Places* presented by PPS (2015a). In this report, PPS notes that the community should be considered the expert when it comes to public space design, and that good design starts with the identification of people in the community who can provide insights into how an area functions and the issues that most impact the people using the space. Most critically, PPS suggests that this process fosters a sense of community ownership in the project that can benefit both the project sponsor and the community (PPS, 2015a).

Strategies promoting best practices in placemaking have been well described by Silberberg and her colleagues (Silberberg et al., 2013). They contend that the act of placemaking increases a community's stewardship and responsibility for a place. For example, communities might become involved in placemaking through the painting of murals and artwork on walls, or by setting up small businesses in the space to promote its use and value. Communities can also become involved in the design of space by allowing those using the space to arrange objects and furniture so that it best meets their needs. Flexible spaces using portable furniture, plants, and features allow the community to set up spaces that are meaningful, manageable, and comprehensible to them. Designers can then note the activities and environmental arrangements that have been created by the community as they look to more permanent design features and arrangements for that environment, or conversely, leave the space flexible and adaptable so that the community is able to continue using the space in ways that meet many different demands and needs.

Each of these techniques gives the community a greater SOC by allowing them to have greater control over the purpose, arrangement, and value of the space they create. In turn, this involvement leads to a number of benefits including an increased political voice for the community, greater control over the direction of change in the community, and a greater sense of stewardship and responsibility by the community for the changes that have been created (Silberberg et al., 2013). An example of this increased stewardship can be seen in Muncie, Indiana, with the Whitely Community Council's gradual assumption of more and more responsibility for each project that they are involved in.

While still in its infancy, the Whitely Community Council began restoration on a historically significant civil rights church known as the Schaffer Chapel. While funding had been made available for the restoration of the church roof and siding, little money had been set aside for other aspects of the restoration such as parking or landscaping. To improve the church's image from the street on the northwest corner of the church, the council leadership worked with Ball State University and the Minnetrista Cultural Centre in 2014 to establish a planting plan and the obtain flowers needed for the garden at little cost to the community. A community work day was held and in the space of one day, the garden was installed (see Figure 4).

Figure 4. Schaffer Chapel northwest garden at the completion of the installation in June of 2014 (left), and in July of 2015 (right; images courtesy of the authors).

Emboldened by their success and the appearance of the garden on the northwest side of the church, the council again sought the help of Ball State University to obtain ideas and designs for an accessibility ramp, a parking area, and further vegetation for the east side of the church. With the help of the Muncie City council who laid the surface of the parking area as part of a training program for their workers, and some fund raising among the now growing Whitely Community Council membership, this second part of the landscape restoration process was successfully completed in 2015 (see Figure 5). Since then, the Whitely Community Council has worked with Ball State University to create a museum dedicated to the civil rights movement in Muncie and Indiana in the Schaffer Chapel (2016–2017), raised the funds and had to solar panels installed on the church in 2017, worked with the Muncie City Council in the removal of blighted properties in the Whitely neighbourhood (2016–2018) and have now acquired a former manufacturing site with the intention of turning into a community food pantry. Each of these progressive steps forward has seen the Whitely Community Council grow in numbers and become more independent in terms of their ability to address Whitely Community Needs and issues, without having to depend upon outside funding or city planning and development priorities.

4. Using Placemaking to Create a Sense of Place

The degree to which a sense of place is developed within a host community is influenced by the degree to which the community is engaged and responsible for the outcomes in the planning and development process. However, community engagement and participation is often contingent upon a number of other factors like the community's prior history of involvement in similar initiatives, the types of community involvement and participants needed, the level of planning, time, and resources that can be committed to community involvement and participation, the types of activities and decisions local participants would need to undertake, and the level of motivation or desire community members have to participate in the project (Burton et al., 2004; Goodlad, Burton, & Croft, 2005). As such, community involvement in any planning and design process varies to some degree due to the goals and objectives of the activity needing to be achieved, the selection of appropriate community members and activities that can meet best these objectives, and the level of standards that need to be established for these activities (Burton et al., 2004). This suggests that while community involvement in placemaking promotes a sense of place among participants, the way in which the community participates may vary. In turn, the degree to which a sense of place is developed from the planning and design process could also vary.

Arnstein (1969) notes many different ways in which citizen participation can be incorporated into the planning and development process, and these levels of community participation and involvement can be viewed from low to high in a linear order. As placemaking requires community involvement and participation to occur at some level of decision-making, the lowest rung on Arnstein's ladder that could be considered a placemaking process is the level of partnership. At this level

Figure 5. Installation of the vegetation, parking and church access ramp on the east side of the Schaffer Chapel in the Whitely Community in Muncie, Indiana (images courtesy of the authors).

of community-centred involvement, the planning and design process is still primarily organized and led by the design professionals in the partnership, but with the community influencing project outcomes through contributions to, and negotiation with, these traditional power-holders (Arnstein, 1969). However, this level of community involvement and responsibility in the planning and design process is the least of the three citizen participation levels proposed in Arnstein's ladder and the least likely to result in encouraging a sense of place within the host-community (see Figure 6).

In contrast, community involvement and participation at the level of *citizen control* has the greatest potential to promote a strong sense of place within the host community as an outcome of the planning and design process. At this level of participation, community leaders are empowered to use the resources and information available to them as they see fit. In this role, the community makes decisions during the planning and design process that best meets their needs and uses professional design personnel and services in a consultative role. This level of participation is a "community-driven" placemaking strategy and provides the host community with complete control of the planning process outcomes. This placemaking strategy requires a considerable commitment in terms of time and resources on the part of the community, but this additional community commitment produces the highest likelihood that a sense of place will result within the host-community and that proposed changes will be actually take place and be useful. Between these two placemaking endpoints lie a continuum of community involvement and placemaking strategies that, to varying degrees, can promote a sense of place. For example, planners can involve community members in charrettes and actual planning design activities, allow community members to review and critique design ideas through community reviews of planning proposals, and even use community members to assist with the installation or construction of the proposed development. Each of these activities helps foster the connection a community has with the place in which it inhabits and promotes a sense of place among the community members. Additionally, community members could also be involved in the construction processes alongside qualified professionals who currently live in the community, or perhaps through the donation of construction materials or landscaping plants. Ultimately, community members may take on leadership roles in the collection of planning data, or the organization of committees during the planning process. Each successive level of involvement and responsibility the community undertakes during the planning and design process serves to further strengthen the ties and connections the community has with the place being created. This increases the likelihood that a strong sense of place will be developed within the host-community as a result.

5. Conclusion

The importance of community participation in the planning and development process has been well established in the literature. From Arnstein's (1969) pivotal work describing the range of citizen participation levels that could be used in the planning process, to modern day organizations like the Australian Citizen Science Association (Australian Citizen Science Association, 2019) and the International Association for Public Participation (International Association for Public Participation, 2016) that promote citizen involvement in community projects, civic engagement has been shown to enhance project outcomes (Aboelata, Ersoylu, & Cohen, 2011; Selman, 2004), benefit the host communities in a variety of different ways (Aboelata et al., 2011; Goodlad et al., 2005; Silberberg et al., 2013), and increase the legitimacy of the firm and professional working with the community (Bowen, Newenham-Kahindi, & Herremans, 2010). While the value of this community involvement is not always fully understood or appreciated by planning and

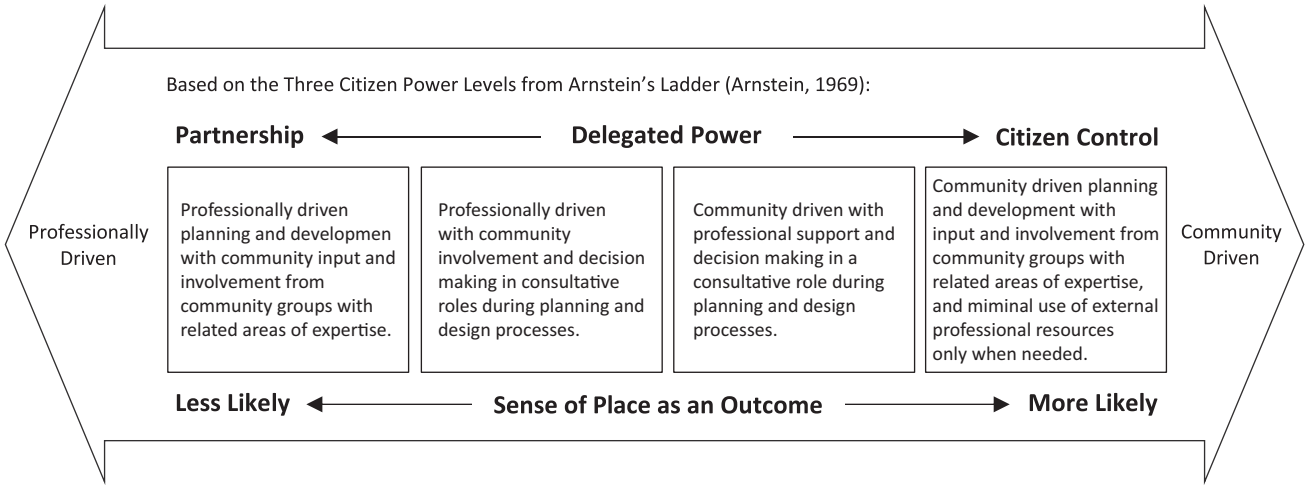

Figure 6. A proposed continuum of community participation and involvement in placemaking and the impact on the participant's development of a sense of place.

development practitioners, most contemporary projects now incorporate an approach that includes community participation to some degree in the planning and development process.

As we continue to explore community engagement within the planning and development process, reinvisioning Arnstein's original ladder by expanding and analyzing Citizen Power levels and exploring citizen involvement from a coproduction perspective can provide a starting point (Bovaird, 2007). Given the positive association between the Citizen Power levels of participation and the concept of sense of place, more research and analysis is needed to fully understand how this relationship can be enhanced and the degree to which the types of engagement and decision making responsibilities given to the community influences outcomes. The model offered in this article is a step toward the reframing of Citizen Power levels in terms of the degree to which the decision making process is either professionally or community driven. From this perspective, a continuum of community engagement options based on coproduction is offered, with the potential for these options to further promote the psychological and social ties that enhance community resilience and bind community members together (Sanders & Stappers, 2008; Stelzle, Jannack, & Rainer Noennig, 2017).

Recent studies related to placemaking also offer a number of important perspectives about community involvement in the planning and development process. Placemaking emphasizes the importance of community engagement and decision making in and suggests that this form of engagement fosters an intrinsic connection and sense of identity between the community and place in which they live (Silberberg et al., 2013). This connection, or sense of place, is important because it empowers communities to pursue future changes, promotes the community's political voice, and fosters community stewardship for the environment in which they live. These placemaking benefits, while they may not be as significant for professionals in terms of planning and development outcomes, may be crucial to communities in rural or declining city neighbourhoods that are either too small or that lack the funding or resources needed to undertake community change projects. As such, using a planning approach that fosters sense of place as an outcome of the community's participation in the process has the potential to create long-term benefits that can serve the community in diverse ways in the future. With ongoing participation and community engagement, these same small and underrepresented rural and inner city communities may be empowered to initiate incremental changes within their neighborhoods at an ever increasing scale over time, with a greater degree of independence, at lower levels of cost to develop and implement, and with professional services used in consultative roles rather than as the drivers. This incremental approach can help communities avoid the need for larger and more expensive change projects, allow communities to respond quickly to changes when they are needed, and allow communities to implement change within their fiscal capacity. These can all evolve while continuing to foster and strengthen the community's sense of place.

Conflict of Interests

The authors declare no conflict of interests for this article.

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Article

Theory of Place in Public Space

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Abstract
Place as a theory fails to clearly articulate linkages between meaning and physical settings for chosen activities in public space. In addressing these issues, the meaning of user behaviour in public space is described by affective and cognitive images of the physical setting; a theoretical conceptualisation of individual experiences which include overlapping social, cultural, and educational contexts. The results of a survey of 160 users across four public spaces found that affect framed cognitive evaluations of design elements for anticipated behaviour. A two-stage process suggesting place-making in design need to shift emphases from articulating preferences to enabling interpretation and opportunity. Within this theoretical framework, the argument is presented that a focus on aligning design with public expectation at a point in time will lead to temporal popularity of location, to popular places that will be presented for redevelopment at some future point in time when their popularity declines.

Keywords
affect; behaviour; cognition; facet theory; place-making; public space; theory of place

Issue
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1. Introduction

While observations of place, placelessness, identity and sense of place are described in the literature and complexities of methodological innovations and computer algorithms in place-making are debated, knowledge of the process of how individual and shared meanings of physical spaces are generated is limited (Carmona, 2015; Cilliers & Timmermans, 2014; Lewicka, 2011; Liu & Freestone, 2016). By collating theoretical knowledge of place with experimental work in affect and cognition, and field research in place dependence, it is argued that mental image in the theory of place is comprised of affective and cognitive associations with physical settings and activities in those settings.

2. Theory

Place-making as a design practice has its origins in Relph's (1976) description of place-making as a process of creating place which occurs authentically and unself-consciously in the interactions between people and physical environments. In Relph's work, this description of place-making along with descriptions of placelessness, insideness, outsideness, identity, sense of place, essence of place, etc., were articulated for research to improve knowledge on the theory of place. This knowledge would then inform methodologies for "the maintenance and manipulation of existing places and the creation of new places" (Relph, 1976, p. 44). However, the terminology proposed for research to expand the body of knowl-

edge about place has been interpreted as theory in practice and the requisite theoretical work has not kept pace with the evolving methodologies in place-making (Lewicka, 2011; Liu & Freestone, 2016). This has resulted in: (1) "no blueprint for planning public places, and no formula for successful participatory processes" (Cilliers & Timmermans, 2014, p. 427), with methodologies tailored to each new situation, and (2) an absence of a theoretically driven knowledge base with interactions of physical appearance, activities, and meanings described using detailed taxonomies of case studies (Carmona, 2015).

"Physical appearance, activities, and meanings are the raw materials of the identity of places, and the dialectical links between them are the elementary structural relations of that identity" (Relph, 1976, p. 48). These identities are embedded in the "experience, eye, mind, and intention of the beholder as much as in the physical appearance of the city or landscape" and shared (in part) because "we experience more-or-less the same objects and activities and because we have been taught to look for certain qualities of place emphasised by our cultural groups" (Relph, 1976, p. 45). Spaces separated through experiences; experiences which transform space into place by "a particular system of physical features, activities, and meanings" (Relph, 1976, p. 49). A weaving together of "the physical environment, human behaviours, and social and/or psychological processes" (Stedman, 2003, p. 671) and while "place, person, time, and act form an indivisible unity" (Wagner, 1972, p. 49), it is not a territory defined by that intersection (Canter, 1997). It is a snapshot observed within individuals on-going experiences, a snapshot shaped by personal, social, and cultural histories. Identities frequented and placeless spaces defined in time (Canter, 2008; Motloch, 2000) with "as many identities of place as there are people" who recognise a space as a separate entity (Narin, 1965, p. 78, as cited in Relph, 1976, p. 45). The recognition of spaces as separate entities, with spaces frequented described as places dependent on two components of goal-orientated behaviour: (1) the quality of the place in terms of social and physical resources to satisfy goal-directed behaviour, and (2) how it compares to other alternative places (Pretty, Chipuerb, & Bramston, 2003). Comparisons described as involving both the emotional bonds to the setting and the activities afforded by the setting (Zhang, Matsuoka, & Huang, 2018) that are not always conscious or continuous but come into play when circumstances heighten awareness (Stokols & Shumaker, 1981).

> This perspective suggests that the positive affective content of the bond results from successful goal pursuit, the cognitions consist of expectations of goal attainment based on past experiences, the behaviour expressed is repeated place use, and the place focus is social or physical, depending on the particular goals sought….This can lead to place dependence, a type of attachment in which individuals value a place for the specific activities that it supports or facilitates. (Scannell & Gifford, 2010, p. 6)

This is consistent with Rapoport's (1982) description of an "affective image" as the organism's initial interaction with an environment which frames subsequent analysis, evaluation, and decisions about a physical setting. Something Motloch (2000) referred to as setting appraisal followed by a second inter-related process of evaluation. While Kaplan (1987, 1995) reasoned that perception is related to mental representation, a gradual process comparing past experiences with the present, studies have found that affective images are not preceded by a cognitive process but are precognitive and constitute the initial level of response (Dixon, 1981). Controlled experimentation on preferences, attitude and impression formation, decision-making, and clinical phenomena indicate that "affective reactions to stimuli are often the very first reactions of the organism...can occur without extensive perceptual and cognitive encoding, are made with greater confidence than cognitive judgements, and can be made sooner" (Zajonc, 1980, p. 151). These arguments are supported by GIS mapping of behaviour in public space which found materiality of design elements less important than their context indicating that decision making, be it affective and or cognitive, is part of actualised behaviour in public space (Ghavampour, Del Aguila, & Vale, 2017).

3. Hypothesis

In theory, place is defined by an alignment of mental image, behaviour, and physical setting. A model within which mental image has an implicit temporal dimension where past experience is reflected in affective and cognitive responses to current physical settings. Within this framework, it is hypothesised that anticipated behaviour in public space can be described by affective and cognitive responses to physical settings and the design elements within those settings. Mental image (affect, cognition), anticipated behaviour, and design elements in public space are defined from previous research and mapped using facet theory to represent the hypothesised configuration. With this framework, connections between physical settings and behaviour are explored, with the hypothesis that anticipated behaviour in public space is defined by the affective and cognitive images of the physical setting.

4. Method

4.1. Participants

The participants were 160 stationary users of four public spaces in the city centre of Wellington, New Zealand. Two participants were excluded due to incomplete data. The 158 included respondents compromised 77 male, 78 female, and 3 unspecified, aged between 14 and 64

years with a mean age of 31.8 years. The sample was 61.4% NZ European, 13.9% European, 8.9% Asian, 3.8% Māori, 4.4% other (African, Middle Eastern, Latin) ethnicity and 7.6% not specified. The average length of time living in Wellington was 10 years. 67.7% had tertiary education, 6.3% trade qualifications and 23.4% secondary qualifications. 53.8% work in the city centre and 65% use public space more than 2 or 3 days a week. Times of data collection were spread evenly across the four locations and represented different times of the day (morning, lunchtime, afternoon) split between workdays and weekends.

4.2. Questionnaire Design

The questionnaire design was framed using the facet theory (Borg & Shye, 1995; Canter, 2012; Hackett, 2014). Originally proposed by Guttman in 1954, facet theory uses a mapping sentence to provide a direct link between a theoretically derived hypothesis and the results of the empirical research. This sentence specifies the range of response for the population of interest and when resulting data is analysed (see Section 4.3 on data analysis), this enables the theoretical argument to be directly evaluated using the results of the data analysis (Guttman, 1968, 1982).

The research hypothesis specified affect, cognition, physical setting, and behaviour as four facets in the theory of place in public space. A comprehensive literature review identified a list of elements that will affect the social life of public space. The list was narrowed down to cover only the critical elements. These facets and the elements within each facet are defined as follows:

1. Physical setting ($2 \times 3 = 6$ elements): Studies have linked the visual character of nature, like form and texture, to the quality of environments and people's preferences within it (Kaplan, 1987; Ulrich, 1983). Incorporating natural design elements like grass, trees, and water contributes to individual and group activity in public spaces (Appleyard, 1978; Knecht, 2004; Taylor, Kuo, & Sullivan, 2002; Ulrich, 1983). In defining physical setting, material type (natural or artificial) is combined with three representative design elements of public space, furniture, surfaces, and features (Motloch, 2000). This combination of material type and design elements defines six elements in the physical setting facet.
2. Affect (2 elements): Affect is described in two primary dimensions—pleasantness and arousal (Russell & Pratt, 1980). The combination of pleasantness and arousal gives rise to a feeling of excitement while pleasant and low arousal is relaxing. Unpleasant arousal brings distress, with unpleasant low arousal gloomy (Yik, Russell, & Steiger, 2011). In public space, relaxing spaces are pleasant, peaceful, and tranquil, and exciting spaces are interesting and energising. Based on the work of Russell and Pratt (1980) and Yik et al. (2011), relaxing and exciting were used to define two elements in the affect facet. These elements represent the positive activation of affect with negative deactivations indicated by participant ratings on the response scale.
3. Cognition (2 elements): In defining urban cognition, Nasar (1989) refers to Lynch's (1960) concept of imageability through which people build knowledge in public space. The two important cognitive components of imageability are legibility and meaningfulness (Gifford, 2014; Montgomery, 1998; Nasar, 1994). A space is legible when it has an obvious arrangement and clear structure, and meaningful when its identity holds a special character for the person. Pilot testing of questionnaire items found clear identity and obvious arrangement were not immediately understood by respondents. More detailed discussions revealed that clear structure and special character are better terms to express legibility and meaningfulness.
4. Behaviour (2 elements): Comparisons involving both emotional bonds to the setting and the activities afforded by the setting come into play when circumstances heighten awareness (Stokols & Shumaker, 1981). Gehl (1987) and Lennard and Lennard (1995) categorised the two extended types of activity in public space as being alone or being with friends and family. Gehl (1987) sorted activities in terms of intensity, from simple non-communal contacts (being alone and seeing and hearing people) to complex and emotionally involved connections (being with friends and family). Similarly, Lennard and Lennard (1995) grouped social life in a public place through connections to others without speech and being in public in a group. For the behaviour facet, behaviour is divided into two types, whether meeting a group of friends in a public space or spending time alone in a public space.

The inter-relationships between behaviour, physical setting, and mental image is defined for the population of interest, users of small urban public spaces, with affect and cognition represented by separate facets of the mental image. The mapping sentence (Figure 1) specifies 48 items in a $2 \times (2 \times 3) \times 2 \times 2$ combination of elements in facets. A typical item is: "When I spend time with my friends in public spaces, I prefer places with wood and stone furnishings because the place is relaxing and has a clear identity". The 48 items were presented in two sections of 24 items in the questionnaire as specified by the behaviour facet (being alone or with friends). Written instructions explaining this division were provided. Responses to each of the 48 items were indicated on seven-point Likert scales ranging from (1) strongly disagree to (7) strongly agree.

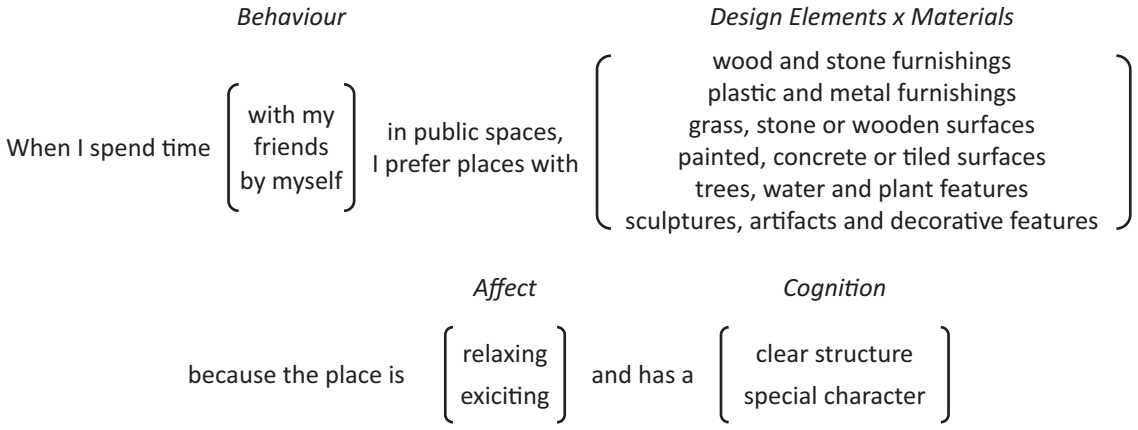

Figure 1. The mapping sentence used in the survey of stationary users.

Specific examples of design elements or behaviour were excluded from the facets to reduce the influence of individual differences in preferences. For example, if natural is tropical for one person and a manicured garden to another, the inclusion of specific examples would confound the results. The first would prefer small urban public spaces with lush tropical vegetation and not be interested in meeting friends or going alone to a space with organised gardens. The decision-making process of each user would be the same, but the outcome of the process in a specific context would be different. A positive affect in one context would frame the cognitive appraisal and preference for the space while a negative affect in another space would result in a lower preference for that space. This pattern would reverse for the second respondent. The process would be consistent, but the data would be different. By using sparse descriptions, respondents drew on their experience to answer each question and the group average results are indicative of a consistent process used by each participant.

4.3. Data Analysis

The influence of individual differences in experience is controlled in the present research by interviewing stationary users of public space with a generic questionnaire. The questionnaire does not ask them about the public space, their current activity, or indicate what they might do if meeting friends or spending time in a public space. Their presence indicates a shared preference for using public space in the urban core. The group average response is analysed using non-metric Multi-Dimensional Scaling (MDS) with each item represented as a point in a multidimensional Euclidean space. Within this space, items having similar response patterns are grouped closer together with the relative locations of items providing a graphical representation of the similarity or dissimilarity of each item to all other items. Regions within the spatial representation are defined by elements which share similar item response patterns. This visual description of the data structure is further informed using mean preference ratings for each item and non-parametric statistical tests (Friedman's χ^2) to assess differences between regions (Groves & Wilson, 1993).

5. Results

The two-dimensional spatial representation of 48 questionnaire items is described by the naturalness or artificiality of design elements (Figure 2). With the artificial design elements, the 24 items depict three subgroupings: artificial furnishing (plastic, metal), artificial surfaces (painted, concrete or tiled), and artificial features (sculpture, artefacts, decorative). There is a separation between being alone or with friends with artificial furnishings and artificial surfaces. The eight items relating to artificial features are proximal to the 24 natural items. With the natural items, the separation between design elements, and the separation between being alone or with friends, not as distinct with natural surfaces (grass, stone, wood) and natural features (trees, water, plants) inter-related.

The preference ratings of natural and artificial design elements, broken down by behaviour and site (see Table 1) indicated a preference for natural design elements (median = 130.5) over artificial design elements (median = 96; Friedman $\chi^2 = 131.9$, $df = 1$, N = 158, $p < 0.000$). This preference for natural design elements was significant on weekdays ($\chi^2 = 72.053$, $p < 0.000$), weekends ($\chi^2 = 60.266$, $p < 0.000$), if alone ($\chi^2 = 134.427$, $p < 0.000$) or with friends ($\chi^2 = 120.695$, $p < 0.000$).

With both the natural and artificial design elements, features receive the highest preference, followed by surfaces, with furnishings given the lowest rating. This result is observed overall and in 30 of the 32 ratings on workdays and weekends for each site. Artificial surfaces and artificial furnishings receive an overall negative rating (i.e., means < four).

1. A significant difference between natural features (median = 48), surfaces (median = 44), and furnishings (median = 40; $\chi^2 = 122.015$, $df = 2$, N = 158, $p < 0.000$). Post-hoc pairwise compar-

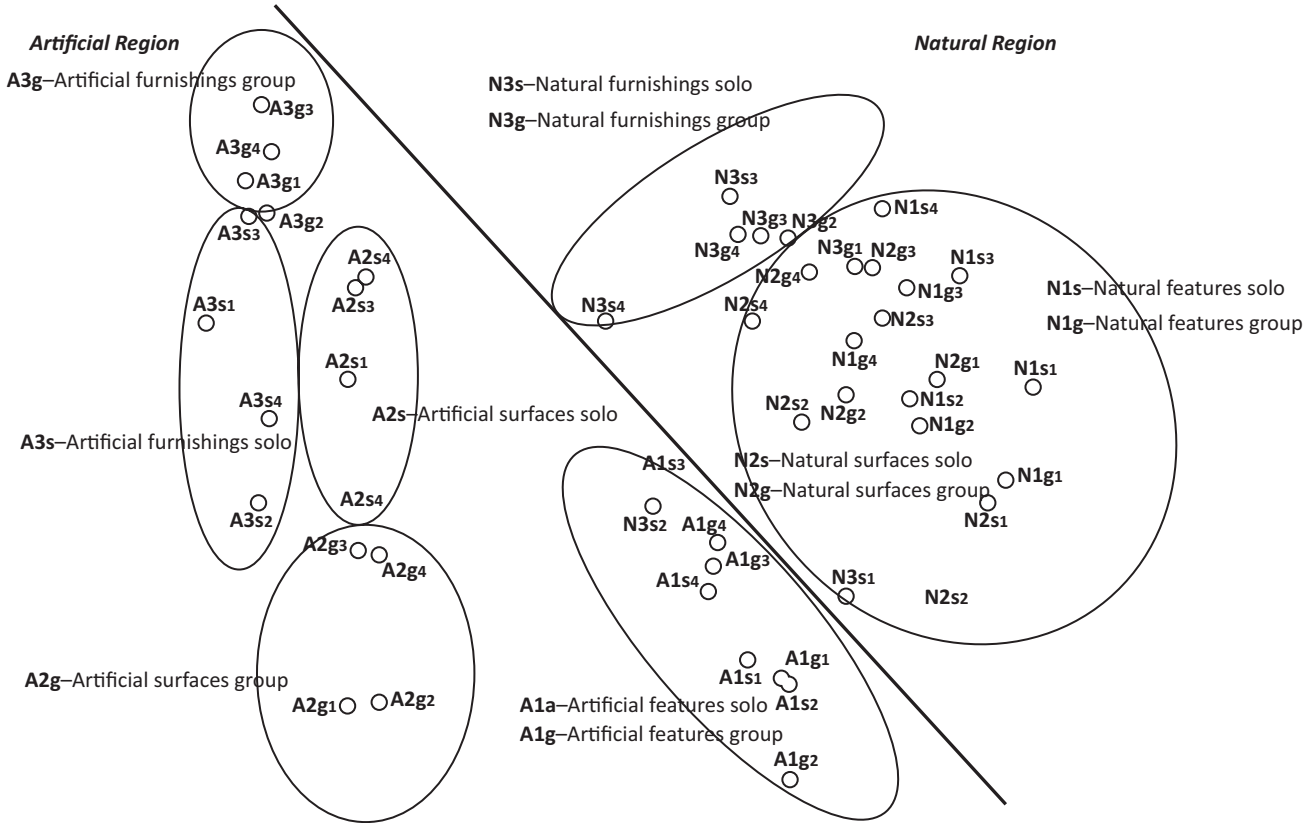

Figure 2. Two-dimensional spatial representation of 48 items (stress = 0.07; N = 158).

isons using Wilcoxon found the median preference for natural features was significantly greater than the median preferences for natural surfaces ($p < 0.000$) and furnishings ($p < 0.000$), and the median preference for natural surface significantly greater than the median preference for natural furnishing ($p < 0.000$).

2. With artificial design elements, a significant difference was found between artificial features (median = 40), surfaces (median = 31.5), and furnishings (median = 28; $\chi^2 = 149.247$, $df = 2$, N = 158, $p < 0.000$). Post-hoc pairwise comparisons using Wilcoxon found the median preference for artificial feature was significantly greater than the median preference for surface ($p < 0.000$) and furnishing ($p < 0.000$), and the median preference for surface significantly greater than the median preference for furnishing ($p < 0.000$).

With the overall preference for natural design elements over artificial elements and statistical difference between types of design elements, separate analyses were conducted for natural and artificial elements. In the two-dimensional spatial representation of the 24 natural design elements (Figure 3), behaviour is described by mental image (affect, cognition) and type of design element. The spatial representation of data points from the upper left to the lower right reflects overall preferences with natural features preferred, followed by natural surfaces and natural furnishings (see Table 1). Within this ordering, design elements are distinguished by mental image. Three regions are evidenced: (1) natural design elements that have a "relaxing and special character" (lower left ellipse), (2) an intertwined middle grouping of "relaxing and clear structure" and "exciting and special character", and (3) design elements "exciting and clear structure" (upper right ellipse). Although preferences for natural features, surfaces, and furnishings were found to be different (see Table 1), natural design elements with "relaxing and special character" are preferred for solo and group activity. Natural design elements with an "exciting and clear structure" are less preferred than natural design elements that have an "exciting and special character" or "relaxing and clear structure" (see Table 2). Nested within this two-dimensional mental image of natural design features, the separation between the four affective-cognitive combinations for solo activity is greater than the separation between design elements for group activity.

In the analysis of the 24 artificial design elements, differences between features, surfaces, and furnishings are greater than mental images (affective, cognitive) of solo or group activity (Figure 4). The mean preference ratings decrease from left to right and there is no separation within artificial furnishings and artificial surfaces based on their affective-cognitive evaluations. With artificial features which received positive preference ratings (Table 1) and were closer to the natural design ele-

Table 1. Mean preference of natural and artificial design elements.

	Alone				With Friends			
	Natural		Artificial		Natural		Artificial	
	Workdays	Weekends	Workdays	Weekends	Workdays	Weekends	Workdays	Weekends
Midland Park								
Furnishings	4.86	4.93	3.76	2.76	5.35	5.60	3.76	2.81
Surfaces	5.49	5.56	4.10	3.39	5.63	5.85	3.96	2.95
Features	5.99	6.30	5.19	4.96	5.96	6.23	5.11	5.06
	5.45	5.60	4.35	3.70	5.65	5.89	4.28	3.61
Glover Park								
Furnishings	4.86	4.74	3.32	2.34	5.21	4.77	3.34	2.46
Surfaces	5.42	5.41	3.53	2.83	5.34	5.35	3.93	3.40
Features	5.68	6.06	4.80	5.08	5.86	5.40	4.87	5.06
	5.32	5.40	3.88	3.41	5.47	5.17	4.05	3.64
Civic Square								
Furnishings	5.01	4.91	3.63	3.23	5.00	5.05	3.49	3.04
Surfaces	5.50	5.29	3.54	3.87	5.43	5.49	3.70	3.89
Features	5.87	6.03	5.08	4.61	5.82	5.50	5.34	4.71
	5.46	5.41	4.08	3.90	5.42	5.35	4.18	3.88
Te Aro Park								
Furnishings	4.76	4.79	3.33	3.33	4.96	5.06	3.06	3.61
Surfaces	5.56	5.60	3.92	3.59	5.60	5.43	3.95	3.75
Features	5.79	5.48	5.00	4.87	6.00	5.66	5.19	5.09
	5.37	5.29	4.08	3.93	5.52	5.38	4.07	4.15
Overall								
Furnishings	4.87	4.84	3.51	2.91	5.13	5.12	3.41	2.98
Surfaces	5.49	5.47	3.78	3.42	5.50	5.53	3.89	3.50
Features	5.83	5.97	5.02	4.88	5.91	5.70	4.96	4.98
	5.40	5.42	4.10	3.74	5.51	5.45	4.14	3.82

Table 2. Mental image of design elements.

	Alone				With Friends			
	Relaxing		Exciting		Relaxing		Exciting	
	Special Character	Clear Structure	Special Character	Clear Structure	Special Character	Clear Structure	Special Character	Clear Structure
Natural Furnishings	5.39	4.97	4.64	4.42	5.46	5.01	5.14	4.90
Natural Surfaces	6.10	5.59	5.25	4.97	5.84	5.53	5.44	5.25
Natural Features	6.40	5.97	5.77	5.47	6.20	5.72	5.81	5.48
	5.96	5.51	5.22	4.95	5.83	5.42	5.46	5.21
Artificial Furnishings	2.96	3.25	3.30	3.32	3.10	3.20	3.24	3.23
Artificial Surfaces	3.57	3.59	3.66	3.56	3.64	3.61	3.75	3.75
Artificial Features	5.04	4.73	5.21	4.82	5.18	4.85	5.26	4.92
	3.86	3.85	4.06	3.90	3.97	3.89	4.08	3.97

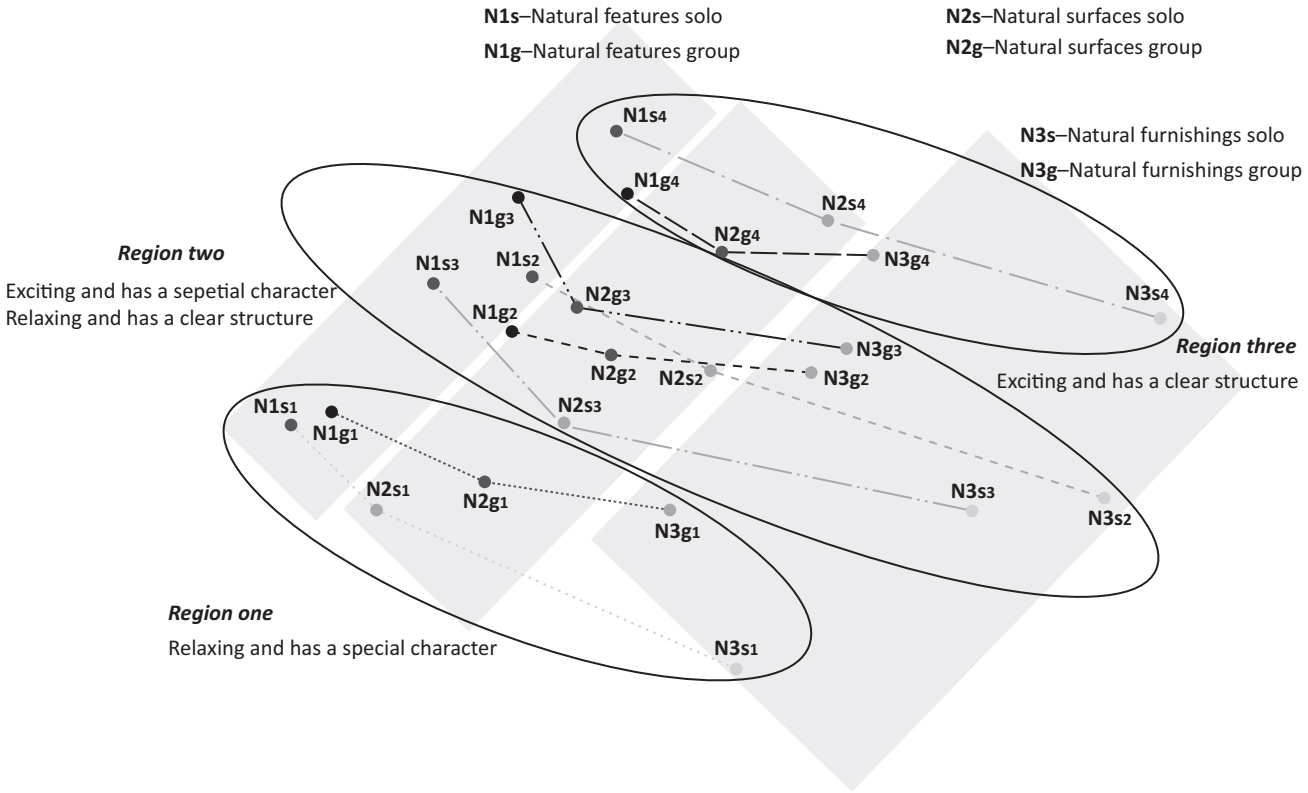

Figure 3. Two-dimensional spatial representation of 24 natural design elements classified by design feature, behaviour, and cognitive-affective affordance (stress = 0.14; N = 158). Grey areas represent the three design elements, features, surfaces and furnishings.

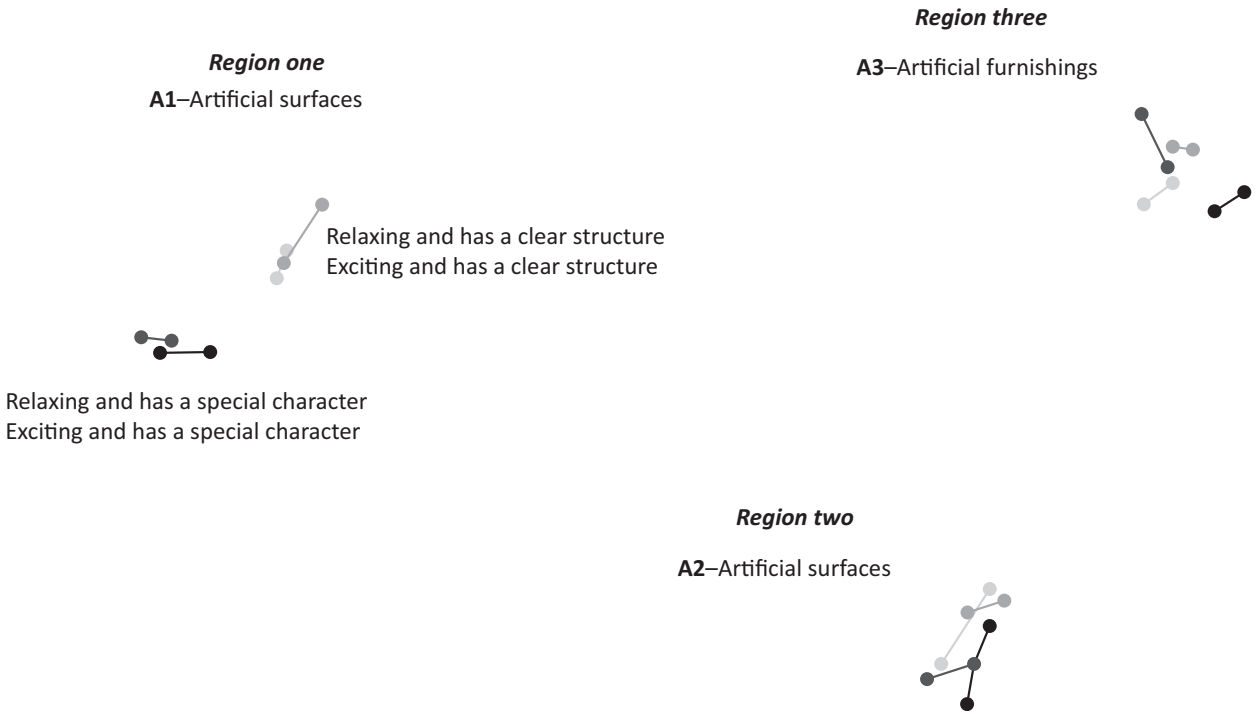

Figure 4. Two-dimensional spatial representation of 24 artificial items classified according to mental image (stress = 0.05; N = 158).

ments in the overall analysis (Figure 2), artificial features with a "special character" are preferred to those with a "clear structure".

6. Discussion

The research conducted in four public spaces found that the affective and cognitive processing of natural and artificial design elements in public space described preferences for solo and group activity; that relaxing spaces with natural design elements are preferred when individuals anticipate meeting friends in public space or spending time in public space. While artificial surfaces and furnishings received negative evaluations, artificial features with special character are a positive focus for individual and group activity. For solo users, the experience in the space is important with the character of space being more important than its structure. When meeting friends, furniture and elements with character and structure are preferred, indicating that usability and functionality of space is evaluated. These findings evidence Rapoport (1982) and Motloch's (2000) arguments, and research on place dependence that both the affective and cognitive process are involved, with the affective image of the physical setting providing a gateway to the cognitive appraisal of design elements and/or the character of the setting for anticipated behaviour.

The description of physical settings and behaviour defined and measured using a mapping sentence described a system operating as if these linguistic constructs exist and interact. An interpretation of a system configuration which argued theoretically is evidenced through results of data (Norman, 1986); an evidence base predicated by the assumption that measurement of the hypothesis is achieved with the linguistic manipulations. This is an assumption of not only the present research, but also of surveys that permeate place-making design tools, and more general studies of people-environment interactions which use questionnaires. Researches on manipulations of linguistic scales which assess affective and cognitive responses to physical settings have reported consistent within task evaluations and systematically different evaluations between tasks (Ward & Russell, 1981). In these findings, within tasks, differences are treated as errors of measurement and average response patterns are presented as indicative of the sampled population's mental image. While Ward and Russell (1981) argued that the differences between the evaluations indicated that mental representation of meaning is complex, Daniel and Ittelson (1981, p. 153) noted that these tasks "consistently reproduce their own a priori semantic structure", a within-group consistency which is an artefact of the measurement task; a top-down cognitive constraint of linguistic manipulations with commonly understood definitions. However, when the analyses of tasks compared individual response patterns, individual differences in affect responses were greater than the within-task similarities in affect (Groves, 1992; Groves & Clutton, 1990).

Pleasant, relaxing, exciting, etc., are linguistic categories defined through lived experiences with ratings on the response scale reflecting idiosyncrasies of accumulated experiences. The constraints of an affect response task direct individuals to draw on their lived experience; experiences which can overlap with shared cultural, social, and educational histories; experiences which can be influenced by marketing but are uniquely lived and ongoing. Affect scales provide a methodological window to access individual's mental images which are pivotal to their use or non-use of public space, the subspaces within and design elements within subspaces. Dimensions of pleasant, relaxing, exciting or unpleasant provide important descriptions of settings, but are also important for the comparisons they provide between settings.

7. Conclusion

Places are "far more than interesting groups of buildings, or well-formed street spaces" or "foci of social and economic enterprises" (Relph, 1993, p. 37). Places are spaces where possibilities exist for territories of diverse meanings in support of chosen activities. Designers provide direction and advice and become objective participants in on-going processes of place-making with skills "to resolve specific technical matters, overcome parochialism, and see the broader effects and implications of local actions" (Relph, 1993, p. 34). With theory and practice, place-making in practice can transform spaces into places, creating socio-spatial settings connecting people individually and personally with space (Dovey, 2016), providing scope for "modifications, additions and changes in social behaviour" (Relph, 1993, p. 36), expressions providing a more sustainable approach to the design of public space.

With technological and social changes, travel, and economic and cultural globalisation, spaces are open to a world of interpretations, with each experience a specific focus of meanings and activities for every visitor in the space (Relph, 2016). With their use or non-use of space, a choice defined in a two-stage process where a summation of experience frames cognitive evaluations of design elements for anticipated behaviour. If the initial response is negative in the respondent's framework (which research can access through measurement of differences between ideal and current affect), this rejection of space will render any cognitive evaluation of design elements unnecessary. Based on their experience, they may exclude or include the space from consideration. However, such decisions are not necessarily fixed, and choices and evaluations can change over time because experience is accumulated and on-going. It is this temporal dimension of meaning based on individuals' accumulated experience which suggests place-making in design should shift emphases from prescriptive articulations of preferences assessed at a point in time to enabling opportunity and interpretation for different users and for change over time.

At present, consultations with stakeholders (users, owners, governments) in the planning and design phase of place-making are used to align chosen activities with design opportunities (Cilliers & Timmermans, 2014), a process which ensures stakeholder support and acceptance for public expenditure (Carmona, 2010; Strydom & Puren, 2013). While the design interpretation of data collected at a point in time may prove initially popular because expectations and design are aligned, this popularity can fade over time with changes in expectations. Akin to theatre halls without new shows or art galleries without new exhibits, on-going expenditures on marketing and promotion of activities is required to generate use, reuse and attract new users. Once-popular places can to return to placeless spaces requiring another redevelopment. A circularity born of design practices where participant data and design interpretation is aligned with a participatory methodology in isolation from a theoretical framework of place.

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Conflict of Interests

The authors declare no conflict of interests.

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