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The Need for Advocating Regional Human Comfort Design Codes for Public Spaces: A Case Study of a Mediterranean Urban Park

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ABSTRACT *Though widely acknowledged, climate change and global warming considerations are poorly integrated in landscape planning practices. Exploring this matter, the paper analyses the design of a contemporary urban park in Jaffa, Israel, investigating why climate considerations are so poorly addressed. The analysis focuses on the various competing parameters such as social use, design, political considerations and community desires that influence the planning process as well as the park experience. Results confirm a paradox. Though climate conditions are highly acknowledged, and aggravation in heat stress and discomfort conditions are well known in this region, planners and users alike prefer to suspend them in favour of image and aesthetics. Responding to these results, the paper discusses possible venues for further integrating climate considerations into landscape planning.*

KEY WORDS: Landscape planning, discomfort conditions, global warming, Urban Heat Island, aesthetics

Introduction: Climate Considerations in Planning

With growing recognition of climate change and global warming by policy-makers, planners, and the public as a whole, it might be expected that climate considerations would have a growing impact on spatial planning. Indeed, the growing scientific research on the interrelationships between design and climate conditions, from the individual unit to the city as a whole, advocates an urgent need for integrating this knowledge into practice (Aronin, 1953; Eliasson, 2000; Evans, 1980; Evans & Schiller, 1996; Farr, 2008; Golany, 1996; Park, 1987; Pearlmutter, 2007; Register, 2006; Wheeler, 2004; Wheeler & Beatley, 2004). Generally, most of these studies focus on design issues, helping to settle disputes about site orientation, site organisation, and the assembly of building materials (Givoni, 1998; Yannas & Bowen, 1983, 1988). More specifically, two key trends of studies can be identified: 1) buildings analysis from a climatologic perspective, focusing on the effect of

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architectural and structural design features (e.g. layout, window orientation, shading and ventilation) on human thermal comfort in indoor environments; 2) Urban Heat Island (UHI) analysis that explores the effects of city design and the spatial array (i.e. density, building height, street geometry) on the intensity and spatial distribution of the UHI that affects human thermal comfort in outdoor environments. However, while these studies have vastly explored the relationships between the built environment and climate (Givoni, 1976, 1991; Oke, 2006; Potchter *et al.*, 2006), it seems that the transfer of climatic knowledge into planning practice, particularly of open public areas such as urban parks, is still lacking.

Further exploring this gap between scientific knowledge (theory) and local landscape planning (practice), we identify two related dominant constraints in the contemporary reality of landscape planning: structural and perceptual. Structurally, in the neo-liberal contemporary process of design, most planners mediate among different actors' needs within the limits of a strict budget. In that respect, all plans represent a sort of reductionist visual manifestation of wills and constraints (Hatuka, 2010). Furthermore, referring to the process of decision making in planning, design is linked to the decentralisation of planning and distrust toward experts (Beunen & Opdam, 2011). This decentralisation is embedded in a broader epistemological change, which deviates from the scientific knowledge working toward the adaptation of local wills and private implementation (Escobar, 1998; Hatuka, 2010; McNie, 2007). Perceptually, this context enhances design in uncles and borrowed aesthetic preferences to become crucial values in the design process (Julier, 2000). Thus, when examining landscape design projects, climate and contextual conditions are often replaced by borrowed aesthetic and cultural preferences. This is not surprising, and is associated with the global tradition of modern city planning as well as with the current generations of design projects that are initiated by the public sector, yet are often planned and implemented by private enterprises (Ben-Joseph, 2009; Ren, 2008; Smith, 2002). This state of affairs has created a situation in which international corporations and private designers are not concerned about local conditions unless they are obliged to be by regulations (Lang, 2009). The paradox is that even when these type of regulations exist, local governments who wish to change the image of their place often waive them. The consequence is that many current design projects often result in transcending local conditions and adhering to a borrowed aesthetic.

Investigating these arguments, this paper focuses on the urban park as a recreational and visual asset to any social community. Generally, the urban park is assumed to support human comfort, social needs and thus addresses climate considerations in the process of design (Miller, 2009). Yet, this rather traditional perception of the park as recreational space has been challenged recently by researchers who emphasise the role of the contemporary urban park as a valuable contributor to larger urban policy objectives, such as increasing property value, supporting youth development, enhancing public health, and advancing community building (Harnik, 2010; Spirn, 1998; Waldheim, 2006). These multiple roles and prospective benefits of the contemporary park transform it into a primary social asset that (sometimes) enhances diversity and supports social and economic development (Walker, 2004).

More specifically, this paper explores Israel's Jaffa Slope Park, which is located in the Mediterranean Basin (MB), one of the key regions of high anthropogenic climate impact (IPCC, 2007; Lionello *et al.*, 2006). The Jaffa Slope Park is located on the eastern coast of the Mediterranean Sea at the border between Mediterranean (temperate) and arid climatic regions. The park, a 50-acre (200 dunam) waterfront area, was established with public funding and resources rather than private donors, and it is regulated by Tel Aviv-Jaffa city council. Analysing the park's design, the basic hypothesis of this study is that an increase in discomfort conditions, resulting from aggravation of heat stress, heat waves, and water shortages, would lead planners to respond comprehensively to this change, thus resulting in increased attention to human comfort conditions in the process of the park's design. Exploring this hypothesis, the analysis includes three interrelated aspects: social and use practices, environmental and climate conditions, and spatial and design aesthetics. The purpose of this analysis is threefold: first, to track the considerations taken into account in the design of the park; second, to assess the experience of the public in the park and their response to its design; third, to evaluate the transfer of climatologists' knowledge into planning, to suggest paths for integrating climate consideration in the design process, and to assess the social benefits of such integration.

Starting with the case study to illuminate the gap between scientific knowledge (theory) and local landscape planning (practice), we begin with a short description of the research design and methodology. The paper then proceeds to explain and interpret the relationships between the *conceived space* (as produced and defined by experts with the participation of the public) and the *lived space* (as experienced by users). Using the evidence from the case study, the paper further elaborates on which criteria influence the process of urban park planning and why, in an era of global warming, climate considerations are often placed at the bottom of spatial planning priorities. Finally, the paper ends with a broader discussion of the social need for advocating regional human comfort design codes for public spaces.

Between the Conceived and Lived Space: Analysing Jaffa Slope Park

Jaffa Slope Park, which served until 2004 as a construction debris waste site, was transformed into an urban park in 2010 and is now a popular place among residents and visitors alike. Located along the Mediterranean coast, the park is bounded by Jaffa port to the north, the Aliya Hill beach to the south, and the mixed (predominantly Arab) neighbourhood Ajami to the east (Figure 1). In terms of design, the park consists of three major man-made hills, with three main axes drawn from the neighbourhood down to the seafront, as well as a stretch of beach currently being rehabilitated (Figures 2–4). The still incomplete park contains about 19.8 acres (80 dunams) of planned grass lawns, comprising 40% of the total 50 acres (200 dunams) of the park. The remaining area includes concrete paved roads and bike lanes, a playground, workout facilities, an amphitheatre, and a fishing pier. The park's program and design should be seen as part of the Tel Aviv Municipality's larger environmental and social vision, which aims to create a continuous waterfront boardwalk for pedestrians and cyclists stretching along the metropolitan area (Tel Aviv Municipality, 2010a). The park represents a progressive approach both to the public (i.e. the planning included comprehensive public participation) and to the



Figure 1. Jaffa Slope Park boundaries.

environment (i.e. construction included a large-scale recycling project; 1.275 tons of waste were recycled out of a total of 1.35 tons dug, with 200 000 m³ re-used on site).

Climatically, the area of the park is characterised by high temperatures and relative humidity (RH) during the summer. The RH contributes considerably to heat stress (HS), as is reflected in various HS indices (Willett *et al.*, 2007; Ziv & Saaroni, 2010). According to the Temperature Humidity Index of McGregor and Nieuwolt (1998), the typical summer conditions in Tel Aviv at midday 30°C and 70% RH (Bitan & Rubin, 1994) are defined as discomfort conditions for all humans (McGregor & Nieuwolt, 1998). Discomfort conditions are further aggravated by the

UHI effect that has been documented in Tel Aviv (Ben-Dor & Saaroni, 1997; Saaroni *et al.*, 2000).

Climatic studies of the Mediterranean Basin over the last three decades point to a significant warming trend, suggesting that this area is warming faster than the global rate (Baldi *et al.*, 2006; IPCC, 2007; Luterbacher *et al.*, 2004; Saaroni *et al.*, 2003; Xoplaki *et al.*, 2003; Ziv *et al.*, 2005). Moreover, the highest warming trend is in the summer season, which is associated with the aggravation of heat waves and heat stress conditions. This has severe environmental impact on human comfort as well as on the hydrological cycle and water shortages (Alpert *et al.*, 2002; Lionello *et al.*, 2006; Ziv & Saaroni, 2010). Moreover, climate models for the twenty-first century forecast intense warming (IPCC, 2007; Meehl & Tebaldi, 2004) together with decreased precipitation over the eastern MB (Giorgi & Lionello, 2008; Krichak *et al.*, 2007; Lionello & Giorgi, 2007; Raible *et al.*, 2010) that will further aggravate discomfort conditions and water shortages. Thus, from the perspective of environmentalists in general and climatologists in particular, there is an urgent need to incorporate climate considerations into planning and design practices in this area.

From the perspective of users and cultural norms, it is important to note that though summer in Israel is associated with heat waves and heat stress conditions, the use of outdoor space does not necessarily decline. With 14 hours of daylight, most outdoor activities take place during early mornings and late afternoons, which is why it is important to adjust public spaces climatically. This is particularly relevant to urban parks along the seashore which, unlike parks within the city, attract users throughout the day (though less at midday).

Our analysis of the gap between scientific knowledge (climate) and local landscape planning (design) is based on three key resources. First, semi-formal interviews were conducted with key actors involved in the planning process, including the landscape architect of the park, Mrs Alisa Braudo, the head of park security, Mr Awady, and the deputy mayor and chair of the Green Party, Mr Peer Visner, who was involved in the park's conception. Second, observations were made at different locations in the park on weekdays and weekends during various hours of the day. These observations focused on identifying the areas people tended to use and where they congregated the most or least. Third, 100 questionnaires were randomly distributed to individuals (44 males and 56 females) in and around the park during November and December. The questionnaire focused on the social usage of the park by participants, their opinion of its spatial design, and their take on the environmental aspects with attention to human comfort. Though the groups of participants varied with a majority of participants (40%) residing in Jaffa, 22% in Tel Aviv, 22% in the surrounding metropolitan area and the rest (16%) visitors from both inside and outside of the country the views received were quite similar.

The results present the empirical data in two related parts: the *conceived space* (as produced and defined by experts with the participation of the public) and *lived space* (as experienced by users) (Lefebvre, 1991). In particular, the first part, based on archival data and interviews, discusses the designers' and residents' considerations in the process of the park development (i.e. the conceived space), and the second part, based on the questionnaires, analyses the experience of users in the park (the lived space). This framework reveals the underlying ideas that generated the design, the priorities, and the question of whether climate considerations were included or not.

Later, analysing the lived space allows us to track the positions of the users in relation to the climate conditions and human comfort in the park, investigating users' attitudes toward the design and spatial array.

Figuring the Conceived Space: Social, Environmental, and Spatial Intent

Social and Use Practices

Jaffa Slope served for many years as an illegal construction and building debris waste site that, over time, became an open environmental wound in the Jaffa landscape. Evidently, this site reduced the quality of life in the adjacent Ajami neighbourhood and the surrounding areas that already suffered from a lack of standardised public open spaces. Socially, the area adjacent to the park is an ethnic mix of Arabs and Jews. This neighbourhood has a high percentage of children – 10% higher than the city's average (Central Bureau of Statistics, 2008). In socio-economic terms (i.e. home ownership, income), this area is markedly below the city's average. Yet it is also undergoing strong processes of gentrification as wealthy Jewish individuals and collective purchasing groups have entered the neighbourhood. Thus, from a social perspective, this area is ethnically and economically diverse.

The planning of the park started with a public participation process, with the aim of hearing and possibly integrating the will of some of the local varied interest groups into the design program. The initial concept was revealed to, and discussed with, the residents in public hearing. Subsequently, 300 invited participants were divided into eight distinct groups that included: Jewish and Arab Scouts, the Yafo Yefat Yamim (Jaffa, Belle of the Seas) non-profit organisation, leaders and representatives of Jaffa's Arab community, Arab women, committees and activists of the Jewish neighbourhood, residents and businesses-owners living near the park, school children, and activists from Jaffa. The sessions for each group were conducted separately, with the aim of hearing the wills and needs of each individually, and then attempting to bridge the differences. Throughout the sessions, open discussion was held between the participants and the designer's team with a focus on the needs and aspirations of the participants towards the plan of the park. In addition to the public sessions, a survey focusing on desired facilities in the park was distributed (Tel Aviv Municipality, 2010b) and participants were asked to prioritise the different ideas that had come up in the earlier discussions. During these sessions, conflicts regarding the park's program came up, as participants demanded particular programmatic requests (e.g. a horse ranch, a place designated for parties, a space for dogs, etc.) without necessarily addressing the general idea of an open park or the community as a whole (Tel Aviv Municipality, 2006).

At the end of the process, the general planning principles that emerged most clearly (and with least conflict) from the survey and public discussion were: a) reclaiming the beach, b) maintaining vistas to the sea on hilltops, c) enhancing east-west connectivity (beach neighbourhood) and north-south connectivity (park Tel Aviv promenade), d) setting an array of activities, and e) providing park services with an emphasis on security (Tel Aviv Municipality, 2006). The latter, security, was brought up mainly by the Arab women, who asked that the park area remain rather exposed and open without any hiding places or heavy shrubbery, which could

provide out-of-sight spots where misconduct would be more likely to take place (Braudo, 2010). Thus, addressing social and use practices, strong emphasis was given to reviving the connection between the surrounding neighbourhood and the sea, while revitalising the beach front, opening new bike and jogging lanes from north to south, and creating elevated observation points.

Environmental Conditions

During the 1970s, the area that became Jaffa Slope Park was an official debris dump site, and from the 1980s 2004, it expanded to become an illegal construction and building debris waste site. The 50-acre landfill came to be an environmental, visual and landscape hazard in which the original shoreline was ruined, the sea-view and access from the Ajami neighbourhood was blocked, and the continuity of the Tel Aviv seafront boardwalk from north to south was abruptly interrupted. Moreover, the rocks in the sea were damaged, mainly in the southern part of the area, fires broke out from time to time due to flammable materials that had been dumped, and the waste slid from the slopes into the water, contaminating the marine environment (Tel Aviv Municipality, 2010a).

In constructing the park, the decision of the municipality was to address all of these environmental hazards by recycling the dumping site as a whole. More than 1275 million tons of building waste were sieved, sorted and recycled on site. About 15% of the recycled materials were reused for constructing the park, mainly as gardening land, roadbeds and seashore sand, while the rest was sold to contractors and helped finance the project itself. Some of the unrecycled waste was used to construct the hilly artificial topography of the park.

Environmentally speaking, the park also improved noise and air pollution hazards by ending truck travel to the debris site. During the construction period (2005–2010), the work was done by professionals from the Society for the Protection of Nature in Israel, the Ministry of Environmental Protection, and the municipality of Tel Aviv-Jaffa. A massive on-site recycling project sorted out recyclable and disposal materials. Yet, as noted by Deputy Mayor Peer Visner, one of the reasons the project was environmentally beneficial was due to its economic benefits. There was a growing need for copper and steel in the world and the building debris contained a lot of it. It wasn't just for the sake of recycling; there was a strong financial motive in the process (Visner, 2011). To summarise, the focus of the municipality was the removal of the massive waste and the creation of a continuous boardwalk from Tel Aviv through the Jaffa port up to the city of Bat Yam.

Spatial and Design Aesthetics

With an aim to address both the social and environmental aspects, the prime goal of the planners was the reclamation of the Jaffa beach (Braudo and Maoz Landscape Architecture Ltd, 2011). This was also the prime goal of the mayor of Tel Aviv, who asked that the design of the park not block the sea view from the neighbourhood. Thus, creating a park that would be inviting for the active use of the residents of the neighbourhood and its surroundings, connecting the boardwalk from north to south, and opening new sea vistas were set as the main goals by the planners. An emphasis



Figure 2. A plan of the park.



Figure 3. A section of the park.

was put on topographic sculpting and working with the waste for sustainability and recycling (Braudo, 2010).

Aspiring to address the social and environmental needs, the plan was to build the park as a series of stretches (see Figure 2). The first was to run parallel to the sea as a boardwalk for pedestrians and bicycles, the second was to run through the centre of the park, and the third eastern stretch would include playgrounds for children and workout facilities and would be protected from the sea winds and salt, allowing usage of a wider variety of vegetation and trees. The idea of Jaffa as fingers stretched to the sea, as one resident in the public participation process described it, was used as a leading design concept in the superficial topography of the hills and valleys made from the on-site garbage (see Figure 4). The park's design now consists of three major artificial hills on top of which viewpoints were constructed, three main

vertical pathways with high palm trees drawn from the neighbourhood down to the seafront, and a seashore beach stretch currently going through rehabilitation. In terms of vegetation, the area consists predominantly of grass lawns spotted with a few trees on its eastern side, and some seashore vegetation (see Figure 5). A wide protective rock garden was also constructed along the beach path to protect the park from storms and high waves. Furthermore, large public parking lots are located at the north and south ends of the park, and there are two smaller lots near the centre of the park adjacent to the neighbourhood.



Figure 4. The promenade in the park.



Figure 5. The hills of grassy lawns.

Unlike the straight line of Tel Aviv's promenade, the designers gave emphasis to the silhouette of the park promenade, which was intentionally designed to stimulate the pedestrians' interest. The path winds through the hills, so that along the way new things and perspectives are constantly revealed. Moreover, as the designer of the park, Alisa Braudo said, with the creation of the park, the image of Old Jaffa and the Tel Aviv coastline from the south was exposed. In all the pictures and official postcards of the city, Jaffa is always portrayed from the north. It is nice, for a change, to see Jaffa depicted from an elevated point in Jaffa itself (Braudo, 2010). Environmentally, the designers aimed at using on-site materials and incorporated them in the design. As an example, the eolianite rock used for the promenade surface was picked for its beach-like colour and texture. Furthermore, weathered building debris stones were paved into segments of the pathways.

Thus, from a design perspective, strong emphasis by planners and residents alike was given to the reclamation of Jaffa's beach as well as the image of the place and its aesthetics. Following an in-depth interview with the landscape designer, it was evident that climate considerations were perceived as a parameter to address (at least in terms of shading, vegetation and human comfort) but not as a leading factor that might influence significant decisions in the design process (designers were mostly concerned with image, aesthetics and accessibility to the park). Similarly, based on reading the protocols of the public participation process, residents did not address climate directly but were concerned that intense shading might enhance the sense of danger and reduce the feeling of safety, especially at night.

Analysing the Lived Space: Social, Environmental, and Spatial Experiences

Social and Use Practices

As one of the important goals of the park was reviving the connection between the surrounding neighbourhoods and the sea while revitalising the beachfront, users were asked whether these goals had been accomplished; in other words, whether the park re-connects the neighbourhood with the beach and if the park usefully connects Jaffa to Tel Aviv. Some 84% of the users thought that the design successfully accomplished the first goal. Though physically the connection between the park and the Tel Aviv promenade is not direct, as the Jaffa port still separates the two ends, 51% of the users thought that the design successfully created a continuous promenade between Jaffa and Tel Aviv.

Survey questions also related to the activities, facilities, and frequency of visits in the park. The park is a platform for various types of recreation activities, the most popular of which are walking and sitting mainly along the seafront (58%), sports activities including jogging, running, and cycling (17%), playing with children (13%), picnics (10%) and fishing (2%). Most users are engaged in some sort of dynamic activity. Moreover, many of the users mentioned performing several activities at the park. Observations also support this range of activities, with a majority of the users enjoying the shoreline paved promenade and the area of the playground and workout facilities. The hills and vast lawns are largely unused by visitors.

In terms of providing park services, many of the users emphasised various deficiencies: the absence of public toilets, drinking fountains, shaded areas, benches, garbage cans, and lights. In terms of security, the park is guarded by security services from 4 p.m. to 3 a.m. during the weekdays and around the clock over the weekend. Indeed only 4% of visitors felt insecure.

Yet, while the boardwalk area is home to a mixed population of joggers, cyclists, pedestrians and tourists from all over the city and country, in the deep interior of the park, near the playground area, it is mainly used by the local inhabitants. So, socially, though some services are lacking, it seems that users' experience of the park is most positive and some of the key goals regarding social use were fulfilled. In terms of the use of the park by the varied social groups, so far there are no conflicts, in part due to the security services.

Environmental and Comfort Conditions

As noted above, the project of the park declares and takes into consideration environmental factors. Yet, these considerations were mainly about the process of moving and recycling garbage as well as reclaiming the seashore. Climate and environmental considerations regarding human comfort and water shortages were not central issues. In addressing this matter, users were asked the following questions. Do they feel comfortable? Does the park take into consideration the climate conditions and the effect of global warming? In particular, users were asked about the use of drinking water for irrigating the vegetation and extensive lawns in the park. An analysis of answers reveals conflicting positions and paradoxes.

In addressing the answers of users regarding comfort, it should be emphasised that questionnaires were distributed during the autumn and early winter. Generally, we asked first, what is comfort as they perceive it without mentioning the term climate or thermal sensation; many replied with positive terms, feeling pleasant (40%), excitement (14%), relaxed (30%), safe (10%), and don't know (6%). These results express a general feeling rather than sensitivity to comfort or climate conditions. Nevertheless, when asked about physical comfort specifically, many users noted that the park lacks shaded areas, and commented that the artificial shade created by the pergolas was not sufficient. Many of those who mentioned it added that while the weather currently permitted exposure to the sun, during warm days in the summer and late spring/early fall, it becomes unbearable and unpleasant. In addition, users mentioned the minimal distribution of trees and drinking water. Though these results are expected to be different in the warm months, we can conclude that the concept of comfort in general and human comfort in particular was conceived differently by different users, with some understanding it as feeling secured in space.

When users were asked regarding the use of drinking water for irrigation in the park, 21% supported the idea, 72% were opposed, and 7% had no opinion. This opposition is not surprising. Israel has a water shortage policy, which has recently been accompanied by intense state administrative campaigns to educate the public about sustainability and water conservation. Yet out of the 72% who opposed the use of drinking water for irrigation, more than two-thirds said that they would not give up the lawns to save water. Thus, although the majority of the people oppose the careless use of drinking water in the park, when asked to prioritise among the

two, most users (78%) preferred to maintain the vast lawns. To support their positions, users argued that the lawns add to a sense of relaxation and create nice vistas and views to the sea. Addressing the same paradox, the designer of the park and the deputy mayor argued that these lawns are public property, free for all. Therefore, despite the fact that a lot of fresh water is being used to keep them in good shape, they are used by a large amount of people, lending its justification. In addition, they argued that grassy areas in tra c islands and along highways are the places that need to be reduced significantly, but not lawn areas in the parks. Still, the deputy mayor also acknowledged that the park is far from his vision of how a park should look since the lack of shading is really problematic (Visner, 2011).

So, in terms of environment and comfort conditions, users confirm that though they are aware of global warming in general, extensive regional warming and increasing water shortages, and though the park lacks facilities to support their human comfort, they prefer the current design of the park. So, though there was an initial general thought given to environmental issues, other ecological issues were not considered fully, such as the use of native species best adapted to the local climate and environmental conditions, which would be unlikely to require substantial irrigation. In part, the answer to this paradox and the extensive use of grassy lawns lay in the issue of aesthetics and the way the park provides a new image to the area as a whole, as discussed in the next section.

Spatial and Design Aesthetics

Along with recreational goals, urban parks have a significant visual impact on users, especially in contemporary dense cities. Moreover, as noted, parks provide not only a physical place but an aesthetic image (Dee, 2010; Jorgensen, 2011; Meyer, 2008) that has an economic, social and cultural impact on adjacent areas. In that sense, the design of a park has a dual role: personal (i.e. the physiological effect on the well-being of the user) and institutional (i.e. the visual effect that assists in re-branding the area). Addressing this issue, users were asked to assess the park's beauty, and were asked what in particular they see as beautiful in the park.

Out of the 100 people surveyed, 90% gave the park the highest score (from 1 to 5) in terms of aesthetics and beauty. When asked more specifically what they perceive as beautiful in the park, 53% mentioned the grassy hills, 35% the seaside boardwalk and its proximity to the water, 7% the playground, and 5% the pier. Yet, while over half of the people graded the hills and lawns as the nicest, only 18% were actually using them physically. Moreover, in all observations, the lawns were predominantly empty, with most people either on the seaside boardwalk or using the pathways from the neighbourhood down to the waterfront and playgrounds. In terms of spatial design, the park is perceived as a visual asset that aims to elevate the image of the southern part of the city, as well as providing a green park like Hayarkon Park, the largest metropolitan park in the north of Tel Aviv.

Conclusions: Contradictions and Gaps in the Design of Jaffa Slope Park

Examining both the conceived space and the lived space, the strong emphasis given by planners and residents alike to the image of the place and its aesthetics has

affected the design of the park as a whole. Among the various competing factors that influenced the design (i.e. social, environmental and planning), climate considerations were perceived as one parameter to address among many, but not as a leading factor that might influence significant decisions in the design process.

Yet, Jaffa Slope Park, largely considered to be an environmentally friendly and social project, raises contradictory issues. Socially, despite the extensive and drawn-out public participation process, many of the facilities requested by the public were not integrated into the planning and design of the park. Environmentally, much of the building debris and waste was recycled on site and used to construct the park, therefore increasing sustainability, but the final product is a water-wasting landscape where there is minimal shading and vast lawns, and presumably discomfort conditions prevail during the warm months (at least six months a year) in the coastal Mediterranean city. Still, these issues, along with the acknowledgment of the park's limitations, do not detract from its appreciation in terms of design and aesthetics. This case is one example out of many urban parks that have not incorporated climatic considerations into planning ontology and methodology. Even if the vast lawns found in public parks, and specifically recently built beach-front parks in Tel Aviv, serve the general public, there are still measures that could be considered during the planning process in order to increase human comfort and sustainability.

So how can we explain this growing phenomenon of dominant grass landscape in contemporary park planning, which seems to contradict accepted knowledge and governmental campaigns regarding environmentalism, climatic conditions and the warming and drying trend? How can we explain the extensive grass lawns in times of severe water shortage and national restrictions of water use, the lack of shade and the park's image, contradicting human comfort?

The answer to this is not definitive and we suggest an explanation that is tied to the contemporary decentralisation of planning processes in the neo-liberal context. This context creates a competing situation on three interrelated aspects: 1) the actors who make decisions on, 2) the array of parameters that influence the planning process which in turn, 3) dictates the language of design. In other words, the array and interests of actors participating in the neo-liberal contemporary planning process cause a shift. The planner becomes a mediator among a vast array of social and political interests being advocated during a public participation process, a method that gives power to the civil society and suspends scientific knowledge in favour of local wills. Thus, in the process of planning, environmental and climate issues are often perceived as neutral, obvious, or as barriers that attract significant parts of the budget and do not serve the immediate goals of community or political actors. Following the above, in a competition among social use, aesthetic considerations in the design process, and environmental and climate considerations, the first two parameters have gained higher priority. This influences the language of design and, in the Jaffa case, grass is used as a cheap solution that provides an immediate image. Grass is also a solution attached worldwide to cultivation; thus, culturally, it is associated with beauty and aesthetics, which have crucial value in raising property rates and re-branding an area. As such, transforming the park into a visual asset becomes an interest of both the municipality and the designers, who see it as the most significant component in the success of such a project.

The Social Need for Advocating Regional Human Comfort Design Codes for Public Spaces

While this case study explored a park in Israel, the conclusions and constraints of integrating go far beyond its geographical borders, raising the need for advocating human comfort design codes for public open spaces worldwide. How can we achieve this task while addressing the particular physical conditions and social dynamics of a place? How can environmental and climate considerations be better integrated into planning processes and what are the benefits of such integration? In an era of increased privatisation, with many public spaces not accessible to the public at large, accessible and comfortable open spaces are crucial assets. Yet, as shown, with the lack of regional design codes for open spaces, design tends to focus on aesthetics rather than on comfort or the social life in a place. One possible way to achieve the integration of design process and climate conditions is the development of regional human comfort design codes for open public spaces. These codes could be based on a climatically and environmentally oriented checklist, one that provides benchmarks for project evaluation, similar to the Leadership in Energy and Environmental Design (LEED) system developed in the early 2000s in the US (US Green Building Council, 2008). Yet different from the LEED, which consists of a suite of rating systems for the design, construction and operation of high performance green buildings, homes and neighbourhoods, this would focus on: 1) open spaces, and 2) a regional foundation.

More specifically, we suggest developing human comfort design codes for public spaces focusing on four key related issues: *shading, vegetation, water use and materials*. These four issues have a direct effect on thermal comfort defined as: that condition of mind which expresses satisfaction with the thermal environment (Nicol *et al.*, 1995). The comfort sensation that determines the energy balance of the body is an essential factor in open areas and especially in parks located in regions with uncomfortable climate conditions. Models estimating the energy balance of the human body include various meteorological parameters: air temperature, air humidity, wind speed, and short- and long-wave radiation, albedo of the surface and solid angle proportion. Most of the indices include the Mean Radiant Temperature (TMRT), which is a dominant parameter for the energy balance in warm areas. Following the above definition, it is clear that shading, vegetation and materials have a crucial impact on thermal comfort. Codes would include percentage of shading, percentage of area covered by water-intensive vegetation, etc., as well as a framework for implementation (Figure 6). This type of list should take into consideration the conditions of the locale and should be regionally based. Thus for example, the albedo of a particular surface, as well as the use of small artificial lakes, could have different impacts on different locales.

Above all, using this approach might assist in bypassing the structural and perceptual constraints embedded in contemporary landscape planning. Structurally, developing a checklist of codes might assist both in evaluating current policies and practices, as well as in initiating new innovation in the field of landscape planning. In order to achieve this goal, municipalities might want to use the design codes as a basis for financial incentives (Ben-Joseph, 2005, 2009). Perceptually, it will assist in modifying public opinion about aesthetics as well as the use of resources. In

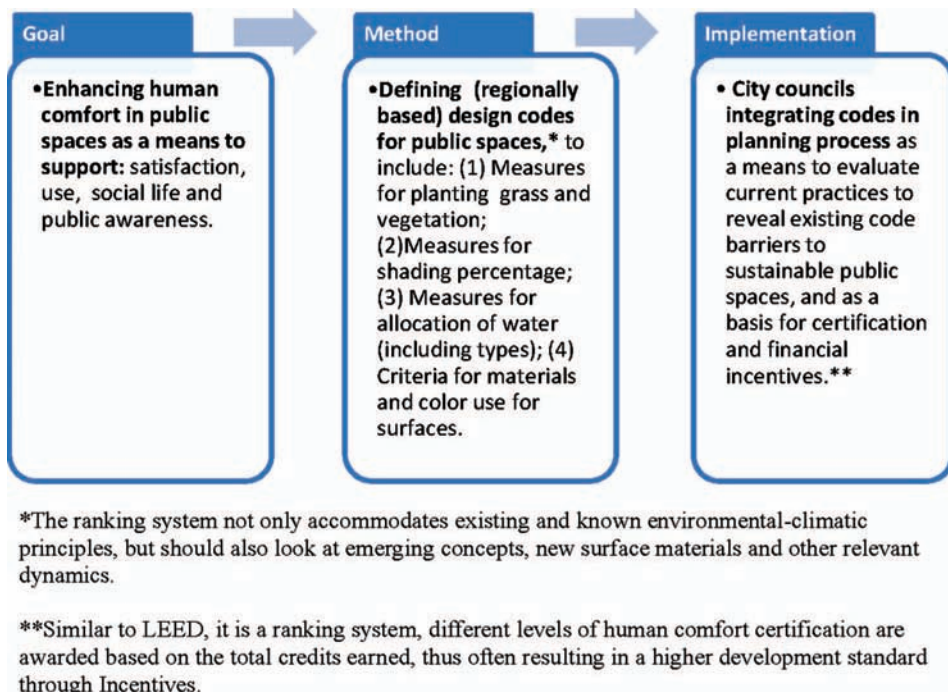


Figure 6. Framework for regionally based human comfort design codes for public spaces.

addition, this process, which would support better human comfort contributing to enhanced use of public space, would gradually change the aesthetic preferences of inhabitants and might also affect the way inhabitants use their own private open spaces.

In an era of global warming, drying and increased water shortages, these types of codes for areas such as Mediterranean cities would not limit the scope of design creativity, but rather would ground it in a feasible framework that would ultimately support human comfort and sustainability, and would benefit the users. Furthermore, these codes would force municipalities to perform a better assessment of the economic feasibility of landscape projects. We need to recall that aesthetics are inextricably linked with ethics (i.e. the purpose for and the way that resources are used) and, as such, the only way to re-integrate scientific knowledge is to create a standardised set of human comfort codes.

Thus, the underlying significant question here is whether these proposed codes benefit the society, or would they instead be a brutal intervention in the decision-making process that might limit the community's vision or will? Thus far, with the growing interest in the process of participation and inclusion in planning practices, studies have shown that the neo-liberal era is characterised by selective inclusion people may gain more access to state institutions through local governments and the possibility of participation as well as social and political inclusion in institutions of the state. But, as many scholars have noted, participation does not necessarily mean substantive inclusion or a just

development (Alfasi, 2003; Fainstein, 2010; Holston, 1995; Miraftab, 2009; Roy, 2006; Watson, 2006). Therefore, in the case of urban parks, considerations that would foster human comfort as a primary goal, would be a real step toward socially just development. In the long run, in an era of global warming and in a region suffering from discomfort conditions, increasing temperature, heat waves and drying with severe future forecasts, this set of codes would save resources and would ultimately benefit its users.

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