

Ursula Flecken, Laura Calbet i Elias (Hg.)

# Der öffentliche Raum

Sichten, Reflexionen, Beispiele

Dankschrift für Urs Kohlbrenner

#### HERAUSGEBERINNEN

**Ursula Flecken, Laura Calbet i Elias**

Der öffentliche Raum

Sichten, Reflexionen, Beispiele

#### HERAUSGEBER DER REIHE SONDERPUBLIKATIONEN

**Forum Stadt- und Regionalplanung e.V.**

c/o Institut für Stadt- und Regionalplanung

Sekretariat B7

Hardenbergstr. 40a, 10623 Berlin

▷ [www.isr.tu-berlin.de](http://www.isr.tu-berlin.de)

#### VERLAG UND VERTRIEB

**Universitätsverlag der Technischen Universität Berlin**

Universitätsbibliothek im VOLKSWAGEN-Haus

Fasanenstraße 88, 10623 Berlin

▷ [publikationen@ub.tu-berlin.de](mailto:publikationen@ub.tu-berlin.de)

#### LAYOUT UND SATZ

**Andre Ruppert**, [www.seitenmanufaktur.net](http://www.seitenmanufaktur.net)

Die Gestaltung des Einbandes entstand auf Anregung von Laura Calbet i Elias.

#### TITELBILD

Die Achse vom Volkspark Friedrichshain zum Volkspark Hasenheide ist Teil der Lenné'schen Planung der Schmuck- und Grenzzüge Berlins. Die Achse steht für einen in seinem gesamtstädtischen Umfang kaum wahrgenommenen öffentlichen Raum. Ihre räumlichen und stadtgeschichtlichen Werte sowie ihre Nutzungsqualitäten sind dennoch auf Quartiersebene erkennbar. In ihr spiegelt sich die wandelnde Bedeutung des öffentlichen Raumes wider. Die abgebildete Skizze von der Projektgemeinschaft Stadtentwicklungsplan Öffentlicher Raum (Arbeitsgruppe für Stadtplanung Jahn, Pfeiffer, Suhr/ Büro Becker, Giseke, Mohren, Richard/ Planergemeinschaft Dubach, Kohlbrenner/ Bernhard Schneider) wurde für den Entwurf zum Stadtentwicklungsplan Öffentlicher Raum für Berlin 1995 angefertigt.

#### DRUCK UND BINDUNG

**docupoint GmbH**

Maxim-Gorki-Str. 10, 39108 Magdeburg

▷ [info@docupoint.de](mailto:info@docupoint.de)

# Inhaltsverzeichnis

Gabi Dolff-Bonekämper	
<b>Vorwort</b> .....	<b>7</b>
Ursula Flecken, Laura Calbet i Elias	
<b>Einleitung</b> .....	<b>13</b>

## Reflexionen

Ursula Flecken	
<b>Der öffentliche Raum im Aufbruch: Ein Blick zurück auf 1970</b> .....	<b>19</b>
Dieter Frick	
<b>Räumliche Synergie und Supportiveness.</b> <b>Zur Konstruktion öffentlichen Raums</b> .....	<b>37</b>
Luka Bakradze	
<b>Öffentlicher Raum – vom Verkehrsraum zum Lebensraum.</b> .....	<b>49</b>
Enrico Gualini, Stefano Tiracchia	
<b>Die Stadt als öffentliche Domäne: Überlegungen zu einer Politik</b> <b>und Planung für öffentliche Räume</b> .....	<b>61</b>
Uwe Altrock	
<b>Auf dem Weg zu einer erneuerten Stadtentwicklungspolitik für</b> <b>öffentliche Räume.</b> .....	<b>73</b>
Dietrich Henckel	
<b>Öffentlicher Zeit-Raum.</b> .....	<b>85</b>

Christiane Rhede, Florian Hutterer, Stephanie Herold, Laura Calbet i Elias  
Bebauungs- oder Freiflächenplan?  
Die Rolle des öffentlichen Raumes bei Hobrecht . . . . . 95

Laura Calbet i Elias  
Öffentlicher Raum in Barcelona und Berlin –  
Beobachtungen zur lokalen Planungskultur . . . . . 107

## Sichten

Guido Spars  
Welchen ökonomischen Wert haben Grünflächen? . . . . . 121

Elena Wiezorek  
Wird der öffentliche Raum im Zuge von Privatinitiativen exklusiv?  
Einblicke in die Handlungsstrategien  
staatlicher und privater Akteure . . . . . 135

Ricarda Pätzold  
„Draußen nur Kännchen“. Stadtbetrachtungen rund um den  
Caféhausstuhl . . . . . 147

Stephan Mitschang, Tim Schwarz  
Der öffentliche Raum in der Bauleitplanung . . . . . 159

Rafael E. Pizarro  
Merging green infrastructure with the design of  
public open spaces: A brief literature review . . . . . 171

Christin Sypererek, Ellen Daßer  
Gestaltung und Wahrnehmung des öffentlichen Raumes –  
Erfahrungen aus Exkursionen . . . . . 181

Elke Pahl-Weber  
Das Quartier und der quartiersbezogene öffentliche Raum –  
Gegenstand der Bau-, Stadt- und Raumforschung . . . . . 193

## Beispiele

Engelbert Lütke Daldrup

**Planwerk Leipzig 2015+**

**Städtebau und öffentlicher Raum im Fokus. . . . . 207**

Harald Bodenschatz, Johannes Geisenhof

**Stadterneuerung in Wendelstein bei Nürnberg:**

**Wiederbelebung einer Hauptstraße im suburbanen Raum . . . . . 221**

Marc Jordi

**Bericht aus einem Reisetagebuch. Ein Plädoyer für die Skizze . . . . . 231**

**Autorenangaben . . . . . 243**

**Quellennachweis . . . . . 249**

*Rafael E. Pizarro*

## Merging green infrastructure with the design of public open spaces: A brief literature review

The advent of new green infrastructure systems (decentralized, small-scaled facilities and spaces to produce energy, food, water, recycle wastewater, and dispose of organic waste based on renewable energy sources) offers the potential to transform the types of uses, landscapes and meanings of traditional urban public spaces. In cities around the world, the merging of green infrastructure and public spaces are generating a new typology of spaces (see figures 1 to 5). Yet, while such spaces are on the rise everywhere, little academic attention has been given to this new public spatial typology. No academic articles and less than a handful of books in the English literature are devoted to explore the merging of green infrastructure with the design of urban public open space. Even specialized journals that combine landscape design with urbanism give a cursive treatment to the role of green infrastructure systems in shaping urban form (see for example Topos 2010a, 2010b, 2009). This vacuum in the literature is surprising given that the benefits of providing ecosystem services in the middle of cities with no risks to human health may herald new and exciting typologies of public and semi-public space. This chapter calls for a renewed research-based examination of the future of public spaces as a result of their new potentials for providing cities with ecosystems services, new urban space typologies, and new knowledge on spatial design.

### The provision of ecosystems services and urban space

Urban public spaces such as parks, squares, plazas and the like have traditionally been used for activities related to recreation and cultural or civic events.

The recent awareness that cities must generate their own energy, food, and recycle their wastewaters and organic waste within their districts' boundaries has opened up opportunities to use urban public and semi-public space for alternative uses. By the same token, the possibility of using such spaces for ecosystem services may give designers a chance to explore a new type of urban aesthetics.

Up until the Industrial Revolution, human settlements had to deal with sewage, solid waste, energy generation, and the provision of water within their physical boundaries, and food was grown within a short distance of those boundaries. In many instances, the provision of water, for example, was so centrally located in the settlement that it became the main central plaza when the settlement became a city.

Even some European luxurious landscapes such as the gardens of Versailles in the 17th century were designed not only to be aesthetically pleasant but also to grow food for the royal palace. The advent of the 'modern' city in the 19th century, however, with its new infrastructure technologies and, more recently, with the globalization of foodstuffs, effectively removed such life-supporting systems from city boundaries. Wastewater treatment, for example, was placed in large, centralized treatment plants away from urban cores (in part due to the potential threats to human health) and electricity was produced in large centralized fossil fuel-guzzling plants. Food production was not only industrialized but removed from the proximity of urban centers and often grown in distant countries. It also became heavily dependent on petroleum-based herbicides, fertilizers, defoliant, packing materials, and transportation.

The looming environmental, social and economic crisis associated with climate change and peak oil, however, has made us aware that such costly, large-scale, fairly inefficient and energy-hungry infrastructure systems had to be replaced by small, decentralized, district-scale, non-fossil fuel-based infrastructure systems; the so-called "green infrastructure." This new conditions for life-supporting systems effectively opened up new opportunities to conceive the design of public and semi-public urban spaces in new ways, as we can see in the following examples.

## New uses and new aesthetics for public and semi-public open spaces

The following selected examples of using public and semi-public urban open spaces to produce energy, to treat or recycle wastewater and to grow food in ways that are environmentally sound, energy efficient, and without producing greenhouse gases are illustrative of the new ways in which such spaces can be used and the new aesthetics that can arise from them.

In Figures 1a and 1b, for example, we see the Sun Monument, a 22 mt.-diameter-, 300-module, 10,000-LEDs photovoltaic array on the grounds of a cruise ship port in Zadar, Croatia, which doubles as a “sculptural” element and as the

Fig. 1  
Sun Monument in Zadar,  
Croatia

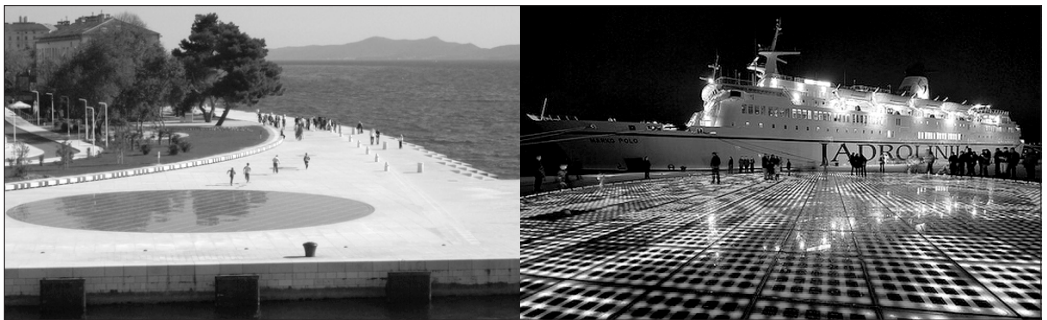


Fig. 2  
Wind turbine at Exhibition Place in Toronto,  
Canada



provider of all the electricity needed to light up the port area and the lightshow for the circle itself. In Figure 2 we see a wind turbine in a public park (Exhibition Place) in Toronto, Canada, which becomes a major visual marker for the area, an urban icon, and a symbolic image of the Toronto's commitment to sustainability. Figure 3 is the so-called "Kolding pyramid" in the semi-public space of a Danish residential development. The pyramid is the central feature in the block's playground doubling as a facility to treat all wastewaters (including sewage) from the 120 residential units in the development. In addition, this "bioworks pyramid" is used for food production as it contains a mini fish farm and a plant nursery. The rainwater catchment and treatment system in Potsdamer Platz, Berlin, doubles as a public waterscape and as an efficient urban heat island

Fig. 3  
Bioworks Pyramid  
in Kolding, Denmark



Fig. 4  
Rainwater treatment  
system in Potsdamer  
Platz, Berlin



control for the area is shown in Figure 4. Figures 5a and 5b show how the public grounds for the Shenyang Architectural University Campus in China double as a rice producing field and as a public space for students' relaxation. Although there are other examples like the ones shown above, in general, the design of public open space continues to be for purposes other than infrastructural. Indeed, it is not clear how the new infrastructure and food production systems can interact spatially, aesthetically, technically, socially and even culturally with the functions of more traditional public spaces such as parks, squares, or plazas and with the land uses around them. Given the advantages of merging green infrastructure systems with public open space it is still puzzling that the literature on urban design has not given more attention to this rather paradigmatic change in space design.

Fig. 5  
Rice fields and  
Faculty building  
at the Shenyang  
Architectural Uni-  
versity Campus



## Neglect in the literature

Most of the literature on sustainable urban planning and design admittedly advocates energy and food production, wastewater treatment, and organic waste management at the scale of the urban district or even at the scale of the neighbourhood. Yet, no work explains how to do it. In the literature, there is a lack of a book that explains in a rigorous and methodical manner how to integrate these systems into the urban design process. Furthermore, such book should explain not only how to integrate green infrastructure into space design but illustrate how to exploit the formal, spatial and sensorial potentials of those systems towards a new aesthetics of public and semi-public space.

Publications on urban design are normally focused on the aesthetic, political, social, cultural, normative, or perceptual dimensions of urban space. This is understandable given the newness of the need to introduce ecosystem services in cities. Yet, new publications still ignore the issue or, at best, give it a cursive treatment. Among the “classic” and not so classic works on urban design (in the English literature at least) we find a set of books that, although seminal to understand the complexities of designing urban space, neglect the use of such spaces for purposes other than the traditional ones. These are the books such as *The Concise Townscape* (Cullen 1961), *Urban Design* (Spreiregen 1965), *The Design of Cities* (Bacon 1976), *A Pattern Language* (Alexander 1977), *Good City Form* (Lynch 1981), *An Introduction to Urban Design* (Barnett 1982), *Responsive Environments* (Bentley et. al. 1985), *A New Theory of Urban Design* (Alexander 1987), *Emerging Concepts in Urban Space Design* (Broadbent 1990), *The New Urbanism* (Katz 1994), *Design of Urban Space* (Madanipour 1996), *Postmodern Urbanism* (Ellin 1996), *Urban Design* (Lang 2005) and the likes. These books are generally focused on place-based urbanism disregarding the imperatives of climate change, energy resources, and environmental degradation or only mentioning these issues in passing and, of course, with no mentioning of urban infrastructure systems.

A second set of more recent publications do address the need to introduce green infrastructure systems in cities, and indeed include sections on wastewater recycling, organic waste management, energy generation, and food production on-site. Yet, they do so in a rather superficial manner focusing only on some of the technical implications of the systems without paying due attention to the aesthetic, social, cultural or economic implications of introducing these systems in public space design. Among these works we find *Principles of Green Urbanism* (Lehmann 2010), *Ecological Urbanism* (Mostafavi/Doherty 2010), *Urban Design: Green Dimensions* (Houghton/Shirley 1996), *Earthscan Reader on Sustainable Cities* (Satterthwaite 1999), *Sustainable Communities* (Barton 2002), *Cities and Climate Change* (Bulkeley/Betsill 2003), *The Sustainable Urban Development Reader* (Wheeler/Beatley 2004), *The Green City* (Low et. al. 2005), *Ecocities* (Register 2006), *Cities as Sustainable Ecosystems* (Newman/Jennings 2008), and *Resilient Cities* (Newman/Beatley/Boyer 2009).

Then, there is another set of publications that are more methodical in their approach to new infrastructure systems and urban design but their usefulness for

designers is still limited. These books are *Eco-master Planning* (Yeang 2009), *Sustainable Urbanism* (Farr 2008), *Ecodesign* (Yeang 2006), and *From Ecocities to Living Machines* (Todd/Todd 1993). They show diagrams that are more detailed and even offer some ways to quantify resource input and output, but the information is not presented in a way that an urban designer can use effectively to introduce green infrastructure spaces and facilities into their master planning. Another limitation of these books is that although they include representative built and non-built projects featuring open spaces with green infrastructure systems, the projects do not include all the systems; e.g., they may display energy production and wastewater treatment schemes but leave out spaces for food production or for organic waste management.

Recently, however, only two books have been published that deal comprehensively with the introduction of all infrastructure systems in urban space design: *The ZEDbook* (Dunster/Simmons/Gilbert 2008) and *Smart Cities & Eco-warriors* (Lim/Liu 2010). These books feature a handful of non-built eco-projects that effectively show how the new infrastructure systems can be part of public and semi-public spaces in urban development. They do so with a high degree of specificity showing how to calculate some resource quantities and illustrating how to locate facilities and devices in a project. Unfortunately, however, they do not explain how to introduce such elements in the actual design process.

What is lacking in the literature, then, is a design 'manual' akin to *Responsive Environments* (Bentley et. al. 1985) that would deal with the integration of the new infrastructure systems in urban design in a more rigorous and methodical manner. The manual would do so by taking into consideration not only the technical aspects of integrating such systems into urban design projects but, perhaps more importantly, taking into consideration the aesthetic, social, cultural and other aspects of such integration. Such publication would tabulate, at least roughly, the energy, water, and food needs, and the amounts of wastewater and organic waste in the project so that the designer can think of the type, scale and spatial characteristics of systems needed. Next, it would provide an array of options for these systems according to the climatic conditions and the size and scale of the project. Then, it would be up to the designer to ponder the social and cultural implications of introducing those systems into the project.

Of course, this is more easily said than done. I would like to speculate that the reasons for this vacuum in the literature are related to the complexities that such piece of work would entail. On one hand, this has been traditionally the realm of infrastructure and environmental engineers. Under a 'modern' conception of urban design and planning, the works of engineers and designers touch each other only tangentially, and rarely at the beginning of the design process. After all, the conventional spaces and facilities for supplying a city with electricity, potable water, water treatment or food, for example, were located at the fringes of urban cores, hence removing their conception from the hands of urban designers. On the other hand, the space requirements for such facilities were of no interest to the urban designer as such spaces were not considered part of the public urban realm. Perhaps another difficulty to produce such a manual is the financial, regulatory, managerial, and real estate challenges that may result from integrating such systems into urban districts, neighbourhoods or even into city blocks. Few or no precedents exist in conventional market-driven urban land development for such integration. The exemplary case of Masdar in Dubai, for instance, which effectively integrates such systems into its public open spaces, has only been possible due to the private nature of the project.

## Conclusions

The future urban designer will have to accept that a re-conceptualisation of urban form to accommodate new sustainable infrastructure facilities is the way of the future and he/she will have to be skilful in designing urban space to include the new infrastructure systems. If there is something clear as a result of the environmental crisis triggered by climate change and the near-future scarcity of cheap oil is that the era of large-scale, fossil-fuel-dependent, decentralised power plants, wastewater treatment facilities, and away-from-cities industrialized food production is over. Such change, however, demand new small-scaled decentralized facilities and spaces placed, ideally, within neighbourhoods. Given that the spaces to house such new urban elements will necessarily have to be located in urban cores, and that such spaces will inevitably become part of the urban network of public open spaces, the future urban designer will have to be innovative and creative to introduce these new elements into his/her palette of design options. However, this new development in urban design may also open up new

and exciting ways of conceiving the design of cities. It is surprising, then, that a publication highlighting the aesthetic potentials of green infrastructure and laying out a methodology whereby the designer can incorporate this new life-supporting systems into his/her urban projects have not appeared yet in the market.

## References

- ALEXANDER, CHRISTOPHER (1977): *A Pattern Language. Towns, Buildings, Construction*. New York
- ALEXANDER, CHRISTOPHER (1987): *A New Theory of Urban Design*. New York, Oxford
- BACON, EDMUND (1976) [1067]: *The Design of Cities*. New York
- BARNETT, JONATHAN (1982): *An Introduction to Urban Design*. New York
- BARTON, HUGH (Ed.) (2000): *Sustainable Communities. The Potential for Eco-neighbourhoods*. London
- BENTLEY, IAN/ ALCOCK, ALAN/ MURRAIN, PAUL/ MCGLYNN, SUE/ SMITH, GRAHAM (1985): *Responsive Environments. A Manual for Designers*. Oxford
- BROADBENT, GEOFFREY (1990): *Emerging Concepts in Urban Space Design*. New York
- BULKELEY, HARRIET/ BETSILL MICHELE (2005): *Cities and Climate Change: Urban Sustainability and Global Environmental Governance*. New York
- CULLEN, GORDON (1961): *The Concise Townscape*. New York
- DUNSTER, BILL/ SIMONS, CRAIG/ GILBERT, BOBBY (2008): *The ZedBook: Solutions for a Shrinking World*. Abigdon
- ELLIN, NAN (1999): *Postmodern Urbanism*. New York
- FARR, DOUGLAS (2008): *Sustainable Urbanism: Urban Design with Nature*. Hoboken/NJ
- KATZ, PETER (1994): *The New Urbanism: Toward an Architecture of Community*. New York
- LANG, JON (2005): *Urban Design. A Typology of Procedures and Products*. Oxford
- LEHMANN, STEFFEN (2010): *Principles of Green Urbanism. Transforming the City for Sustainability*. London
- LIM, C. J./ LIU, ED (2010): *Smart Cities and Eco-Warriors*. Oxfordshire
- LOW, NICHOLAS/ GLEESON, BENDAN/ GREEN, RAY/ RADOVIC, DARKO (2005): *The Green City. Sustainable Homes, Sustainable Suburbs*. Sydney
- LYNCH, KEVIN (1981): *A Theory of Good City Form*. Cambridge/MA
- MADANIPOUR, ALI (1996): *Design of Urban Space: An Inquiry into a Socio-Spatial Process*. Chichester
- MOSTAFAVI, MOHSEN/ DOHERTY, GARETH (Eds.) (2010): *Ecological Urbanism*. Harvard University, Graduate School of Design. Cambridge/MA
- MOUGHTIN, CLIFF (2005): *Urban Design: Green Dimensions*. Oxford/MA.
- NEWMAN, PETER/ JENNINGS, ISABELLA (2008): *Cities as Sustainable Ecosystems: Principles and Practices*. Washington DC
- NEWMAN, PETER/ BEATLEY, TIMOTHY/ BOYER, HEATHER (2009): *Resilient Cities: Responding to Peak Oil and Climate Change*. Washington DC
- REGISTER, RICHARD (2006): *Ecocities: Rebuilding Cities in Balance with Nature*. Gabriola Island/Canada
- SATTERTHWAITE, DAVID (Ed.) (1999): *The Earthscan Reader on Sustainable Cities*. London

SPREIREGEN, PAUL (1965): *Urban Design. Architecture of Towns and Cities*. New York

TODD, NANCY JACK/ TODD, JOHN (1993): *From Eco-Cities to Living Machines: Principles of Ecological Design*. Berkeley/CA

TOPOS (2010a): No. 71: Special issue on "Landscape Urbanism."

TOPOS (2010b): No. 70: Special issue on "Sustainability."

TOPOS (2007): No. 59: Special issue on "Water: Design and Management."

WHEELER, STEPHEN M./ BEATLEY, TIMOTHY (2004): *The Sustainable Development Reader*. London

YEANG, KEN (2006): *Ecodesign: A Manual for Ecological Design*. Chichester

YEANG, KEN (2009): *EcoMasterPlanning*. Chichester