HEALTH-AFFIRMING EVERYDAY LANDSCAPES IN SUSTAINABLE CITY. THEORIES AND TOOLS

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Abstract

As cities and urban population continue to grow, causing serious threats to public health, the development of health-affirming urban landscapes becomes even more important topic than ever before. The purpose of this paper is to answer the question which qualities of urban landscape make it the health-affirming landscape. In the first part of the paper, a concept of health-affirming landscapes and a modern approach to sustainable city design are examined. In the second part, the qualities of health-affirming urban landscape according to theories and research are discussed. The tools, which might be applied to urban design to create health-affirming landscapes are reviewed. The conclusions concern the need and possibilities to create health-affirming landscapes. The need for further research on impact of such landscapes on health and well-being of city dwellers is indicated.

Keywords: Health-affirming landscapes; Therapeutic landscape; Sustainable city; Health and well-being; Tools.

1. INTRODUCTION. HEALTH-AFFIRMING LANDSCAPES

The concept of therapeutic landscapes was coined by Wilbert Gesler who defined it as places where "physical and built environments, social conditions and human perceptions combine to produce an atmosphere which is conducive to healing" [1, 2]. According to research evidence, there are places that have potential to promote healing, for examples Lourdes in France or Epidaurus in Greece [1, 3].

There are different qualities of *therapeutic landscapes*: material aspects, social constructions, symbolic significances, allegories of positive aspects of human health and well-being. These aspects are associated with a given social and geographical situation [1, 4]. Sarah Bell mentions also the capacity of therapeutic landscapes to inspire participants to engage with their spirituality [5]. Alette Willis [6] points out that the therapeutic landscapes are too often non-ordinary places, where people flock to and anticipate healing. At the same time, the major question would be how to improve everyday landscapes, where people spend most of their time, to promote health and well-being [2, 7, 8]. Ordinary places are for the prevailing number of people the urban landscapes. Additionally, as Simon Bell notices [9] "there is a tendency to expect and accept a dull mediocrity in our everyday surroundings (…). Many people... are progressively alienated from their environments". Wakefield and McMullan investigated how health-affirming and health-denying places exist together in everyday life [10].

All those arguments lead to a research questions – how to design an ordinary urban space to promote health and well-being of inhabitants and how the designing of urban health-affirming places can enhance the idea of sustainable city. We define *Urban health-affirming landscapes* as everyday places which unite the qualities of *therapeutic landscapes* to influence people physical, mental and spiritual healing. The scope of this paper is dedicated to urban planning and design.

1.1. Sustainable city

Modern city planning is a profession, which emerged in the late 19th century to improve health of urban residents, but somehow lost its focus in the 20th century [11]. Nowadays, with sustainable approach the planning community is trying to return to its roots. According to Richard Register, one of the pioneers of eco-cities, this new approach is based on solid principles from history and honest assessment of troubled future [12]. For the last thirty years the idea of sustainable city has been widely discussed in professional literature and various documents concerning planning and policymaking. The provided recommendations consider various aspects and activities. They relate to different levels of planning, designing and management of city structures at various scales – from apartments, house and neighborhoods, to entire cities, agglomerations and countries, but not forgetting about the individual human being, regardless of where she or he lives [13]. Generally, they include every globally discussed dimension of sustainable development: economic prosperity, social balance, environmental protection, cultural and health aspects (Leipzig Charter, 2007) [14], as well as coherence across city boundaries: time dimension, social, economic, environmental and spatial development (New Charter of Athens, 2003) [15]. According to King Ross [16], the sustainable city should be defined at the three levels: ecological sustainability, economic sustainability and cultural sustainability. Douglass Farr [17] describes several indicators of sustainable city design: adequate building density, integration of transport systems with land use, preservation of ecological corridors, sustainable walkable neighborhoods which facilitate access to workplaces, bond with nature (e.g. walkable distance to greenspace, local use of rain water, waste recycling and food production); energy efficient buildings and infrastructure. The definition of a sustainable city provided in the New Charter of Athens (2003) describes a city which encompasses social, economic, environmental

and spatial coherence [15]. At the same time Chinese scholars consider eco-city as "stable, harmonious, and sustainable complex ecosystem that makes possible "all-win" development among social, economic, and environmental factors" [18]. Therefore the question, what is the correlation between the idea of sustainable city and *health-affirming landscapes*, needs to be answered.

1.2. Sustainable city design and health-affirming landscapes – obvious correlation?

Albert Levy [19] describes the three revolutions in medical sciences, which had direct impact on urban planning: *Pasteur* (1885), *Freud* (1900) *and environmental revolution* (1987). The most recent environmental revolution has led to the described above sustainable urban planning. The sustainable eco-city design concept is based on the Aalborg Charter (1994, renewed in 2004) and Agenda 21 [20, 21]. It can be described as a continuous strive towards improvement of life quality of inhabitants. One of the recommendations of Aalborg Charter, signed by over 700 cities from Europe, is *Local action for health*. The basic principles of eco-city planning were generalized by four aspects: "Health (…) to provide enough ecosystem services to ensure human health and promote human development, Security, Vigor and Sustainability" [22]. Human health and healthy ecosystem are closely interconnected.

Corburn [9] explains that social determinants of health are shaped by local decisions and institutions. The nearest, everyday health-affirming urban environment is crucial to people well-being. Therefore, we may state that the human health is the subject, which bridges medical sciences and urban planning. These factors led indirectly to growth in popularity of eco-neighborhoods.

Health is one of basic postulates in the paradigm of sustainable development (Principle I of the Rio Declaration on Environment and Development) [18]. However, that concept is more oriented towards the general and physical dimensions like air quality, water quality, toxic contamination, microclimate (which are necessary, but not sufficient circumstances) than creating local urban landscapes favorab to human beings. A new shift is needed, because the operationalization of theory of sustainable development requires creation of therapeutic landscapes and health-affirming everyday landscapes. The key question appears – which qualities of city space need to be applied to make a health-affirming places and therapeutic landscapes?

1.3. Therapeutic landscapes – general or individual attitude?

Many researchers from various fields, e.g. environmental psychology, medicine, sociology, architecture and urban planning, have tried to describe the unique qualities of *therapeutic landscapes*. Many of research findings describe qualities related to the presence of nature and urban composition. However, this evidence requires a precaution. Corburn [11] explains that "A weakness of variable-centered studies of place and health is that a positive finding may lead to overly physically deterministic conclusions..." and he insists that the holistic approach requires "emphasizing the mutually reinforcing relationships between places, people and meaning-making, on the one hand, and the political institutions and processes that shape these relationships, on the other". Researchers bring our attention to the fact that a therapeutic experience of a given place varies upon user's individual perception and attitude [2, 7, 23]. Settings are not therapeutic by their inherent nature; but are experienced as such in very different ways by different people [2, 7]. That perception is associated with a given social and geographical situation [4, 24]. Corburn [11] warns that the idea that rational physical and urban design can change social conditions, particularly for the poor, is false. "Research into the relationships between the build environment and health has tended to avoid or overlook the interactions and relations among the physical, social, political, economic, and meaning-making that combine to make a space in the universe a place" [11]. It means that health-affirming landscapes are always related to local conditions, needs and possibilities.

2. QUALITIES OF HEALTH-AFFIRMING LANDSCAPES IN SUSTAINABLE CITIES

Investigations described above prove that there is no universal recipe to create health-affirming landscapes. Each case is different because they depend on local conditions: physical, social, political and economic. However, several general ideas for cities or neighborhoods fulfilling the conditions necessary to create health-affirming landscapes will be described below.

2.1. Presence of nature

There is an important body of evidence stemming from research about health-promoting effects of contacts with nature [23, 25–32]. The *Biophila* hypothesis, developed by Edward O. Wilson, emphasizes the inner bond people feel with nature [33]. According to Public Health England [34] "Access to good quality green space is associated with positive health outcomes, including: improvements in mental health and wellbeing, such as depression, stress, dementia, increased longevity of older people, lower body mass index (BMI) scores, overweight and obesity levels and higher levels of physical activity and better self-rated health". All that research suggests to bring nature to people and people to nature [35]. Michel Bonetti [36] draws our attention to the fact that the majority of urban projects do not take into consideration the potential of their environment. They are limiting themselves to the boundaries of their sites. He counsels to take the fullest advantage of possibilities a given site is offering. At the same time, the eco-development should bring improvements also to its surroundings [36].

Place for nature in the city

The concept of an eco-city seems to include a place for nature due to a more ecological approach to the preservation of eco-systems and biodiversity (Nagoya Protocol) [37]. The additional issues are potentially contradictory needs: to construct means of access, pedestrian and cyclist paths, as well as to preserve the nature in natural state. Some areas need to be excluded from human access in order to prevent them from destruction and preserve biodiversity. However, the research evidence demonstrated that even viewing nature has a beneficial effect on our health [31, 38]. Foo Ah Fong [39] mentioned the traditional Japanese landscape strategy to enhance garden scenery by incorporating the surrounding landscape. For centuries this rule has been used in the Japanese Garden Art to design private gardens, public gardens and shrines. Agata Zachariasz [40] describes the phenomenon of *shakkei* (borrowed scenery), as a very important element of Japanese and Chinese garden's composition, used to enlarge the garden space with visual connections to distant landscape (for example surrounding mountains) or neighboring elements of scenery (for example tree behind the fence).

Figure 1.
Murin-an garden, Kioto, from Meiji period (1868–1912), composed with a borrowed scenery of distant hills (landscape architect Jifee Ogawa), surrounds historic villa from 1894-96 (today: national place of scenery). Photo: A. Sas-Bojarska

Figure 2.
Public garden Kōraku-en, Okayama, build in 1700 r. (Edo period), one of three most beautiful gardens in Japan, composed with borrowed scenery of Okayama Tenshu-kaku castle (today: national special scenic spot) Photo: A. Sas-Bojarska

Miłosz Walerzak [41] writes that the visual connections with surrounding landscapes were the essence of naturalistic composition (for example in England but he also provides many examples from Poland),

Figure 3.
Kiyomizu-dera, Kioto – a complex of buddist temples, more than 1200 years old, inscribed on the UNESCO list, situated on the Otowa Mountains Hill; Terraces offer views of Kioto and surrounding landscape; Photo: A. Sas-Bojarska

because „the variety of views is one of the most important factors deciding about the uniqness of a place". Wojciechowski [42] notices that the process of sensory perception by human brain is based on additional information: knowledge, imagination, attitudes, individual and social standards and norms.

Monika Trojanowska [43] has developed the Universal Pattern of design for therapeutic parks, based on literature and field research which includes the qualities relying to therapeutic landscapes and health affirming landscapes. It can be used as a helpful tool when designing new public park or revitalizing any green public space.

Mental and spiritual health

The concept of health-affirming landscapes goes into subtle areas of mental and spiritual healing. Contact with nature can stimulate physical and mental restoration. Simon Bell [8] wrote that particularly beautiful environments can arouse strong emotions and help us forget even for a short while about personal concerns. Any architectural and urban design that is creating a place of great beauty and calm is leading to health affirmation. Moughtin [44] confirms that "being at one with nature" is the foundation of health and wellbeing. Kaplans' [45, 46] explained that the following natural settings provide restorative experience: "being away (a sense of removal or separation from attention demands), fascination (being readily engaged in the features of the place), extent (the perception that there is adequate space for varied experiences), and compatibility (feeling that the space supports one's purposes or chosen activities)". The first one – the

Table 1.
Universal Pattern of Therapeutic Park. Source [43]

1. PARK'S FUNCTIONAL PROGRAM	2. ORGANISATION OF SPACE AND FUNCTIONS	3. INTERIORS DESIGN, ARCHITECTURAL FORM AND DETAILS	4. PLACEMAKING	5. PURSUIT OF SUSTAINABLE DEVELOPMENT
1.1. Psychological and physical regeneration Natural Landscapes Green open space Place to rest in the sun and in the shade Place to rest in silence and solitude Possibility to observe other people Possibility to observe animals **1.2. Social Contacts Enhancement** Organization of events inside the park Gathering place for groups **1.3. Physical Activity Promotion** Sports and recreational infrastructure Community gardens **1.4. Catering for basic needs** Safety and security Places to sit and rest Shelter Restrooms Drinking water Food	**2.1. Spatial composition follows the surrounding urban pattern** **2.2. Architectural variety of urban environment** Focal points and landmarks Structure of interiors and connections Long vistas (Extent) Pathways with views Invisible fragments of the scene (Vista engaging the imagination) Mystery, Fascination Framed views Human scale	**3.1. Optimal level of complexity** **3.2. Natural surfaces** **3.3 Engaging features** Risk/Peril Movement **3.4. Presence of Water** **3.5. Sensory stimuli design** Sensory stimuli: Sight Sensory stimuli: Hearing Sensory stimuli: Smell Sensory stimuli: Touch Sensory stimuli: Taste Sensory path	**4.1. Works of Art** **4.2. Monuments in the park** **4.3. Historic places** Culture and connection to the past **4.4. Thematic gardens** **4.5. Personalization** **4.6. Animation of place**	**5.1. Green Infrastructure** **5.2. Second (new) generation of parks** **5.3. Biodiversity protection** Part of park not-available to visitors Habitat plants Natural maintenance methods Habitat animals **5.4. Drinking water protection** Rainwater infiltration Rainwater irrigation Irrigation with non-potable water Park in a Flood risk zone **5.5. Urban metabolism** **5.6. Ecological energy sources**

feeling of being in the different world of nature is very difficult to achieve in parks surrounded by high multistorey buildings. However, we can observe that the designers strive to create smaller, more intimate spaces within those parks.

Fascination is captured and enhanced by features of scenery, intricate details of plants, meandering paths, or garden furniture. Extent can be related to open areas of lawns or water surface. *Compatibility* is closely connected to comprehensible design and rich sports infrastructure. As we can see, many features supporting the presence of nature can be found in public parks worldwide.

Anna Bengtsson and Patric Grahn have developed an outline of a Quality Evaluation Tool for healing gardens in healthcare settings [47]. Healing gardens in healthcare settings are a special kind of *therapeutic landscapes*. However, those qualities are easily applicable to everyday settings. The Quality Evaluation Tool can be used as a tool for every outdoor settings focused on mental and spiritual regeneration.

Figure 4.
West Kawloon – artistic cultural district of Hong-Kong; beautifully landscaped garden (favored even by flamingoes), surrounded by high-rise residential and commercial buildings. Photo: A. Sas-Bojarska

Figure 5.
Japanese Mori Garden, situated at the foot of Roppongi Hills, revitalized district of Tokio, surrounded by the dense urban tissue of high-rise buildings. Photo: A. Sas-Bojarska

Figure 6.
High Line, New York. Narrow belt of new public green space built on the unused railway viaduct, fitted between new and old buildings, became a catalyst for the neglected district's development. Photo: A. Sas-Bojarska

Table 2.
Source: An outline of the overall structure of QET created by A. Bengtsson, P. Grahn [47]

Section A	Section B
Six environmental qualities allowing persons to be comfortable in the outdoor environment:	Thirteen environmental qualities supporting persons' access to nature and surrounding life:
1. Closeness and easy access	1. Joyful and meaningful activities
2. Enclosure and entrance	2. Contact with surrounding life
3. Safety and security	3. Social opportunities
4. Familiarity	4. Culture and connection to past times
5. Orientation and way finding	5. Symbolism/reflection
6. Different options in different kinds of weather	6. Prospect
	7. Space
	8. Rich in species
	9. Sensual pleasures of nature
	10. Seasons changing in nature
	11. Serene
	12. Wild nature
	13. Refuge

2.2. Physical and build environment

We can argue whether the presence of nature is the most important element of therapeutic landscapes. Karmanov and Hamel concluded that attractive and well-designed urban environment could enhance stress-reduction and stimulate our moods similarly to a beautiful natural environment [48].

Zako and Hason, [49] explain that communal open spaces can provide a physical focus point for local communities. They stress that community design can either stimulate or obstruct the creation of social bonds, which are crucial in health-affirming places.

Christopher Alexander's theory of beauty as perceived by humans is conveyed in fifteen "fundamental properties" [50]. Not every property occurs in every beautiful object, but in very beautiful buildings and objects, many of these properties are usually apparent. Those properties can be applied when designing physical and build environment of health-affirming everyday landscapes.

Space organization and pedestrian activity

Walkability and density are the two features most often mentioned in literature dedicated to urban sus-

Figure 7.
Town square in Wejherowo, Poland. Very popular place to spend free time not only for local people. Photo: M. Trojanowska

Figure 8.
Town square in old town in Bydgoszcz, Poland. Very popular place, always full of people. Photo: M. Trojanowska
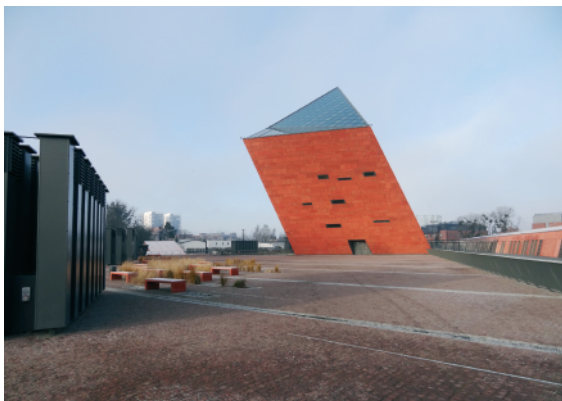

Figure 9.
Public square in front of new Second World War Museum in Gdańsk, Poland. New public space completely restored previously neglected part of town. Photo: M. Trojanowska

Table 3.
Source: Christopher Alexander [48]

1. Levels of scale	6. Good shape	11. Roughness
2. Strong centers	7. Local symmetries	12. Echoes
3. Boundaries	8. Deep interlock and ambiguity	13. The Void
4. Alternating repetition	9. Contrast	14. Simplicity and Inner Calm
5. Positive space	10. Gradients	15. Not-separateness

tainable design and health promotion. High density improves proximity to public services, green space and work places. Multi-functional dense urban blocks can help creating the feeling of safety and even lead to crime prevention with well-maintained public space. "To encourage people to walk or use bicycles to go to local services rather than drive cars to distant ones, it is necessary in urban design to improve both safety and environmental conditions [16]. It is worthy to mention that the views on urban density vary. Ross explains that "More important than density of people will be density and richness of activities (and thereby of opportunities) – the implication is for highly complex mixes of "land uses". However: "lower density can facilitate flexibility in land use, ease of building change and reuse, localized food production, and greater ease in the generation of local employment" [16]. Neighborhoods with clearly defined public spaces and community facilities can provide opportunities for pedestrian activity, which increase likelihood of social interactions and can reduce feelings of isolation [11]. Multi-functional buildings should fulfill all inhabitants basic needs within walking distance from their apartments. Mixed-use development contributes to walkable, pleasant and healthy physical environment providing many opportunities for social contacts.

2.3. Other factors indispensable to create health-affirming landscapes

Social conditions

The development of eco- neighborhoods is based on local governments and inhabitants desire to promote sustainability. The ecological awareness of citizens and their concern for the public common wealth is crucial for the development of eco-neighborhoods. That leads to the health-affirming atmosphere of social inclusion. Cliff Moughtin [44] explains that equality in social relationships is essential for healing

Figure 10.
Revitalization and of a local street and placemaking efforts – Wajdeloty st. in Gdansk. Photo: M. Trojanowska

Figure 11.
Allotments in one of the revitalized big-housing estates in Lisbon. Photo: A. Sas-Bojarska

Figure 12.
Playground in Gdynia funded by participatory budget. Photo: M. Trojanowska

environment. Strong social safety net is the best prevention against mental health problems. Many researchers talk about the importance of "meaningfulness" of environment for human health [45]. That concept is closely related to inhabitants participation in the planning and design of eco-neighborhoods. Corburn [11] explains that public participatory process offers planners numerous opportunities to promote social cohesion and build social networks, particularly between disparate groups (bridging social capital). That possibility is often overlooked. Corburn [11] writes that "healthy places ought to be understood as being doubly constructed; physically (the buildings, streets, parks, etc., often termed the "build environment") and socially (through the assigning of meanings, interpretations, and narratives as well as the construction of networks, institutions and process to shape these meanings and outcomes)". Thus, health-affirming places require placemaking – strengthening the connection between people and places they share.

Economic sustainability

The empowerment to make our own decisions is related also to economic sustainability. Eco-neighborhoods are striving to achieve low environmental impact on nature, low energy use, equal distribution of income, and social justice. They are being implemented in various locations, but so far in rather developed countries. Souami [51] insists that there is no correlation between the development of eco-neighborhood and financial conditions on global markets. New eco-neighborhoods were constructed regardless of economic prosperity or insecurity of real estate markets. Foo Ah Fong [39] thinks that "sustainable development can be achieved by any nation-state, rich or poor" (…). Citing the example of Curitiba, he insists that a simple and humane strategy such as the needs of the people and the needs of the environment can transform the morale of people and physical makeup of the city.

The proximity to employment is one of the most important challenges of eco-neighborhoods. According to Ross [16] it "seems an inevitable conclusion that urban design must favor the local. Services to individuals and households (shopping, schooling, recreation, libraries, etc...) need to be as locally accessible as possible…Economic sustainability of a city is ultimately dependent on the creation of employment that is productive, humanly fulfilling, rewarding to the individual, and low in both impact and resource use". The entrepreneurship and creativity of inhabitants are crucial for good-functioning of eco-neighborhoods. Other important reason why

Figure 13.
New workplaces in Curitiba – a person is selling tickets instead of ticket vending machine Photo: A. Sas-Bojarska

Figure 14.
New workplaces in Curitiba – making the city clean Photo: A. Sas-Bojarska

Figure 15.
Vocational training center named after Jacques Cousteau in an inactive stone quarry – Curitiba; Photo: A. Sas-Bojarska

cities need to become health-affirming places is that "environmental quality is a major economic asset"

[52]. A skilled workforce is more demanding, when it comes to choosing a place to live, and their presence is always a valuable asset for any neighborhood.

People's awareness

Other important factor of sustainable development is peoples' attitude to ecology of everyday life. The eco-neighborhoods provide opportunities for people to "think globally and act locally" and actively take responsibility for the future of our planet. That leads to a feeling of liberty and empowerment to decide about future. Niechwiej writes that "the modern man is constantly in danger posed by the products of his own intellect and resourcefulness (...) i.e. unsustainable management of natural resources. Such a situation is in contradiction of the Creator's plan as He has appointed man to be the master of nature but not its ruthless exploiter" [53]. Pope John Paul II wrote "People are becoming increasingly aware of the limited amount of natural resources and the necessity to respect the laws of nature in the planning of further economic progress. The mere economic concept and mechanistic optimism, if they are not guided by moral and ethical standards, quickly turn into enslavement of man" (SRS 27–28 in: *Sollicitudo Rei Socialis* [54]. Described aspects refer only to chosen problems of creating health-affirming landscapes, which are related to urban design.

3. FINAL CONCLUSIONS

Creating health-affirming landscapes can and should become one of the principal rules of sustainable city design and planning, supporting and widening the idea of sustainable development. Human health is a foundation of sustainable development. Environment which is conducive to healing encompasses not only physical dimensions like quality of air, water and soil, and acoustic climate but also incalculable qualities like beauty, silence, serene views, diversity of plants, contacts with other people, social bonds, etc.

There are available tools which can help designers gasp the elusive nature of therapeutic experience in health-affirming landscapes, like Universal Pattern of Therapeutic Park, Quality Evaluation Tool for healing gardens in healthcare settings. They should be promoted and implemented into sustainable planning and design. It seems necessary that spatial planning, urban planning, landscape architecture, green and blue infrastructure, should be focused on trans-

ferring everyday landscapes into health-affirming places and therapeutic landscapes in every possible situation. The research review presented above leads to conclusion that the health-affirming everyday landscapes are possible to build in contemporary cities in existing conditions without extra costly funds.

But the real health impact of health affirming landscapes in cities – difficult so far to measure – should be the subject to further research. However, the precise data with comparable and replicable results are difficult to obtain. They require large scale and long-term, interdisciplinary research with self-assessment of health and wellbeing, engaging scientists of many fields, like medicine, psychology, sociology.

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