

# THE SOCIAL BENEFITS OF URBAN OPEN GREEN SPACES: A LITERATURE REVIEW

Mehdi RAKHSHANDEHROO<sup>1</sup>, Mohd Johari Mohdyusof<sup>2</sup>, Osman Mohd Tahir<sup>3</sup>,  
Mohd Yazid Mohd YUNOS<sup>4</sup>

<sup>1,2,3,4</sup>Department of landscape architecture, Faculty of design and architecture, Universiti Putra  
Malaysia, 43300 Serdang Malaysia

<sup>1</sup>mrakhshandehroo@yahoo.com

<sup>2</sup>m\_johari@upm.edu.my

<sup>3</sup>osmanmt@putra.upm.edu.my

<sup>4</sup>mohdyazid@upm.edu.my

## Abstract

In the process of rapid urbanization and domination of concrete over nature, lifestyles have changed. Since natural landscape and greenery are crucially important to our quality of life and the majority of the population are going to settle down in urban areas, urban open green spaces as the 'lungs of the city' are often at the center of the debate on urban planning and sustainable development. The overall aim of this paper is to investigate the social, health, environmental and economic benefits of providing urban open green space. The many benefits of urban open green spaces were investigated in a systematic review of scientific online databases, relevant research and other related papers.

**Keywords:** urban planning, green space, open space, sustainable development, systematic review.

## 1. INTRODUCTION

Urbanization has brought about several undesirable environmental changes. In this process, land cover gradually changes and natural surfaces are replaced by the urban fabric (Song & Park, 2014). However, the role played by urban open green spaces has changed over the years. These changes have not been merely decorative and there is growing evidence of the positive impact of urban open green spaces on quality of life among urbanites (Gómez-Baggethun & Barton, 2013). Furthermore, they have become an essential element in any sustainable city model, a phenomenon which has grown in popularity and acceptance over the last few decades (Cari, Casares-Porcel, & Quesada-Rubio, 2013).

Merriam-Webster (2012) defines "benefit" as something "that promotes well-being" and 'well-being' is defined as "a positive mental and social state" (Derfa, 2007). It can be an improved condition that includes a healthy and attractive environment, rewarding employment, financial and personal security, good health, strong and inclusive communities and supportive personal relationships (Cláudia & José,

2012). The variety of benefits of urban open green spaces can be categorized into social, health, environment, and economic domains which will be discussed in detail in the sections that follow.

## 2. METHODOLOGY

This study applied a systematic review of identified peer reviewed literature addressing the main research question: "What are the most significant benefits of urban open green spaces in the current scientific papers?" In order to find peer reviewed scientific publications, most popular databases such as Web of Science, Scopus, ProQuest and Google Scholar were used. These online databases could review all relevant literature. From an initial search, the search terms that were determined included "green space", "open space", "urban park", "green area" and "green infrastructure". These keywords searched among topics (titles, abstracts, keywords) in the period from year 1993 to 9th April 2014 and focused on the most current ones. Subsequently, the included papers were reviewed for their relevance and final outcomes. By referring to the references of selected papers, other relevant papers were included that were not included in the original search (snowballing). Selected papers were scanned, investigated and compared to determine the different aspects of "benefits" of urban open green spaces.

## 3. SOCIAL INTERACTION

Recent research by many scholars has emphasized the significance of open green spaces as an ideal spaces for people to meet each other, or as a focus for the community, both formally and informally (Woolley, 2003). They also provide space for socializing, political discourse and cultural expression (Li, 2014). The existence of trees (and their shade) as well as grass in public areas can be an attraction for people to spend more time outdoors, which improves social interaction among the members of the community (Coley, Sullivan, & Kuo, 1997). There is a great potential for social interaction in open green spaces because of the easy access to these spaces, in comparison with the other spaces in a city. Also, there can be greater social unity among the people who interact in leisure activities (organizing public ceremonies, track and field, cycling) which connect them together (Konijnendijk, Annerstedt, Nielsen, & Maruthaveeran, 2013).

## 4. SOCIAL COHESION

Due to globalization, the level of migration has increased over the past decades. Therefore, some parts of the traditional homogenous societies are becoming gradually more multi-cultural (Kærgård, 2010) which could lead to reduced interaction and less social cohesion. Urban open green spaces combine

ecology with the social scope (Borgström, 2009; Olsson, 2012), allowing people to meet and interact to establish relationships and to develop social ties within local communities (Völker et al., 2007).

Urban open green spaces have been viewed not only as a setting for recreation and leisure but also as a significant part of community and urban development, which can be used to eliminate social distinction. (Coley et al., 1997; Van Herzele & Wiedemann, 2003; Parr, 2007; Maas, Van Dillen, Verheij, & Groenewegen, 2009). They contribute to social justice by creating opportunities for all people to participate in close interaction between social layers of diverse ethnic and racial backgrounds (Lofland, 1998; Fainstein, 2005). In particular, they are used for a range of activities that increase the sense of communal closeness, more recreation activities and social support (Elmqvist et al., 2004; Chu et al., 2010; Chen & Jim, 2008; Maas et al., 2009; Seeland, Dübendorfer, & Hansmann, 2009; S; Rakowski et al., 2012; Ahmad, Maulan, Mariapan, & Habib, 2011; Arnberger, 2012; Arnberger & Eder, 2011).

## 5. CRIME REDUCTION

Many studies have stated that vegetation can reduce the fear of crime (Taylor, Kuo, & Sullivan, 2002) or incidences of crime and anti-social behavior (Kuo & Sullivan, 2001). Kaplan (1987) suggested that there could be serious crimes of a violent nature triggered by stress. Besides, there is empirical evidence that the presence of trees could lower stress, and thus minimize incidence of crime perpetuated by stressed criminals (Donovan & Prestemon, 2010). Planting trees and maintenance activities also help to keep crime rates low and strengthen community bonds (Rij, Dekkers, & Koomen, 2008) while some others have stated that natural greenery increases the fear of crime (Nasar, Fisher, & Grannis, 1993; Nasar & Fisher, 1993).

## 6. REDUCTION OF ACCIDENTS PROBABILITY

Urban street trees create vertical walls that frame streets and provide a defined edge that can have an important effect on drivers and especially motorists to reduce speed, and act as a movement guide, giving better distinction between drivers and pedestrians. Furthermore, street trees also increase the pedestrians' safety because in the case of driving errors they deflect or fully stop the motorist from accidentally taking a human life (Naderi, 2003; Wolf, 2003). According to Burden (2008), street tree sections in comparison with equivalent treeless streets have fewer run-off-the-road crashes and overall crash severity.

## 7. AESTHETICS

When it comes to environmental preference, aesthetic perception is an influential and widely shared affective basis (Parsons & Daniel, 2002). It is human nature to harbor psychological attachment to beautiful natural objects such as pleasing and calming vegetation (Jim, 2004). Green open spaces are significant because they are aesthetically valuable to the communal domain but as such value is not easily quantifiable, its significance is frequently downplayed (Enger, 2005). Furthermore, open green space users express differing aesthetic preferences and values for features like diverse vegetation and trees, water, varied terrain, and topography (Yuen, 1996; T. Zhang & Gobster, 1998; Byrne & Sipe, 2010).

## 8. REGIONAL IDENTITY

The typical town common or square, acts as a 'watering hole' for communities in the vicinity and helps to establish its local identity (Calthorpe, 1993). The preservation of the unique and natural landscape in these open green spaces also enhances its local character. The existence of an interconnected series of open green spaces can bond the community together and define the distinctive character of each community which improves the regional identity (Enger, 2005). They offer a pleasant difference to the hard structured urban fabric and provide opportunities for relaxed informal outdoor and pedestrian activities and encourage meditation or quiet appreciation of nature. They can be an oasis of tranquility and relaxation as opposed to the often stressful pace of urban life (Enger, 2005). In other words, well-designed and maintained open green spaces define the identity of towns and cities, because they offer a diversity of land uses and opportunities for a wide range of activities, therefore improving attraction for living, working, investment, and tourism (Tüzin Baycan-Levent & Nijkamp, 2009; Tuzin Baycan-Levent & van Leeuwen, 2002).

## 9. RECREATION

Different types of people use open green spaces for a range of recreational and amenity purposes based on their needs, preferences, available times and physical capabilities (Dahmann, Wolch, Joassart-marcelli, Reynolds & Jerrett, 2010). The recreational function of urban open green spaces can be categorized into two groups of passive and active recreation (Woolley, 2006) (Woolley, 2008; Schaefer-McDaniel, 2007; Mäkinen & Tyrväinen, 2008). Active recreation usually involves facilities such as skateboarding parks, sports, tennis courts, swimming pools and even rock climbing and other games, whereas passive recreation includes activities like observing children or others or wildlife, taking in the view, reading, relaxing or interacting with acquaintances (Woolley, 2003).

## 10. NATURE EDUCATION AND NATURE EXPERIENCE

Access to a green environment has a positive impact on children's physical movement skills and outdoor activities (Olsson, 2012). It also increases knowledge and awareness of environmental issues (Olsson, 2012). Hence, spending time in open green spaces is not only recreation but also a learning experience, and that enhances the quality of self-growth and development.

The importance of play for a child's development has been proven by many researchers and increasingly accepted. However, increasing urbanization has resulted in fewer opportunities for the current generation to engage in outdoor informal play and appreciation of the natural world around them (Singh, Pandey, & Chaudhry, 2010). Most children would prefer to play outdoors rather than indoors (Byrne & Sipe, 2010) as they enjoy landscaped spaces of all sizes and dimensions and prefer more secluded landscaped areas (Sarkissian, 2013) as locations with shady trees and fresh green grass are more conducive environments for children than those devoid of such elements of Nature (Singh et al., 2010). Therefore, the main reason for visiting urban open green spaces for many families is to take their children to play in these spaces (Dunnett, Swanwick, Woolley, Government & Britain, 2002; Woolley, 2003).

In a comparison between two play fields, with and without trees, it is revealed that "a higher level of creative play was found in the open green spaces than in the barren areas". Thus, open green spaces can be an excellent venue as an outdoor play area for children. It provides them with a range of sensory experiences and helps them to refine their motor skills, hence achieve social development and practice social skills (Gilliland, Holmes, Irwin & Tucker, 2006; Gearin & Kahle, 2006).

## 11. HEALTH AND WELL-BEING

Daily urban life can be very stressful with a high level of information and a generally hectic and busy environment. It also forces our brains to work intensely to screen the impressions with elements such as noise, crowding and air pollution. Kaplan (1991) stated that this process may lead to headaches, irritation and depression (Woolley, 2003). There is growing evidence that access to nature within urban regions positively affects public human health and well-being, although causal relationships are difficult to determine (Fuller Richard, Irvine, Devine-Wright, Warren, & Gaston, 2007); (Lee & Maheswaran, 2011); (Kowarik, 2013); (Annerstedt & Währborg, 2011); (Irvine, Warber, Devine-Wright, & Gaston, 2013). It also enhances the quality of residential life and behavior (M'ikiugu, Kinoshita, & Tashiro, 2012).

A green, natural environment has a positive effects on self-perceived health (Maas, Verheij, Groenewegen, De Vries, & Spreeuwenberg, 2006);(Lafortezza, Carrus, Sanesi, & Davies, 2009), reduces headache (Hansmann, Hug, & Seeland, 2007), prolongs longevity of the urban elderly population (Takano, Nakamura, & Watanabe, 2002),lowers mortality rates (Fukuda et al., 2004),minimizes health complaints and helps prevent obesity among children and adults(Blanck et al., 2012).

### **11.1 Mental Well-being**

Nature and green spaces make a positive impact on public mental well-being in different ways including: mental health (Van Dillen, de Vries, Groenewegen & Spreeuwenberg, 2012), psychological well-being (Abkar, Kamal, Mariapan, Maulan, & Sheybanic, 2010; Stodolska, Shinew, Acevedo, & Izenstark, 2011), enhanced concentration capacity (Tsunetsugu et al., 2013), decreased Attention Disorder Hyperactivity Disorder (ADHD) indications (Kaplan & Kaplan, 1989; Taylor & Kuo, 2009), post-disaster recovery (Rung, Broyles, Mowen, Gustat & Sothorn, 2011; Okvat & Zautra, 2014) and self-reported general health, feelings of pleasure, enjoyment, relaxation, comfort and calmness (Stigsdotter et al., 2010; Schipperijn, Stigsdotter, Randrup & Troelsen, 2010) and also tranquility (Watts, Miah & Pheasant, 2013). They provide a convenient environment for restoration and generate feelings of vitality and creativity (Tyrväinen et al., 2014). Furthermore, engaging in physical activity in an open green space also reduces stress, uncertainties, annoyance, and depression (Ward Thompson et al., 2012; Tyrväinen et al., 2014; Annerstedt et al., 2012) and also helps to relieve mental fatigue (Goličnik & Ward Thompson, 2010).

Some research done has indicated how hospital workplaces are associated with people's well-being and their opportunities to enjoy the advantages of open green spaces. The opportunity to enjoy relaxing views of nature in the vicinity of the hospital area encourages better recovery from illness (Park & Mattson, 2009), while being able to directly experience nature at the workplace minimizes stress and improves the feeling of satisfaction with their jobs. In short, greater exposure to the outdoors and to the elements of Nature within urban open green spaces, helps to ease pressure and other related problems (Singh et al., 2010).

### **11.2 Physical Well-being**

There is available evidence to show that there can be direct physical health benefits by increasing the effect of physical activity (Mitchell, 2013), and decreasing health inequalities (Mitchell & Popham, 2008), lowering the rate of stroke mortality (Hu, Liebens & Rao, 2008), reducing cardiovascular

indications and mortality from respiratory disorders (Richardson, Pearce, Mitchell, Day & Kingham, 2010) and reducing obesity (Blanck et al., 2012; Toftager et al., 2011).

## 12. CONCLUSION

It is evident from the literature that there is growing awareness of the importance of urban green spaces in enhancing the quality of urban dwellers' lives. This review has presented evidence of an increasing amount of empirical research into the benefits of green spaces for the general well-being and health of their users. Many studies have shown that urban open green spaces can help to improve people's health, both physically and mentally. There is also clear evidence that a city which is well provided with a range of open green spaces of varying types and of high quality, including parks with good facilities, is seen as more attractive to residents, businesses and investors. Data from research also confirm that green spaces can mitigate pollution in cities and improve air quality as well as help to sustain the city's biodiversity. Furthermore, there is a significant amount of research that provides evidence on the benefits of open green spaces to the city's economy and social well-being. There are several other factors that affect these benefits such as open green spaces accessibility, distribution, facilities and conditions which demand future research.

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