

Short Communications

**Establishing Performance Indicators from the User Perspective as
Tools to Evaluate the Safety Aspects of Urban Parks in
Kuala Lumpur**

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ABSTRACT

In the excitement of transforming Malaysia as Garden Nation through planting trees and establishing public parks around the Federal Territory of Kuala Lumpur, special attention should be given particularly in providing a safe urban environment. This is in line with the National Urbanisation Policy and Kuala Lumpur Structure Plan 2020. However, this can not be implemented without setting measurable standards of quality. Therefore, a survey was conducted to develop performance indicators from the safety aspect for the urban parks in Kuala Lumpur. A total of 420 park users from three urban parks of Kuala Lumpur were randomly interviewed based on a detailed questionnaire designed. Fifteen indicators were developed and these were further grouped into three strategies according to the "Safe City Programme": public awareness, physical planning and design and target hardening.

Keywords: Crime, environmental psychology, Garden Nation, green space, safe city

INTRODUCTION

Parks and green spaces should be at the centre of the revitalization of our towns and cities because they are great assets for the urbanites. This can be seen from the rapid changes in the attitudes of the urban residents towards the appreciation of green elements in the cities. Indeed, the UN-World Health Organization recommends at least 9 m² of urban green space per capita to mitigate a number of undesirable environmental effects and provide other benefits (Deloya, 1993). Apart from environmental services, green spaces provide social and psychological services, which are of crucial significance for the liveability of modern cities and the well-being of urban dwellers (Chiesura, 2004). This

is true particularly in the Western world, where the social and cultural values of green spaces are well documented.

Apart from the many positive benefits and meanings people gain from green spaces, people may also have negative perceptions. Many people fear natural areas for safety reasons. There are existing sites which are underused, partly because they are often seen as threatening places where crimes frequently occur (Jacobs, 1961). Research also shows that natural areas being perceived as scary, disgusting and uncomfortable (Bixler and Floyd, 1997). Similarly, parks are also perceived as risky when the sites are more densely vegetated, particularly when the vegetation is not apparently

Received: 20 April 2009

Accepted: 10 March 2010

maintained (Schroeder, 1989; Michael and Hull, 1994), while crime is often cited as a reason to avoid densely wooded areas (Talbot and Kaplan, 1984). Parks are also less liked when perceived to be the settings for drinking, drug use, crimes, teenage hangouts, rowdy behaviour and clashes with rangers (Schroeder, 1989). These reputations discourage many potential site visitors from using and enjoying available recreation resources. In addition, the public are also afraid of becoming the victims of physical or sexual assaults, robbery or bullying and intimidation from young people in the woodland (Burgess *et al.*, 1988; McNaghten and Urry, 2000; Jorgensen *et al.*, 2007). This may be true because safety and security is one of the six human needs besides physiological (e.g. food and shelter), affection, belonging (the need to belong to a group or community), esteem (the need to be accepted), self-actualization (fulfilment of potential), and cognitive-aesthetic (Maslow, 1954). Meanwhile, the presence of substandard facilities is also considered a source of danger in a park (Sanesi and Chiarello, 2006). The safety aspect in urban parks, particularly on the facilities, should also be considered as a part of the performance or quality of any parks in order to foster a safer environment. However, this does not mean that parks are always not safe or are crime-prone.

Cities should also initiate strategies, such as improved lighting, safe urban design, street safety cameras, city maintenance, community safety education and drug education plan, to produce a safer place. In Kuala Lumpur, the initiative to provide a safe and quality urban environment was discussed in detail in the National Urbanisation Policy (2006) and Kuala Lumpur Structure Plan 2020 (2004). The occurrence of crimes in Malaysia is comparatively small compared to other developed nations (Yong and Kho, 2004). Nevertheless, recent public concerns and outcry of snatch thefts and rape cases have prompted the government to launch "Safe City Programme" in Malaysia. The objective of the programme is to work with police and other city stakeholders to promote, develop and implement initiatives that were designed to prevent crimes

against the society and anti-social behaviour, as well as to minimize the fear of crimes in the city (Lam, 2000).

In the excitement of transforming Malaysia as a Garden Nation through planting trees and establishing public parks around the Federal Territory of Kuala Lumpur, special attention should also be given, particularly in providing a safe urban environment. Therefore, it is important to set appropriate targets and measurable standards to achieve this aim. Thorén (2000) developed a method called, "the green poster", to evaluate the sustainability of urban green structure for the city of Tønsberg, Norway. This method has the advantage to provide both numerical as well as visualized picture of the situation. Meanwhile, Coles and Caserio (2001) suggested a set of social criteria and indicators to measure the supply and quality of green spaces. De Ridder *et al.* (2004) conducted a preliminary study to develop a methodology to be used for evaluating the role of green space and urban form in alleviating the adverse effects of urbanization, which mainly focuses on the environment, while taking into account the socio-economic aspect at the same time. For instance, Balram and Dragičević (2005) used GIS as a tool to access green areas. Furthermore, Tyräinen *et al.* (2007) developed a tool in mapping the social values of open space in Stockholm, which was later used as green-area planning tool. However, such studies on green space assessment have not been conducted in Malaysia.

It is timely to have a tool to assess the quality of green space in order to create a liveable park for the public. This was also clearly stated under the Kuala Lumpur Structure Plan 2020 (KLSP 2020) which indicated that the community facilities provided by Kuala Lumpur City Hall (DBKL) are to be designed and constructed to a high level of quality of provision and the facilities provided shall commensurate with the best achievable standards. Apart from that, DBKL shall ensure that new and existing community facilities (which include urban parks) for which it is responsible are properly maintained at all times (KLSP 2020, 2004). In

line with the National Urbanisation Policy and Kuala Lumpur Structure Plan 2020 towards creating a safer urban environment, the author conducted a preliminary study to develop performance indicators to be used to evaluate urban parks in Kuala Lumpur from the safety aspect. Such measurement is fundamental to the development of public parks and to monitor continuous performances by DBKL. This study aimed to reveal how park users felt about their safety and security while in the park and to develop performance indicators to evaluate the safety aspect of the urban parks in Kuala Lumpur, from the users' perspective.

MATERIALS AND METHODS

Samples-sites

The urban parks in this study are located in Kuala Lumpur. These include *Taman Tasik Permaisuri* (Permaisuri Lake Garden), *Taman Tasik Perdana* (Perdana Lake Garden) and *Taman Tasik Titiwangsa* (Titiwangsa Lake Garden). The selection of the parks was based on the definition of urban parks given by the Planning Standards for open space and recreation (Planning Standards: Open Space and Recreation, 2002). According to this Planning Standard, an urban park requires an area between 40-100 hectares (100-250 acres) within 0.5 km or ½ hour journey from and should be located in an urban centre. In addition, urban parks should be accompanied by recreational facilities such as fields, courts, sport complex, swimming pool, golf driving range, children's playground, picnic and camping area, water sports, amenity forest and gardens, *wakaf* or *surau*, public toilets and telephones, lodging, shops and stalls, parking for cars and busses, and bus stop.

The study population consisted of park users from these parks. As there were no data available on the number of visitors/users to these parks for the present study, the sample size was therefore determined using the following formula:

$$n = \frac{p(1-p)}{(s)(s)}$$

where:

n = sample size

s = standard error

p = proportion of the population having the characteristics of interest (variation)

Babbie (1992) suggested the use of a statistical method whereby a sample size is influenced by confidence level (standard error) and variance. Using the above formula, the sample size was derived based on the following assumptions: 95% confidence level, the standard error was 2.5% (0.025), and since the variance in the population was unknown, the highest possible variance was therefore assumed. The highest proportional variance occurred when 50% of the sample possessed the characteristic of interest and the other 50% did not have such characteristic. Based on these assumptions, the minimum sample size for the study is:

$$n = \frac{0.5(0.5)}{(0.025)(0.025)} \\ = 400 \text{ respondents}$$

Therefore, the minimum 400 samples were equally selected from all the parks, and these would be equivalent to 133 samples for each green area. However, the researcher decided to interview 140 samples from each park and this amounted to a total of 420 samples, which satisfied the minimum sample size suggested by Babbie (1992).

Data Collection Procedure

A survey was conducted from September-November 2006 at all the three urban parks. The survey method, i.e. a detailed questionnaire was designed to interview users within the park in which they felt at ease, based on a random sampling. The questionnaire was designed to reveal how the park users felt about their safety and security while in the parks and to identify the aspects that the city hall needed to look into in order to enhance safety and security of the parks' users. Thus, the face-to-face approach was utilized. The data are

important in upgrading the quality of urban parks, particularly from the safety aspect. Therefore, interviews were conducted by graduate students from Universiti Putra Malaysia (UPM) undergoing their two-month practical training at Forest Research Institute Malaysia (FRIM). Prior to the interviews, each of these student interviewers was briefed by the author on the interview procedures. The interviewers began by asking the respondents about their

demographic information and their visits to the park (e.g. how often do they visit the park, etc.). Visitors at each park were surveyed on-site on both weekdays and weekends in the morning (7:00a.m.–11.00a.m.), afternoon (11:00a.m.–3.00p.m.) and evening (3:00p.m.–7:00p.m.).

It is important to note that the interviewers did not use the term ‘performance indicators’ during the survey, mainly because it was thought park users might not have a good understanding

TABLE 1
Frequencies for all study variables

Variable	Number of cases	%	Variable	Number of cases	%
Study variable			Study variable		
Park visitation			Race		
Daily	3	5.2	Malay	330	78.6
4-6 times a week	3	1.4	Chinese	62	14.8
2-3 times a week	7	16.4	Indian	26	6.2
Once a week	25	28.6	Others	2	0.5
1-3 times a month	34	19.8			
Seldom than once a month	68	28.6			
Time of day			Career		
Morning	211	50.2	Government	55	13.1
Afternoon	8	1.9	Private	143	34.0
Evening	200	47.6	Own business	41	9.8
Night	1	0.2	Student	162	38.6
			Others	19	4.5
Transportation mode			Qualification		
Car/Van	281	67.2	Certificate	140	33.3
Motorcycle	125	29.9	Diploma	35	8.3
Taxi	2	0.5	Bachelor	186	44.3
Bus	2	0.5	Masters	43	10.2
Bicycle	7	1.7	Doctorate	4	1.0
Others	1	0.2	No formal education	12	2.9
Gender			Safe		
Male	254	60	No	14	3
Female	166	40	Yes	406	97

of that particular term. Instead, a much simpler phrase, such as ‘how to improve the safety aspect of our urban parks in Kuala Lumpur?’, was used. A structured interview protocol was developed for the in-park interview to ensure uniformity of coverage across the interviewers. The interviewers began by asking the visitors questions about their visits to the park (e.g. how often do they visit the park, etc.). The visitors were then asked to rate the importance of the safety aspect, which the city hall needs to take into account, using a 5-point numerical rating scale (1=not important, 2 = slightly important, 3 = moderately important, 4 = very important and 5 = extremely important). The interviewer concluded by requesting additional descriptive information (e.g. marital status) from the participants.

Data Analysis

The results which dealt with the performance indicators, to improve the quality of urban parks in Kuala Lumpur from the safety aspect, were compiled and analysed using the SPSS statistical

software. For this study, the data were analysed using the descriptive statistics such as means and frequency tabulation.

RESULTS AND DISCUSSION

Park Usage

Table 1 provides a summary of the descriptive statistics for all the study variables. The majority of the park visitors were men (60%) and they are Malays. The respondent’s age ranged from 17-62 years old, and most of them between were between 17-30 years old. Meanwhile, most of the park users visited the parks mostly in the morning (50.2%) or evening (47.6%) to engage in physical activities, such as jogging and walking (*Fig. 1*). This may be paralleled by those pertaining to employment status. Individuals who were not employed outside the home tended to visit in the morning and during weekdays. This is in contrast to individuals who were employed outside the home tended to visit the parks in the evening and during weekends. Indirectly, parks in Kuala Lumpur do play a vital role in the health and well-being of the society.

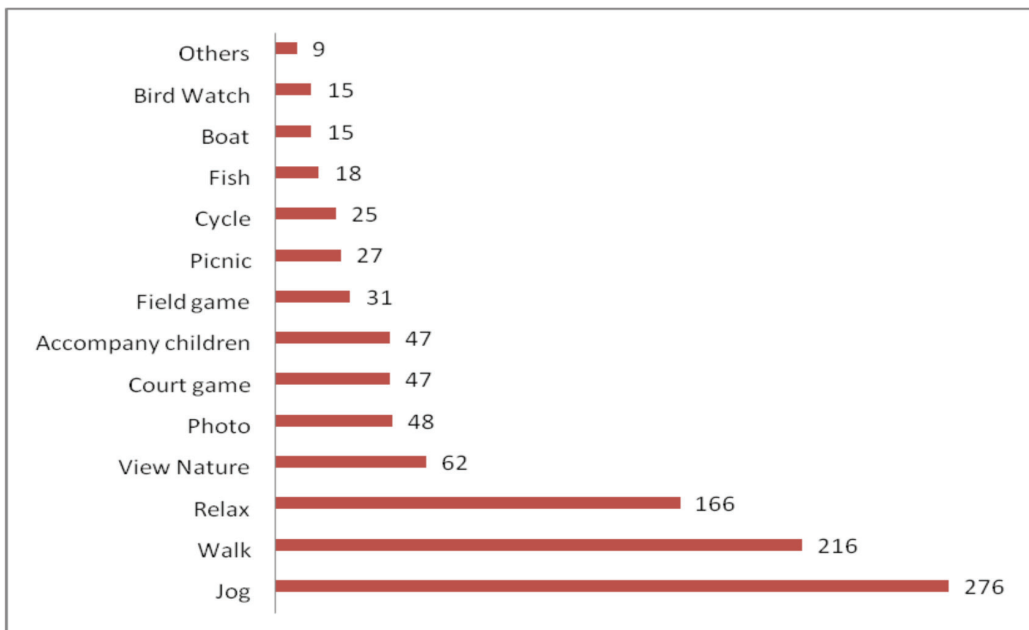


Fig. 1: Park user activities in Kuala Lumpur urban parks

TABLE 2
Mean importance rating by the park users of the performance indicators for safety aspect (n=420)

Performance indicators	Mean	Std. deviation
Pathways (e.g. no cracks, suitable for disable people)	4.84	.02
Play equipments	4.81	.02
Landscape treatment (e.g. hazard trees, grass not maintained, species selection, maintenance)	4.80	.02
Improved visibility of public toilets/pathways	4.80	.02
Security guards	4.74	.03
Security equipments (e.g. CCTV and Audio visual TV)	4.61	.04
Anti-social activities (e.g. graffiti, vandalism)	4.45	.04
Improved lighting	4.41	.03
Locking devices for motorcycles	4.40	.04
Setting-up safety and crime awareness signage	4.36	.03
Construction of bollard	4.21	.03
Brochures (Educational information)	4.17	.04
Setting-up public phones in parks	4.14	.03
Safety mirrors or reflectors	4.07	.03
Lockers for park users	3.99	.05

Note: Rating of safety and security importance: (1=not important, 2 = slightly important, 3 = moderately important, 4 = very important and 5 = extremely important)

In addition, majority of the park visitors (97.1%) prefer driving to the parks. About 97% of the respondents claimed that they felt safe to be in the parks in Kuala Lumpur. Only 3% stated that they felt unsafe because of snatch theft. However, the respondents identified highly on the importance of the safety elements which are limited to physical aspect. Performance also scored highly on the importance of the performance indicators from the safety aspect. This shows that the respondents want DBKL to take serious consideration details such as fostering better safety facilities and also continuous security at the parks. This is in accordance to the objectives of the Kuala Lumpur Structure Plan 2020 (KLSP 2020) and National Urbanization Policy, i.e. to provide a clean, pleasant and safe living environment and access to high quality community and cultural facilities.

Performance Indicators

As for the performance indicators, a total of 15 indicators were identified and these were further divided into three sectors (*Fig. 2*), following the sectors which were endorsed by the National Council for Local Government for the "SAFE CITY" Programme in October 2004. All these indicators were valued very high, i.e. from 3.99 to 4.84 (Table 2). Target hardening strategies include the facilities which are needed or which may enhance the safety aspect of a park. In many cases, the park facilities are adequately provided but they are underutilised. The KLSP 2020 identified this situation as due to inadequate maintenance, vandalism and poor accessibility, and in particular, children's playgrounds, soccer fields, and sports facilities are mostly affected. DBKL should not only be responsible in providing facilities, but in maintaining these facilities as well. By maintaining the facilities,

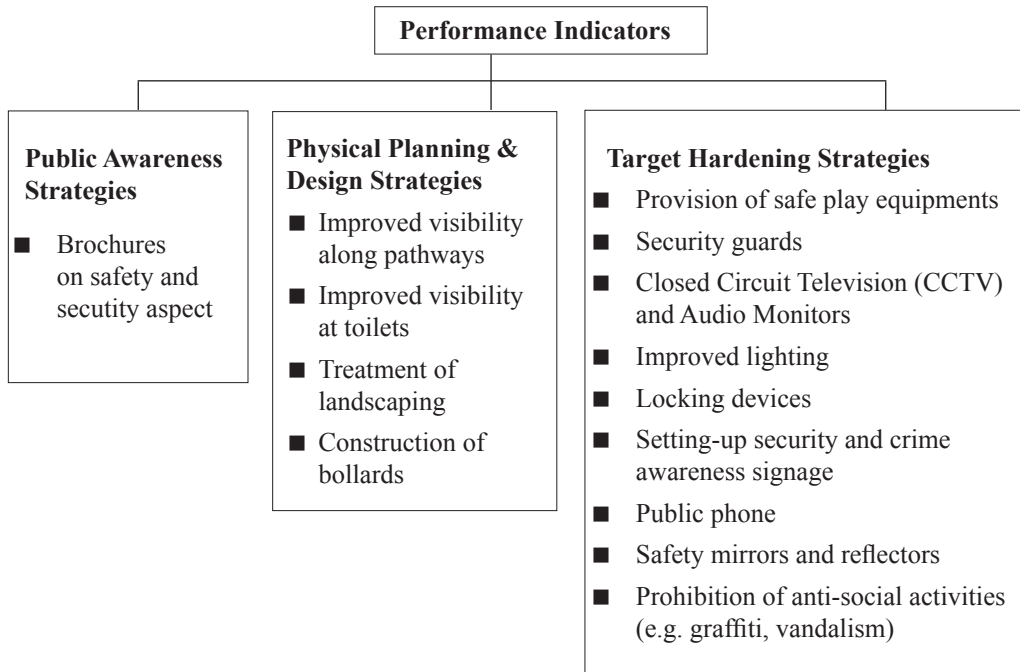


Fig. 2: Classification of the developed performance indicators according to safe city programme sectors

the quality of the parks, particularly from the safety aspect, could therefore be improved.

Physical planning and design strategies involve a development of the structures or design which makes a place safer. This involves design of the building, pavement or even planting design. In total, this helps the planning process of a park. Urban design addresses both the functional and aesthetic aspects of the city's built environment. Urban design should not only be aesthetically pleasing but also provide a safe environment through proper environmental design, such as guidelines on landscaping treatment. This has been stated clearly under the KLSP 2020, where DBKL shall draw up an Urban Design Framework, together with a comprehensive set of Urban Design Guidelines, to ensure public safety (KLSP 2020, 2004).

Finally, through the public awareness strategies, DBKL has an important role in disseminating information to the public on the safety and crime prevention measures. One way of doing this is through brochures. Increasing

the public awareness and involvement on safety are clearly stated under the National Urbanization Policy (2006). However, these involve certain challenges, such as public awareness requires a lot of elements to ensure its successful implementation. The selection of the target groups, methods and strategies used for campaign activities, getting the right implementers and promoters and providing appropriate campaign materials are some of the elements regarded as prerequisite in implementing public awareness (Moktar Yassin *et al.*, 2006).

This study has developed the performance indicators from the users' perspective. This is because park provisions are meant for public use, and thus, their needs should also be incorporated in the development process of parks. Torkildsen (1992) highlighted that the performance of parks management does not only depend on the administrative relationship, which is between the central government, state government, and local authority, but it should also include the

consideration for users' needs. In addition, majority of the local authorities have actively been implementing Local Agenda 21 that focuses on the public as the main stakeholder for the city. More importantly, the information derived from this study would be a great benefit for DBKL in upgrading the safety aspects.

CONCLUSIONS

This study has established performance indicators that could be used in assessing the quality of urban parks in Kuala Lumpur from the safety aspect. However, further investigations need to be conducted by expert groups in Malaysia, such as town planners, landscape architects, architects and urban crime personnel, before implementing it on ground. Apart from this, the developed indicators should also be tested on these parks. With this in mind, the second phase of this study, involving experts' opinion on the performance indicators, will be conducted. A more comprehensive study with the help of the expert groups in this area, a complete set of performance indicators could be developed to assess the safety aspect in these parks. These indicators could be quantitatively assessed by giving a total score for individual parks. This would show the progress of each park. Therefore, the performance indicator is a tool which is specifically designed to highlight the achievement of a park or any green space from the management perspective, and in this case, from the safety aspect. This provides a better understanding for DBKL on the progress of the parks that are under their administrative and management.

REFERENCES

- Babbie, E. (1992). *The Practice of Social Research*. Wadsworth Pub. Co. USA: California.
- Balam, S. and Dragičević, S. (2005). Attitudes toward urban green spaces: Integrating questionnaire survey and collaborative GIS techniques to improve attitude measurement. *Landscape and Urban Planning*, 71, 147-162.
- Bixler, R. and Myron, F. (1997). Nature is scary, disgusting and uncomfortable. *Environment and Behaviour*, 29, 443-467.
- Burgess, J., Harrison, C.M. and Limb, M. (1988). People, parks and the urban green: A study of popular meanings and values for open spaces in the city. *Urban Studies*, 25, 455-473.
- Cheisure, A. (2004). The role of urban parks for the sustainable city. *Landscape and Urban Planning*, 68, 129-138.
- Coles, R. and Caserio, M. (2001). Social criteria for the evaluation and development of urban green spaces. URGE-Development of Urban Green Spaces to Improve the Quality of Life in Cities and Urban Regions. Project Deliverable 7. http://www.urge-project.ufz.de/PDF/D7_Social_Report.pdf.
- De Ridder, K., Adamec, V., Banuelos, A., Bruse, M., Bürger, M., Damsgaard, O., Dufek, J., Hirsch, J., Lefebvre, F., Pérez-Lacorzana, J.M., Thierry, A. and Weber, C. (2004). An integrated methodology to assess the benefits of urban green space. *Science of the Total Environment*, 334/335, 489-497 (Short Communication).
- Jacobs, J. (1961). *The Life and Death of Great American Cities*. New York: Vintage Books.
- Jorgensen, A., Hitchmough, J. and Dunnett, N. (2007). Woodland as a setting for housing – appreciation and fear and the contribution to residential satisfaction and place identity in Warrington New Town, UK. *Landscape and Urban Planning*, 79, 273-287.
- Kuala Lumpur Structure Plan 2020. (2004). Dewan Bandaraya Kuala Lumpur, Kuala Lumpur.
- Lam, S.C. (2000). Kawasan kajian: Bandar Baru Bangsar, Rumah Awam Sri Johor 4C, Cheras, Kuala Lumpur dan Taman Universiti, Skudai, Johor Bahru. Thesis Ijazah Sarjana Muda Perancangan Bandar dan Wlayah, Universiti Teknologi Malaysia, Skudai.
- Maslow, A. (1954). *Motivation and Personality*. New York: Harper.
- McNaghten, P. and Urry, J. (2000). Bodies in the woods. *Body & Society*, 6(3-4), 166-182.

- Michael, S. E. and Hull, R.B. (1994). *Effects of Vegetation on Crime in Urban Parks*. Savoy, IL: International Society of Arboriculture Research Trust.
- Moktar Yassin, A., Tagi, K., John, B. and Jaswinder, K. (2006). Effectiveness of public awareness for biodiversity conservation: Experiences of the Borneon biodiversity and ecosystem conservation programme in Sabah, Malaysia. In Y. Noor Azlin, E. Philip and T. Ong (Eds.), *Best of Both worlds. Proceedings of the environmental Education for Sustainable Development* (pp. 63-70). 6-8 September 2005, Kuala Lumpur.
- National Urbanisation Policy. (2006). Federal Department of Town and Country Planning Peninsular Malaysia, Ministry of Housing and Local Government, Kuala Lumpur. pp. 108.
- Planning Standards: Open Space and Recreation. (2002). Federal Department of Town and Country Planning Peninsular Malaysia, Ministry of Housing and Local Government, Kuala Lumpur. pp 33.
- Sanesi, G. and Chiarello, F. (2006). Residents and urban green spaces: The case of Bari. *Journal of Urban Forestry & Urban Greening*, 4, 125-134.
- Schroeder, H.W. (1989). Environment, behaviour and design research on urban forests. In Ervin H. Zube and Gary T. Moore (Eds.), *Advances in environment, behaviour and design* (Vol. 2). New York: Plenum Publishing Corporation.
- Talbot, J.F. and Kaplan, R. (1984). Needs and fears: The response to trees and nature in the inner city. *Journal of Arboriculture*, 25, 225-233.
- Thorén, K. H. (2000). "The green poster" A method to evaluate the sustainability of the urban green structure. *Environmental Impact Assessment Review*, 20, 359-371.
- Torkildsen, G. (1992). *Leisure and Recreation Management* (3rd Edn.). London: Spoon Publication.
- Tyrväinen, L., Mäkinen, K. and Schipperijn, J. (2007). Tools for mapping social values or urban woodlands and other green areas. *Landscape and Urban Plan*, 79, 5-19.

