



# Quality of Life : Public open space effects

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## Abstract

Since the open space quality and quantity becomes decline in many cities of developing countries, the research means to identify the relationship between quality of public open space (POS) and quality of life (QOL) in Medan, Indonesia. The study measured the level of satisfaction of the visitors of POS by using five scale Likert Scale. The analysis shows that people perceived 'function' as the most significant factor for POS and 'health' as the most important aspect for QOL. Thus, there is a strong correlation between quality of POS and the physical QOL.

Keywords: quality of public open space, quality of life, Medan, perception

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## **1.0 Introduction**

Globalization and urbanization in developing countries change some public realms to be economic assets. One of the consequences, the open space tends to decrease, both in quality and quantity. In contrast, privatized public spaces being developed in a large scale, such as malls, theme parks, cafes, and restaurants. It is confirmed that the public open space is a place where people take many advantages of their quality of life, such as health, relaxation, socialization. In a city where there is just a little number of open space, it is interesting to find out whether the open space being utilized by the community and how it relates to their quality of life.

The study is aimed to analyze how public open space correspond to the quality of life, especially in a city of a developing country like Indonesia, while the open space has to compete with the private public space and gated community. The result of the study can contribute to formulating a better planning and design of urban public open space that improve community quality of life. Medan, the capital of North Sumatra province, Indonesia is chosen for the case study. The city shows that the high-quality privatized public space development grows fast, meanwhile public open space becomes decline.

## **2.0 Literature Review**

### **2.1 High quality public open space**

The high-quality public open space makes people stay longer with a wider range of activities (Gehl, 1996). The quality relates to the usability with some criteria depends on individuals needs and perception (Kallus, 2001). If not, public open space becomes useless and unsuccessful (Carr et al, 1992). The quality of public open space can be viewed from two aspects: the function and the physical features. The function relates to people's background and their activities in public open space. The open space must be accessible for all class of citizens, democratic and reflect the local culture and tradition (Carr et al., 1992) including marginalized people (Kurniawati, 2012) and even special educational needs children (Husseini, 2010). Some of the physical criteria of high-quality open space are the availability of clear pedestrian linkage and the integration with public transportation (Project for Public Space, 2000; Gehl 2002; CAFE and DETR, 2001).

### **2.2 Public Open Space and Quality of Life**

The urban quality of life is the outcome of the interaction of man and urban environment (Das, 2008). The satisfaction level with the urban environment is one of the indicators of quality of life (Sirgy and Cornwell, 2002). One of the urban environment's elements is public open space. Thus, the satisfaction level of public open space influences the satisfaction with the urban environment, and next, affects people's quality of life. Public open space, both as a physical structure and a place for many kinds of activities has a significant benefit to quality of life, especially in fulfilling people needs to health, recreation, and a high-quality urban environment. Trees and garden as one of public open space features may give relaxation

and restoration effect, just by seeing it (Ulrich, 1984) and decreasing stress (Corraliza, 2011). As a place for many kinds of activities, public open space gives some advantages for quality of life, such as psychological and physical health, recreation's benefits and the fulfillment of the need for a pleasant urban environment (Maller et al., 2009; Kaplan and Kaplan, 2009).

The gap of knowledge concerning the relationship between public open space and quality of life consists of some factors, such as the research subject, public open space's scale and urban characteristic where public open space research is carried out. Some studies analysed the relationship between one or more open space factors with one or more quality of life factors (Chiesura, 2003; Sugiyama et al., 2010). The other studies analysed the relationship between public open space and quality of life by using the secondary database and objective quality of life data (Lynch, 2007; Beck, 2009; Quintas and Curado, 2009). Above all, many scholars conducted the study in a developed country, which have a clear public space structure as a part of the whole urban space structure. There is a lack of similar research in a developing world, where there is a lack of well design public open space and next give impact to the quality.

### **3.0 Methodology**

The research takes place in Medan, Sumatra Utara province, Indonesia. The city of 2.5 million citizens is the third biggest city in Indonesia, a country of more than 250 million people. The study started by conducting a pre-survey in 21 Kecamatan (an administrative area below the city government) to get the most favourites urban scale public open space in Medan that based on people perception. Meanwhile, a pre-observation was carried out to adjudge the active public open space. The judgement was based on the intensity of activity, the range of visitors and the availability of supporting facilities. The result of the pre-survey and pre-observation showed that there are four active public open spaces in Medan, e.g. Lapangan Merdeka, Taman Ahmad Yani, Taman Beringin and Taman Stadion Teladan.

There were two kinds of data collected in 2011. The first, the quality of public open space, collected through a field survey and observation. The data gives information about the physical character of public open space and how intensive people used it. The second, the visitors' perception of public open space, collected through an interview based on a questionnaire. There were 384 respondents, which were distributed proportionally in four public open spaces. The respondents were people who were doing their activities in public open space. The measuring of the level of satisfaction of public open space and quality of life used a five-point Likert scale, from "1" for very unsatisfied, "2" for unsatisfied, "3" for neutral, "4" for satisfied and "5" for very pleased.

The analysis was started with the identification of the quality and usability of public open space. The study described the physical character of the public open space, the people's socio-economic background, the duration, the frequency and the variation of the activities. The analysis used descriptive statistics analysis. The identification of the dominant factors of public open space from people's perception used the central tendency test and factors analysis. Finally, the analysis of the relationship between perception of public open space

and quality of life used Spearman correlation.

## 4.0 Results and Discussions

### 4.1 The quality of public open space

The open spaces take place in a district of commercial and the other urban-scale public facility, and not easy to be approached, because of the absence of a continuing pedestrian linkage or an integrative public transport. Most of the visitors come to the open spaces by motorcycle. All of these accessibility facts indicate that the public open spaces in Medan do not have a good quality according to the quality proposed by PPS (2000), Gehl, (2002) and CABE and DETR (2001). The other features gave a good character of public open space, such as natural elements and activity. The trees and garden make the open spaces in Medan green and shady; make it a comfortable place for recreation and relaxation. The public open spaces in Medan have many facilities to support community activities, such as sport facility (jogging track, multi-purpose field, exercise instrument, wall-climbing), kids playground and grass field for various recreation activity, but some facilities have a low quality, such as the limitation of car park, the unclean public toilet, and the disorder street vendor.

### 4.2 The usability of public open space

Different with the past studies that the accessibility is one of the significant factors of public open space quality, this study found that the accessibility was the most insignificant factor with loading factors less than 0.4 (see table 1). Public open space is more perceived as 'how easy it could be accessed by vehicle' since most of the people came to the open space by motorcycle. This finding very contrasted with the accessibility factors suggested by PPS (2000), Gehl, (2002), CABE and DETR (2001) which hardly recommended the present of pedestrian linkage. Except the accessibility, people perceived public open space factors as high as 'neutral' (mean score average 3), but the respondents who asserted 'satisfied' (score 4) were larger than those who asserted 'unsatisfied' (score 2). The factor analysis result showed that the factors were significant in shaping people perception of public open space (see table 1). Above this level of satisfaction, in fact, people kept doing their activities in public open space and making it an active public space.

Table 1. POS aspects: factor analysis

Factor name and items	Factor loadings	Eigenvalue	% Of variance	Cum %
Factor : public open space		9.647	6.398	75.24
Accessibility	0.33			
Facility	0.64			
Activity	0.67			
Management	0.58			
Natural environment	0.66			

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Intensity	0.63
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### 4.3 People perception of quality of life factors

As the concept of quality of life is complex and multi-variable, this research more concerned with factors of quality of life in relation to people activities in public open space. Thus, the quality of life factors analysed was health, recreation, and urban environment. This study found that most people asserted that they were satisfied with health, recreation, and urban environment. Among the three factors, the factor analysis showed that 'health' was the most significant factor in determining the quality of life. This factor could explain total variance (quality of life) of 63.138% (table 2).

Table 2. Satisfaction with Public Open Space's Factors

Number	Factor of POS	Means Score
1	Accessibility	
	Distance	2.7
	How easy to enter in	2.82
	How easy to access it from home	2.92
2	Facility	
	Dimension	3.05
	Parking lot	3.05
	Public toilet	3.06
	Playing area	3.15
	Sports area	3.23
	Sitting area	3.28
	Praying area	3.18
	Eating area	3.28
Street vendor	3.27	
3	Management	
	Safety	3.12
	Cleanliness	3.22
	Attractiveness	3.30
	Orderliness	3.36
	Management	3.36
4	Natural elements	
	Trees	3.72
	Garden	3.53

5	Function/activity	
	Recreation	3.21
	Sport	3.23
	Social interaction	3.27
	Politic/democracy activity	3.23
6	Intensity	
	Duration	3.08
	Frequency	3.38
	Variation of Activity	3.52

#### 4.4 Public open space and quality of life

##### 4.4.1 Public open space and health

The activities in the public open space and the presence of natural elements can affect physical and psychological health (Maller et al., 2009). In this research, the health-benefit was delivered through physical and recreational activities and restorative effect of the natural elements and the social interaction. The study found that people did most activities in a group, both family or friends group and engaged in social interaction. The fact indicated that public open space could accommodate social interaction well. The completion of this need would relate to the psychological health of people. Furthermore, the natural elements of public open space, such as trees, garden, and the other vegetation, can give health benefit. Since the open space in Medan had a high usability, there was a significant opportunity to them to contact with the natural environment. This fact would improve a restoration and relaxation effect (Kaplan and Kaplan 1989, 1990; Ulrich, 1979). The condition then would enhance their mental and psychological health. The factor analysis gave the result that 'health' was the most significant factor in determining the quality of life. It means that this aspect could explain total variance (quality of life) of 63.138 % (table 3).

##### 4.4.2 Public open space and recreation

Recreation is one of the quality of life aspects (Boyer and Savagean, 1981, 2000; Marlin, 1982). The study indicates that public open space visitors do not satisfy enough with this issue. The mean score shows 3.21, not reach 4 (satisfied). The other side, the public open spaces in Medan was visited by a large number of visitors and make it a vibrant open space. There were many leisure activities occur. This fact shows that people have a significant opportunity in gaining the benefits of recreation, such as a relaxation and restoration.

##### 4.4.3 Public open space and urban environment

The quality of life is the result of the man-environment interaction (Das, 2008). The public open space is one of the essential urban environment elements. Most of the visitors said that

they were satisfied with the urban environment. Since the mean score did not reach 4, it indicated that people still wish a better condition.

Since the correlation coefficient (0.231) shows a significant relationship between POS and QOL, the study corroborates some similar studies that there is a strong connection between POL and QOS, such the works of CABA Space (2010), Quintas and Curado (2009) and Lynch (2007). The difference of the study is the indication that the accessibility factor was not significant in constructing community perception to public open space.

Table 3. Factor analysis results of quality of life factors

Total Variance Explained				
Component	Initial Eigenvalues			Cumulative %
	Total	% of Variance		
1	1.894	63.138		63.138
2	.618	20.595		83.732
3	.488	16.268		100.000

Extraction Method: Principal Component Analysis

Factor	Code	Variable	Factor Loading	Explained Variance
Factor 1 (Quality of life)	Y1	Health	.822	63.138
	Y2	Recreation	.755	20.590
	Y3	Urban environment	.805	16.268

## 5.0 Conclusion

With a low physical quality of public open space and fast growing high quality privatized public space in Medan, community perceived public open space well and kept using it in an intensive way. It showed that people hardly needed the public open space no matter how bad the quality was. After all, the study found that some factors of public open space have a strong correlation with the public open space perception. Thus, in a city of developing country like Medan, Indonesia, the improvement of the factors of public open space will make a better impression of people. As the consequences, the quality of life will be improved, too. The policy of urban planning has to prioritize the public open space development, both in quantity and quality. There should be more public open space in the neighborhood environment, then, more visitors can access and take advantages of the space. It has to be more attention to the fact that the lifestyle keeps changing (Siu, 2008). There will be the changing of the community and the way of recreation (Freestone and Nichols, 2004). Since most visitors to public open space in Medan were those of low-income people, it is necessary to continue this research by investigating about how the middle up income people perceived both public and privatized open space; so it will make a clearer and more comprehensive description of the perception of all economic status. Beside it, Medan as a case study has a limitation to generalise public open space in IndoTesia. The further research has to consider the POS in the other capital cities to get the similarity and difference of how people in a developing

country perceived public open space and the relationship to quality of life.

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## References

- Beck, Helen (2009) Linking the Quality of Public Space to Quality of Life, *Journal of Place Management and Development* Vol. 2 No. 3, Emerald Group Publishing Limited
- Boyer, R., Savageau, D.(1981, 2000). *Places Rated Almanac*. Rand McNally, New York
- CABE and DETR (2001) *The Value of Urban Design*, London: Thomas Telford
- CABE Space (2010), *Community Green: Using Local Spaces to Tackle Inequality and Improve Health*.
- Chiesura, Anna (2004) The Role of Urban Parks for The Sustainable City, *Landscape and Urban Planning*, 68 (2004) 129–138
- Das, Daisy (2008) *Urban Quality of Life: A Case Study of Guwahati*, Springer Science+Business Media B.V. , Soc Indic Res (2008) 88:297–310
- Departemen Pekerjaan Umum Republik Indonesia (2006) *Metropolitan Indonesia: Kenyataan dan Tantangan dalam Penataan Ruang*, Jakarta: Direktorat Jendral Penataan Ruang
- Dick, H.W, P.J. Rimmer (1998) *Beyond The Third World City : The New Urban Geography of South East Asia*, *Urban Studies*, Edinburgh, Dec 1998, Vol.35 Iss.12 pg 2303
- Douglas, Mike (2006) *Local City, Capital City or World City? Civil Society, The Post Development State and The Globalization of Urban Space in Pacific Asia*, *Pacific Affairs*, Vancouver : Winter 2005/2006, Vol. 78 Iss.4 pg 543
- Freestone, Robert, Nichols David (2004) *Realising New Leisure Opportunities for Old Urban Parks: The Internal Reserve in Australia*. *Landscape and Urban Planning* 68 109–120
- Gehl, Jan. (2002), *Public Space and Public Life City of Adelaide: 2002*. City of Adelaide, Adelaide.
- Kaplan R, Kaplan S. (1989) *The Experience of Nature: A Psychological Perspective*. New York: Cambridge University Press, 1989.
- Maller, Cecily et al (2009) *Healthy Parks, Healthy People: The Health Benefits of Contact with Nature in a Park Context*, *George Wright Forum* Volume 26 Number 2 (2009)
- Lynch, Karen (2007) *Neighbourhood Parks In Saskatoon: Contributions To Perceptions Of Quality Of Life*, Thesis, Department Of Geography, University Of Saskatchewan, Saskatoon, Saskatchewan, Canada
- Marlin, J.T.(1992) *The Livable Cities Almanac*. Harper Collins, New York.

Project for Public Spaces, Inc (1984) *Managing Downtown Public Spaces*, Planners Press, Chicago  
Project for Public Spaces (2000) *How to Turn a Place Around: A Handbook of Creating Successful Public Spaces*, New York: Project For Public Space

Quintas, Andrea V., Curado, Maria Jose (2009), *The Contribution of Urban Green Areas to The Quality of Life*, [www.cityfutures2009.com](http://www.cityfutures2009.com)

Siu, Kin Wai Michael (2008) *Public Design for Changing Urban Needs*, The Hong Kong Polytechnic University, Hong Kong SAR, China,

Ulrich R.S. (1979) *Visual landscapes and Psychological Wellbeing*, *Landscape Res.*, 4: 17-23.