Available online at www.pelagiaresearchlibrary.com

Pelagia Research Library

Advances in Applied Science Research, 2013, 4(1):273-276

ISSN: 0976-8610
CODEN (USA): AASRFC

Ranking of urban landscape using with analytic hierarchy process technique (Case study: Rasht neighborhood parks)

Vahid Shadparvar*, Ali Mohammadi Torkashvand and Davood Hashemabadi

Department of Horticulture, Rasht Branch, Islamic Azad University, Rasht, Iran

---

ABSTRACT

City of Rasht is the capital of the province of Guilan. In recent years, this city due to its strategic location, its population has increased .One of the major problems of the city is shortage of parks and landscape and lack of suitable landscape for citizens is another problem of this city. In today's cities, urban landscape has emerged for citizens as urban parks. Urban parks are divided to different types such as neighborhood, district, region and etc. seven parks of all parks in the city of Rasht are in neighborhood scale. The purpose of this study is evaluation of existing standards in neighborhood parks of Rasht and selection best neighborhood parks in terms of maintain standards. Data were collected as field and statistically. In this study, a rankings neighborhood park of Rasht was performed using the AHP technique with standards such as compatibility, proximity, utility and comfort. Analysis was performed using of software Expert choice version 11.5. The results showed that Simorgh Park and Banovan Park were in first rank and final rank in positions of keeps standards.

Key words: Parks, AHP, utility, comfort, compatibility.

INTRODUCTION

Expanding of cities in all countries is unavoidable consequences of age of science and technology [1].Today, development of cities especially large cities in the third world causes intensify of negative effects of urban development that intensification of environmental pollution is the most important of them[2]. Urban extension causes degradation increase of urban landscape and demand increasing of urban landscape that this issue causes loss of landscape within urban and land use change [3]. Landscape constitutes a part of the city face. The importance of landscape is very high in urban environment that considered as one of the communities development indicators [4]. The main functions of landscape in inside and outside cities include: absorption of carbon dioxide and other toxic gases and release oxygen [5], modified and improvement weather conditions in cities [6], reduce noise pollution and improvement morale [7], prevent of water and wind erosion of soil, reduce the risks of flooding [5], perspective beautification and avoid uncontrolled urban development [8]. Usually, there are green spaces in cities as urban parks. Also, parks are classified to different groups (Table 1).

Today, parks are an important part of city [9]. There are different standards for the construction of parks in the city. Also, several studies have been conducted to assess the proper place and location of parks using with different techniques [10]. Analytic Hierarchy Process is one of the most widely used techniques for select a suitable location urban park [11]. The purpose of this study is evaluation of existing standards in neighborhood parks of Rasht and selection best neighborhood parks in terms of maintain standards.

MATERIALS AND METHODS

The study was performed on neighborhood parks of Rasht. Seven parks of total parks of rasht are neighborhood scale that include: Sabzemeidan, Tohid, Simorgh, Danesjo, Andisheh, keshavarz, Banovan. This classification was

based on Chandio et al, 2011[12]. The next phase of our research was visits of the desired park. In this stage, number of facilities of park was investigated. According to Chandio et al, 2011, pure and effective influence radii of neighborhood parks are 3140000 m^2. Also the number of land and type of them was determined in radius of Neighborhood Park. These lands divided 3 groups such as: compatible, apathetic, incompatible. After classification parks in various standards, weight was given to each that AHP process will performed. For AHP analysis, Expert choice version 11.5 software was used.

RESULTS AND DISCUSSION

According to Table 1, park of Daneshjo (70000 m^2) was larger than the other parks. Also, parks of Sabzemeidan and Andisheh (17927 and 11742 m^2) were smaller than other parks. Initially it was supposed that a correlation could be recognized by visually and statistically park sizes and number of parks. By initially performing a visual inspection of park locations and sizes in relation to the census demographics, areas with higher/lower values of the demographic variables were found in certain areas with larger parks. By initially performing a visual inspection of park locations and sizes in relation to the census demographics, was found in parts with larger parks. However, the research process tried that parks separated based on desired size. After visiting the park, comforts number of the park were presented in table 2. Between neighborhood parks, Simorgh Park had the greatest comforts. Comforts of this park including: park furniture, bathrooms, drinking water, lighting, parking, children's play equipment, security equipment, sport. Whatever number of facilities is more in neighborhood park cause welfare of the citizens. This can help to improve the morale that makes life easier for them. Between neighborhood parks of Rasht, Sabzemeidan parks and Tohid Park had maximum pure radius (Table 3). Whatever radius of park is no interference with radius of other parks, their benefits is more. Tohid and Andisheh parks had more land than other parks. However, it should be noted that majority of these park land Due to the small pure radius Are shared together. Overall rating indexes are shown in Table 5. Fig 1 Indicates output Applications Expert choise to select the best of a neighborhood Park. As shown in Fig. Simorgh Park Is ranked first. At the end Banovan Park is located.

Table 1: A basic park typology (Byrne and Sipe, 2010)

No.	Type	Facilities	Naturalness
1	Pocket park/Playground	Few facilities – typically just Play equipment and maybe benches	Few natural features – just a small grassed area with a few shade trees.
2	Neighborhood park	Limited number of sports facilities. Play equipment, picnic sites, BBQ facilities& green-space set aside for organized sport.	Larger areas of lawn, a field or two for organized sports and plantings of ornamental vegetation with shade trees. Some areas of impermeable surface.
3	Community park	Some active recreation or organized sports facilities. May include community center.	Large areas of managed landscape, abundant lawn, shade trees and ornamental vegetation. Larger areas of impermeable surface.
4	District park	Many sports facilities. Community center, sports fields for football, soccer basketball courts, tennis courts etc.	Generous areas of managed landscape abundant lawn, shade trees and ornamental vegetation. Several grassed areas dedicated to organized sports. Several areas of impermeable surface.
5	Regional park	Range of facilities e.g. large scale recreational activities – field sports, archery, canoeing, nature trails etc.	Abundant natural features, mixture of managed landscapes and endemic vegetation. Much lower percentage of park is comprised of impermeable surfaces.
6	Nature/Wilderness park/National Park	Few if any Active recreation or organized sports facilities.	Few managed features and largely dedicated to preservation of endemic species. May include a landscape feature such as a wetland, hills or canyon(s). May contain interpretative signage.

Table 2 - Classification of parks in neighborhood size of Rasht

Parks	5,000 - 18,000	19,000 - 31,000	32,000 - 44,000	45,000 - 57,000	58,000 - 70,000
Sabzemeidan	17927	-	-	-	-
Tohid	-	24000	-	-	-
Simorgh	-	-	-	45000	
Danesjo	-	-	-	-	70000
Andisheh	11742	-	-	-	
keshavarz	-	-	32000	-	-
Banovan	-	20000	-	-	-

Table 3 - Rasht city facilities in neighborhood parks

Parks	*facilities*
Sabzemeidan	Library, security, health services, park furniture, fountain, lighting system
Tohid	Children's playground, Health services, Sport Public Guarding, Park furniture
Simorgh	Park furniture, bathrooms, drinking water, lighting, parking, children's play equipment, security equipment, sport
Danesjo	Children's playground, Health services, Chapel, Guarding, Park furniture, Parking, Lighting system
Andisheh	Health services, security, park furniture
keshavarz	Children's playground, library, health services, security, public sports facilities, parking
Banovan	Public sports equipment, park furniture, lighting, children's playground, security, health services

Table 4 - Rasht neighborhood parks division based on the pure radius

Parks	1120000 to 1520000	1520000 to 1920000	1920000 to 2320000	2320000 to 2720000	2720000 to 3140000
Sabzemeidan	-	-	-	-	2957000
Tohid	-	-	-	-	3131000
Simorgh	-	-	1921000	-	-
Danesjo	-	-	2130000	-	-
Andisheh	1239000	-	-	-	-
keshavarz	-	-	-	2359000	-
Banovan	-	-	2033000	-	-

Table 5- Number of land in radius of neighborhood parks of Rasht.

Parks	Type of compatibility	Number	Total neighboring land
Sabzemeidan	Compatible	6	12
	Apathetic	3	
	Incompatible	3	
Tohid	Compatible	7	14
	Apathetic	4	
	Incompatible	3	
Simorgh	Compatible	8	10
	Apathetic	1	
	Incompatible	1	
Danesjo	Compatible	6	12
	Apathetic	3	
	Incompatible	3	
Andisheh	Compatible	8	14
	Apathetic	2	
	Incompatible	4	
keshavarz	Compatible	5	10
	Apathetic	2	
	Incompatible	3	
Banovan	Compatible	5	7
	Apathetic	1	
	Incompatible	1	

Table 6- Overall rating indexes

Parks	*size*	*facilities*	*pure radius*	*Suitable land*
Sabzemeidan	1	4	9	2
Tohid	3	5	9	5
Simorgh	7	9	5	7
Danesjo	9	7	5	3
Andisheh	1	3	1	5
keshavarz	5	5	7	3
Banovan	3	7	3	5

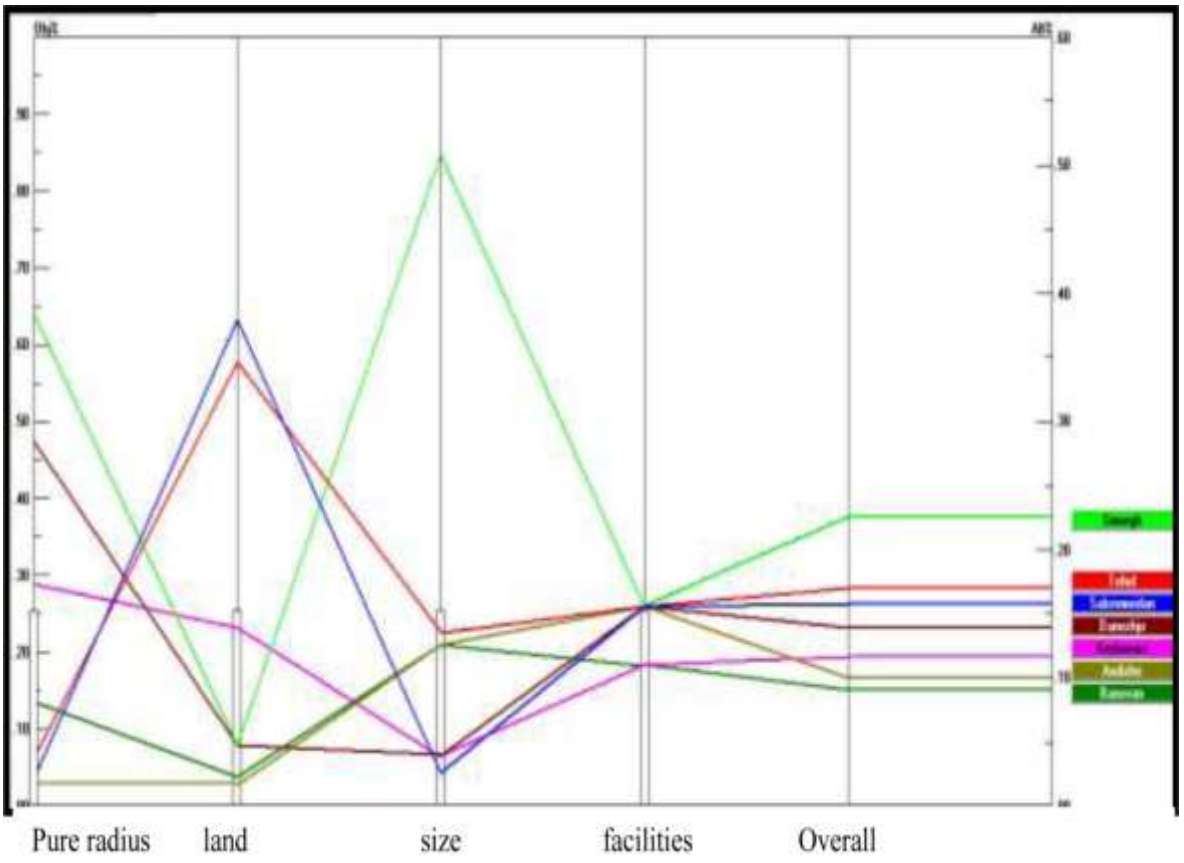

Fig 1- Output Applications Expert choice to select the best of a neighborhood Park

CONCLUSION

Investigating and learning park locations by attempting to connect to different variables is a duty that can be accomplished in different ways. The aim of which is to determine if a correlation exists which is reasonable and useful in understanding relationships. Dominant where locations may be in need of more park space based on research of this nature could be beneficial in planning for future parks as well as maintaining existing parks.

Acknowledgments
Thank's for Research Center of Rasht City Council for supports this paper.

REFERENCES

[1] Morimoto A, Koike, H, Saito M. **2009**. The 10Th International Conference on Walking in the 21st Century, October 7-9, New York, USA.
[2] Pauleit S, Ennos R, Golding Y (2005). *Landscape and Urban Planning*,**2005**, 71: 295-310.
[3] Fiona K, Schmiegelow A, Monkkonen M. *Ecological Applications*, **2002**, 12(2): 375-389.
[4] Zhang Y, Li D, Wang S. *Journal of Northeast Agricultural University*,**2008**, 15(4):63-69.
[5] Szumacher I,*Miscellanea Geographica*,**2011**, 15: 123-129.
[6] KaliszukE .*Prace i StudiaGeografi czne*,**2005**, 36: 35-47.
[7] Seik F T. *Habitat Intl*,**1996**, 20(1): 5-22.
[8] Stokman A.*Proceedings of the 45th World Congress of the International Federation of Landscape Architects IFLA*.**2008**, Blauwdruk/ Techne Press, Wageningen, 51-61.
[9] Chiesur A. *Landscape and Urban Planning*, **2004**, 68:129–138.
[10] Miyachi T, Watanabe K, Tachiiri K, Gotoh K.*Reports of the Faculty of Engineering, Nagasaki University*,**2003**, 33(61): 97-101.
[11] Zhou W, Troy A. *International Journal of Remote Sensing*,**2008**, 29(11):3119–3135.
[12] Chandio IA, Nasir B, Lawal DU, *Engineering and Technology*, **2011**, 3(6): 553-557.