

# Evaluation of Allocated Areas for Parks and their Attributes: Hail City

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**Abstract**—Accessibility to parks and open spaces plays an important role in the urban quality of life. Public parks play a vital role that affects all members of society regardless of their social ranking. Accessibility (visitation) to parks and recreational areas has increased significantly all over the world. This scenario to some extent is the same in Hail city, where the area allocated for parks and open spaces is very small. Parks in Hail are still suffering from many planning and design aspects that discourage people from frequent visitations. This study, therefore, aims to address this phenomenon by examining the area allocated for parks and park attributes. The study's data are collected from the relevant literature regarding parks and their attributes. An assessment tool is designed and utilized to evaluate parks in Hail. Google maps software was used to measure the areas of neighborhoods and parks in addition to park distribution. This study shows that the areas allocated for parks are far below WHO requirements, and park attributes do not fully meet all visitors' requirements.

**Keywords**- park evaluation; park attributes; assessment tool

## I. INTRODUCTION

In line with the Kingdom's Vision 2030 lifestyle improvement program, the Ministry of Municipal and Rural Affairs launched the Humanization of Cities initiative, with the aims of improving the quality of life in cities, improving urban landscape, and applying universal access standards in municipal facilities and pedestrian walkways. Considering this issue, parks and open spaces are considered very important to the daily life routine [1-3]. The benefits of being in parks and recreational activities have long been well known [4, 5]. Providing suitable environment for people to interact with each other will be reflected in their behavior [6, 7]. In addition, providing places for people to sit, gather and talk may encourage them to visit parks more frequently and it can contribute to a sense of a strong bonding with the community [8-10]. It has been found that workers with workstation views that include green elements were more satisfied at work and had more patience, less frustration, increased enthusiasm for work, and fewer health problems [11, 12]. Parks and green areas in Hail city are contributing in improving many aspects of life such as socialization and leisure, health, economy, and education [1, 13, 14]. It has been noted that nearby parks are an important part of places with a high quality of life [15, 16].

Gardens, parks, and trees in cities lead to satisfaction and a positive outlook [11]. On the other hand, outdoor activities can help alleviate symptoms of Alzheimer, dementia, stress, and depression, and improve cognitive function in those recently diagnosed with breast cancer [17-20]. Areas adjacent to naturalistic parks and open spaces are valued 8-20% higher. Consumer ratings increase steadily in proportion to the presence of trees, as getting in contact with nature helps children to develop cognitive, emotional, and behavioral connections with their nearby social and biophysical environments. Nature experiences are important for encouraging imagination and creativity, cognitive and intellectual development, and social relationships [21-24]. Having quality landscaping and vegetation in and around the places where people work and study is a good investment. Visual access and being within green space help restoring the mind's ability to focus, which can improve job and school performance, and help alleviate mental stress and illness. A basic and important point is that a park should be designed and managed to meet user requirements [25, 26]. It should be accessible to all age groups and allow visitors to do their activities freely, without contradicting with others, allowing people to make interrelation between the place and the world as a whole. Numerous reasons have been raised as constraints to people's use of public parks, including unavailable mobility, isolation, lack of services, constrained emotions such as fear, responsibility such as a social norm [27]. Authors in [15, 28] found that the pleasantness factor includes enough space for children to play, room for a young adult to socialize, and a variety of activities to engage in.

The quality of trees, plants, and landscape, and the presence of facilities such as toilets and shelters in the park will encourage frequent visitations. Greater attention should be given to the location of park spaces, providing that the location of these facilities supports environmental functions and serves a different age group of users rather than merely stem from uses of vacant land [29]. The location of these facilities should be formative rather than merely residual. The park has to be spatially distributed [30, 31]. The European Environment Agency (EEA) recommends that people should have access to green space within 15min walking distance, which is roughly 900-1000m [32, 33]. People visit recreational areas if they are well equipped with facilities and amenities [34, 35]. Authors in

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[15] found that the attributes of neighborhood open spaces (NOS) that were relevant to older people's life's satisfactions were pleasantness and distance. Residential parks are places that are characterized by the following: (a) free and open regularly to everybody irrespective of their race or economic background, (b) contain landscape either natural or manmade and facilities meant to draw the attention of people, and (c) provide physical, mental, recreational, and social benefits. The residence park planning ratio generally depends on the local conditions of each city. Each resident of the city must have a specific area of green space in his proximity. The ratios of the percentage of open areas to the residential areas of some countries are: England 26%, Germany 37%, Iraq 17.5%, and Hungary 15%. The planning ratio for open areas in industrialized countries ranges between 2,100-4,200m<sup>2</sup>/1000 inhabitants.

## II. METHODOLOGY

### A. Instrumentation of Research Study

Various instruments were used to run this study:

- The formulation from the literature review of an assessment tool considering the social and environmental issues of Hail city with the help of planning standards for recreational areas of cities in Saudi Arabia. Nine main items with numerous sub-items were formulated. These are surrounding environment and accessibility, quietness, internal environment, water features, services and facilities, Health issues, security and safety, and aesthetics as shown in Table I.

TABLE I. PARK ATTRIBUTES

| Park attributes             | Weight evaluation |
|-----------------------------|-------------------|
| Surrounding & accessibility | 13%               |
| Quietness                   | 2%                |
| Internal environment        | 10%               |
| Water features              | 8%                |
| Services and facilities     | 40%               |
| Health issues               | 8%                |
| Security and safety         | 11%               |
| Aesthetics                  | 8%                |
| <b>Total</b>                | <b>100%</b>       |

- A calculation of parks' areas and their geographical distribution throughout Hail city.
- The evaluation through surveying observations: this instrument was used to collect park relevant data such as attributes and number of visitors.
- The method of descriptive analytical analysis was used.

After piloting and improving the assessment tool, the targeted parks were visited and assessed. The percentage of the study factors calculation is shown in the Appendix. There is a Table including all factors, for example in factor (A) Surrounding Environment and Accessibility, the number of visitors is categorized into five groups: the highest number is given 5 points and the lowest number is given 1 point. All sub factors are added together and divided by 118 (the total points

of all factors) and multiplied by 100. At the end, every park was evaluated separately and took a score out of 118 points. At first all open spaces areas were added up together to obtain the percentage of areas allocated as parks and open spaces to the total residential areas to detect the shortage of open spaces and parks. Secondly only fee free parks with areas of about 15 hectares and above were considered.

### B. The Case of Hail

The city area is estimated at about 64855.82 hectares with a density of 4.3 persons/hectare. Hail city includes many land uses: residential areas 30%, recreational areas and parks 3.39%, service areas 23.5%, reserve suitable for development 27.35%, military 16.15%, terrain and graveyards 0.61% (source: Consultant, Regional Plan for the Hail Project 1425H). In the city center, which is the most heavily populated area of Hail, the amount of green land is limited compared to most of the other parts of the city which don't follow the planning and standards for recreational areas in Saudi Arabia (Table II). This can be seen in An Nugrah neighborhood which is a new residential area, lacking parks and open spaces. In addition, in the central, northern and western parts, which contain a considerable proportion of the population, the amount of green area is remarkably less per inhabitant, compared to the eastern parts of the city as shown in Figure 1. Hail city center is composed of the 43 neighborhoods mentioned in Table III. Some neighborhoods were not considered because they are new and not yet fully occupied by houses. Only 14 (32%) out of 43 neighborhoods have access to parks or playgrounds. Most of these parks and playground don't meet the minimum park requirements, while they constitute only 0.13% of the total residential area, which is far below WHO requirements. Because of population increment in Hail (Table IV), there is a high need for studying and planning parks in Hail city.

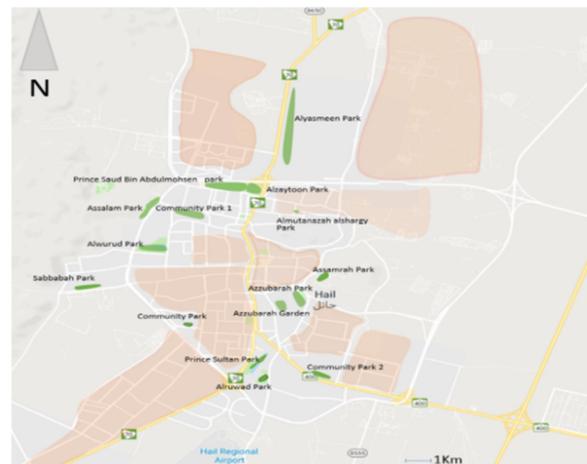


Fig. 1. Parks distribution throughout Hail city

## III. HAIL PARKS

Considering the guidebook of planning standards for recreational areas of cities, it can be seen that the classification of parks and open spaces in Hail city doesn't follow the requirements.

TABLE II. HAIL NEIGHBORHOODS, PARKS AND PLAYGROUNDS

| No.          | Name                   | Area X (m <sup>2</sup> ) | No. of Parks | Park area Y (m <sup>2</sup> )    | Y/X Ratio | Remarks                             |
|--------------|------------------------|--------------------------|--------------|----------------------------------|-----------|-------------------------------------|
| 1            | Az Zahra               | 26300000                 | 2            | 21891+49,686                     | 0.08%     |                                     |
| 2            | Al Khuzama             | 6000000                  | 1            | 123000                           | 2.05%     |                                     |
| 3            | An Nafl                | 1110000000               | 0            | 0                                | 0         |                                     |
| 4            | Alyasmeen              | 3090000                  | 1            | 123000                           | 3.98      | Common park with AlKhuzama          |
| 5            | As Suwayfilah          | 13510000                 | 0            | 0                                | 0         |                                     |
| 6            | As Suwayfilah          | 542000                   | 0            | 0                                | 0         |                                     |
| 7            | Almumlakah             | 750000                   | 0            | 0                                | 0         |                                     |
| 8            | Aja                    | 4200000                  | 1            | 6,522                            | 0.15      |                                     |
| 9            | Al Masyaf              | 11060000                 | 0            | 0                                | 0         |                                     |
| 10           | Durat Mishar           | 549000                   | 0            | 0                                | 0         |                                     |
| 11           | Al Muntazah Al Gharbi  | 5420000                  | 5            | 290000+200000+90000+33391+10,052 | 11.60%    |                                     |
| 12           | Al Muntazah Ashargi    | 5610000                  | 3            | 19391+12048+14522                | 0.80%     |                                     |
| 13           | Al Aziziyah            | 2010000                  | 0            | 0                                | 0         |                                     |
| 14           | Al-Wurud               | 984438                   | 1            | 160000                           | 16.25%    |                                     |
| 15           | Salah Al-Din Al Gharbi | 987236                   | 0            | 0                                | 0         |                                     |
| 16           | Salah Al-Din Al-Shargi | 542462                   | 0            | 0                                | 0         |                                     |
| 17           | Sababah                | 2080000                  | 1            | 45000                            | 2.16%     | One garden at the edge              |
| 18           | Al Wusayta             | 5060000                  | 1            | 6000                             | 11.8      | A playing field, many vacant places |
| 19           | Al Mahattah            | 2010000                  | 0            | 0                                | 0         |                                     |
| 20           | Samah                  | 568213                   | 2            | 3721+8353                        | 2.12%     |                                     |
| 21           | Labdah                 | 1070000                  | 0            | 0                                | 0         |                                     |
| 22           | Barzan                 | 405104                   | 0            | 0                                | 0         |                                     |
| 23           | Al Muzaabar            | 1940000                  | 0            | 0                                | 0         |                                     |
| 24           | Azubarah               | 2920000                  | 2            | 61000+9577                       | 2.41%     | Off center                          |
| 25           | Aljamaien              | 2250000                  | 1            | 12335                            | 0.54      |                                     |
| 26           | Almatar                | 2050000                  | 2            | 20279+19280                      | 1.90%     |                                     |
| 27           | As Samrah              | 4660000                  | 3            | 45794+108000+5511                | 2.43%     |                                     |
| 28           | Attilivizion           | 863966                   | 0            | 0                                | 0         |                                     |
| 29           | Sharg Almujamaa        | 1230000                  | 0            | 0                                | 0         |                                     |
| 30           | Industrial Area        | 11740000                 | 0            | 0                                | 0         |                                     |
| 31           | An Nugrah              | 10370000                 | 0            | 0                                | 0         |                                     |
| 32           | Ashifa                 | 6460000                  | 0            | 0                                | 0         |                                     |
| 33           | Ashifa sharg           | 2270000                  | 0            | 0                                | 0         |                                     |
| 34           | Ashibaily Sharg        | 902644                   | 0            | 0                                | 0         |                                     |
| 35           | Ashibaily Garib        | 1400000                  | 0            | 0                                | 0         |                                     |
| 36           | Alwadi                 | 7670000                  | 0            | 0                                | 0         |                                     |
| 37           | hR rasf                | 3940000                  | 0            | 0                                | 0         |                                     |
| 38           | Gifar                  | 7680000                  | 0            | 0                                | 0         |                                     |
| 39           | Al Magaydah            | 1100000                  | 0            | 0                                | 0         |                                     |
| 40           | Al-Badiyah             | 2180000                  | 0            | 0                                | 0         |                                     |
| 41           | Al khumashiah          | 1010000                  | 0            | 0                                | 0         |                                     |
| 42           | Al buhirah             | 2030000                  | 2            | 165000+91000                     | 12.60%    |                                     |
| 43           | Alwidai                | 0                        | 0            | 0                                | 0         |                                     |
| <b>Total</b> |                        | <b>1277415063</b>        |              | <b>1,748,093 = 0.136%</b>        |           |                                     |

Source: Field survey

TABLE III. PLANNING AND STANDARDS FOR RECREATIONAL AREAS IN SAUDI ARABIA

|                            | Land area (hectares) |             | Population (thousands) |             | Means of transportation |        | minutes  | Km         |
|----------------------------|----------------------|-------------|------------------------|-------------|-------------------------|--------|----------|------------|
|                            | High density         | Low density | High density           | Low density | Walking                 | By car |          |            |
| Community / cluster garden | 0.08                 | 0.3         | 1.2                    | 0.9         | YES                     |        | 5        | 0.1-0.2    |
| Playground                 | 0.09                 | 0.6         | 0.9                    | 0.2         | YES                     |        | 5        | 0.15-0.275 |
| Neighborhood garden        | 0.4                  | 0.5         | 5                      | 3           | YES                     |        | 5-7      | 0.2-0.35   |
| Neighborhood playground    | 0.3                  | 0.6         | 5                      | 3           | YES                     |        | 5-7      | 0.25-0.5   |
| District garden            | 0.5                  | 1           | 15                     | 10          | YES                     | YES    | 5-7      | 0.4-0.8    |
| District playground        | 1.5                  | 3.5         | 15                     | 10          | YES                     | YES    | 5-10     | 1          |
| Sector garden              | 2                    | 6           | 45                     | 30          |                         | YES    | 15-20    | 2.5-5      |
| City garden                | Variable             | 7           | 100 and above          |             |                         | YES    | variable |            |
| Recreational centers       | Variable             | 0.2         | The city               |             | YES                     | YES    | variable |            |
| Camping                    | Variable             |             | The city               |             |                         | YES    | variable |            |
| Specialist gardens         | Variable             |             | The city               |             |                         | YES    | variable |            |
| Parks                      | Variable             |             | The city               |             |                         | YES    | variable |            |

Source: Directory of planning standards for recreational areas of cities, Ministry of Municipal and Rural Affairs, Riyadh Saudi Arabia

TABLE IV. HAIL CITY POPULATION

| Year | 1992    | 2004    | 2010    | 2013    | 2015    | 2016   | 2017   | 2018   | 2019    | ANN. G. R. |
|------|---------|---------|---------|---------|---------|--------|--------|--------|---------|------------|
| Hail | 411,284 | 526,882 | 597,144 | 654,700 | 907,494 | 928791 | 954797 | 981531 | 1009013 | 2.8        |

Projection using the 2016 demographic survey from the General Authority of Statistics, Riyadh, Saudi Arabia

#### IV. HAIL PARKS

##### A. Prince Saud bin Abdul Mohsin Park

This Park is one of Hail's largest parks, with an area of 290,000m<sup>2</sup>. It is one of the most beautiful parks to be visited in the entire country (Figure 2). It has a 2200m long walkway, and is suitable for sports, hiking, and walking. Palm trees are spread along the park for a distance of 300m, in addition to a variety of small and large waterfalls. It also has a distinctive lake where tables, chairs, and umbrellas spread throughout the area. Some cafes and restaurants provide comfort services to the park's visitors. The downsides of this park are that the percentage of the green surface is less than 60%, there is no playing field for adults, the green area is either overused or not well maintained, and there is a lack of fences to protect children from the highway located beside it. Moreover, the shaded areas are very limited, and the toilets are dirty and lack clean running water. Additionally, the only available seats are located on the walking track, with no seats at children playground to facilitate monitoring, and the same situation occurs at the sitting area under shade. Most of the playgrounds floor finish is sand which may harm children.



Fig. 2. Prince Saud bin Abdul Mohsin park

##### B. Az Zaitoon (Olive) Park

Az zaitoon (olive) Park is located on the King Abdul Aziz Road in the West Park occupying an area of 200,000m<sup>2</sup> (Figure 3).



Fig. 3. Az zaitoon park

It is one of the most beautiful parks in Hail, filled with olive trees, hence its name. One of the most important features of this park is its location in the center of Hail, right on the intersection of King Abdul Aziz and King Fahad roads. It is

located besides restaurants and malls, which gives it merits over other parks. One of the problems that this park faces as a result of its location is air and noise pollution. Moreover, the percentage of green surface in the park is low (less than 60%) while it is unmaintained. The park does not include an adult playing field or benches, in addition to the low condition of the sitting areas. The playground is old and filled with sand finishes that expose children to danger. The toilets are limited, not maintained, and dirty. The walking track is in poor condition and the amount of light coming in is not enough nor well distributed. No workers are available to clean and take care of the park, or provide security. The garbage containers are neither enough nor distributed equally around the park. The park has a fence which doesn't surround all its area leaving some places without a fence.

##### C. As Salam Park

This park has an excellent location and an outstanding landscape with an area of 90,000m<sup>2</sup> (Figure 4). It overlooks the foot of a mountain, giving it an extraordinary view and good airflow. The desert area is filled with mountains that contain green spaces and trees to make the landscape look like an attractive painting.



Fig. 4. Al Salam park

The park is located at King Fahad road and is a favorite destination for families because it has large areas for jogging, playing, etc. The park is also used for many official and local celebrations and festivals because of its accessible location and large size. The problem with this park is that the percentage of the green surface is less than 50%, and its quality is low due to overuse and improper care. Moreover, there is no fencing to protect children from the highway beside the park. The shaded areas are very limited and they don't block enough sunlight for an easy afternoon out, the toilets are not clean and lack water, and there are no benches to sit on either for gathering or to monitor children. This park also has no adults' playing fields, although it has a nice waterfall which softens the air and encourages frequent visitation.

##### D. Azzubarah Park

This Park is located in the northern center of Az Zibarah Neighborhood bordered by Al-Imam Faisal Bin Turki in south side, Hassan Ibn Thabit in north side, and Al-Amir Migren Bin AbdulAziz from east and west sides. Its location makes it

difficult to access. The park stretches over a total area of 9,577m<sup>2</sup>, and the lack of car parking discourages visitation. As a result of its location, the park is noisy and polluted. It is totally abandoned, lacking water bodies or fountains, there is no kiosk, or sitting areas, although there are many big trees forming shaded areas. It has no adults' playing fields, the finishing of the walkway is acceptable with no signboards, while no workers or security guards have been seen by the authors. Lighting is available but not enough. The park has no fence to hinder children from going out or to stop cars from entering. The playgrounds are old and have no protection for children. Nothing related to aesthetics has been seen in the park. Overall, the parks' elements are good compared with other parks (Figure 5).



Fig. 5. Azzubarah park

#### E. Prince Sultan's Park

This park is located in the southeast of the city. It is bordered on the north by the Al-Khamachiah neighborhood and south by Prince Abdullah bin Abdul Aziz Al-Dari road and Prince Abdul Aziz bin Masjid Airport road and west by Prince Muqrin bin Abdul Aziz Street neighboring commercial center that makes it attractive to visitors. It is close to many famous landmarks of the city, and it is one of the most popular tourist attractions in Hail. The park stretches over a total area of 165,00m<sup>2</sup> (Figure 6).



Fig. 6. Prince Sultan's park

The park location besides the highway makes it unsafe, noisy and air polluted and its location adjacent to Al Khamachiah lake invites mosquitos to disturb the visitors, as well as scattered thorns. The park is easily accessible with enough parking for cars located inside and adjacent to the highway. Regarding the services, the park has no water features or fountains, and limited toilets which lack water, and in most cases are very dirty with no maintenance. It also lacks shaded areas, green surfaces, and seats except those scattered alongside the walking tracks, while no adults' playing field was observed. The walking track is good but with no signboard either for the

park or the walking tracks. The lighting is very dim with many areas lacking light, there are no workers to maintain the services or even security to keep the park safe and protect it from vandalism. Aesthetic values are available but neglected.

#### F. Al Warood Park

Al Warood Park is located in the western part of Hail city, on the southern border of Al Warood neighborhood. The park stretches over a total area of 160,000m<sup>2</sup> and contains extensive green spaces and a recreational area for families and children (Figure 7). Its downsides are: the absence of shelters for visitors to stay under during day time except scattered trees with no benches to sit. Also, there is no fencing to protect children from the road, and the outside parking is placed beside the main road which makes the situation worse. The lighting system is not distributed throughout the park leaving some places with without proper lighting. There are some places of aesthetic value in the park, like the lake inside or the castle which is working as a waterfall.



Fig. 7. Al Warood park

#### G. Alruwad Park

Alruwad park is located on the southeast part of Hail city alongside Hatim Attai street. It is one of the most popular and attracting parks in Hail. The park stretches over a total area of 91,00m<sup>2</sup> (Figure 8). It is bordered by Al-Khammiya neighborhood, Prince Abdullah bin Abdul Aziz Al-Dari road and Prince Abdul Aziz bin Masjid Airport road. Its location besides the highway makes it unsafe, noisy, air polluted and the al Khamachiah lake brings out mosquitos and scattered thorns. The park is easily accessible with enough parking for cars. It is located outside the park and is adjacent to the highway.



Fig. 8. Alruwad park

Regarding services, the park has no water features, fountains, while it has a limited number of toilets which lack water, are dirty and unmaintained. It also lacks shaded areas, the green surfaces are very limited and constitute less than the 25% of its area, while benches are not available except those

scattered alongside the walking tracks. A fenced adults' playing field is observed, along with a good walking track without signboards. The lighting is very dim with many areas lacking light, there is no workforce to maintain the park or even security. There is no sign of aesthetic values available.

#### H. Al Yasmeen Park

Al Yasmeen park is located in the west part of Al Khuzama neighbourhood, adjacent to King Abdulaziz road which makes the park unsafe for children. The park stretches over a total area of 123,000m<sup>2</sup>, while it has green spaces, with a recreational area for families and a playground for children. The best a visitor can do is relax and get some rest in this place. It also has a walking track, which encourages people to walk and jog. The playground is in good condition as it is new, and the clean environment of the park is one of its merits encouraging frequent visitations. Its problems are air and noise pollution as a result of its location besides the main road. There are no adult playing fields or seats except some benches located alongside the walking track. The green surface is almost the two-thirds of the whole area and doesn't contain weeds. There are shaded areas available but they are limited and do not have seats. Lighting is not sufficient and not distributed properly, while it is also limited alongside the track. The park is vulnerable to vandalism. The arrangements of park and shaded area increase its aesthetic value.



Fig. 9. Al Yasmeen park

### V. RESULTS AND DISCUSSION

The amount of nearby green areas suitable for recreational usage increases the number of close-to-home outings of residents. This supports the argument that a good provision of

opportunities promotes an active lifestyle. Thus, recreation areas and facilities should be located close to residential areas, and provide safe, comfortable and year-round access for daily outings. Referring to Table II, only 14 (32%) out of 43 neighborhoods in Hail city, have an access to parks or playgrounds. Besides this, most of these parks and playgrounds don't meet the minimum park characteristics while they constitute only 0.136% of the total residential area. This percentage is far below WHO requirements (10m/person). Some residential areas such as As Suwayfilah, Almumlamakah, Labdah An Nugrah, AShifa, Ashifa sharg, etc. have no access to open spaces and parks. However, in line with the Kingdom's Vision 2030 lifestyle improvement program, the Ministry of Municipal and Rural Affairs launched the Humanization of Cities initiative, with the aim of improving the quality of life in cities, improving the urban landscape and applying universal access standards in municipal facilities and pedestrian walkways. The Ministry confirmed that the per capita rate of squares and public places rose from 3.48m<sup>2</sup> in 2015 to 4.14 m<sup>2</sup> in 2017. Concentrating only on the number of open spaces provided, it is not enough, hence it is equally important to consider the quality of public open spaces and how they will be used, in order to maximize community value and its contribution to creating green spaces in the urban environment. Accordingly, this part is going to highlight the quality of these facilities. Regarding parks' attributes and facilities shown in Table V, Azzaytoon Park located in Al Muntazah Al Gharbi has got the highest mark (601 out of 800). Its best observed attributes are the park quietness (100 points), its location with accessibilities is ranked second (93 points), and its aesthetic value is third (88points). The second highest park is Alruwad park (549 points). The third ranked park is Assalalm park in Al Muntazah Al Gharbi which got 533 point in all attributes. The park with the worst rank is Alruwad Park in Al Buhairah area which got 345 points. In this park there are not any water feature elements (0 points), the park is located in a noisy area (0 points). The second park from the bottom of the list is Al Yasmeen Park in Al Khuzama area, which got 390 total points. From our observations, it can be said that almost all parks in Hail city lack water features, their location is besides busy and noisy roads, and they lack security services to monitor undesired behavior.

TABLE V. RESULTS AND DISCUSSION

| Park name                        | Surroundings & accessibility (13%) | Quietness (2%) | Internal environment (10%) | Water features (8%) | Services and facilities (40%) | Health issues (8%) | Security and safety (11%) | Aesthetics (8%) | Total |
|----------------------------------|------------------------------------|----------------|----------------------------|---------------------|-------------------------------|--------------------|---------------------------|-----------------|-------|
| Prince Saud Bin Abdulmohsen park | 86                                 | 0              | 66                         | 77                  | 67                            | 77                 | 46                        | 66              | 419   |
| Azzaytoon park                   | 93                                 | 100            | 83                         | 44                  | 87                            | 66                 | 40                        | 88              | 601   |
| Assalam park                     | 53                                 | 0              | 66                         | 100                 | 87                            | 88                 | 51                        | 88              | 533   |
| Az Zibarah park                  | 73                                 | 100            | 81                         | 0                   | 50                            | 55                 | 34                        | 33              | 426   |
| Prince Sultan park               | 100                                | 0              | 66                         | 22                  | 62                            | 77                 | 38                        | 88              | 453   |
| Alruwad park                     | 60                                 | 0              | 41                         | 0                   | 31                            | 77                 | 59                        | 77              | 345   |
| Alwurud park                     | 86                                 | 100            | 83                         | 27                  | 90                            | 50                 | 47                        | 66              | 549   |
| Al Yasmeen park                  | 80                                 | 0              | 66                         | 0                   | 73                            | 88                 | 28                        | 55              | 390   |

### VI. CONCLUSION

Easily accessible and high-quality recreation opportunities, which equally serve all population groups and inhabitants of

different locations in the urban environment, are indicators of good living conditions and of quality of life. It is not easy to define whether an area is "adequate", yet recreation specialists have come up with certain rough rules, which are often used.

The amount of recreational area and parks allocated in Hail is 0.136% from the total residential area, which is not adequate in addition to other issues regarding location, management, and usage. The parks throughout the residential area are not evenly distributed. Hail's parks are not easily accessible, most of Hail's parks are adjacent to a main road or a highway road and are thus exposed to noise and air pollution. Water features are one important element of a park. Lack of water features and green areas are traits of Hail parks. The municipality did its part in creating parks but maintenance is also important. Most of the green spaces are accessible to all people without any conditions or restrictions, but there is a decline in services in green spaces as a result of the users' behavior and lack of follow up. Toilets are commonly available but have many problems: their number is small, they are not clean and their positions sometimes do not serve. This is very clear in Al Yasmien park which has only one toilet unit to serve a park which extends for over two kilometers. Regarding security and safety, it was found that the majority of Hail's parks do not have fences to protect children from hazards of accidents. It was also found that other services and facilities are not available. Almost no parks have security forces to protect them from vandalism. Car parking areas are located far from the parks making accessibility harder and reducing frequent visitations. Also, there is a severe lack of private spaces. Additionally, Hail's parks don't have a place for elderly people of both sexes.

#### VII. RECOMMENDATIONS

There are a few points needed to be enhanced to improve parks in Hail.

- In order to increase the percentage of recreational areas with respect to residential areas the number of parks and open spaces must increase.
  - It is necessary to have security people to protect parks from vandalism.
  - Most of the parks lack trees and shaded areas. Considering the nature in terms of using local materials, plants and trees should be used in shaping the area to become a part of nature, also helping in creating private spaces.
  - In the future, it is necessary to consider car parking with regard to the places where people practice their activities inside the parks.
  - It is necessary for parks to have a place for elderly people. When planning urban green areas and recreational services, more attention should be paid to the outdoor recreational needs of families, small children, and elderly people.
  - Open space elements and furniture should be used in a way to form more private spaces for visitors to practice their activities with high privacy.
  - The municipality needs to take care of all parks' attributes such as toilets and their distribution, especially when the park is in rectangle shape and the length is very long compared to the width.
- Workshops and seminars should be held to assist people to safeguard their parks while using them.

#### ACKNOWLEDGEMENT

The Deanship of Scientific Research of the University of Hail, Saudi Arabia funded this research under the research number 0160981

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APPENDIX: ASSESSMENT TOOL

| Park Name |   |              |               | Address                |              |               | Area (m <sup>2</sup> ) |            |
|-----------|---|--------------|---------------|------------------------|--------------|---------------|------------------------|------------|
| A         | Surrounding environment and accessibility                   |              |               |                        |              |               | total                  | Evaluation |
| 1         | Park location   |              |               | Visitors Number<br>1-5 |              |               | 5                      |            |
|           |   | main road    | branch road   |                        |              |               |                        |            |
|           |   | 0            | 2             |                        |              |               | 2                      |            |
| 2         | Location of the main entrance                               |              |               |                        |              |               |                        |            |
|           |   | main road    | branch road   |                        |              |               |                        |            |
|           |   | 0            | 2             |                        |              |               | 2                      |            |
| 3         | Car parks   |              |               |                        |              |               |                        |            |
|           |   | available    | rating        |                        |              |               |                        |            |
|           |   | 2            | 1,2,3,        |                        |              |               | 5                      |            |
| 4         | Location: Neighboring to malls or supermarkets              |              |               |                        |              |               |                        |            |
|           |   | yes          | no            |                        |              |               |                        |            |
|           |   | 1            | 0             |                        |              |               | 1                      | 15 (13%)   |
| <b>B</b>  | <b>Surrounding environment and quietness</b>                |              |               |                        |              |               |                        |            |
| 1         | quite area  | noisy area   |               |                        |              |               |                        |            |
|           | 2   | -1           |               |                        |              |               | 2                      | 2 (1%)     |
| <b>C</b>  | <b>Internal environment ( green area and its condition)</b> |              |               |                        |              |               |                        |            |
| 1         |   | available    | not available | percentage             | rating       |               |                        |            |
|           |   | 2            | 0             | 1-5                    | 1-5          |               | 12                     | 12 (10%)   |
| <b>D</b>  | <b>Water features</b>                                       |              |               |                        |              |               |                        |            |
| 1         | Water bodies, waterfalls                                    |              |               |                        |              |               |                        |            |
|           |   | available    | not available | rating                 |              |               |                        |            |
|           |   | 1            | 0             | 1-3                    |              |               | 4                      |            |
| 2         | Fountains or springs  |              |               |                        |              |               |                        |            |
|           |   | available    | not available | rating                 |              |               |                        |            |
|           |   | 1            | 0             | 1-3                    |              |               | 4                      |            |
| 3         | Drinking fountains  |              |               |                        |              |               |                        |            |
|           |   | available    | not available |                        |              |               |                        |            |
|           |   | 1            | 0             |                        |              |               | 1                      | 9 (8)      |
| <b>E</b>  | <b>Services and facilities</b>                              |              |               |                        |              |               |                        |            |
| 1         | toilets   | kiosks       | seats         | sitting areas          | shaded areas | prayer areas  |                        |            |
|           | 0-5   | 1            | 0-5           | 0-5                    | 0-5          | 0-3           | 24                     |            |
| 2         | Playground equipment for children and adults                |              |               |                        |              |               |                        |            |
|           |   | for children | not available | rating                 | for adults   | not available | rating                 |            |
|           |   | 1            | 0             | 1-5                    | 1            | 0             | 1-5                    | 12         |
| 3         | Protected and shaded areas                                  |              |               |                        |              |               |                        |            |
|           |   | available    | not available | rating                 |              |               |                        |            |
|           |   | 1            | 0             | 1-3                    |              |               | 4                      |            |
| 4         | Pedestrians   |              |               |                        |              |               |                        |            |
|           |   | available    | not available | rating                 |              |               |                        |            |
|           |   | 1            | 0             | 1-3                    |              |               | 4                      |            |
| 5         | Signboards  |              |               |                        |              |               |                        |            |
|           |   | available    | not available | rating                 |              |               |                        |            |

|          |   |               |               |              |                  |                      |   |          |                   |
|----------|---|---------------|---------------|--------------|------------------|----------------------|---|----------|-------------------|
|          | 1   | 0             | 1,2           |              |                  |                      | 3 |          |                   |
| 6        | Worker availability   |               |               |              |                  |                      |   |          |                   |
|          | available   | not available |               |              |                  |                      |   |          |                   |
|          | 1   | 0             |               |              |                  |                      | 1 | 48 (40%) |                   |
| <b>F</b> | <b>Health issues</b>  |               |               |              |                  |                      |   |          |                   |
| 1        | Air   |               |               |              |                  |                      |   |          |                   |
|          |   | not polluted  | polluted      |              |                  |                      |   |          |                   |
|          |   | 1             | 0             |              |                  |                      | 1 |          |                   |
| 2        | Disturbing insects  |               |               |              |                  |                      |   |          |                   |
|          |   | not available | available     |              |                  |                      |   |          |                   |
|          |   | 1             | 0             |              |                  |                      | 1 |          |                   |
| 3        | Weeds   |               |               |              |                  |                      |   |          |                   |
|          |   | not available | available     |              |                  |                      |   |          |                   |
|          |   | 1             | 0             |              |                  |                      | 1 |          |                   |
| 4        | Cleanness   |               |               |              |                  |                      |   |          |                   |
|          |   | not clean     | clean         |              |                  |                      |   |          |                   |
|          |   | 0-3           |               |              |                  |                      | 3 |          |                   |
| 5        | Garbage containers  |               |               |              |                  |                      |   |          |                   |
|          | available   | not available | enough        | not enough   | well distributed | not well distributed |   |          |                   |
|          | 1   | 0             | 1             | 0            | 1                | 0                    | 3 | 9 (8%)   |                   |
| <b>G</b> | <b>Safety and security</b>  |               |               |              |                  |                      |   |          |                   |
| 1        | Lighting: a handful to keep the park light and safe for those who stay late. Automatically turns on and off by detecting the lightness in the environment or according to the government regulations. |               |               |              |                  |                      |   |          |                   |
|          | available   | not available | rating        |              |                  |                      |   |          |                   |
|          | 1   | 0             | 1-5           |              |                  |                      | 6 |          |                   |
| 2        | Security guard: someone patrols the park daily  |               |               |              |                  |                      |   |          |                   |
| 3        | available   | not available |               |              |                  |                      |   |          |                   |
|          | 1   | 0             |               |              |                  |                      | 1 |          |                   |
| 4        | Fencing   |               |               |              |                  |                      |   |          |                   |
|          | available   | rating        |               |              |                  |                      |   |          |                   |
|          | 0-3   | 1-3           |               |              |                  |                      | 6 |          |                   |
| 5        | Hinders   |               |               |              |                  |                      |   |          |                   |
|          |   | available     | not available |              |                  |                      |   |          |                   |
|          |   | 0             | 1             |              |                  |                      | 1 | 14 (12%) |                   |
| <b>I</b> | <b>Aesthetics</b>   |               |               |              |                  |                      |   |          |                   |
| 1        | Monuments   |               |               |              |                  |                      |   |          |                   |
|          |   | available     | not available |              |                  |                      |   |          |                   |
|          |   | 1             | 0             |              |                  |                      | 1 |          |                   |
| 2        | Heritage features   |               |               |              |                  |                      |   |          |                   |
|          |   | available     | not available |              |                  |                      |   |          |                   |
|          |   | 1             | 0             |              |                  |                      | 1 |          |                   |
| 3        | Landmarks   |               |               |              |                  |                      |   |          |                   |
|          |   | available     | not available |              |                  |                      |   |          |                   |
|          |   | 1             | 0             |              |                  |                      | 1 |          |                   |
| 4        | View  |               |               |              |                  |                      |   |          |                   |
|          |   | from inside   | weight        | from outside | weight           |                      |   |          |                   |
|          |   |               | 1-3           |              | 1-3              |                      | 6 | 9 (8%)   |                   |
|          | <b>Total</b>  |               |               |              |                  |                      |   |          | <b>118 (100%)</b> |