

# People's perception and behavior patterns in Amman's public parks and plazas

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This study aims to research the behavioral patterns in the various areas public parks and major urban plazas of the Greater Amman area. During the past 40 years, studies have focused on the identification of architectural and urban patterns and the artistic aspects of urban design. Conversely, this research aims to identify the behavior and needs of the users by introducing the hypothesis that the behavioral patterns in any designed space relies on the designers personal perceptions and understanding of the behavioral and usage patterns of the individuals within it, the understanding of which positively reflects on both the spatial qualities and the individuals perception of it. To test the previous hypothesis, two urban plazas were selected, the Al-Hussien Sukaina Park located in a middle-income residential commercial district and the "Culture A venue" in a high-income commercial district. Through analytical studies and the utilization of questionnaires, the research concludes an overall preference of the simplicity of the former over the complexity of the design concept and elements of the latter.

يهدف البحث إلى دراسة سلوكيات في عدة مناطق في المدينة وخاصة في الحدائق والساحات العامة الرئيسية لمنطقة عمان الكبرى. لقد كان التركيز في الدراسات العمرانية خلال الأربعين عاما الماضية مبني على معرفة الأنماط المعمارية والنمط الحضري والنواحي الفنية للتصميم الحضري متجاهلا دراسة سلوكيات المواطنين ومعرفة احتياجاتهم لكيفية استعمال هذه الفراغات العامة. لقد اعتمدت الدراسة البحثية على البدء بعمل استطلاعات ميدانية ووضع استفسارات حيث تحولت بعدها إلى فرضية واحدة ألا و هي أنماط السلوك في أي فراغ مصمم تعتمد بشكل كبير على فكر المصمم المعماري وإدراكه لمتطلبات و سلوكيات الفرد في الفراغ، مما ينعكس إيجابيا على روح المكان المصمم ويكون المواطن قد فهم المشروع بشكل جيد. إن الإنطباع الإيجابي للمواطن في الموقع يعكس مدى فهمه لفكرة المصمم الأصلية. لذا ولقياس الفرضية تم إختيار ساحتين الأولى في منطقة تجارية سكنية ذات دخل متوسط في منطقة جبل الحسين والمعرفة بإسم دوار سكنية، والساحة الثقافية في جبل الحسين وتعتمد منطقة تجارية ذات دخل عال ولقد قام الباحثون بدراسة تحليلية للموقعين وكذلك وضع استبيان لقياس مدى صحة الفرضية لأخذ آراء و انطباع المواطنين. لقد تبين أن الساحات العامة المصممة بشكل مبسط وبشكل مدروس يرتبط بواقع المنطقة البيئية ومعرفة احتياجات المواطنين وهي الأفضل حيث أن ساحة دوار سكنية جاءت في المركز الأول كأفضل فراغ للاستعمال الشخصي للمواطن حيث عكست مفردات التصميم البساطة وراعت احتياجات المواطن. بينما الحديقة الثقافية كانت معقدة وغير مرغوب فيها من ناحية الشكل والمضمون وغريبة عن مفردات التصميم الحضري لمنطقة الشميساني.

**Keywords:** Landscape perception, Plaza design, Behavior patterns

## 1. Introduction

Perception is the process of obtaining information from and about one's surroundings. It is active and purposeful; it is where cognition and reality meet [1] Urban space comprises all the spaces between buildings in towns and other localities [2]. Behavior is related to the social interaction and adaptation to the urban space; the social potential of the urban space is inherent in its continuous spatial system, it is also contingent on its social processes, in which the space is considered as a "container of social power" [3].

Studying people's behavior in the different places of the city, mainly in the urban parks and plazas, is the main objective of this research. Previous investigations of the city focused mainly on its architecture, and physical aspects of the urban environment, emphasizing its abstract morphological qualities. But, in a sense, failed in addressing issues of urban use and appropriation, based on users' perception and behavioral patterns [4]. Perception of landscapes involves circulation. As we move, our perspective of the place physically changes, and what is previously experienced affects our perception [5]. As we know, perception is not only a matter of sight,

all senses butane which involves taste, smell, touch and hearing. The rate, order, type, degree of perception is a matter of design control, which is affected by planning patterns of circulation and movement [6]. Circulation pattern is a major function of the planned development, because it establishes the rate sequence, and nature of its sensed realization or visual, and unfolding.

Reading the urban public space of parks and plazas in Amman will be made via a series of structured interviews with urban area dwellers. The information derived from this (social-science based) investigation will be then analyzed and presented graphically. This research, though fairly limited in scope, allows the demonstration of an integrated approach to urban design that relates to the experience of real people in the public open space. The goal of this research is to promote discussion of the urban public spaces and its nature, both as an architectural phenomenon, considering its morphological qualities as a spatial system, and as an everyday urban reality, a place of life and activity.

In the design of open urban spaces, architects, planners, landscape architects, use a variety of elements to give each space a different identity. The suitability of the elements, and the harmony with in the context, is what renders the project successful or not. But, how can we create urban spaces that meet the needs of the community? The goal of this study is two-fold; to determine the elements of successful urban public spaces and to demonstrate the role of those spaces in supporting the public life of the community. The designer should take into consideration the meaning that the design should reflect; the environment can be considered to consist of interrelated geographic, built, social, and cultural components that afford certain behaviors in consistent ways [7], and the designer's role is to interpret the design elements in a manner that will serve the human-environment interaction, especially in the design of open parks and plazas.

## **2. The public park and the city**

The city does not consist of just masses

and solids; also of voids and spaces, "the city in its complete sense, then, is a geographic plexus, an economic organization, an institutional process, a theatre of social action, and an aesthetic school of collective unity [8]."

While for centuries, the quality of the urban environment has been an outcome of economic growth, nowadays the quality of urban space has become a pre-requisite for the economic development of cities; and urban design has undertaken an enhanced new role as a means of economic development [9]. Environmental Psychology has been defined as "psychological study of behavior as it relates to the everyday environment", that implies the attention that should be given to designed places and spaces in terms of studying people's perception and behavior.

Smart Growth advocates sustainable development proponents, and New Urbanists seem to agree that urban areas ought to strive for greater pedestrian access. There ought to be a greater link, planners say, between where people live and work and where they get the goods and services they require for a high quality of life [10].

An analysis of the literature in this field, however, shows that an assessment of the quality of a given urban environment can be approached either subjectively or objectively, using data that are quantitative, qualitative, or a combination of both. Subjective assessments generally include survey-based research based on users' preferences. Subjective evaluations include cognitive mapping exercises which are important contributions to our understanding of environmental quality from the perspective of users [11]. A given landscape is read both as form and as pattern. The specific forms give the informed designer clues to the nature and intensity of forces operative in the landscape. These clues include whether the forces are current and active or no longer in effect. Pattern recognition is the ability of the designer to read the landscape and understand its elements and forces. Spaces vary by type, in scale they range from intimate to public, in direction from horizontal to vertical in enclosure from fully enclosed to open and unarticulated [12].

### **3. The case of Amman**

The city of Amman is expanding enormously; with more than 1.8 million inhabitants, who comprise more than 35% of Jordan's population [13]. This growing population requires tremendous governmental efforts to cope with their changing and growing needs. Today's planning schemes and developmental projects around the city are focusing on the urban face lift of the city, and all of its resources are directed towards transforming it into a leading capital in the Arab World. These past couple of years have witnessed many developmental projects; such as urban plazas and urban theme parks, Al-Hussein National Park is one example of such an initiative, with its rich landscape theme gardens and innovative architectural content. Other new projects include Queen Rania al-Abdullah Park in Umm Nuwwara in eastern Amman, and the 11<sup>th</sup> of August street or Culture Avenue in Shmeisani area.

The Department of landscape architecture at the Greater Amman Municipality was founded in February 1988, and since then has focused on new criteria for the design of open public spaces:

1. Spaces, parks, gardens, should be designed and implemented through careful site construction documents.
2. Designs should be simple and cost effective.
3. Hard landscape should be carefully integrated with landscape elements
4. Plant materials should be native, drought resistant and requiring little or no maintenance [14].

Although landscape architecture is a challenging field in Jordan, people's awareness of its importance is increasing on both small and large scales.

### **4. Amman's public parks and plazas, selected cases**

In order to study peoples perception and behavior patterns in Amman's public open spaces, two urban plazas were chosen; Jabal Al-Hussein Sukaina Park, See fig. 1 and 11<sup>th</sup> August Street Plaza in Shmeisani, see fig. 2. Both of these plazas were designed by professionals, and are considered by residents and

design professionals to be two successful, active plazas. Their importance is worth mentioning as they were both designed and completed less than ten years ago. By drawing conclusions about the plazas, role in the city and life of the residents, we hope to demonstrate how public spaces can support public life in today's communities, by studying people's perception and adaptation to the urban plaza, and by tracking the different behavioral patterns, observed and studied in each case.

The Sukaina Island Park was designed by M. K. Associates. Located in Jabal Al-Hussein area; a local vernacular neighborhood of Amman, the park is situated on Khalid bin Al-Walid Street. It is surrounded with shops, banks, corporate buildings and some entertainment attractions like Al-Hussein Luna Park and other restaurants. The site is famous for its remarkable water feature and timber balustrades. It also includes public toilets, seating benches and pergolas.

11<sup>th</sup> August Street or the "Culture Avenue", was designed by the Amsterdam based Tom Postma Design in cooperation with the Engineering Department at the Municipality of Greater Amman. The design spans a 360 meter-long street and includes landscaping, paving, street furniture, as well as cultural and tourist landmarks on both sides of the street, including a summer theater for musical performances. The design of the pedestrian avenue focuses on providing a linear cultural space with visual continuity and a flexible layout that allows free movement between the various elements of the design. The design also utilizes lighting, as well as semi-transparent materials to give a sense of lightness and to ensure visual flow. The project, which was part of the Municipality of Greater Amman's preparations for the Amman Arab Cultural Capital 2002 celebrations, was calculated at an initial cost of about JDs 600,000, or 860,000 \$US [15].

### **5. Problem statement**

Amman is a unique city with different morphologies and characteristics than that of any other city in the world. Despite the governmental efforts to put Amman on the top



Fig. 1. Al- Hussein Sukaina plaza.



Fig. 2. Shmeisani plaza.

agenda of developmental priorities, the city is still considered by scholars and residents like as having “a lack of fit due to a missing ingredient of Amman itself, attributed to a crisis arising from some inherent lack of urbanity” [16]. This lack of quality urban space puts a bigger burden on city planners, landscape architects and decision makers. The landscape architects of Jordan are facing a hard time trying to make their voices heard, because the city is in urgent need for professional planning design initiatives. “The urban sprawl within the city of Amman has reduced the number of public gardens from sixty nine parks in 1969, to only forty two parks in 1980 within the Greater Amman Municipality” [17] This lack of adequacy, due to the growing population and huge development the city has witnessed in the past decades, allows us to look at the problem of the lack of urban public parks in Amman, that comply with international standards and to re-evaluate some of the projects that are professionally designed.

## **6. Research objectives**

1. Increase the understanding of recreation and leisure behaviors; and help evaluate and assess the design of parks and leisure facilities around the city of Amman.
2. Study the actual needs of people in an urban open space, reflecting on their social and traditions backgrounds.
3. Determine the elements of successful urban public spaces and demonstrate the role of those spaces in supporting the public life of the community.
4. Evaluate the governmental parks projects initiated by the Municipality of Greater Amman, and highlight their planning strengths and weaknesses.

## **7. Research hypotheses**

This research assumes that users' perceptions and behavioral patterns in a designed open space is very much affected by the original design idea, and the designer's success of interpreting the design's meaning and philosophy to the users. Other wise, if the designer fails to do so, the users will fail to understand and perceive the original

theme and meaning of the urban open space, which will result in desertion and neglect, and affect the behavioral patterns in a negative way.

Landscape perception involves serial visions that are conducted as part of the design process; these studies are a series of perspective images viewed rapidly and replicate the visual process of movement through the landscape. By structuring the manner in which one moves through a landscape and by designing it as a rich evolving experience, the designer maximizes the experience of the landscape. Good design creates the most opportunistic framework to view the event and uses the event to prepare the observer for experiences that follow. When we design the movement through the landscape, we must appreciate the implication of speed; the slower we move, the greater our awareness will be, and conversely when increasing speed movement, our cone of vision reduced, and so our perception. The rate of speed at which we move needs to decrease landscape complexities, similarly, the character of the space and the nature of path affect the rate of movement, so we should be sensitive to reduce the complexity of the overall pattern [18].

Based on the previous literature, a hypothesis statement can be concluded as follows:

People perceive the physical elements and move easily if the design scheme of the park as simple, clean, functional, attractive and suits their needs.

This is also valid for the elements the designer uses in the design of the plaza or the park. Elements should be chosen carefully to reflect the desired function of the space and to satisfy the social and environmental needs of the space. Other wise they will hinder the proper functionality of the space, and will render the design a failure, see fig. 3

⇒ The concepts used in integrating the public park with the surrounding urban context are essential in determining the success or failure of urban landscape projects.

From a spatial platform, to create public spaces which encourage social interaction, there are two types of relations to be considered; between inhabitants and strangers, and among the inhabitants themselves. Social

spaces are defined by some urban researchers (Hillier and Hanson 1984) as either convex or concave in terms of their spatial syntax. The description convex applies when the design creates fields for social encounters, so this will show which segments of the open space system are more integrating and which are more segregating [19]. In Al-Hussein area, for example, where the rich context of shopping centers, office buildings and entertainment places is present, the design of Sukaina Park was simple and more integrated with context. Al Hussein area is well known as a busy commercial district in Amman, the centrality of the location and the hybrid shopping streets, distinguishes the Jabal Al-Hussein area as one of the busiest in town; with people flooding in from different parts of the city, see figs. 4, 5.

The Landscape designer allowed the dominance of the context, and not attempt to impose his design on the already successful

surrounding. The design was simple, with one level pedestrian movement pattern, without any exaggeration in the landscape elements. In Jabal Al-Hussein park, the usage pattern is marked with people trying to take a rest after exhausting shopping hours with family and children; they find the park refreshing and relaxing, where they can buy a snack and share the rest of the evening in the open, see fig. 6.

In Shmeisani area, however, the surrounding is less dynamic and more introverted than that of Jabal Al-Hussein. So the landscape designer in this case was inclined towards more sophisticated landscape elements, where he used ramps, stairs, split levels, and more sophisticated forms. In Shmeisani Park the majority of the events taking place are marked with people looking for more action in the quiet of the surrounding. They prefer to be part of a cultural

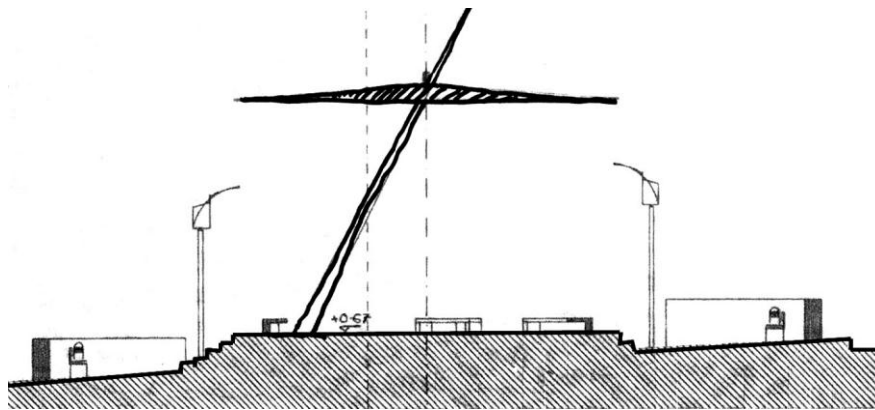


Fig. 3. The pergola element that covers the raised summer amphitheatre is functionless, but attracts seating activities because it defines an enclosure.

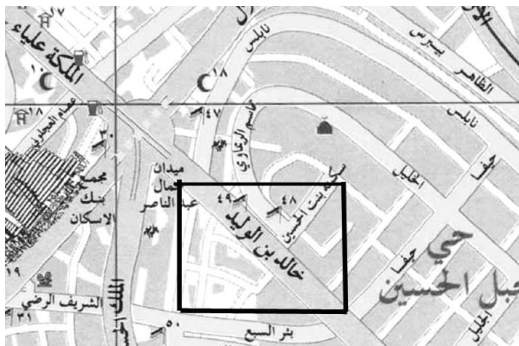


Fig. 4. Sukaina Plaza location in Jabal Al-Hussein Context.

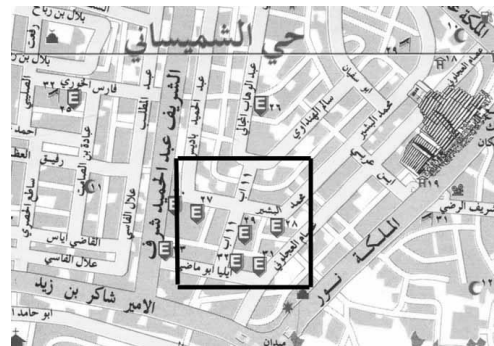


Fig. 5. August Street Plaza in Shmeisani.

event that is taking place, mostly organized by the municipality of Amman, other wise, the spaces are used for recreation only. The absence of an organized event that may attract visitors all year long makes the park a neglected rather than a nourished urban space, see fig. 7.

In both cases we see the start of a successful recreational space initiative, taking into consideration the different cultural and urban backgrounds the two sites possess; one can start to look at the concepts behind each design and the suitability of each landscape theme in regards to the surrounding. In this research, we aim at showing the different characteristics of each space resulting from people's interaction with the landscape theme, and the special features imposed by the urban context.

## 8. Research methodology

This research is categorized under behav

ioral research; the methods will vary in order to obtain the required information and to answer the pressing questions the research has come up with.

In order to answer our questions and to prove research hypotheses we will use the following approach, demonstrated in three phases:

1. *Data Gathering phase:* This phase includes data gathering through conducting a series of data gathering methods; including literature review, casual and systematic observations, which implement through frequent visits to site on selected days of the week. The observations notes and casual interview data will be gathered and analyzed to construct questionnaire forms to be distributed at both plazas. The forms will be filled by sample group of participants first to test their wording and question recognition, and then an actual form will be later distributed at both plazas.



Fig. 6. The Dominance of the urban context in Al-Husseini Area.



Fig. 7. People seek more action in the quiet of the surrounding in Shmeisani plaza.

2. *Analysis phase:* In the analysis phase, all the data gathered in the previous stage will be studied, data will include site and design information, which will contribute to design and analysis. The questionnaire scoring and data interpretation will be analyzed in this phase.

3. *Results and conclusions phase:* After performing physical design analysis and questionnaire data analysis, results are drawn and illustrated in charts to indicate final research statements and data analysis outcomes.

## 9. Design analysis

“Vision is usually considered the primary sense by which the human being gathers information about the environment. Accordingly, our sensual perception of place is primarily visual; more specifically it is spatial. It is defined by enclosure and made understandable by light. The enclosure that defines exterior space is usually incomplete, the form is completed by the mind’s eye based upon implied physical edges, such as changes in grade, overhead canopies, or discontinuous vertical elements such as tree trunks or area walls. Exterior spaces have dimension, the horizontal usually being much larger than the vertical, and these dimensions are communicated visually via light, color, texture, and detail.”

### 9.1. Form

Linearity of Form is apparent in both designs, due to the allocation of both plazas as island parks on busy commercial streets, see fig. 8, 9. while the design in Al-Hussein is angular linear, that of Shmeisani plaza is

rectilinear distinguished by the rectilinear forms in planters and passages and also in the tiling pattern and layout of elements. The angular linear pattern in Sukaina plaza is character cad by a water feature of a zigzag pattern, angular seating areas, plus an angular layout of landscape elements.

### 9.2. Nature of flow

In the linear designs of both plazas, we see a natural direct flow. Linearity in movement pattern is apparent, while in Sukaina plaza it is clearer due to the one level design scheme. In shmeisani plaza, this linear flow is interpreted with a number of nodes including a circular amphitheatre in the center of the plaza, see fig. 10 and descending and ascending experiences created by the presence of a sunken plaza, see fig. 11.

The major activities illustrated in fig. 12 include walking and seating activities, performed by people from different social and age groups. Observations indicate that the absence of a year round event makes seating and walking the only patterns of activities in Shmeisani upper plaza. Other than that there are some kiosk shops in the Shmeisani plaza, where few visitors can buy snacks or newspapers. The main feature or node of attraction in Sukaina plaza is the water feature, that runs along the plaza in an irregular form creating various seating and attraction spots that encourage seating and socializing around it. The water feature, due to its dominance acts as a sound attraction. The sounds of the water fountains creates a pleasant social atmosphere that attracts visitors. The water element also acts as a climate control element in the hot dry weather.

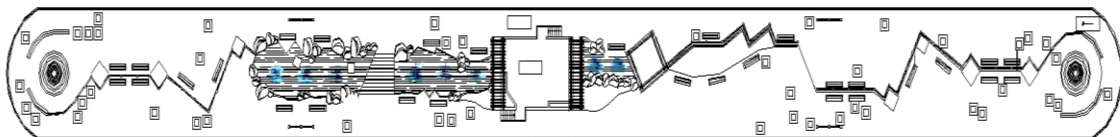


Fig. 8. Al-Hussein Sukaina Plaza.





Fig. 9. Shmeisani Plaza.



Fig. 10. Central Amphitheatre



Fig. 11. Sunken Plaza in Shmeisani

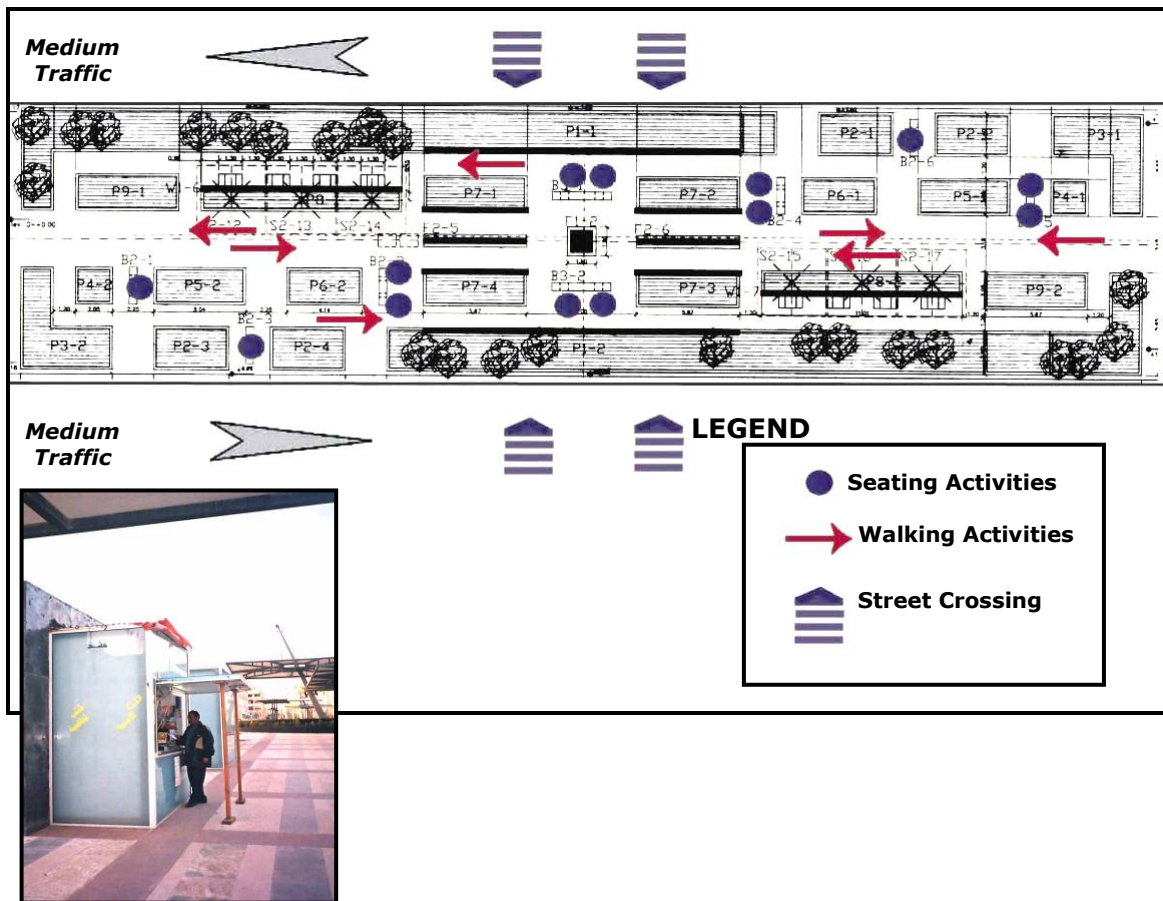


Fig. 12. Illustration of the type of activities in upper part of Shmeisani Plaza.

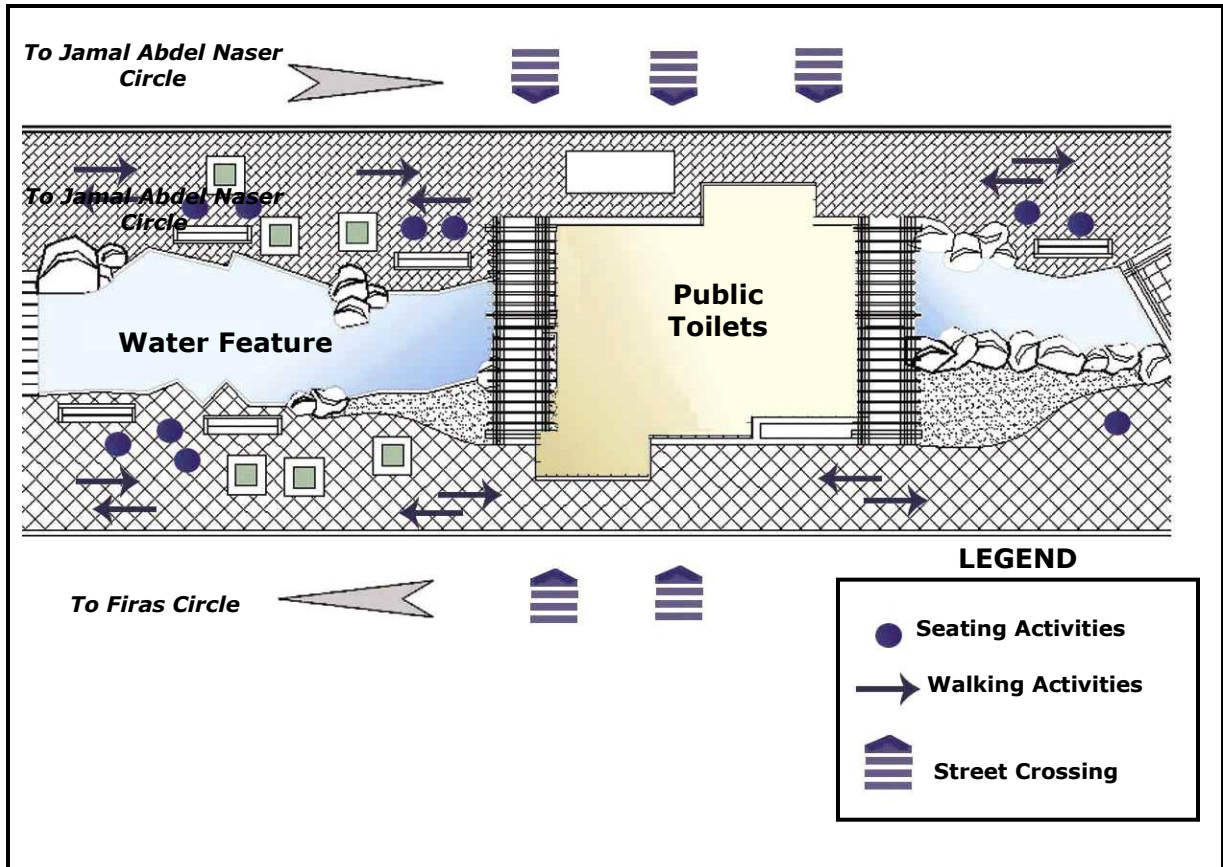


Fig. 13. Illustration of the type of activities around the water feature in Al-Hussein Sukaina Plaza.



Fig. 14. Water feature in Al-Hussein.

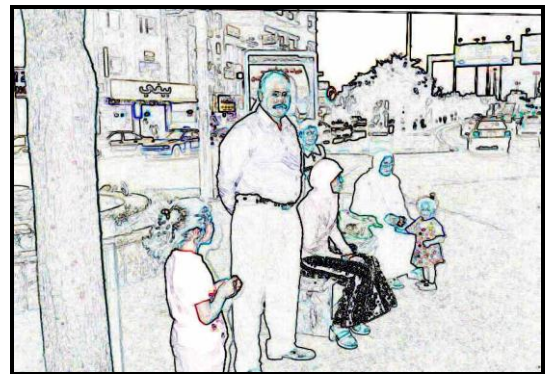


Fig. 15. Seating activities.

### 9.3. Soft and hard landscape

These landscape elements have both visual and pedestrian functions and include signage, lighting, billboards, and furniture. These elements play a number of important

functional roles in the plaza acting as points of reference for visitor orientation and circulation, as well as contributing to the Plaza's appearance and overall character and identity.

Soft landscape is marked by the use of big planters in Shmeisani plaza, the percentage of green area to tiled area is almost 50%, see fig. 16. This creates a more introverted and enclosed space, because large planters along with the huge pergolas define the spaces and make them more intimate, see fig. 17.

In Al-Hussein plaza, sewer planting areas and smaller tree planters were used. The tree

elements are more vertical and fragmented. This allows for more visual access and more integration with the urban context, which makes the design more extroverted. This is especially clear when one notices the orientation of seating benches towards the exterior of the plaza, to focus on the surrounding shops and attractions, which is the opposite in Shmeisani.

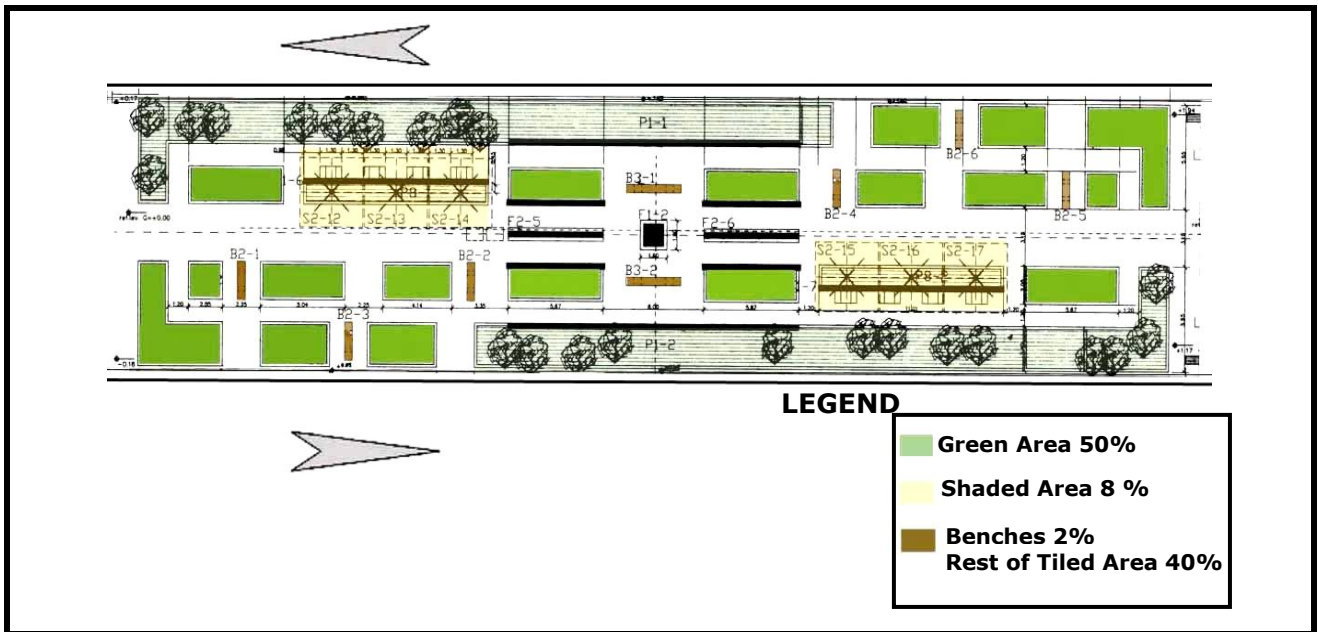


Fig. 16. Illustration of the green and tiled areas in upper plaza in Shmeisani.

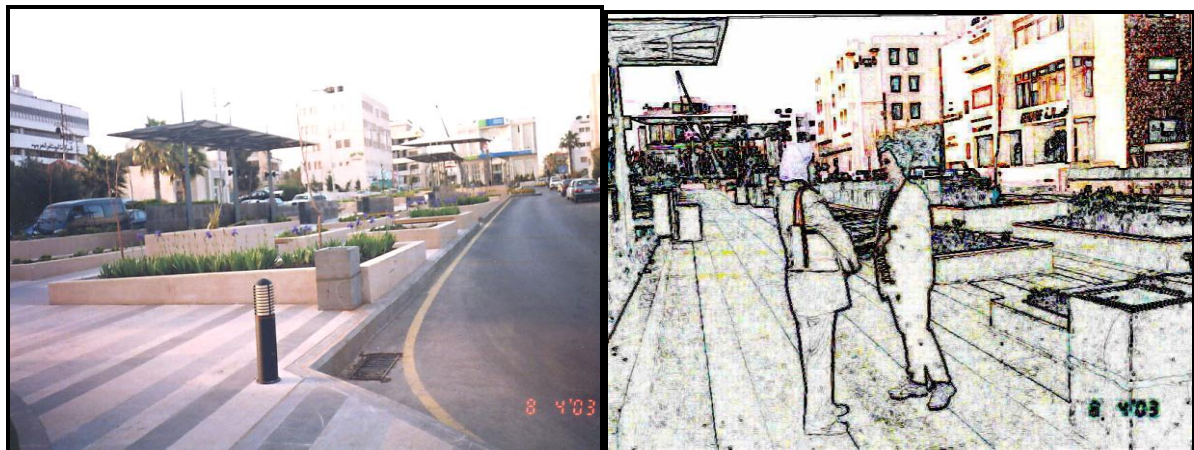


Fig. 17. Big Planters in Shmeisani Plaza.

#### 9.4. Current use of elements



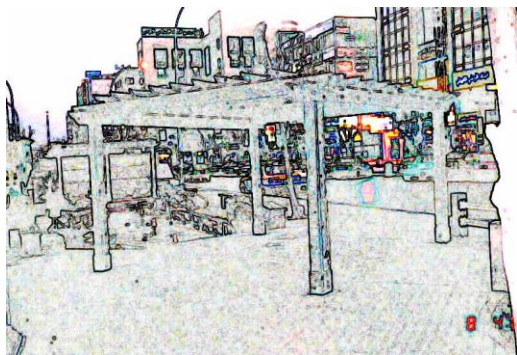
Seating on the benches beside the Granite walls in Shmeisani; this activity gives more personal space definition, suitable for single visitors or couples who seek seclusion and peace, not direct involvement with surrounding activities.



Walking activities in Sukaina park are apparent to observer, and large billboards are used for advertisement, their scale is consistent with the urban fabric, not the scale of the walking people, its usually used for people walking on opposite side of streets.

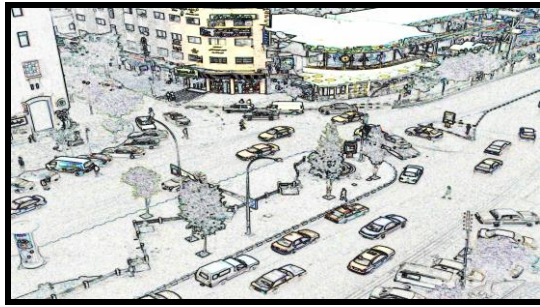


Balustrade in Al-Hussein Sukaina Park adds an aesthetic value to the whole design composition, yet sometimes directs attention out side the plaza, which makes the plaza more extroverted.

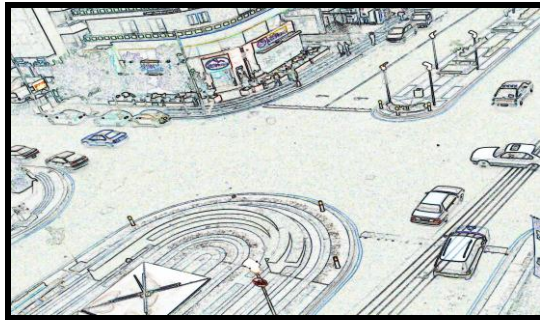


Pergolas in Al-Hussein Sukaina park have a nice regional touch, because of their human scale and material choice. They serve as aesthetic value and as space definition elements.

### 9.5. Context



As an island park; Sukaina plaza is situated on major road junctions that connect eastern and western Amman. The Khalid bin al-Walid street connects Jebel al-Hussein with Down Town Amman.



Shmeisani plaza serves in a less busy commercial area, with important banks and corporate companies on both sides of the 11th August street. The road intersections at both ends of the plaza add to this urban richness and vibrancy.

## 10. Data analysis

Two questionnaire studies were conducted one in Shmeisani plaza and another in Al-Hussein Sukaina plaza, see appendix A.

The respondents fell in four age categories; under 20, from 20-30, from 30-40, and above 40, as shown in table 1.

In our research we will list the results of each question and analyze it, followed by graphic representation of the results, in addition to comparative diagrams of the two mentioned plazas.

### 10.1. Visit information

#### Question 1: (Frequency of visit)

- In Sukaina Plaza 41.8% of the respondents visit the plaza monthly and 21.8% visit it yearly, while 18.2% visit the plaza on a daily basis, and the same percentage on a weekly basis.
- In 11<sup>th</sup> August Plaza 44.44% monthly, 24.1% weekly, 22.22% daily, and 10.0% yearly.

As a result we see the frequency of visiting both plazas is on monthly basis by the majority of visitors.

#### Question 2: (Reason of visit)

- In Sukaina Plaza 49.1% of the respondents visit the plaza for other reasons besides walking, sitting or socializing. In previously conducted interviews people mentioned reasons like taking a rest after shopping or spending their time eating or watching the surrounding, etc. 25.5% visit the plaza for sitting, 12.7% for walking and socializing.
- In 11<sup>th</sup> August street plaza 40.0% visit the plaza for other than the mentioned purposes, 23.6% visit it for sitting and walking, while 12.7% visit it for socializing with other people.

As a result we see the variety of activities performed in each plaza, which indicates no pattern of usage or apparent functionality. People like to be free in choosing the type of activity, and both designs fulfill these requirements.

#### Question 3: (Company)

- In Sukaina Plaza 35.2% visit the plaza with their families, 33.3% with their friends and 32.5% alone.
- In 11<sup>th</sup> August Street Plaza 32.7% visit the plaza with their families and friends, and 34.6% alone.

Table 1  
Age categories of the study

Al-Hussein Sukaina Plaza			11 <sup>th</sup> August Street Plaza		
Age	Count	Percent	Age	Count	Percent
Under 20	5	9.1	Under 20	9	16.4
20-30	23	41.8	20-30	28	50.9
30-40	11	20	30-40	5	9.1
Above 40	16	29.1	Above 40	13	23.6

As a result, the ratios are almost the same, which means that both plazas encourage different social groups to participate.

#### Question 4: (Duration)

- For the time spent in the plaza, in Sukaina Plaza 58.2% spend less than one hour, 30.9% spend about 1-2 hours, where 10.9% spend more than two hours.
- In 11<sup>th</sup> August Street plaza 43.6% spend about 1-2 hours, 38.9% spend less than one hour, and 18.5% spend more than two hours.

#### 10.2. Visitors perception of design and context

##### Question 5: (Integration)

- In Sukaina Plaza 48.9 % answer good for the integration of plaza with the urban context, 35.2% adequate, 11.1 poor and 5.6 % excellent.
- In 11<sup>th</sup> August Street plaza 58.2% answer good, 18.2% adequate, 14.8% excellent, and 9.1% poor.

The integration of the urban context is almost good for both plazas.

##### Question 6: (Accessibility)

- In Sukaina Plaza, 36.1% find the accessibility to the plaza and crossing the streets adequate. 25.5% find it poor, and 25.5 % good, while 12.7% find it excellent.
- In 11<sup>th</sup> August Street Plaza 50.9% find it good, 23.6% adequate, 21.8% excellent, 3.6% poor.

Streets around Sukaina Plaza are critical, since they are commercial and high-speed streets, where 11<sup>th</sup> August Street is narrower and less dangerous with less traffic activity.

##### Question 7: (Adequacy)

- In Sukaina Plaza, 36.4% of the respondents find the suitability of benches and seating areas according to the number of

visitors adequate, 30.9% find it good, 27.3% poor and 5.5% excellent.

- In 11<sup>th</sup> August Street, however, 45.5% answer good, 21.8% adequate, 20% answer poor, and 12.7% answer excellent.

The higher ratio varies between adequate and good for both plazas.

#### 10.3. Design elements

##### Question 8: (Seating)

- In Sukaina, 42.6% find the seats irregularly distributed, and the same ratio find them regularly distributed, 15.8% answer that they are concentrated in some areas.
- In 11<sup>th</sup> August Plaza, 58.2% answer that the seat pattern is regularly distributed, 30.9% find the distribution irregular, while 10.9% find the seats concentrated in some areas.

##### Question 9: (Hard and Soft Landscape)

- In Sukaina Plaza, 44.9% answered with adequate about the balance between hard and soft landscape, 29.6% good, 22.2% poor, 3.7% excellent.
- In 11<sup>th</sup> August Street Plaza, 43.6% answer good, 29.1% answer adequate, 14.5% poor and 12.7% excellent.

The balance between hard and soft landscape varies between adequate and good.

##### Question 10: (Planting design)

- In Sukaina plaza, 77.8% answer that the plants add aesthetic values, 16.7% find them having no influence, 5.6% find them provide shades.
- In 11<sup>th</sup> August Plaza, 78.6% find them add aesthetic values, 12.1% have no influence, 5.6% provides shade and 3.79% hinders users flow and movement.

In both cases people believe that main rules green areas in the plaza design lies in adding aesthetic values to open spaces.

*Question 11: (Water feature)*

- 50.0% answer that the water feature (fountain) in Sukaina Plaza acts as a weather controlling and enhancing element in hot dry weather. 33.2% find it a relaxing and refreshing element, 9.3 find no influence for it on the plaza, and 7.3% find it an additional cost.
- There is no water feature in Shmeisani Plaza

The majority of visitors find the water feature a major important element providing them with functional and aesthetic values.

*Question 12: (Billboards)*

- In Sukaina Plaza 44.2% answer that the billboards have no influence on the plaza, 30.8% find them an educating and informative element, 25% find that they hinder user flow and movement.
- In 11<sup>th</sup> August Street Plaza no billboards are found.

Most people don not care about billboards; which may be referred to culture.

*Question 13: (Space definition)*

- In Sukaina, 54.8% answer that the free standing elements of (Wooden Balustrades) add an aesthetic value, 19.0% find that they hinder users flow and movement, 15.7% has be no influence and 11.3% find that they separate plaza zones negatively.
- In 11<sup>th</sup> August Street Plaza, 13.2% find the free standing (Granite Walls) hinder user flow and movement, 12.3% find that they hone no influence, and 64.2% name an aesthetic value, and 11.3% find, that they separate plaza zones negatively.

As a result, the free standing wall and balustrade elements were recognized mostly as having aesthetic value.

*Question 14: (Canopies and pergolas)*

- In Sukaina Plaza 53.1% answer that the wooden canopies provide shade, 30.6% have an aesthetic value, 16.3% find them of no influence.
- In August Street, 61.8% answer that the steel canopies provide shades, 29.1% find that they have aesthetic value and 9.1 % find that they having no influence.

As a result, both canopies mainly provide

shade, which is a major concern for visitors, besides their aesthetic quality.

*Question 15: (Leveling)*

- In Sukaina Plaza 71.7% answer that the one level design scheme (No Steps or Ramps) facilitate people's movement, 20.8% add boredom to users experience, 8.5% help in perceiving the whole plaza and the surrounding context without visual obstacles.
- In August Street plaza, 89.1% answer that ramps and stairs add excitement and variety to the walking experience, while 5.5% find them hinder people's flow and movement, and of no help in the visual continuity in perceiving the whole plaza.

In each Plaza people accept and appreciate the design in its current form.

*Question 16: (Trees and plants species)*

- In Sukaina Plaza 44.4% answer that plants and tree selection in the plaza is adequate according to their suitability to the environment, 39.9% answer good, 13.0% poor, and 3.7% excellent.
- In August Street, 50% found their selection good, 26.0% adequate, 16.6% excellent, and 7.4% poor.

People are please with plant and tree selection.

*10.4. General Impression about the plaza and users' behavior*

*Question 17: (Design efficiency)*

- In Sukaina Plaza 71.2% agree that user behavior patterns reflect peoples pleasance with the design activities, 23.1% disagree and 3.8% strongly disagree and 1.9% strongly agree.
- In August Street Plaza, 72.9% agree, 21.8% disagree, 3.6% strongly disagree, and 3.6% strongly agree.

As a result both plazas succeed in attracting people to participate and interact with the design and the available activities positively.

*Question 18: (Interaction and sociability)*

- In Sukaina Plaza 71.2% agree that there is full interaction between different social

groups (families and adults), 25.0% disagree and 3.8% strongly disagree.

- In August Street Plaza, 70.4% agree, 20.4% disagree, 5.6% strongly disagree, and 3.7% strongly agree.

*Question 19: (Safety)*

- In Sukaina Plaza 70.5% strongly disagree that children can move in the plaza without parental guidance, 18.5% disagree, 5.5% agree and 5.5% strongly agree.
- In August Plaza, 43.6% strongly disagree, 30.9% disagree, 23.6% agree, and 1.8% strongly agrees.

As a result both Plazas don't provide safe place for children, probably because of the surrounding streets.

*Question 20: (Cleanliness)*

- In Sukaina, 65.5% agree that the plaza is always clean and attracts people, 20.0% disagree, 9.1% strongly agree, and 5.5% strongly disagree.
- In August Street, 60.0% agree, 21.8% strongly agree, 10.9% disagree and 7.3% strongly disagree.
- Most respondents find both plazas clean and that what attracts people.

*Question 21: (General impression)*

- In Sukaina, 63.6% agree that the plaza satisfies people's requirements, 18.2% disagree, 12.7% strongly agree and 5.5% strongly disagree.
- In August Street, 78.1% agree, 9.1% disagree, 7.3% strongly agree, and 5.5% strongly disagree.

As a result both plazas succeeded in fulfilling people's needs.

## 11. Results and conclusions

In light of the conducted study and questionnaire analysis, we have come to certain conclusions about the patterns of users perception and interaction with the design of both plazas. The Al-Hussein area plaza, is more vernacular and reflects a simpler design approach, which the Shmeisani, area plaza, with more sophisticated design elements and a thematic approach of the "Culture Avenue" of Amman.

As both plazas differ mainly in their theme and construction, they represent a model case for the only professionally designed plazas in the city of Amman. Al-Hussein Sukaina plaza serves a different urban context than that of Shmeisani plaza. The budget set for the design and construction of Al-Hussein plaza was very much limited compared to that allocated for the design of the theme plaza of the "Culture Avenue" in Shmeisani.

We can understand that a different scope was imposed on each designer; one was forced to design a place for people, serving the community of a condensed urban shopping area, Al-Hussein, with many limitations imposed by the owner and the contractor at the same time (the Greater Amman Municipality). The low-budget allocated to the plaza design at Sukaina affected the strong statement the designer was trying to add to that rich context. The contrary happened at Shmeisani, where the designer was asked to sully snow his capabilities, because the plaza at that location was aimed at serving the local community alone, but to create a cultural symbol in the city of Amman which was chosen as "Arab Cultural Capital of 2002". The designer had a bigger budget, an international event theme, and more freedom to play with forms and materials. The result was elaborate with large steel canopies and exquisite finishing materials.

In both plazas, Greater Amman Municipality was present as the owner and the main sponsor. The two designs were granted to professional architects, and both were successful initiatives, despite minor forthcoming due to construction and policy matters.

Both plazas encompass a special contextual landscape theme, and a unique urban flavor. The design elements varied in both plazas, and people's attitudes were significantly marked by these variations. Pattern recognition is the ability of the user to read the landscape and understand its elements and forces. To react and behave accordingly, this many depends on the type of landscape elements available. In both plazas, the elements vary between hard and soft landscape elements, in addition to space definition elements and visual vertical elements.



### 11.1. Space definition elements

Partitions and space defining elements such as free standing walls and balustrades, which were used in both plazas, have an important function in defending the use of spaces and also have great visual impact they mainly act as points of reference and may serve as buffering elements.

### 11.2. Plant material

The use of plants is the most challenging, since they are constantly changing, plants have climatic, environmental, engineering, architectural and aesthetic use patterns. Trees and shrubs in their variety of forms provide color and texture in the landscape.

In both plazas the use of plants varied between the use of large planters in Shmeisani plaza with low shrubs and horizontally spread plants, while in Sukaina plaza small tree planters were used, with more vertically spreading tree species. This allowed more visual access clarity and more comprehension of site and context elements, which was the opposite case in Shmeisani which made its plaza more introverted.

### 11.3. Water elements

Water; the most flexible of natural elements, is like a magnet in the landscape, drawing people towards it. It provides a cooling and reflective effect. Essential to the balance of life in hot arid climates, it makes living bearable, and the difference in sounds it creates makes its use appealing.

In Sukaina Plaza people liked this major design element, since its allocation and size provided cooling climate effect besides its rich aesthetic value. The angular linear pattern allowed for the many events to be included around the water feature, like sitting, socializing, children playing and other walking activities. In 11<sup>th</sup> August Street, the water feature was a minor design element, allocated at one end of the plaza, which adds a mere aesthetic value to the plaza design, lacking the event or the social quality associated with the water feature at Sukaina plaza.

### 11.4. Design scheme, flow pattern and social interaction

“Circulation system is a vital linkage that relates activities and uses on the land”, the primary objective of the pedestrian circulation is safety, security, convenience, comfort and aesthetics.

The characteristics of pedestrian traffic can be best understood by comparing them with those of a stream or a river these tend to move towards the shortest distance point to point. Any obstacle produces turbulence, but sometimes this turbulence adds positive quality, where excitement, activity or high interests are desired.

- The design scheme for both plazas succeeded in achieving variety and excitement for the pedestrian activities. The introduction of a major water feature in Al-Hussein Sukaina plaza allowed the creation of spots for many events and activities.
- In Shmeisani plaza, however, the rectilinear form allowed for one way access and flow of movement, but variety was achieved with split level design in using ramps and stairs and the introduction of the sunken plaza element. Although both designs were linear in the outline shape due to their allocation as island plazas on busy streets, the design itself was angular in Al-Hussein and rectilinear in Shmeisani. This again affected the behavior and usage patterns in both cases; especially people's flow and movement patterns.
- The social blend of visitors' interaction varied in both plazas. Al-Hussein is a more vernacular neighborhood, this typified the social visiting groups as families of children, or shoppers in the area. Rarely were there single wonderers who visited the plaza to perform sports or to socialize, as found in Shmeisani. The Shmeisani neighborhood is regarded as a higher class neighborhood, women activities in site were apparent, most in the nearby residential neighborhoods and visited the Shmeisani plaza to do some walking or jogging activities alone.
- Age groups are characterized with older generation sitters in Shmeisani, the environment and the surrounding, besides the seclusion and introversion that the design shows attracts older generations of visitors. In Al-

Hussein area a more blend of age groups and variety of generations is present. The vividness of the surrounding and the multi-functional urban context attracts different tastes and different generations.

- Dissatisfaction with design arose from the lack of safe playing areas for children, since the surrounding streets are very critical and dangerous. Also, the lack of facilities contributed to the failure of diversity in social and recreational uses.

Therefore, after testing our hypotheses, and according to the data analysis results we found that:

- The original design idea or theme affected peoples' perception and behavior patterns in each case, the thematic cultural event that was intended in Shmeisani resulted in a bold design statement, which was suitable for creating a touristic icon and theme plaza, but failed in understanding the real needs of the people in that area. The usage pattern was fragmented and did not respond to the original idea of the designer, which was the creating of an event place all year long, with ongoing activities that may attract visitors on a daily basis. Unfortunately this wasn't the case, and the plaza facilities intended for such an event were abandoned except for periods when the Greater Amman Municipality decides to launch activities.

In Al-Hussein Sukaina Plaza, the case was different, the design theme was directed towards people's recreation in the first place, and although the budget was limited, the design succeeded in contributing to attracting lots of visitors on a constant basis. The choice of elements was close to peoples backgrounds and understanding of leisure place, so although it was a simple design, it was more in contact with the surroundings and mostly with the users themselves.

- *The Concepts used in integrating the design of the plaza with the context* were both successful in each plaza. Al-Hussein area is a more dynamic interactive part of the city, that that of Shmeisani plaza location. Both designers had to deal with two different urban contexts, and the approach they both used succeeded, so the designer approach to the surrounding context was of vital importance to the success of both designs.

In Sukaina Plaza for example, the context of Jebel Al-Hussein area is rich in its shopping and social activities, which is considered to be one of the busiest commercial centers of the city. The designer in search for a solution, decided to make the design add to this richness and not compete with it. The design at Sukaina plaza was there so simple and extroverted, the visual solutions and movement patterns help the overall context and not do competition with its dominant elements. In Shmeisani Plaza, the case was the opposite, the designer was faced with less dynamic and vivid surroundings so the choice of the design theme and elements was more sophisticated and dominant. This added some vibrancy to that urban area, where people desired more action in the quiet of their surrounding. Creating a strong urban and architectural statement there was a wise decision, because the area was characterized by low traffic, bank corporate buildings and small cafes and restaurants.

- *People perceive and react to the simple design more, that's what we found in our study.* Although they enjoy experimenting with the alien and sophisticated elements, on the long run, they tend towards the simple, easily comprehensible shapes. The visual comprehension and perception of the physical environment plays an important role in the degree of comfort the design casts upon the users. Sukaina Plaza was a simple design approach with site design and local and regional elements that the local users felt more comfortable dealing with, than the ramps, sunken plazas and cantilevered canopies of Shmeisani plaza, which further alienated the place.

In each design we see a different typology of form and element; all give each plaza its unique identity, and allow the Jordanian people to experience professional landscape solutions. Because Amman is in urgent need for such entertainment and leisure facilities, each initiative is welcomed, despite its shortfalls coming if any were found. The Greater Amman Municipality carries a large burden of trying to create more spaces for people in the city for entertainment and leisure activities, and for their cultural and social needs the fulfiller.

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Received December 6, 2004  
Accepted March 6, 2005