

Implications of Urban Environmental Issues on Individuals and Groups Functions: Case Study

Bassam Abu Awwad ^{1*} Malek Al Mumani ² Numan Abu Hammad ³

1. Faculty of Engineering Technology, Zarqa University, Zarqa, Jordan
2. Faculty of Engineering Technology, Zarqa University, Zarqa, Jordan
3. Faculty of Engineering Technology, Al-Balqa' Applied University, Amman, Jordan

Abstract

The physical environment of city life consists of variety of elements with functions and semantics, impacting the perceptions of individuals, groups, and their behavior. Increasing population, communication, transportation, diverse lifestyles and machine invention all reflect the secretion of new urban problems in terms of human and environmental dimensions. Problems consisting of random growth in population, space exploitation to the special interests of users and the lack of a comprehensive regulatory scheme for such areas. The current investigation discuss the intervention of official authorities in organizing the urbanization and the emergence differences and various related disciplines in Amman city. The urban fabric of the old downtown of Amman, Jordan, is randomly compact which leads to an overlapping of private and public movements, weakening the supposed relationship between the different activities and their spatial molds and this negatively affects the behavioral performance. Whereas, the city center, neighborhoods and other essential elements are not contributing to the local community in proper manner. The study examines the spatial fabric of Amman city in terms of behavioral fabric of the local community for instance, the social, religious, customs and traditions of the system. In order to overcome such issues, the architectural style reconfiguration, redistribution of services on decentralization bases, removal the slums, organizing the pedestrian and vehicle movements and the main movement paths and routs; probably will lead to drastic improvements and changes in the city lifestyle.

Keywords: physical environment, random growth, settlements, slums, Amman, Jordan

1. Introduction

The physical environment of city life consists of a variety of elements with functions and semantics, varying in their impact on the perceptions of individuals, groups, and their behavior. Where humans were able to consistently overtime and throughout generations, adapt and live with different environments through their own development and innovation in their habitat.

Both the human and environmental dimensions were essential and correlative in the urban fabric, but with the increasing population, communication, transportation, diverse lifestyles and machine invention were all reflected in the secretion of new urban problems. Problems consisting of random growth in population, space exploitation to the special interests of users and the lack of a comprehensive regulatory scheme for these areas as shown in figure (1). These problems called for the intervention of official authorities in organizing the urbanization and the emergence of different and various related disciplines. Therefore, policies and regulations caused the running of settlement planning operations to switch from users to official authorities, who also monitored the full physical process, such as the slums and camps in Amman city. This switch of power lessened the effect users had on the human and environmental dimensions, which overtime would have resulted in a faded human and environmental dimension of the settlements.

Architects and planners continually believe they can attain knowledge on human space developments, needs and desires based on theories and calculations they learn. However these often do not fully reflect the users' needs and feelings based on their urban experiences. This leads to the emergence of many social, security, economic problems as well as environmental safety. To result in a lack of efficiency in urban environment, in all the



settlements from cities and villages in Jordan, because it's the result of the same policies and regulations (Figure 1).

Figure 1. Eastern Amman

As an example, the urban fabric of the old downtown of Amman, Jordan, is randomly compact which leads to an overlapping of private and public movements, weakening the supposed relationship between the different activities and their spatial molds and this negatively affects the behavioral performance. Whereas, the city center, neighborhoods and other essential elements like residences, streets, mosques, parks, commercial markets and other services are not doing their natural and essential role to the local community. So, the spatial fabric of the city is not appropriate for the behavioral fabric of the local community in terms of social, religious, customs and traditions of the system, as well as the formal activities such as work and others (Figure 2).

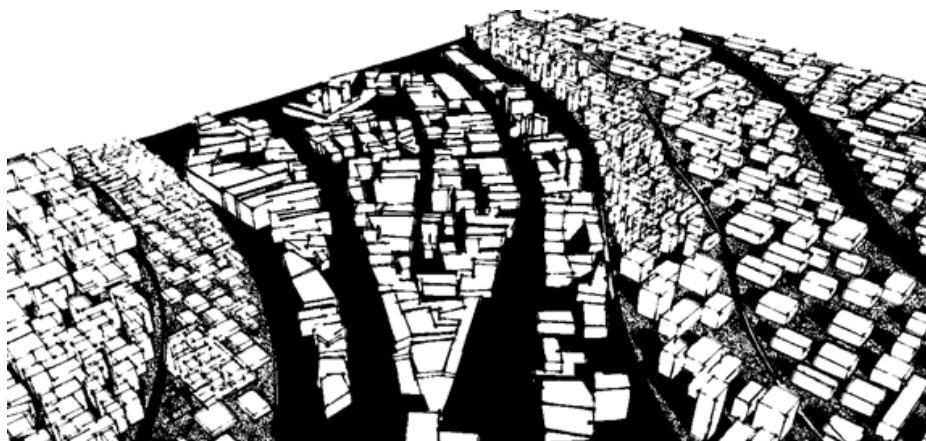


Figure 2. Public and private overlapping movements

2. Study Method

The study method consists of reviewing the sources of information, secondary references and field surveys to gather preliminary information about the population.

This includes the following:

1. Investigate the information and determine the scientific principles and their relation with the behavior of human nature.
2. Holistic collection of the information field by making schedules and questionnaires.
3. Analyze and integrate the outputs of the theoretical backgrounds and use them to get practical solutions.

This study is preliminary, so it will be exploratory and descriptive by focusing on field surveys reflecting the city of Amman, especially in the city center, like the residential planned neighborhood, commercial districts, recreational areas, as well as historical and religious buildings and their environmental impact on the human civilized activities. This includes concentrating on the relations between the development of the population and their social, cultural, and environmental urban activities for the city, which will be collected, analyzed to generalize the results through the theoretical semantic and the field, which is based on the perceptions and personal preferences of the group. The focus here will be on the priorities- the basic behavioral environmental human needs from different aspects such as safety, security and privacy to be followed by recreational and aesthetic desires.

It should be noted here that this issue needs subsequent and ongoing studies due to its complexity and importance, because the subject deals with the constantly changing behavioral problems.

3. The Expected Goals of the Study

The overall objective of this study is to analyze the current situation of the urban behavior fabric for the sake of a planning program that helps in raising the living standard of the population, especially the protection of the social, psychological, security entity to humans and strength it by:

1. Clarifying the role of the built environment, and its importance.
2. Adapting the applied aspects from human and environmental science and its impact on the behavioral aspects.
3. Highlighting the role of spatial planning in controlling and maintaining the security and safety elements.
4. Connect the spatial planning of the city with the ecosystem of individuals and groups.
5. The impact of user's participation in the planning stages.
6. Concentrating on the coverage of the priorities of basic human needs and the importance of the empty areas.
7. Informing the urban planners, designers, and decision makers on the importance of human dimensions.
8. Establishing an information database to record the urban fabric relationship with spatial and behavioral human needs.

4. The Spatial Behavioral Problems

Arab cities are characterized to have dispersed physical urban elements, the weakness of the relationship between all levels of urban elements, which are macro, medium and basic covering city centers, neighborhoods and streets, respectively, this is due to the lack of clear spatial semantics. This indicates the existence of an imbalance in the performance of different spatial systems for basic and luxury human needs as well as all economic, gender and age categories. We think that the problem basically lies in the absence of an appropriate image between space and functional performance to the residential urban spatial fabric. Which led to the collapse of the relationship between residence - space or behavioral with services, which this result was because there is a chain and volumes of obstacles between urban levels inside their different elements to create in their role barriers and a variety of risks in the behavioral and social fabric of the population and one of the most planning aspects negatively impact on the human life cycle in the city which are regulations and urban standards that are now applied. This produced the current built environment, where it determines the quality of various projects and their specifications like opening and closing of the neighborhoods and the relationship between land use and buildings like residences, circulation systems as well as the placement of services and their distances, proportions and their nature (Figure 3). Also, including urban system problems and their negative impact on security, safety, privacy, social links, and neighborhoods, getting natural light and air.



Figure 3. Determinants of expansion shows the proportion of built-up areas to the empty areas within the old neighborhoods in Amman

Types of urban regulations in all areas of the city of Amman is called the static type. Static type means limitations by either percentage or spatial area at the level of the city plays a role in generating general problems like random expansion and contradictions with the social fabric (Privacy), increase in traffic accidents, thefts, land waste and increase in energy and water consumption, failure to adapt with arid climate because the difficulty of maintenance and its cost. Moreover, decline in community participation rates in urban population environment activities weaken and eliminate on many customs and importance civilizational traditions. As the systems also created an uninteresting urban environment in terms of the urban and repetition of architectural elements and the limited variety which results in a negative impact on the users' feeling and thinking. It is not believed that all of these problems are stemming solely from the application of the current urban controls, however it does have a major role. The result of the role of the criteria in population behaviors, their activities and perceptions of the city have a negative impact reflected in all life fields. These problems as well lie in the lack of preparation of relevant controls to multiple human aspects with essential impact on the population's daily life, spatial division, human-like behavioral needs, priorities to the population and the facility's behavioral elements and flexibility in connecting these elements together.

5. The Principles by Theoretical Foundations

In the last thirty years many studies appeared to have proved that the built environment is having a strong influence on the human, his behavior, activities', physical and psychological health. This proved that the relationship between behavior and the built environment is not as easy as being the formulated of the spatial fabric alone, moreover, this relationship is a very complex one and sometimes mysterious because of its exposure to multiple influences, such as economic, social, customs, and traditional elements, the biological motivations for the human and its ecological cycle.

But it remains that the built environment plays a big role in being the coordinator between the different factors that affect human life, again by providing the required space to stimulate the existence of desirable behaviors and its growth or to reduce other negative behaviors (Figure 4).



Figure 4. The behaviors obstacles in some neighborhoods of Amman

6. Types of Behaviors:

6.1 Hidden Environmental Behavior

The hidden behaviors includes the role of the five senses in capturing the information from environmental stimuli and collecting and analyzing based on the pre-existing background information, which vary from one person to another and this determines the symbols and the meanings of the different environments which orients the spatial preferences.

6.1.1 The Environmental Sensory Behavior

The Researcher Kevin Lynch's studies have contributed by highlighting the formation of mental map composition of the city and use it in the urban environment planning stages.

The Mental map runs from the idea of man depending on his spatial experience which is formed and depends on the clarity level and the behavioral reaction inside the residential neighborhoods where the organic design is easier for human, which depends on the sensual and mental movement to the site where they lives.

So the importance of spatial elements' clarity of the city and its distinction to contribute facilitating the human lives movement and communication (Figure 5).

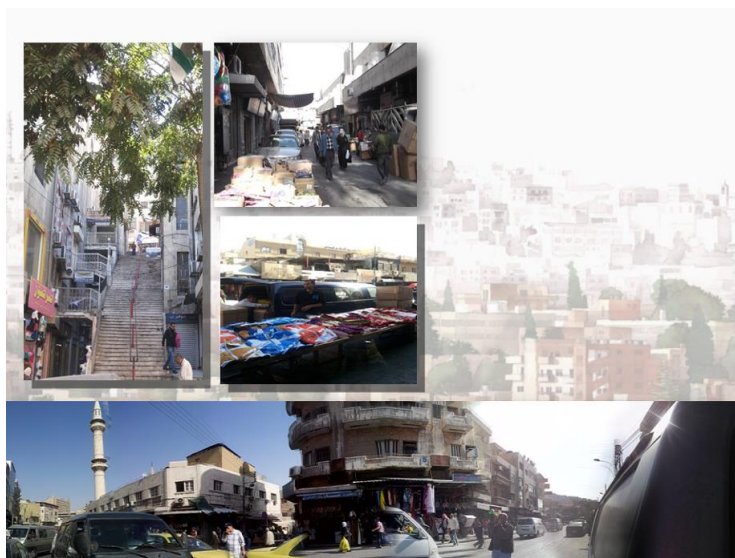


Figure 5. Movement channels in Amman city center

6.1.2 Spatial Simplicity and Complexity

The intent of simplicity, meaning it contains a simplified spatial composition which include a specified number of shapes, sizes, colors and details. While the opposite is the spatial diversity and it is the large number of those former strength and qualities, and its harmony and coherence between the different elements and its specificity. In the absence of these qualities in the spatial diversity the inconsistencies and extreme dissonance happened between its parts so the hassle makes this a kind of environment which is described as complicated (Figure 6).



Figure 6. Poor neighborhoods in Amman and its impact on spatial complexity

6.1.3 Preference and Performance Environmental

Based on the knowledge of users and their perceptions and their views, many studies confirm data design to be more responsive and appropriate in planning with those users.

6.2 The Apparent Spatial Behaviors

What intended is the obvious visible behaviors to human which is viewed and linked to the actions of human external behavior with his own built environment and his affiliations and which is useful to determine his direction and personal behaviors as in figures 7 and 8 which these behaviors are divided into the following:



Figure 7. Amman city center and Roman Theater appears with its impact on the appearance behavior



Figure 8. Al-Hussaini mosque in Amman city center appears with its impact on the appearance behavior in 1966

6.2.1 *The Personal Spatial*

It is one of the behavioral styles which control the communication style between people by being gradual and limited to the relationship of the human with family and society.

6.2.2 *The Spatial Systematics*

The spatial systematics is the capacity of the built environment in the formation of spatial gradation- behavioral aims to coordinate the population activities and identify it in certain ranges based on the nature of the urban planning and its impact on individuals' behavior and their relationship to the empty areas (Figure 9).

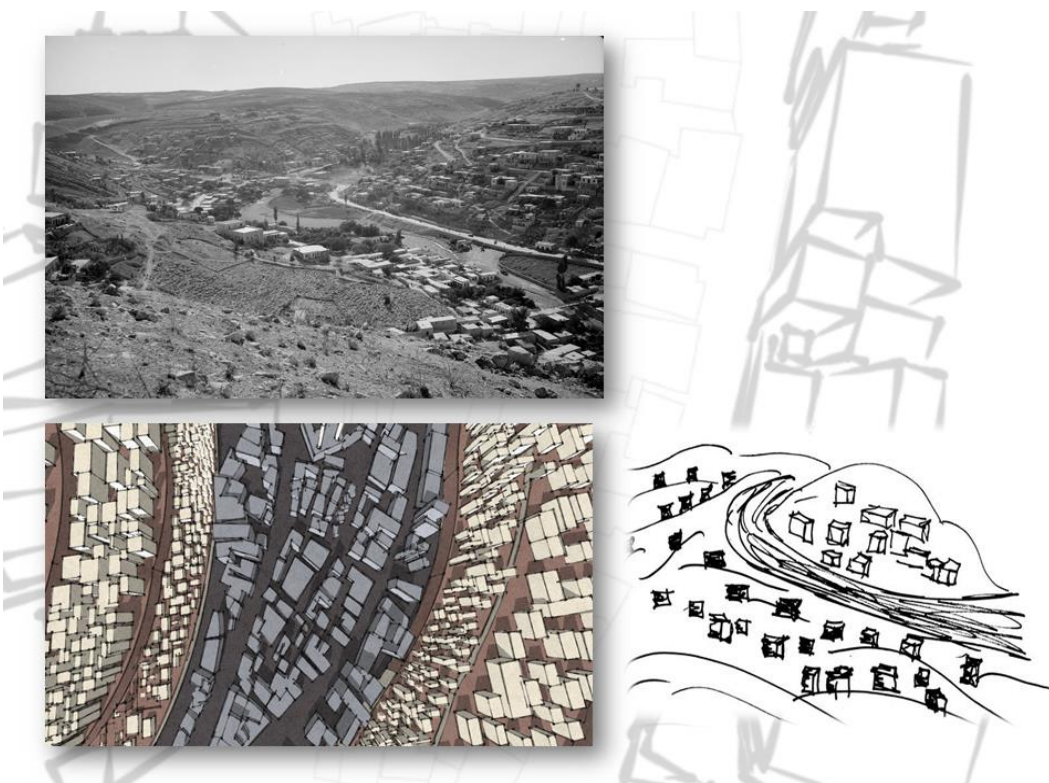


Figure 9. Urban nature (grid random)

6.3 The Spatial isolation and Collective Connection

As an extension to what we said in the systematic privacy, there were a high proportion of the passer-by's of the neighborhood from the outside, bring in a lack of distinctiveness to the population and therefore the reluctance of the population of the demands for its services, or the attempt to link new social relations. So it can be assumptive that the urban fabric of the city weakens the social fabric and contributes an increase of nervous tension between the population so as to build the fabric in a closed family fabric system which does not easily allow for the opening to strangers, which creates behavioral obstacles inside spatial and optical dispersion.

6.4 The Essential Environment and the Means Environment.

In the light of the principles, and its social fabric and authoritative needs there were a classification of the urban environments into two types: the essential and means environment. The essential environment which is the traditional organic settlements and some modern neighborhoods, and the means environment is open and normal grid municipal neighborhoods where there is a rapprochement between them and their inhabitants' behavior.

6.5 Land Use and Behavior

It is noted that the land use follow the semiserious style and its isolators, which requires the use of a vehicle to move between different and uses. The best and most recent direction is the combination between some of these uses in order to find the required vital to strengthen the social relations, technical aspects and increase the opportunity of walking services to schools, entertainment, sports and others.

7. Problems in the City Center of Amman.

Amman city center is suffering from several problems, because of the basic signs and symbols of the city, and are as well caused by careless policies to improve the city center. The enormous increase in population as well as the concentration of the main services in the center, which lead to many significant problems such as:

1. Parking and lineups of vehicles:
2. It has a strong impact on people overlapping movements with cars that have a negative impact on signs and symbols.

8. Advice and Recommendations.

To improve and develop the optical and aesthetic aspects in the city center of Amman through:

1. Organizing and displaying the advertising boards within a set of specific harmonic colors consistent with the architectural style, in order to be a behavioral path to the semantics and a means of environment.
2. Distribution services based on decentralization to reduce the pressure on the city center and to gain its positive effect on the safety aspect for traders, and the behavioral comfort for individuals.
3. Remove the slums which are a source of visual distortion such as the vegetable markets in front of commercial complexes and replace them with aesthetic wooded areas which includes resting areas in the city center. Having this as a source of attraction for visitors to the city center, all the while reducing air pollution through the trees, and forming an urban space which contributes to minimizing the impact of the magnitude of the mall.
4. Organizing pedestrian and vehicle movements in a proper way to achieve a harmony and streamline to transportation movement in parallel and non-movements overlapping, which is an important impacting factor in determining the individuals' semantics work on reducing the traffic and air pollution
5. Individuals role by saving the optical and aesthetic elements by correcting it to the right way of using to it, rules commitment and working on respect the work and apply it in a full form.
6. Organizing the main movement channels which are realized throughout the city and it is different from one place to another, like the career that lead.

References

- Shirvani, Hamid, "The Urban Design Process". New York: Van Nostrand Reinhold, pp. 192, 1985.
Cliff, Moughtin, "Urban Design: Street and Square". Oxford: Architectural Press, pp. 256, 2003.

Cliff, Moughtin & Peter, Shirley, "Urban Design: The Green Dimensions". Oxford: Architectural Press, pp. 266, 2005.

Roger, Trancik, "Finding lost Space". New York, pp. 2461986.

Kevin, lynch, "Image of the City". Massachusetts, pp. 194, 1960.

Ali, Al Haidari, "Urban Design Structure and Field Studies". Cairo: Madbouly library, pp. 246 2004.

Steen, E. Rasmussen, "Experiencing Architecture". U.S.A: The MIT Press, pp. 245, 1985.

Giacomo, Rizzi, "Immagini Di Architettura". Pavia, 1990.

Aldo, Rossi, "L 'Architettura Della Città". Milano, 1984.

Yosef, Ghawanmeh, "Amman: Capital of the Hashemite Kingdom of Jordan". Amman: Dar Alfeker for Publishing and Distribution, 2002.

Stephen, Marshall,"Urban Pattern Specification". London: Institute of Community Studies, 2005.