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Public Parks Going Private: A Ground Fact Or Just A State Of Mind

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ABSTRACT

Privatization of public parks refers to the claim of ownership of public parks by a specific socio-economic class with certain types of commercial, social and/or sports activities. The situation triggers an unofficial hidden process of transformation of public parks into private parks. The transformation process starts when other socio-economic classes have a no-go-space state of mind where performed activities do not match and/or invite them to participate. In other words, it results in a ground shift in the planned socio-cultural ecosystem.

The Paper presents a literature review on the principles underpinning the functioning of public parks as public spaces with specific reference to the socio-economic aspect. It aims to highlight the reasons behind the privatization of public parks by specific socio-economic causing class exclusion and affecting parks' spatial settings. Hence, it also aims to help localities understand the development process of public parks in order to maintain a balanced socio-cultural Ecosystem.

The paper uses the case of The International Park in Nasr City, Cairo, Egypt (i.e. *Alhadeka Aldawlia*) to analyze the gap between the existing and planned socio-cultural ecosystems and their impact on users and surrounding socio-economic classes' perceptions.

Keywords: Privatization, Public space, Public Parks, Socio-Cultural Ecosystem

الملخص

تحدث خصخصة الحدائق العامة عند استحواذ احدى الطبقات الاجتماعية والاقتصادية على ملكية الحديقة العامة من خلال بعض الانشطة التجارية والرياضية والاجتماعية. يؤدى استحواذ الملكية وما يصاحبه من تلك الانشطة الى بداية عملية خصخصة مستترة وغير رسمية يتم من خلالها تحول الحدائق العامة الى حدائق خاصة. تبدأ اولى مراحل التحول عندما تشعر باقي الطبقات الاجتماعية والاقتصادية بحالة ذهنية بعدم الترحيب بهم في الحديقة. بمعنى ادق، يبدا هذا التحول عند حدوث تغير مفاجئ وجذري في النظام الثقافي والاجتماعي لبيئة الحديقة العامة.

تقوم الورقة البحثية بعرض المدخل النظري للأساسيات والمبادئ التي يقوم عليها النظام الثقافي والاجتماعي للفراغات العامة والحدائق العامة كجزء منها. تهدف هذه الورقة البحثية لإلقاء الضوء على الاسباب الرئيسية للخصخصة الغير رسمية للحدائق العامة لإحدى الطبقات الاجتماعية والاقتصادية دون غيرها وما له من تأثير سلبي على التماسك المجتمعي. كما تهدف الورقة البحثية في الاساس لمساعدة السلطات المحلية ومتخذي القرار لفهم وبناء نظام ثقافي مجتمعي متزن لتنمية الحدائق العامة.

تستخدم الورقة البحثية الحديقة الدولية بمدينة نصر، القاهرة، جمهورية مصر العربية كحالة دراسية لتحليل الفجوة بين النظام الثقافي الاجتماعي المخطط والواقع الفعلي وتأثرها على منظور ورؤية المستخدمين والطبقات الاجتماعية والاقتصادية المحيطة بالحديقة.

1. INTRODUCTION

Since the beginning of the 21st century, public spaces, including public parks, have been faced with new kind of threats that do not only involve the misuse of space. It rather includes its management and users behavior where certain socio-economic groups and classes have been excluded from using public spaces reducing social and cultural diversity. A discussion on public spaces raises few questions: how can we define public space? Who is it for? and how does ownership affect public space?. In reality, public space is the meeting ground of interests of diverse social groups. In order to understand how public space works, develops, used and valued, needs and agendas of different stakeholders must be identified.

The literature has covered the effect of privatizing public spaces through gated communities, shopping malls, and private clubs. It also highlights the related social exclusion of socio-economic classes. Nevertheless, there has been a gap in the literature of what actually happens when it comes to public parks. What actually happens when a certain socio-economic class claims ownership of a public park?

2. HOW PUBLIC IS A PUBLIC SPACE

Public spaces could be categorized into various forms such as streets, street markets, shopping precincts, community centers, parks, gardens, playgrounds, and neighborhood spaces in residential areas. (Worpole and Knox 2007; Abou El-Ela *et al* 2010). Williams and Green (2001) point out that there is a lack of clear definition of public space. The nature of public space varies greatly between public spaces that are publicly maintained; public spaces that are privately managed; public spaces that are privately used; and private spaces that are privately managed yet considered by others as public space (El-Sadek, 2011). Yet, the ownership of a certain public space and its appearance do not define the public space but rather its shared diverse range of activities by different people (Worpole and Knox 2007).

Ownership is a direct form of spatial control, which could be real or symbolic. Real ownership is the legal ownership either by the government, private sector or community that are in charge of the space management (Altman and Zube 1989; Abou El-Ela *et al* 2010). Yet, Symbolic Ownership has a psychological dimension that controls the way users belongs to a public space. Ownership, real or symbolic, has both positive and negative consequences. It might lead to exclusion of groups, social classes and/or individuals who would like to use a space. They could be physically denied access to space and/or mentally feel no longer welcomed to use the space. On the contrary, ownership could also serve to invite groups, social classes and/or individuals into space via communicating a sense of caring and responsibility (Altman and Zube l989; Jorgensen and Stedman 2006; Abou El-Ela *et al* 2010).

Public spaces play a vital role in the social life of communities. They act as a 'self-organizing public service', a shared resource in which experiences and value are created and shared. Yet, such social advantages may not be obvious to outsiders or public policy-makers. The social value of Public space lies in its relevance to the local context and in people's memory of places (Whyte 2001). Successful public spaces can provide opportunities for social interaction, social mixing, and inclusion, and facilitate community ties.

The success of a certain public space doesn't always lie in the hands of the architect, urban designer, or planner, but also relies on the people using and managing the space. They set, maintain and/or change its value to the community while integrating it into their lives. People make spaces more than spaces make people. Consequently, public space is a co-product of spatial and physical settings activated by dynamic and changing social patterns according to certain activities, cultures, and timetables. This explains why particular places are associated with particular social class, specific class culture and/or social and economic activities with both negative and positive results (Bowers and Manzi 2006; Worpole and Knox 2007).

3. PRIVATIZATION OF PUBLIC SPACES

Public spaces are becoming increasingly privatized by owners and managers as a result of decreased state intervention and active auditing. They are assigned to certain social and economic activities which encourage specific socio-economic groups and social classes to claim ownership of space (More 2005). The result is a large number of public spaces which excludes certain socio-economic groups instead of being everybody's, "my public space is no longer your public space". (Kuppinger 2004). A concern with security has widely been raised and expressed in a fenced off security public space. Although many have based their concern on fear of crime, this anti-urban reaction is often translated into the fear of "others" (Bowers and Manzi 2006). This usually happens when different social groups self- segregated themselves according to interest, activities, or even social class in their "own public space' where no longer the word "public" can be applied. (Gehl 2012).

There is a common agreement in the literature that criticizes the idea of privatizing public spaces through gated communities, exclusive clubs, and/or fortified public spaces. It stresses that they create "a sense of fear" rather than reducing any actual threat, which results in a lack of social cohesion. (Bowers and Manzi 2006; El-Sadek 2011). Moreover, public spaces have been facing not only threat that is related to misuse and behavior of users, but also that of design and management resulting in social exclusion and reducing social and cultural diversity within public spaces. In some cases, the exclusion is deliberately done by privatization, commercialization, and historic preservation resulting in specific socio-economic groups to feel welcomed (Ploeg 2006; Vaswar 2009; Low 2000; Low *et al* 2005).

Mean and Tims (2005) stress that not everybody is equal in public spaces. Some people are not always welcomed in public spaces, some groups cannot afford to enter exclusive clubs and shopping malls, and some groups can be privileged over others. For example, the commercial function of many fortified public spaces- shopping malls- often favor those with spending power, with the result that some people are excluded. The target groups are usually classes with high spending power thus excluding people who are deemed lower-value users. (Mean and Tims 2005; Ploeg 2006). Local parks are no difference. It may often be used by lower income class families, school students and couples for hanging out. In the absence of other facilities or spaces for these groups, this might be regarded as legitimate, as long as no harm is caused to others, yet their behavior sometimes could be seen as a draw off for other groups. (Worpole and Knox 2007; Vaswar 2009).

Low *et al* (2005) points out that the numbers of public spaces are decreasing worldwide as more are being privatized, gated or fenced, closed for renovation or redesigned to restrict certain activities and exclude some societal groups. Excessive privatization of the city decreases the public spending on a city scale since more investments go into the "privatized public space" in terms of malls, private clubs, and public spaces within gated communities and so on. In the developing countries elite and middle classes are disappearing from the publicly owned and managed space, hence less care for enhancement -financially and intellectually- is given to public spaces management on the national scale from planning and development officials. Consequently, they become deteriorated which reflects upon the community as a whole (Williams and Green 2001; Mean and Tims 2005; El-Sadek 2011).

4. SOCIAL SUSTAINABILITY AND CULTURAL ECOSYSTEM

Throsby (2001) refers to social sustainability as evolutionary or lasting qualities that maintain a "Cultural Ecosystem" that supports and maintains a specific cultural life, socio-economic activities, and human civilization. He also defines sustainable development as the preservation and enhancement of the environment through the maintenance of natural ecosystems, while culturally sustainable development refers to the preservation of arts and society's attitudes, practices, and beliefs. This is also reflected in the words of Low *et al* (2005) as follows:

> "Social sustainability is a subset of cultural sustainability; it includes the maintenance and preservation of social relations and meanings that reinforce cultural systems. Social sustainability specifically refers to maintaining and enhancing the diverse histories, values, and relationships of contemporary populations. "
> (*ibid*: 31)

She also stresses that in order to truly understand social sustainability three main concepts must be critically recognized: place preservation, cultural and social ecology, and social and cultural diversity. Cultural ecosystems are located in time and space. Hence, for a cultural ecosystem to be maintained or conserved, its place(s) must be preserved (Low *et al* 2005; Low 2002; Low 2004; Fleury-Bahi *et al* 2016). In other words, in order to conserve a culture ecosystem place preservation is required. It is crucial for culture ecosystem preservation to critically maintain activities and physical settings and even patterns of use of public space.

Anthropologists employ a variety of theories of how cultural ecosystems work in particular places over time. Gehl (2012) and More (2005) point out that pioneers as Bennett (1968) modeled the ecological dynamics of natural systems to understand socio-political changes in the cultural ecosystems of farmers. Cohen (1968) developed a cultural evolutionary scheme to predict settlement patterns and socio-cultural development in the developing regions. Although theories, approaches, and frameworks to understand cultural and social ecology have been subjected to extensive critiques, there is a common agreement between theorists and academic that dynamic and predictive aspects of cultural ecosystem models are useful when examining social change on a particular site (Srivastava 2005; Mean and Tims 2005).

Cultural ecology is a finely balanced system, and any intervention without studying users, patterns and physical setting of space, it may not be able to maintain itself and eventually collapses. The case of historic Parque Central in San José, Costa Rica shows that an intervention

took place overlooking the social and cultural balance of the setting and activities and even users. Part of the users was intended to be excluded from the newly developed park, after the redesign the park failed to maintain a well-balanced community where it became abandoned by the previous users and faced major security and safety issues (Low 2000; Worpole and Knox 2007).

Cultural diversity became a "politically correct" catchphrase during the 1980s, but it has not been addressed in urban planning and design practice or in terms of sustainable development till late 1990s (Mean and Tims 2005). While sustainable development includes "maintaining cultural diversity" as a conceptual goal, there is little agreement on what it means. Nevertheless, cultural diversity provides a way to evaluate cultural and social sustainability and is one observable outcome of the continuity of human groups in culturally significant places (Low *et al* 2005).

> "Social sustainability is the successful maintenance of existing cultural ecosystems and cultural diversity. It is safeguarded when the systems of social relations and meanings are inclusive, rather than exclusive. In this sense, social sustainability is fostered by understanding the intimate relationship between history, values, cultural representation, and patterns of use in any culturally diverse context. In fact, the inclusion of local people, their histories, and their values ultimately strengthens any park's long-term social sustainability." (*ibid*: 64)

5. ANALYTICAL INDICATORS

Many scholars and academics such as Whyte (2001), Low *et al* (2005), Battesti (2006), Worpole and Knox (2007), Attia (2011), El-Sadek (2011) and Fleury-Bahi *et al* (2016) conclude main indicators to promote and maintain culture diversity and social interaction and consequently a balanced cultural ecosystem within public parks, each is derived from one or more of park ethnographies studies.

Figure (1) Balanced Cultural Ecosystem Indicators
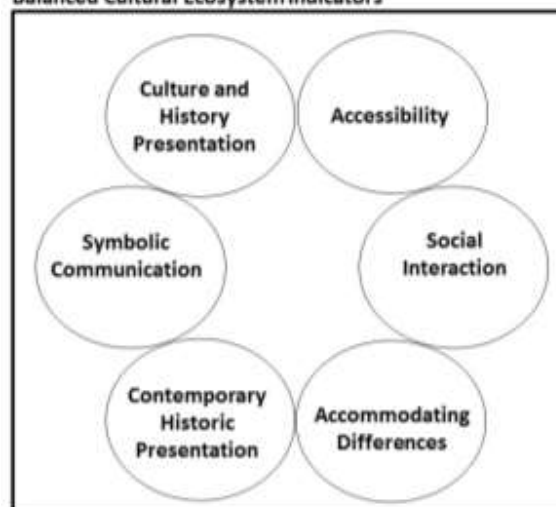
Source: Adapted by the Researcher from various References

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Nevertheless, they all stress the rule that such indicators may not be applicable in all situations, however, are meant to provide an evaluation framework for culturally sensitive decision making in park planning, management, and design. They can be summarized in the following six statements as shown in figure (1): (1) If people culture are not represented in historical national parks and monuments or, more importantly, if their histories are erased, they will not use the park. (2) Access is as much about economics and cultural patterns of park use as circulation and transportation; thus, income and visiting patterns must be taken into consideration when providing access for all social groups. (3) The social interaction of diverse groups can be maintained and enhanced by providing safe, territories for everyone within the larger space of the overall site. (4) Accommodating the differences in the ways social class and different groups' use and value public sites is essential to making decisions that sustain cultural and social diversity. (5) Contemporary historic preservation should not concentrate on restoring the scenic features without also restoring the facilities and diversions that attract people to a park. (6) Symbolic ways of communicating cultural meanings are important dimensions of place attachment that can be used to promote cultural diversity.

Such indicators will be tested in the context of the International Park of Nasr City, Cairo, Egypt in order to document the perception of surrounding community compared to the actual settings of the park.

6. RESEARCH METHODOLOGY

As a first step in the exploration, analysis and documentation of the current context of The International Park, Nasr city, Cairo, Egypt, the author divided the study population into six distinct groups: Government officials (i.e. Ministry of Culture, Ministry of Tourism, Cairo Governorate, and local government), surrounding residents, security and management officials, owners and workers of economic activities, users of various ages and gender; academic and professionals. The fieldwork was carried during a period of 2 months. Semi-structured interviews were used to collect primary qualitative data to a sample selected through different sampling techniques (see Table 1).

Table (1) Study population, methods and sampling techniques

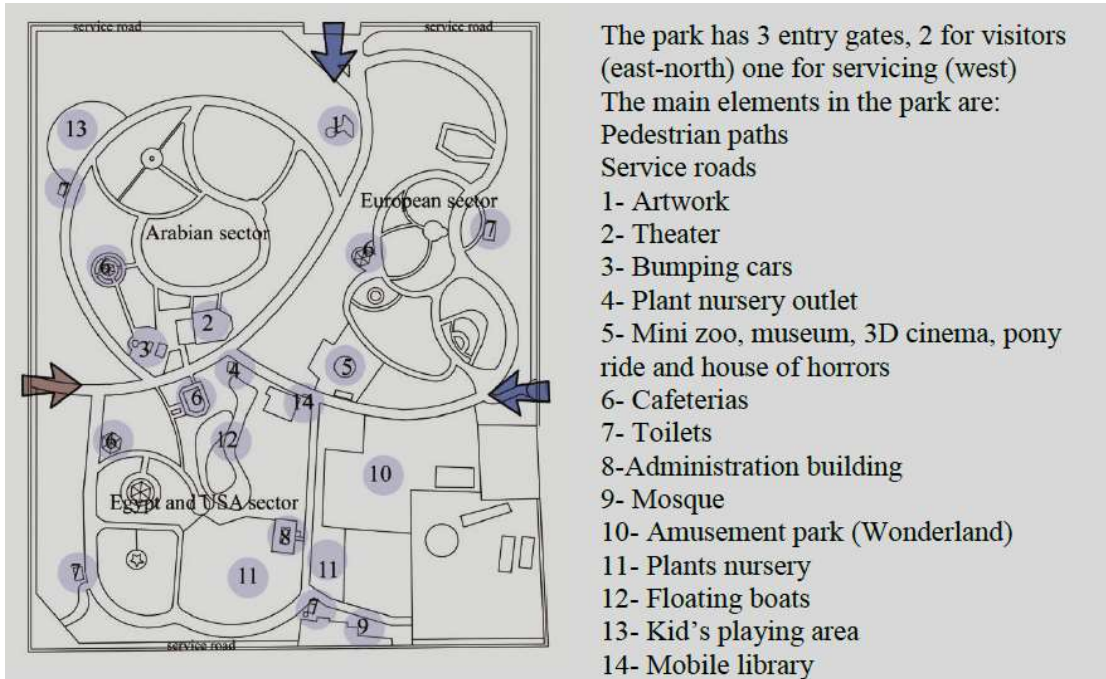| Study Population		Methods	Sampling technique	No. of Interviewees
Government Officials	Ministry of Culture Ministry of Tourism Cairo Governorate Local Public Council	Semi-structured interviews	Purposeful then snow-balling	6
Residents	Surrounding residents of the Park	Semi-structured interviews Direct observation Group discussions	Purposeful Stratified random sampling then snow-balling	14
Workers and owners of economic activities	Restaurants, Cafés, Cafeterias, vendors	Semi-structured interviews Direct observation Group discussions	Stratified random sampling then snow-balling	7

Security and Management Officials	On site	Semi-structured interviews	Purposeful then snowballing	4
Academics and Practitioners	Academics and practitioners	Semi-structured interviews	Purposeful then snowballing	5
Users	Males (various age groups) Females (various age groups)	Semi-structured interviews Direct observation Group discussion	Stratified random sampling then snowballing	17

Semi-structured interviews were judged more appropriate than structured interviews due to security and other resource limitations (i.e. time, funding, safety and security context), as well as the type of data required. Criteria based analysis is then developed through the six indicators, previously stated in section 4, for a Socio- cultural Ecosystem in case study. Briefly, a total of 53 interviewees of all groups were interviewed. This was in addition to direct observation and group discussions over a total period of 2 months (January - February 2016). The researchers have also made use of several secondary data sources, mainly documentation and archival records, while seeking to triangulate data to confirm the validity and reliability of both primary and secondary data collected. On multiple site visits with different groups of middle class students age 18-25 to International Park, we were asked by security guards on entrance about reasons to enter the parks, and cameras were allowed for a fee of 5 LE/Camera. Guards refused to answer any questions regarding activities done in the park, or anything involving the park's current state. They claim they are not allowed to answer any questions.

## 7. THE INTERNATIONAL PARK, NASR CITY, CAIRO, EGYPT
The International Park is considered by local authorities, users and surrounding residents as the largest public park that inhibits almost all public events, culture and sports activities in Nasr City. The park is located in the eastern part of Nasr City, the 7th District, to the east of Cairo as shown in figure (1). The district population has been estimated nearly 550,000 in 2010 within an area of 227.35 km2. The residents of Nasr City district are mostly upper middle and high income citizens. The park was opened to public in 1987 as a theme park that hosts 16 pavilions representing 16 countries all over the world. Each pavilion presents the most famous features of its country. The construction of each pavilion was financed by its representing embassy in Egypt.

Figure (2): Distribution of activities and uses in the International Park of Nasr City

The park has 3 entry gates, 2 for visitors (east-north) one for servicing (west)
The main elements in the park are:
Pedestrian paths
Service roads
1- Artwork
2- Theater
3- Bumping cars
4- Plant nursery outlet
5- Mini zoo, museum, 3D cinema, pony ride and house of horrors
6- Cafeterias
7- Toilets
8- Administration building
9- Mosque
10- Amusement park (Wonderland)
11- Plants nursery
12- Floating boats
13- Kid's playing area
14- Mobile library

Source: (Abd Al Aziz 2012)

Figure (1): Location of the International Park of the 7th District in Nasr City, Cairo
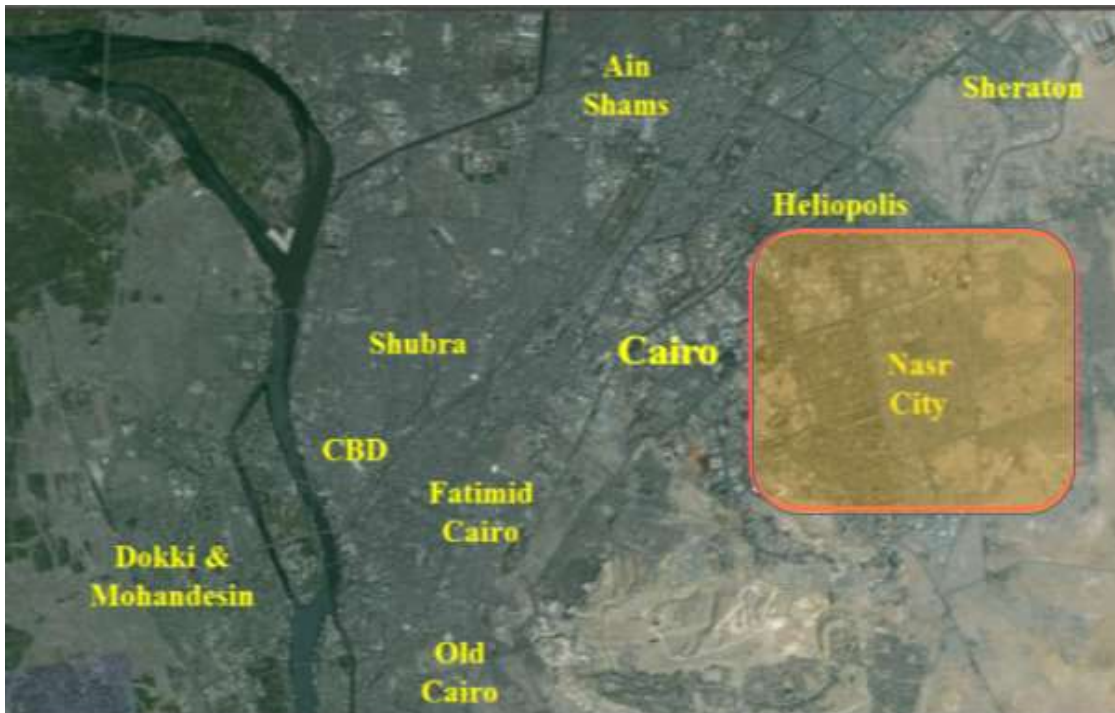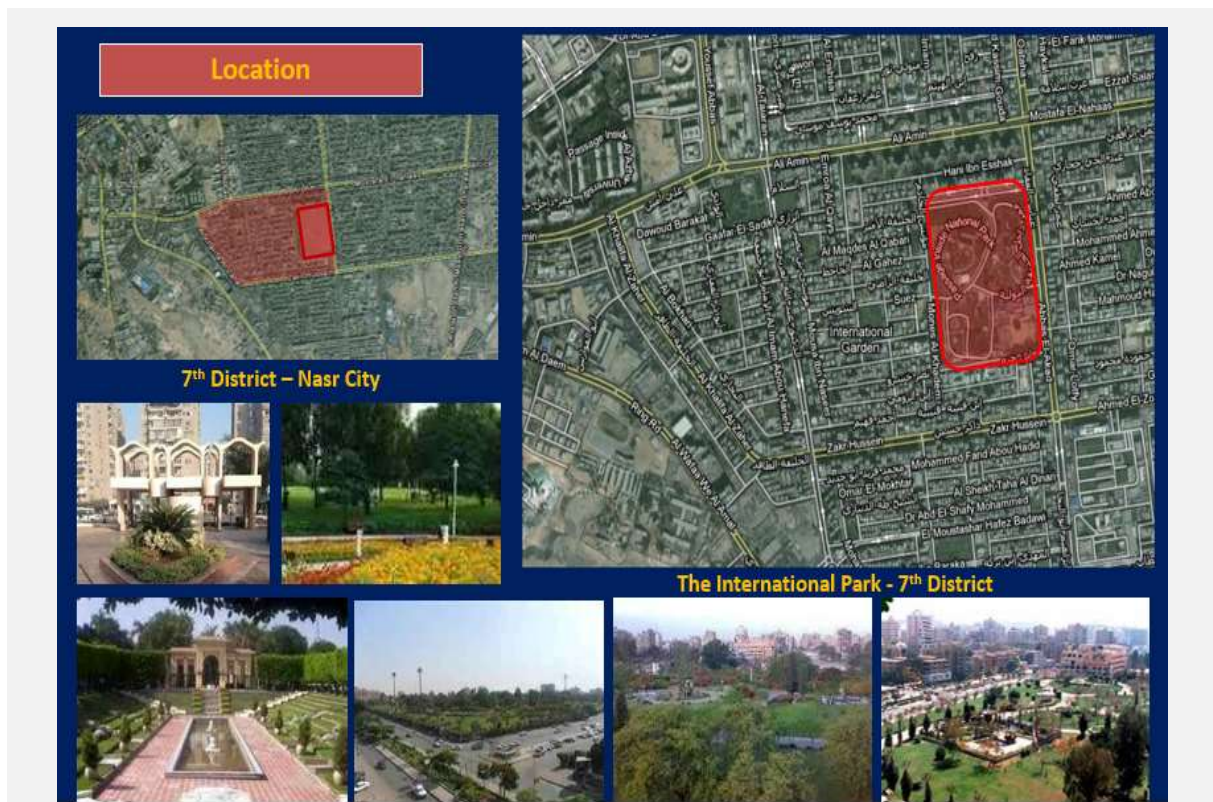
Source: adapted by researcher

The park area, 231000 m2, is divided into three main sectors, each was provided with service zone that includes toilets and cafeteria. The first sector, the Arabian Sector, includes the pavilions of Saudi Arabia – Kuwait – UAE – Morocco – friendship garden. The Second Sector, the European Sector, includes pavilions of France – Greece – Argentina – China – Korea – Japan – Romania – Holland – Germany). The third sector includes the pavilions of Egypt and USA as shown in figure (2).

7.1 Culture and History Presentation

Given the fact that the park was planned to express the history and culture of the world and to be an international open museum, the Egyptian culture and history are expressed in a very shallow manner. The Egyptian section, like all other section, is limited in size and activities (i.e. social and economic). The park is recognized by users as an open green area rather than providing a remarkable deep Egyptian theme even within the Egyptian section as expressed by one of the interviewees as follows:

> "People come to the park mainly to play sports and enjoy the green areas especially during the weekends and public holidays (…) it is just like any open area but larger in size and much greener. Sometimes there are music concerts and open theatre shows but not that continuous and systematic like a yearly plan (...) there is nothing Egyptian about the park it is just a large green area"

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It is also has been evident that the park is providing a safe haven for young lovers and drug addicts. 'What is the reason for your visit?' is the usual and repeated question asked by security guards to the park visitors before entering the park. On one specific incident guards even prohibited the entrance of some large family groups claiming that the park is for couples only. This perception of guards shows more evidence on how the public park is being looked at. This also has been evident in the words of some surrounding residents overlooking the park as follows:

> "The security guards already know the park users, they call each other by their names, the users are mostly low- income families, preparatory and secondary governmental school students, and young and middle-age lovers (...) They enter the garden as groups of boys and/or girls. We can see all "bad" activities from the balcony. You feel this is not our culture – this is not our religion teachings – this is not the ethics we have been raised upon (…) it is a petty this all happens in the middle of a very busy neighborhood"

7.2 Accessibility

Studying the visiting and socio-economic patterns to evaluate accessibility to the park by different socio-economic classes is crucial. The park includes three cafeterias, only one of them is working well however it provide only drinks. The other two are working on an on-and-off basis. Also the ceremony hall, and the open theatre are usually abundant most of times unless there is a concert and/or a show. The park entrance fee on usual days is 10 L.E/person. and 40 L.E./person on special events. Given such very low fees, more and more low-income families and individuals are visiting the park. During Feasts and public holidays, low income families and young couples go the park where it holds events, shows and activities in its theatre also directed to those societal groups.

More and more the park lost its glory where official funding is less and less cut down and the park management is pushed to find other sources of funding. This is evident in the words of the park management personnel as follows:

> "in the past, there was an agency within each governorate responsible for its parks and gardens' renovation and maintenance (...) four years ago new regulations regarding public parks management have been put to action, where every park has to promote sources of income for itself. Every park became responsible for its own renovation, maintenance, and services (...) This results in imposing some fees for the use of cameras and some park services (…) even though we are always short of funding hence we usually go for mass audience events"

Consequently, the park has lost its "public" goals due to lack of maintenance where it became not attractive to middle and high-income families. People used to jog and/or spend their time in the park; and middle and high income class private schools who used to organize trips to the park, do not go anymore. The park with all its social and economic activity patterns only attracts low-income class families, couples and individuals. This is also evident in the words of surrounding residents' interviewees as follows:

"I used to watch people jog in the park every day until it gradually stopped (…) I used to go to the park on school trips as a kid, but now I never go there. It is not safe to go anymore and it does not include any interesting activities anyway"

7.3 Social Interaction

As discussed above, The Garden lost its sense of place, its goals and activities. It has been substituted by different types of activities and certain users' behavior patterns. This has been imposed by mainly lack of funding and lack of vision for the public park's mission and goals. The park definitely became a no-go zone for certain socio-economic classes where safety became a major issue for them. This also has been echoed in the words of surrounding residents and park management and also park users respectively as follows:

"it is not safe without a doubt for us. I cannot let go my daughter go there (…) sexual harassment is a systematic activity and the guards usually turn blind eyes if they are evident in any incident (…) we sometimes see live porn in the park so how would you expect us to even think go there (…) for us the park is just a nice view for our flats that ensures very good market value"

"we sometimes are forced to turn away some visitors because of certain groups in the parks for safety reasons (…) we lack enforcement and the police is not that cooperative and responsive as we all know (…) there are many incidents where we caught couples having sex and yet they come to the park the next day"

"man they are not like us to enjoy the park. They are just snobs who do not have any sense of humor (…) we do not want to make fun of them but sure they deserve it. They walk as if the park belongs to them (…) they are just show offs"

The above words indicate some serious psychological barriers more than physical driven by such lack of safety and security within the park boundaries. It is evident that no sense of social interaction exists and yet the park territory is not for everyone to enjoy

7.4 Accommodating Differences

The Park started to deteriorate and alternative private spaces greatly appeared over the time (i.e. gyms, cinemas, shopping malls, private clubs, etc...). Middle and high income socio-economic classes stopped going to the park causing imbalance within the park's cultural ecosystem. There is more and more evidence confirming that the park's intended users have changed and became exclusive to certain socio-economic groups of low-income class, the space has lost its social diversity. This defect in the aims of any public park has been seen very normal and not problematic by government officials as follows:

"Middle and high income socio-economic classes have their own private clubs and gated communities facilities to enjoy. It is a "public" park where the "public" (i.e. low-income class) can enjoy a place they do not see and/or enjoy in their residential areas (…) even if we tried our best to sustain activities for such classes they will not participate we know it for sure (…) we are struggling to financially sustain all public

parks and only the "public" class will do this for us via mass participating events and paid activities"

Such repeated statements show some hard evidence of actual privatization of the park. The word "public" does not mean public anymore. A physical and psychological separation between socio-economic classes has been consciously officially adopted and consequently the cultural and social ecosystem has been disturbed to the core.

7.5 Contemporary Historic Presentation

As the contemporary historic preservation should not only concentrate on restoring the scenic features but also restoring the facilities and diversions that attract people to a park, the lack of funding eradicates both dramatically. Actually, it is not only the lack of funding bust also the lack of vision and mission of the park towards the community. From direct observation, a small number of gardeners have been spotted and facilities are not as efficient and well maintained as they should be. An explanation of the park's current status has been evident in the words of practitioners and academics as follows:

> "They (i.e. government officials and parks management) are focusing on the very wrong socio-economic class and its attached activities and patterns. They should not be the only class to focus on as they have less money to pay for the use of the park. They need to attract the middle and high income classes to use the park (…) they lack resources and they lack vision hence the mess of our public parks in general (…) it is just like running in circles: no money and no vision – more mass audience events with little fees – more physical deterioration – more need for money – more of such events and more consequent deterioration – pushing away middle and high income socio-economic classes"

There is enough fieldwork evidence to confirm growing class segregation and less class diversity and community interaction. It is evident that parallel communities and socio-economic classes co-exist in the very spaces and time.

7.6 Symbolic Communication

From the evidence collected during the various fieldtrips and consequent interviews and direct observation, it has been noticed that the park does not promote culture communication and diversity and yet does not provide a unified cultural meaning to the research study population. Government officials perceive the park as both a financial burden as well as a must provide service for the low income class. Surrounding residents can see the financial gains out of the market value of their residential units overlooking the park. Current users and visitors deal with the park as a very large green space they lack in their neighborhoods to enjoy specific social activities. Finally, academic and practitioners perceive not only the concerned park but also all large public parks as ticking social bombs that promote class segregation and destroys community spirit and culture ecosystem.

8. CONCLUSION

The literature review, the various case study review within literature and this research case study analysis provide a different perception on the reasons for public parks' deterioration. Analyzing and documenting socio-economic and cultural dimensions underpinning established ecosystem draw decision-makers attention to the root cause of public parks' deterioration via conscious public parks privatization. Privatization of public parks is not only a process that causes the unconscious exclusion of certain socio-economic classes from using public parks but also the absence of major societal groups and classes from balanced ecosystem within public parks.

Safety became no longer about security measures but rather a matter of social balance, diversity, communication and interaction; and definitely not achieved through conscious and/or unconscious privatization of public parks. The best way to ensure safety in public parks is ensuring its continuous use by all socio-economic classes in the community and their actual on the ground presence and interaction via diverse collective activities that suit all. Public parks should become places of inclusion for "people" that suffer social exclusion and should be responsive to the entire community, free of exclusion, and literally a spatial interpretation of participatory responsibility and a democratic arena to share culture and experiences.

To ensure a well-balanced cultural ecosystem within public parks there have been six indicators to achieve that are: culture and history presentation, accessibility, social interaction, accommodating differences, contemporary historic presentation, and finally symbolic communication. Such indicators have been tested in the context of the International Park in Nasr City and there has been concluding ground evidence that the park lacks all. There also has been mounting evidence of socio-economic class segregation, imbalanced cultural ecosystem, lack of social diversity and interaction, lack of resources, future vision and goals, and bad management.

It has been practically proven from the fieldwork evidence as well as some case studies within the literature, as discussed above, that the of privatization of public parks (consciously and/or unconsciously) for certain socio-economic class/classes systematically results in a vivid mental segregation to the other socio-economic classes. In other words, the privatized parks are not physically but rather mentally denying access to certain socio-economic classes and groups. Furthermore, from the fieldwork evidence, it is practically confirmed that the privatization state is both a ground fact and an actual state of mind in the case of the International Park. The word "public" no longer means public to government officials and agencies that help to create a state of parallel communities within the very same time and space edges of localities. The International Park, as a public park, is no longer a tool to ensure social communication, interaction, and diversity that collectively bonds communities but rather became a source for class segregation and social unrest.

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Measuring The Correlation Between Neighborhood Models And Crime Rates And Sense Of Security.

A case study of four neighborhoods adjacent to criminal focal points in Cairo-Egypt.

Islam Ghonimi Ibrahim , Islam Salah Eldin Shahata

ABSTRACT

The high concentration of low education level, low socio-economic level and high poverty level inside urban fabric creates criminal focal points that become a key factor associated with the increase of crime rates and the reduction of sense of security. These criminal points impose a great risk to their adjacent neighborhoods; some adjacent neighborhoods inherently facilitate crime opportunities, whereas others do not. Based on case study of four crime-affected neighborhoods, this research provides an understanding the correlation between specific neighborhoods features and both recorded crime rates and deduced resident's sense of safety and security.

The results suggest two conclusions; the first regarding residents sense of safety, it is deduced that neither traditional neighborhood with extremely densification, mixed use on building level, and grid with high intersection points, nor the modern neighborhood with extremely low density, separate use, and tree street network pattern, can increase sense of safety. The second regarding crime rates, it is recorded that traditional districts can mitigate the potential risk of criminal focal pints and reduce crime rates compared to modern districts.

KEYWORDS

Crime opportunities, crime rates, crime prevention through environmental design (CPTED), fear of crime, sense of safety and security, neighborhood urban patterns.

ملخص البحث:

يعتبر تركز المعدلات المنخفضة لمستوى التعليم والمستوى الاقتصادي الاجتماعي ومستوى الفقر في المناطق العمرانية من الأمور التي تؤدي إلى خلق بؤر إجرامية تؤثر بالسلب على زيادة معدلات الجريمة وانخفاض الإحساس بالأمن والأمان في المدن. ويظهر تأثير هذه البؤر جلي على المجاورات السكنية المحيطة بها، حيث تشكل خطورة على سكان هذه المجاورات وترفع من معدلات الجريمة لديهم وتقلل إحساسهم بالأمن والأمان. وقد يكتسب بعض انماط العمران القدرة على تشجيع الجريمة في بعض الاحيان أو يقاوم الجريمة ويزيد احساس السكان بالأمن، وبالتالي تأتي أهمية البحث في دراسة دور الخصائص العمرانية المختلفة لأنماط المجاورات السكنية في مقاومة الجريمة والحد منها. يعتمد البحث على دراسة حالة لأربعة مجاورات سكنية مجاورة لبؤر جريمة، في دراسة كيف تتأثر كلا من المعدلات الفعلية المرصودة للجريمة وإحساس السكان بالأمن والامان مع التغير في الخصائص العمرانية للمجاورات السكنية المجاورة لبؤر الجريمة.

تقترح النتائج أن احساس السكان بالأمن والامان في كل من المجاورة التقليدي التي تعتمد على تكثيف السكان وتكثيف خلط الاستعمالات على مستوى المبنى السكني، وتكثيف تقاطعات الطرق في نظم الطرق الشبكية من جهة وكذلك المجاورة الحديثة شديدة الانخفاض في الكثافة وشديدة الفصل في استعمالات الاراضي وتعتمد على النظم الشجرية في الطرق، كلا منهما لا يوفر الدور اللازم لزيادة احساس السكان بالأمن. وأنه تم رصد قيم وسطية لها القدرة على اكساب السكان الاحساس بالأمن والأمان. على الوجه الاخر فأن المعدلات الفعلية المرصودة للجريمة أثبتت أن النمط التقليدي أكثر قدرة على خفض معدلات الجريمة مقارنة بالنمط الحديث.

الكلمات المفتاحية: فرص الجريمة، معدلات الجريمة، منع الجريمة بواسطة التصميم البيئي، الخوف من الجريمة، الاحساس بالأمن والامان، انماط المجاورة السكنية.

INTRODUCTION

The concentration of low education, low socio-economic level and high poverty in residential areas are key factors associated with emergence of criminal focal points that are key factors associated with the increase of crime rates and the reduction of sense of security. The adjacency of such focal points to residential areas becomes a big problem for adjacent communities' residents. The high crime rates in recent days, and the low sense of security and safety in residential areas; makes the study of the factors that can reduce crime rates and increases resident's sense of security in the main concern of this research; a study to define the relation exists between neighborhood urban patterns and crime prevention.

Some neighborhoods encourage crime opportunities, whereas others do not. An understanding of the reason that some neighborhoods provide more security defensible behavior against crime than others is important to improve crime prevention. This study examines whether neighborhood design affects the degree to which it can face and prevent crime opportunities and the degree it can provide sense of safety and security to its residents.

Traditional neighborhood types are mixed use and pedestrian oriented. Residents have daily services within walking distance. Theoretically, these types are most likely to reduce crime opportunities. They encourage walking; enabling residents to perform daily activities without the use of a car. Their pedestrians are not forced to compete with cars along busy highways. They are expected to enhance social capital because they enable residents to interact intentional or accidental. They can encourage a sense of trust and a sense of connection between people. To many residents, such contacts breed a sense of familiarity. They create a web of public respect and trust, and a resource in time of personal or neighborhood need (Houghton 2006; Berube 2005; Jacobs 1961; Lofland, 1973; Berube 2005).

On the Contrary, modern neighborhood types contain only houses and car oriented. Daily needs are not met in the neighborhood, so residents have to travel by car to find services. Theoretically, they are most likely to increase crime rates. They do little to enable social interaction. Social interaction is more likely to occur by invitation, not by chance encounter. Life is supposed to take place within the home or in the backyard. They are not places designed to encourage social interaction. Accordingly they discourage sense of trust and connection between people. Accordingly they lacks sense of familiarity and knowing strangers (Mark Granovetter 1983; Calthorbe ; Leyden 2003).

This study examines the relationship between neighborhood design and crime prevention. The main hypothesis is that pedestrian-oriented, mixed-use neighborhoods are more likely to encourage sense of safety and security than are car-dependent, single-use neighborhoods in Cairo - Egypt.

RESEARCH PROBLEM AND METHODOLOGY

Recently, a high crime rates and the reduced household's sense of security and safety become a fact. It raised an urgent need for studying the impacts of neighborhood urban form on increasing sense of security and safety on one hand and reducing crime rates in the other hand. In the past, traditional urban form had elements such as overhangs, small courtyards and decorative bollards around alleys to increase security. Contemporary neighborhoods used a

fortification Elements and technological methods to cope with crime acts. Regardless of reinforcement methods (fortification, guards, and any other instruments), a passive crime prevention design without using guard tools need to be clarified. Neighborhood urban form can play a significant passive role in creating secure and low crime environments. It can also play an important passive role in shaping households perception of safety and security.

This study aims to test the correlation between the configuration of the street network patterns, land use patterns and housing patterns and crime opportunities. Regardless of the used traditional and technological barriers tools, this research concerns to study the impacts of urban form in itself. To define how it can affect sense of security. Based on a case study in four residential neighborhoods, adjacent to two criminal focal points in Cairo-Egypt, the research assesses the role of neighborhood urban form in reducing crime rates; Also it assess its impacts on residents' sense of safety and security.

This research assumes that the way we design our neighborhoods affects crime prevention and sense of security. And that contemporary neighborhoods rather than achieve low crime rates and high sense of security it could cause a security problem.

The method used is inductive which involves a comparative analysis of different case studies adjacent to crime points, with different spatial configuration. It aims to test and compare the relation between neighborhood urban form and residents' perception of safety in one hand and crime rates in the other hand.

The research depends on two interlocking stages: first, literature review to introduce the variables of the research, crime opportunities, crime prevention, and sense of security and safety in terms of concept, and measurable variables in addition to the introduction to neighborhood form in terms of concepts, patterns and measurable indices. Finally, the relationship between the two variables is tested in a case study in two neighborhoods adjacent to criminal points.

The field study goes through the following three steps: measuring the residents' perception of safety using questionnaire, measuring crime rates based on recorded municipal data, and measuring the spatial configuration using spatial measures in each case study and finally testing the validity of their relations.

CRIME RATES AND NEIGHBORHOOD DESIGN

The existence of criminal points inside urban fabric presents a risk to adjacent residential areas by increasing crime rates and crime opportunities. Adjacent residential areas are faced with a risk of crime against properties in term of house break-ins, vehicle theft and criminal acts against residents them self's in neighborhood streets. The criminal acts of offenders against residential neighborhood, present a risk to its residents. The impacts of such criminal points to adjacent areas impact the level of resident's sense of safety and security in their residential areas.

A reduction of resident's sense safety in their community can reduce their sense of belonging, participation and engagement with others in their community. Low sense of security can reduces social capital and cohesion of the community.

Different approaches are used to reduce crime opportunities, reinforcement methods using physical instruments like gates and fences, monitoring and electronic gates, and alarm systems, and security members. The other approach is the environmental approach that supposes that urban form can be designed in a manner that self-reduces crime opportunities. A certain design of physical layout, land use pattern, street network pattern, and housing pattern could reduce crime opportunities and increase resident's sense of safety and security. A branch of research called crime prevention through environmental design (CPTED) is developed to enhance the efficiency of urban form to defend its residents against crime opportunities that might impact due to the adjacency to criminal focal points.

This field depends on sociological issues regarding the offenders who fair to be seen and look for concealment opportunities to assist them commit their crimes without been caught. Increasing offender's chances of being seen and caught reduces crime opportunities. The bulk of research on this rests on four easy to investigate factors: surveillance, control of access, territoriality, and social interaction between community residents.

Natural Surveillance means a continuous observation for residents and their properties in streets, urban spaces and buildings. It makes offenders feel that they are observed, accordingly reduces crime opportunities. The purpose is not to keep them out but to make them be under complete observation and feel that they are observed. The natural observation as by product of daily activities can reduce crime opportunities, (Crowe, 2000; Newman's, 1973; Desyllas et al., 2003).

Control of access points, and functional hierarchy, it starts from the public to semipublic and to the private. It restricts the existing of who are allowed to be here, and keep out who do not have reason to be in place. Offenders fair to be asked for the reason they are in this place. Barrier makes it unattractive to potential criminals (NCPC, 2003).

Define of territoriality, natural boundaries between public and private define private territoriality and make residents naturally protect their territoriality they feel as their own. It increases user's familiarities with each other and accordingly discourages offenders (Geason S. 1946).

Social interaction, it depends on how to increase resident's interaction to make them know each other and accordingly distinguishes who are strangers in the community. It enables collective involvement efficiency to define strangers and especially offenders and to face their criminal acts. This criterion rests on some questions: to what degree it allows clear sight line?' minimize isolation? And to what degree it increase residents ability to know and define neighbors, strangers, and criminals. These criteria can be measured using observation and questionnaire.

URBAN PATTERN CHARACTERISTICS AND CRIME PREVENTION

The Correlation between crime opportunities and urban form has been frequently found in numerous studies. A current debate exists between scholars for the role of modern versus traditional patterns in their impacts on crime prevention.

Regarding land use pattern some scholars found mixed land use residential areas is a key for achieving safety in urban spaces. They consider that high mixed land use with variation of activities attracts people continuous movement during day and night, and accordingly assures the continuous natural surveillance and accordingly it provides residents with sense of safety and security (Bahamam 2001; Camona 1997). They found that complete remove of nonresidential uses from residential area could create negative spaces (negative space theory), a space that do not have any subsidiary functions or activities that rather than become a positive space that attracts residents into a negative space that reject and discourage residents to be socially engaged. Despite, these types of spaces remove the natural surveillance and accordingly make spaces a place of attraction for criminological behavior. They found that urban spaces must serve more than primary function, preferably more than two. (Al Hamad, 1995; Kamona, 1997).

On the contrary other scholars found that minimizing variation, diversity and mix of land uses could reduce users and accordingly they can be defined and accordingly strangers can be defined and criminals also. They found that increase nonresidential uses to residential areas could reduce resident's appetites to define strangers and accordingly increase crime rates (Angle 1995; NCPC 2003).

Regarding housing income mix, some scholars found that mixed housing income is expected to reduce crime rates and increase sense of security; it enables residents to interact with different social groups and encourage sense of trust and sense of connection between residents. This could increase sense of familiarity of other housing income groups and create social web of public respect and trust (Jacobs 1961; Leyden 2003). According to the 'intergroup theory', more diversity implies more inter-ethnic tolerance and social solidarity. The more contact with people unlike, make residents can overcome initial barriers of ignorance and start to trust them (Hooghe, M., 2007, Putnam 2000). For them ethnic diversity may reduce criminality and increase sense of safety and security.

On the contrary, other scholars found that separate income could achieve homogeneity between residents, accordingly shared values and interests. No social tension exists between community residents. According to the 'constrict theory', suggest that ethnic diversity might reduce both in-group and out-group trust, in neighborhoods where ethnic diversity is higher trust become lower. The reason is that ' when the social context is more diverse in terms of ethnic groups, there are more people 'unlike you'. As a result, there are less people each resident can identify, resulting in fewer social connections and lower levels of trust (Hooghe, M., 2007). For them ethnic diversity may encourage criminality and reduce sense of safety and security.

Regarding Housing income difference between neighborhood and adjacent community, some scholars found that locating similar low income neighborhood near to poor criminal community reduces social tension between residents and accordingly reduce crime rates. On the contrary, other scholars found that locating high income neighborhood adjacent to poor community could increases social benefits through creating a relation between different social groups; it creates much more social capital. It reduces social tension and accordingly reduces crime rates (Butman, 2000; Hillier 1984).

Regarding street network pattern, some scholars found that modern hierarchical street network pattern could define territoriality, achieve natural surveillance, and create security parries, they recommends that moving from public grid pattern to private cul-de-sac pattern could increase factors of safety and reduce crime rates. Cul-de-sac patterns are pattern that Newman stresses in his theory of defensible space to exclude the intrusion of strangers in the space (Neuman, 1972).

On the contrary, other scholars found that moving to public grid give streets the byproduct of movement, through movment that make it become more save. It increases streets critical role of urbanity and natural survilliance and accordingly it is not a place for enhancing crime. (Carmona, 2003; Worth, 2005, Calthorbe, 2001; Hiller, 1989).

Regarding building height, some scholars found that taller buildings height increase building density and community size, accordingly it increase probability of strangers in urban spaces accordingly reduce sense of safety and security (Bahamam, 2001; Newman, 1996).

 Regarding to density and community size, some scholars found that increasing density provide community with sufficient dense concentration of people that avoid empty spaces and make spaces full of people and assure surveillance. On the contrary, other scholars found that increasing community size makes it difficult to define users, strangers and accordingly to define criminals.

Regarding urban hierarchy, some scholars consider urban form hierarchy is a good tool to define territorialities, responsibility and control to urban spaces. It isolates private spaces from public spaces to assure privacy that enhance natural surveillance, and definition of strangers and accordingly enhance safety and security. (Bahamam, 2001). They found that the cluster closed pattern surrounding public spaces, give the space some degree of privacy and territoriality that make residents easily can define strangers. It provides a sense of safety against intrusion, and accordingly increase sense of safety and reduces crime opportunities (Bahamam, 2001; Newman, 1972; NCPC, 2003). On the Contrary, other scholars found that the traditional grid pattern.

Accordingly a current debate exist between scholars to define the role of modern versus traditional neighborhood characteristics in reducing crime rates and increasing residents sense of safety and security. The following part of the research is developed to test the validity of such assumptions in the case of Cairo Egypt.

THE CASE STUDY OF FOUR CATEGORIES OF NEIGHBORHOODS ADJACENT TO TWO CRIMINAL FOCAL POINTS IN CAIRO

The objective of this research is to trace any statistical significant differences in responses to crime rates and resident's sense of security and safety across different categories of neighborhoods adjacent to criminal focal points. The case study based on four categories of neighborhoods adjacent to two criminal focal points in Cairo. The relationship between neighborhood design and crime prevention will be examined. El Mothalth-Helwan, and El Hagana-Nasr City are two chosen locations, they have recorded highest crime rates in Cairo, according to National Center for Social and Criminological Research. These two focal points were surrounded by a variation of neighborhood types ranging from traditional mixed-use,

pedestrian-oriented neighborhood to the contemporary separate use-car oriented neighborhood.

Selection of case study areas:

Four neighborhoods were selected to present different categories of physical and social attributes, as shown in Figure 2. They should satisfy variables incorporated within the proposed model. Based on the following criteria:

- Locations to be adjacent to areas of criminal focal points, two locations are selected Al mothalth - Helwan and El Hagana - Nasr City, as they are recorded to have higher values of criminals as recorded by National Center for social and criminological research (NCSCR).

- In each location, two neighborhoods ranging between traditional and contemporary are selected to meet the variables involved in the study regarding configuration difference in urban form and social attributes including the historical development, street network patterns, land-use pattern, housing patterns, population demographics and household characteristics.

Figure (1) Case Study Selection (Two locations in Greater Cairo Region)
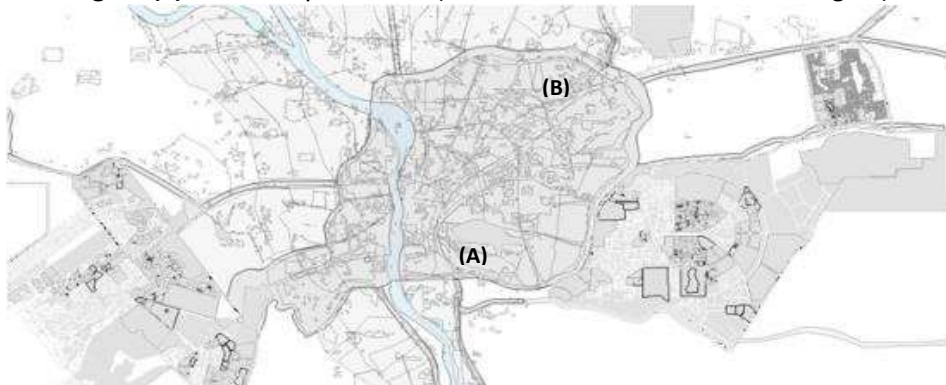
Figure (2) Case Study Selection (Greater Cairo Region)

A) El Mothalth (Helwan)   B) El Hagana (First District Nasr City)
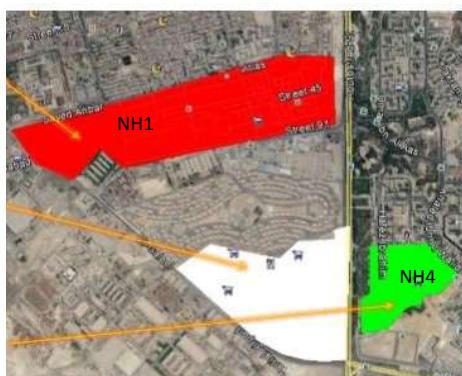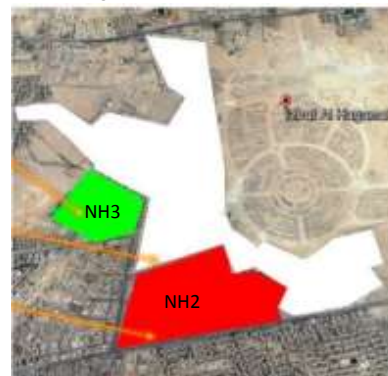
A)   NH4: 9th Neighborhood, NH1: Atlas neighborhood.   B) NH3: 9th neighborhood, NH2: Officers neighborhood.

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Data collection and classification

The purpose is to measure the impact of criminal focal points on adjacent neighborhoods, and to define the role of adjacent neighborhood urban form to defend and face the crime opportunities and provide residents with sense of safety. Two forms of data collection were used – the first to measure urban form patterns, and the other to measure social data represented in the crime rates and opportunities and residents satisfaction to safety and security in their neighborhood. Finally, the correlation between both is measured.

MEASUREMENTS OF NEIGHBORHOOD URBAN CONFIGURATION PATTERNS
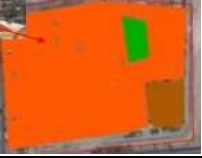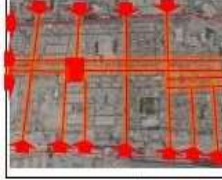
Urban form data were collected using surveying maps, observation, satalite maps, photographic images to document and explore neighbourhoods urban configuration patterns including land-use pattern, housing income pattern, street network pattern, and other urban spaces characterstics including density, urban form, building heights, urban herarcheiy, and walkway forms, and finally landscape elements including lighting, greening. The data gathered for each case study related to urban configuration for each neighbourhood are gathered, measured and scored in Table 2. Recorded urban form data is categorized starting from the traditional type ending with the modern type and the scored result is converted into percentage, with keeping traditional pattern as higher percentage value than modern patterns.
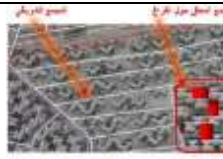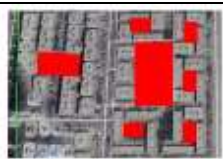
1- Land use pattern can be classified under heading of landuse type, variation and density. The (dividing vs. connecting) line between different land-use represents the degree of mixed vs. separation of landuse (Ghonimi et.al, 2011).

2- Housing pattern can be classified under heading of housing type, variation and density; they can be measured using the (dividing vs. connecting) line between housing types. It represents the exclusion vs. segregation of housing types as a manifestation of political regime (Ghonimi et.al, 2010).

3- Street network pattern can be classified under three categorize grid, loop, and tree patterns. Their spatial structure can be classified under heading of type of street, Linear feet of streets, No. of blocks, No. of intersections, No. of access point, No. of cul-de-sacs, Percentage of streets area.

4- Building Height ranges between low height 1to 3 floors, mid height 4 to 5 floors, and tall height 6 to 8 floors.

5- Community Density range between low density (60Person/Fedan), Middle density (120 Person/Fedan) and High Density (200 Person/Fedan) Also community size is measured and ranged between small, medium and large community size.

6- Urban form hierarchy is ranged in one hand between public, semipublic, and private in the other hand between grids versus cluster.

Selected neighborhoods were subjectively categorized into four ideal types, that range between modern cars oriented, separate use, single housing income, low density and treed oriented street network. And traditional pedestrian oriented, mixed-use, mixed-housing

income, high density, and grid oriented street network. In most of the following analysis, the neighborhood arranged according to such categorization to present the social impacts of crime rates, and sense of safety and security moving between these categorize.

Table (1) Main spatial characteristics of Case Study Area.

Location		El Mothalth-Helwan	El Hagana-Nasr City	El Hagana-Nasr City	El Mothalth-Helwan
Neighborhood		Atlas	Officers	9th NH	9th NH
		NH 1	NH2	NH3	NH4
Landuse					
		Mixed landuse on building level	**Mixed use on community level**	**Separate use on community level**	**Separate use**
	Land use variation	Varied	Varied	Single	Single
	Land use type	Res., Com., Edu., Cra.)	Residential, Services	Residential, services	Mostly residential
	Land use mix	Mixed	Mixed	Separate	Separate
	Land use density	High	Mid	Low	Low
Housing Income)					
		Low income – with closer socioeconomic level with crime source area.	Mid income- with little higher socio-economic level than crime source area.	Mid income – with much higher socio-economic level than crime source area.	High income – with very high socio-economic level than crime source area.
	Housing variation	Varied	Single	Single	Single
	Housing type	Low	Mid	Mid	Upper mid
	Housing mix	Mixed	Separate	Separate	Separate
	Housing density	High	Mid	Mid	Low
Street network Pattern					
		Grid pattern with High no. of intersections, egress points, and street length.	Grid pattern with upper medium no. of intersections, egress points, and street length.	Treed hierarchically loop pattern with lower medium intersection, egress point and street lengths.	Treed hierarchically cul-de-sac pattern with low intersection, egress point and street lengths.
	Type	Grid	Grid	Treed (loop)	Treed (cul-de-sac)
	Orientation	Outward Oriented	Outward Oriented	Inward Oriented	Inward Oriented
	No. of intersections	High	High	Mid	Low
	No. Entrances	High	High	Mid	Low
	No. of loops	Low	Low	Mid	High
	No. of cul-de-sacs	Low	Low	Mid	High

Block Urban Design				
	Linear	Linear	Composite	Central Closed
Activities	Full activities	semi	semi	Remove activities
	Linear	Linear	Separate cluster	Attached Cluster
Hierarchy	No Hierarchy	Medium Hierarchy	Complete Hierarchy	Complete Heirarchy

MEASUREMENTS OF CRIME RATES AND SENSE OF SAFETY AND SECURITY:

Two ways are used to measure crime prevention based on crime rates, and sense of safety and security. The first depends on the actual reported crime rates and the other depends on resident's satisfaction to sense of safety and security.

Crime Rate Measure

The first measure is crime rates; it is based on data that have been reported by the police station responsible for each location. The reported crime rates are converted into percentage to enable the comparison between the four neighborhoods. The neighborhood with heights crime value has taken 100%, and the percentage of total crime reported for the four neighborhoods as listed in Table (2).

Table (2) represent recorded crime rates in no. and percentage (Reference: NCSCR).

	NH 1	NH2	NH3	NH4
Crime Rates	214	153	91	7
Percentage	100%	71.5%	42.5%	3.2 %

SENSE OF SAFETY AND SECURITY MEASURE

It is based on a questionnaire administered to district residents. The questionnaire was designed to explore the influence of urban form of affected districts, adjacent to criminal focal points, to their residents' perception of safety and security. Sample selection: 40 residents are randomly selected in each case study area. The questionnaire measured the key factors of crime prevention. A five points Likert scale (1 to 5) were used and have been converted into percentage scale.

Questions first explore resident's socio-economic characteristics then it investigates their satisfaction to sense of security and safety as well as to reciprocity, familiarity and trust in neighbors, i.e. how they well feel safe and secure for their families, children and wifes to move freely in the community, and for their properties. How well they knew their neighbors, how well they trust or faith in other people, and their social engagement. These dependent variables were measured as described in the following paragraphs:

The variable **"know strangers measure"** was measured whether and to what degree residents be able to recognize strangers that pass by in front of their houses and passing in the recreational area.

The variable **"feel of safety and security measure"** was measured whether and to what degree residents feel safe for movement in streets, in parks and facilities, safe in homes, safe for properties, safe for wife and kids and all age group people. For what degree he feels safe during day hours, during night hours, till late night. These questions probe the degree to which resident's perception and sense of safety and security.

The variable **"social engagement with neighbors' measure"** includes whether and how well they know their neighbors inside the community, and the adjacent community (source of crime). How many times they share them in vacations, invited them to their homes, and is invited to their neighbor's homes; these questions probe the degree to which resident engage with their neighbors.

The variable **"feel of trust measures"** measures whether residents felt that their neighbors could be trusted, whether they thought people were fair, and whether they thought most people try to be helpful.

The variable **"surveillance measures"** measures whether residents inspect the external surroundings when they are inside their house.

The variable **"target hardening measures"** measures whether residents need to install alarms and technical instruments in their houses and properties to achieve security purposes.

All previous measures are used to create a variable called "neighborhood crime prevention measure" which is an additive index of the all variables. It have been gathered, measured and scored in percentage in Table 3.

Table (3) Measured Neighborhood resident's satisfaction in percentage.

Assesment factors	NH1	NH2	NH3	NH4
Know strangers	30%	75%	70%	45%
Sense of Safety	40%	85%	72%	50%
Feel of trust	40%	85%	75%	55%
Survillience	30%	75%	70%	55%
Target hardening	40%	70%	80%	50%
Fear of crime	50%	75%	60%	55%
Sum Percentage	38%	78%	71%	55%

RESULTS AND DISCUSSION

Neighborhoods are arranged starting from the traditional mixed use, high rise, and high density, grid street pattern to the contemporary sprawl separate use, low rise, low density, and tree street network pattern. Both crime rates measures and crime prevention measure were transformed into percentage in the four neighborhoods. Their values are compared with

neighborhood socio-spatial factors. The correlation between them as dependent and independent variables respectively, for the four neighborhoods are measured as follow:

Traditional neighborhoods (NH1, NH2) recorded lower crime rates which tend to remain vibrant and active during day and night hours. On contradict with resident's sense of safety and security, who found their community unsafe from inclusion of services inside the residential area, they fear the close proximity of services to their homes, as well as unwanted, and unfamiliar intrusions and congested streets. They think that this causes a lack of safety and increases crime opportunities. They keep their children away from streets to avoid accidents and intrusions.

Contemporary neighborhoods (NH3, NH4) recorded higher crime rates which tend to remain vacant during night hours. On contradict with resident's sense of safety and security, who found their community provides higher sense of security and safety, quieter and safer streets and urban spaces, where children can play with minimal fear of fast moving traffic. It provides a sense of safety against intrusion and unfamiliar persons, and reduces the crime opportunities; they found safety through excluding the others.

A comparison between resident's satisfaction and crime rates reveals that, resident's satisfaction to sense of safety doesn't align with recorded crime rates. Moving from traditional neighborhood to contemporary neighborhood increases crime rates, and reduces resident's sense of security and safety. In Figure (3), both residents of traditional and modern neighborhood were slightly less likely to have a greater feeling of security than in moderate neighborhoods. In the other hand traditional neighborhood is marked by a lower crime rates than in modern neighborhoods.

Figure (3) Relation between recorded crime rates and residents satisfaction to safety.
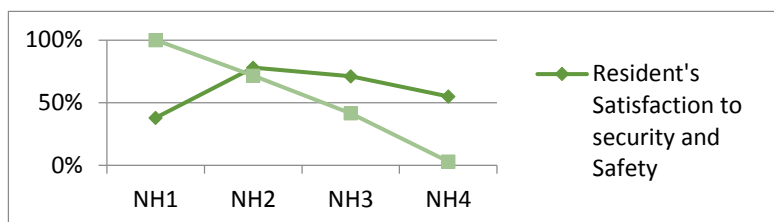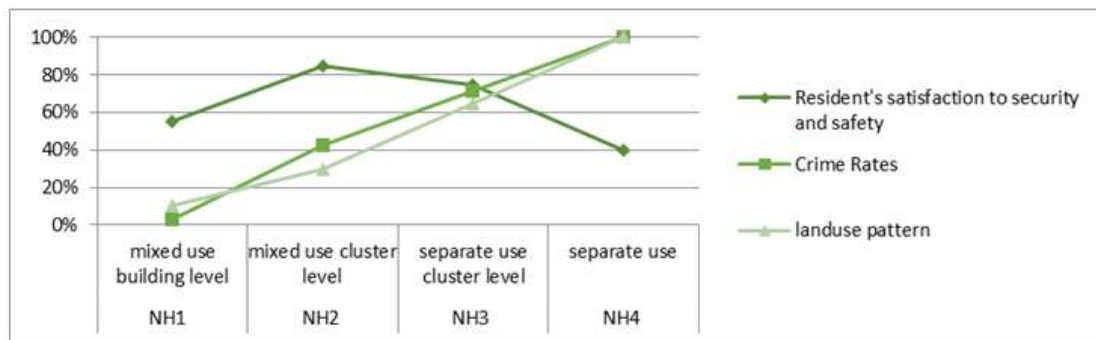

The relation between Crime Prevention measure and land use pattern:

Figure (4), reveals that crime rates increase with moving from mixed to separate use neighborhoods. This is because separate communities promotes interaction through neighboring familiarity; there are no intrusions or passers-by, only neighbors who exist in urban spaces; residents mostly know each other to provide high crime prevention ratio.

On the other hand resident's satisfaction to security and safety issues is reduced in both high mixed and high separated land use pattern. In high mixed community's residents found that streets are full of unknown intrusions that reduce trust of others, accordingly they fear to meet

others resulting in reduced interaction, and they want to take their children away from the streets. Also in separate use communities, residents found streets as empty, it lakes surveillance and complete supervision. An optimum mix could cause acceptable values of sense of security and safety.

Figure (4) Relation between land use and crime prevention (crime rates-satisfaction to safety).
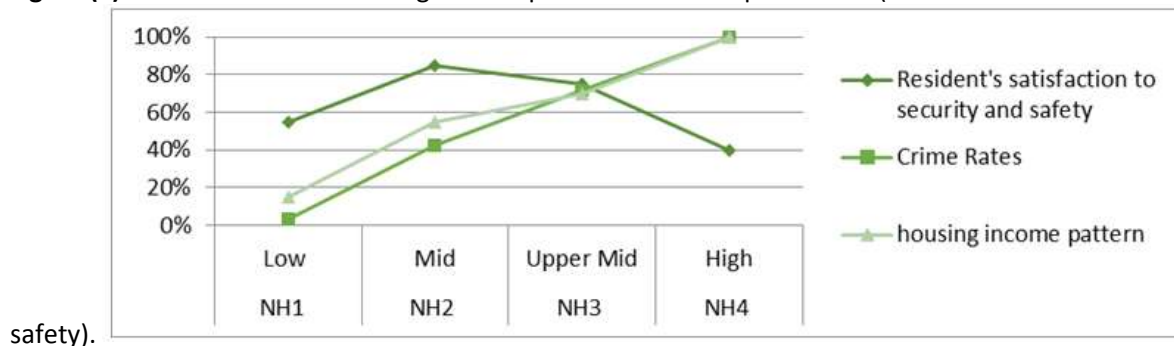

The relation between crime prevention measure and housing income pattern:
Fig (5) indicates that crime rates are increased with moving from low income to high income community, this is due to the high social gap between the community and the adjacent low income crime focal point community. It causes social exclusion with adjacent low social classes, so it creates poles of social tension between the poor and the rich hence enlarge the sense of criminality and vandalism.

On the contrary resident's satisfaction is reduced in high income community, where a type social tension is measured, high income residents fair the intrusion of low income offenders, they use different reinforcement methods using physical instruments like gates and fences, monitoring and electronic gates, and alarm systems, and security members. Also low income residents feel unsafe they. On the other hand mid income and upper mid income residents feel safer in their communities.

Figure (5) Relation between housing income pattern and crime prevention (crime rates-satisfaction to
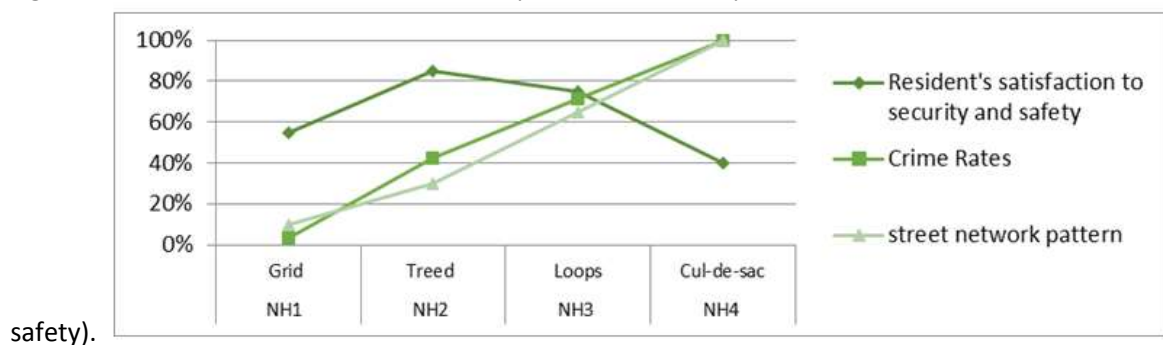

safety).

The relation between crime prevention measure and street network pattern:
Figure (6) indicates that crime rates is reduced with moving from grid to treed street network pattern (loops and cul-de-sac) and specially with defining entrances this due to high

surveillance value, high territorialities and relationship between residents that make them know each other and define strangers.

On the other hand resident's satisfaction to security and safety issues is reduced in both cases of very grid pattern and very tree cul-de-sac pattern. The first reduces territorialities and increase the through pass that makes offenders are not recognized within strangers and passengers. The second reduces through movement of people which reduce their eyes continuous vision on the streets. An optimum value is highly accepted.

Figure (6) Relation between street network pattern and crime prevention (crime rates-satisfaction to


safety).

The relation between Crime Prevention measure and Density pattern:
Figure (7) reveals that crime rates increases with moving from low density to high density community. This can be explored because increasing density causes a relevant increase in community size that makes Residents hardly know each other and hardly acknowledge strangers. The reduced interaction, mutual relationship, and reciprocity between residents cause unsafe streets.

On the other hand resident's satisfaction to security and safety issues is reduced in both cases of very low and very high density. The first reduces community size and reduce resident's surveillance to the community. The second is increases community size and accordingly reduces residents familiarity of neighborhoods, and increase the chance of entering offenders between community residents without been known. An optimum value is highly accepted.
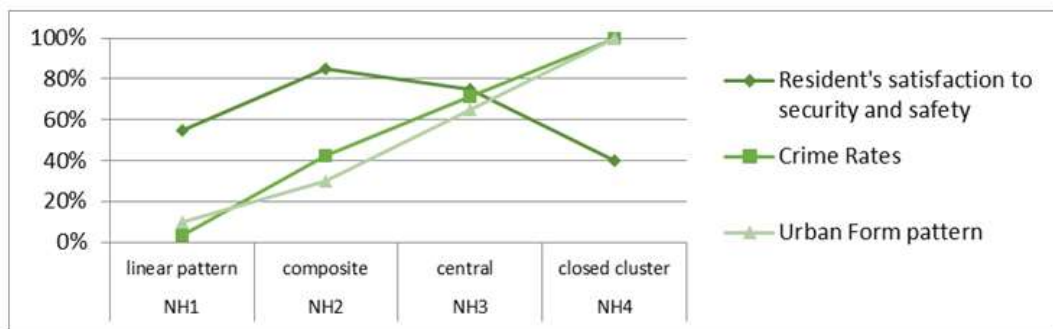
Figure (7) Relation between housing density pattern and crime prevention (crime rates-satisfaction to safety).
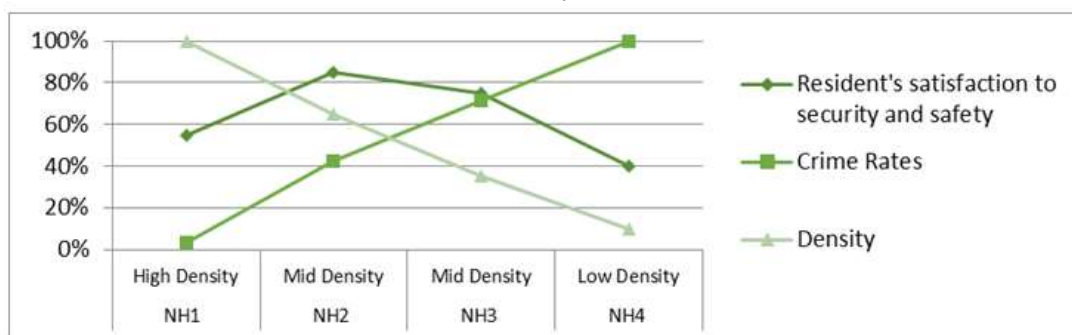
The relation between crime prevention measure and urban form pattern:

Fig (8) indicates that crime rates are reduced with moving from grid arrangement to cluster arrangement; this is due to the strong relationship exist between neighbors that makes them easily define strangers. On the contrary resident's satisfaction is reduced, they.

Figure (8) Relation between urban form pattern and crime prevention (crime rates-satisfaction to
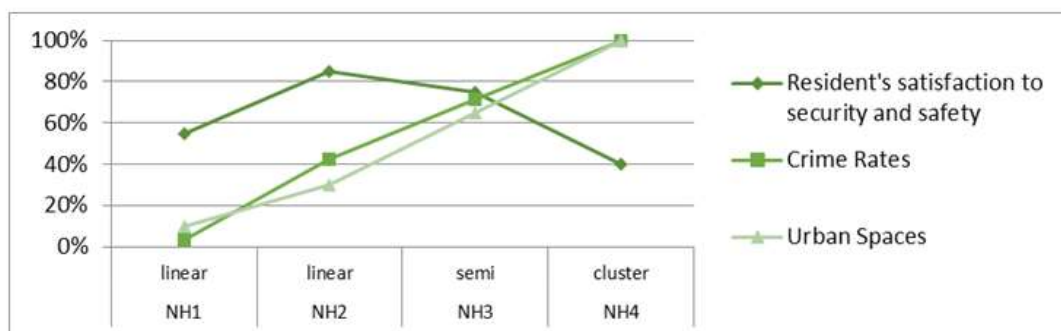

safety).

The relation between crime prevention measure and activities pattern:

Fig(9) indicates that crime rates are reduced with moving from urban spaces with no activities to spaces crowded with activities, since a continuous supervision and surveillance are exist. On the other hand resident's satisfaction to safety factors is reduced in both spaces with no activities and spaces crowded with activities; in the first case they lost the surveillance to urban spaces, on the second case they cannot define strangers and criminals.

Figure (9) Relation between spaces activities pattern and crime prevention (crime rates-satisfaction to


safety).

The relation between crime prevention measure and building height pattern:

Figure (10) indicates that crime rates are reduced with increasing buildings height, as it cause higher density and community size, it enhance the continuous supervision and surveillance to urban spaces. On the other hand resident's satisfaction to security and safety factors is reduced in both neighborhoods with lower and higher buildings height; in the first case they lost the surveillance to urban spaces, on the second case they cannot define strangers and criminals.

Figure (10) Relation between buildings height pattern and crime prevention (crime rates-satisfaction to safety).
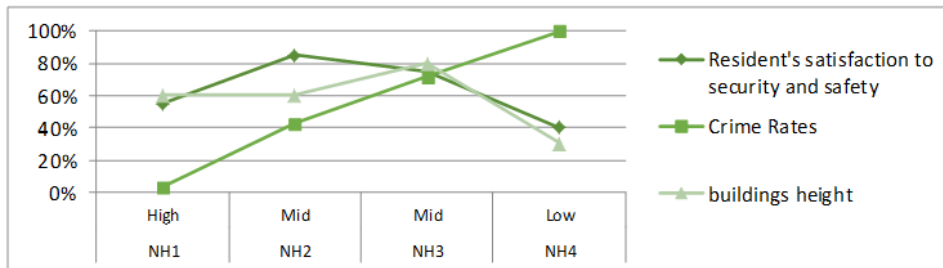

The relation between crime prevention measure and hierarchy urban spaces:

Fig(11) indicates that crime rates are reduced with increasing urban hierarchy of urban spaces, it increases sense of territoriality and makes it become a destination place that lake through pass and by pass product. That makes them easily define strangers.

On the other hand resident's satisfaction to security and safety issues is reduced in both cases of grid and treed pattern. The first increase the through pass and increases the unwelcomed persons of the outer community. The second reduces moving persons in streets beside it makes residents completely depend on car movement to cover the large moving distances, the matter that reduces moving pedestrian. An optimum value is highly accepted.

Figure (11) Relation between urban spaces hierarchy pattern and crime prevention (crime rates-satisfaction to safety).
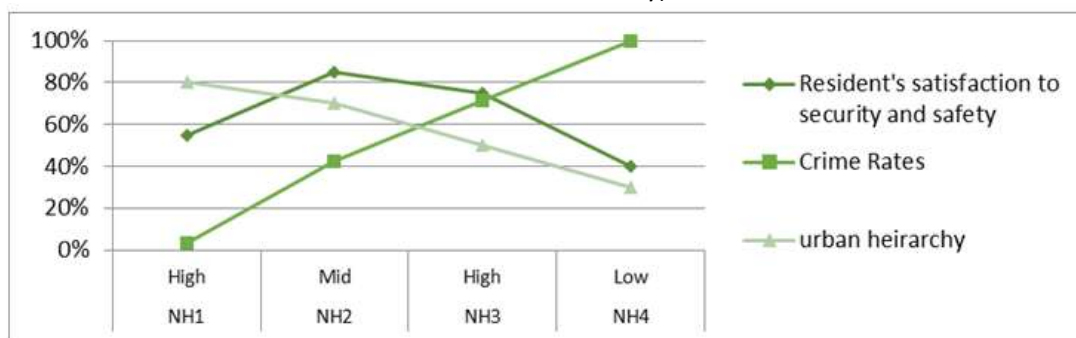
This result suggests that traditional neighborhoods that are mixed use, higher in height with higher density, and grid street network oriented, will be higher in their level of crime prevention than modern car suburbs that are separate use, lower height with lower density, and treed oriented street network.

On the other hand residents satisfaction to safety and security issues are reduced in both cases of traditional, mixed use, high density, and grid street network, and modern, separated use, low density, tree oriented network and car oriented. The first increase density, community size, and existence of strangers and accordingly reduce chance that residents can define and recognize

offenders. The second reduce density and remove nonresidential uses that make street are free of passengers that make it become a place that lake surveillance and enhance criminal acts.

A moderate values provide more safe community, mid density, mid mixed use, mid-level, and loop street network are mostly viable to be traced and placed adjacent to criminal low income neighborhoods. It proved its efficiency in facing criminal acts of offenders than the extreme traditional neighborhood with high density, low income, grid street network, and mixed use neighborhood and efficient than the other extreme of contemporary neighborhood with low density, high income, separate use, and treed street network pattern.

CONCLUSION AND RECOMMENDATIONS

This research suggest that the way we design our neighborhoods affects crime prevention and crime rates and thus affects resident's sense of security and safety. The results indicates three conclusions, the first indicate that fear of perception does not coincide with crime rates accordingly they should be studied separately.

The second regarding residents sense of safety, it indicates that neither residents living in traditional, with extremely densification, mixed use on building level, and grid with high intersection points, nor residents living in modern neighborhood with extremely low density, separate use, and tree street network pattern, are more likely to feel unsafe, during day and night, at homes and in streets, and to feel unsafe for their family and properties. On the other hand, a residents living in moderate neighborhood model are more likely to feel safe, during day and night, at homes and in streets.

The third regarding crime rates, it is recorded that traditional districts compared to modern neighborhoods are more willing to reduce crime rates. It can mitigate the potential risk of criminal focal point to their residents.

Accordingly planners and urban designers are recommends to take in their consideration the impacts of physical characteristics on crime rates and residents satisfaction:

1- Good design should force a continuous activity in urban spaces, a spaces that assure not having negative spaces that increase surveillance

2- Good design that gives resident's participation a great role in urban design, to found what is suitable for their socio-economic conditions.

3- Both high mixed and high separate use community could encourage criminality. The first increase the existence of

4- Both high income and low income residents could encourage criminality. The first increase social tension with low income neighbors, and accordingly increase their offender's acts. The second enables residents to interact with different social groups and encourage sense of trust and sense of connection between them. This could increase sense of familiarity of other housing income groups. This could create social web of public respect and trust (Jacobs 1961; Leyden 2003).

5- Both grid and treed street network could encourage criminality. The first reduces territorialities and increase the through pass that makes offenders are not recognized within strangers and passengers. The second reduces through movement of people which reduce their eyes continuous vision on the streets. An optimum value is highly accepted.

6- Good design should provide hierarchy in urban spaces, from the public to the private, to improve resident's definition of territoriality, control of access and surveillance; accordingly it could increase sense of safety and security in urban spaces and at the same time increase social relation between residents and enhance social cohesion.

7- Both high and low buildings height and both high and low density could encourage criminality. The first increase community size to an extent that makes residents cannot define strangers and accordingly cannot define offenders. And the second reduce community size to an extent that makes residents cannot have a complete surveillance to their neighborhood. A moderate building height, community density, and community size values proved to be efficient in crime prevention near criminal points.

A further research with more case studies needs to be carried out to obtain clear conclusions of the relationship between crime and neighborhood patterns.

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