THE USE OF ENVIRONMENTAL DESIGN CONCEPTS TO PREVENT CRIME IN URBAN AREAS (THREE RECREATIONAL AREAS IN SHAHREKORD)

Malek Bahmani
Manager of Practical Research Office of Police Commander in Chahrmahal&Bakhtiari, Iran

Farahnaz Ferdosian
Professor of Farhangian University (Pardis Bahr-el-olum) of Chahrmahal&Bakhtiari, Iran

Afshin Reisi dehkordi
Department of Architecture Group, Faculty of Art and Architecture, Shahrekord Branch, Islamic Azad University, Shahrekord, Iran

Amirhossein Rahmati dehkordi*
Department of Architecture Group, Faculty of Art and Architecture, Shahrekord Branch, Islamic Azad University, Shahrekord, Iran
*Corresponding Author

Farahnaz Ferdosian, Afshin Reisi dehkordi and Amirhossein Rahmati dehkordi
Practical Research Office of Police Commander of Chahrmahal & Bakhtiari, Iran

ABSTRACT

Urban recreational areas are very important and can be improved using Crime Prevention through Environmental Design (CPTED) that is effective in crime prevention. Various social, economic, and cultural factors are effective in creating security. The present study aimed to investigate CPTED as the most important approach in crime prevention and environmental security using design and providing solutions to help city managers to design secure recreational areas against crime. Using descriptive and analytical method at the first stage and then surveys in selected areas, this study investigated various crime prevention approaches by environmental design. These approaches are based on physical terms of the environment to achieve security. These solutions are presented to create or increase security in recreational areas of Shahrekord. The results of this comparative comparison and change in existing approaches require deep sociological perspective that can be applied to provide ideas and principles by the inhabitants under the supervision of city
managers. The results showed that recreational areas in this study did not show high quality and all three areas of interest require structural reforms.

**Keywords:** urban recreational areas, crime prevention, CPTD, shahrekord, environmental design

**Cite this Article:** Malek Bahmani, Farahnaz Ferdosian, Afshin Reisi dehkordi and Amirhossein Rahmati dehkordi, The Use of Environmental Design Concepts to Prevent Crime in Urban Areas (Three Recreational Areas in Shahrekord), International Journal of Civil Engineering and Technology, 8(11), 2017, pp. 129–137

http://www.iaeme.com/IJCIET/issues.asp?JType=IJCIET&VType=8&IType=11

1. INTRODUCTION

Generally, architecture and urbanism in the past were closely related to beliefs and culture of indigenous people and their structures were influenced by environmental and climatic conditions of each area. In other words, architecture of each building and city had specific cultural and locational identity and each building, with its unique features, could show its culture and country. Therefore, researchers in this area specify culture and beliefs of previous generations from designs and certain motifs on remaining works of cities and buildings.

Designers, manufacturers, and researchers, in order to create suitable place for residence, study various alternatives. Residence of people itself cannot satisfy their needs; therefore, it develops and improves the growth of people. In this regard, living spaces are divided into private, semi-private, and public spaces, respectively. These three spaces can be observed in residential areas. On the other hand, the effect of environment on human behavior that has been studied by different scholars such as Leng, Lowin, Barker, and Altmann, indicates the importance to design spaces where people can communicate with the environment and each other. These are fundamental factors that form the space of residential areas that their designs can bring constructive or destructive effects. To have suitable urban spaces and avoid failure, primary needs of urban fabric or residential areas should be considered. In Maslow’s hierarchy of needs, security is among the primary needs and inability to achieve it leads to loss of other needs such as belonging, self-esteem, and self-actualization (Pakzad, 2006).

According to the expansion of urbanism and interactions between people in residential areas as the symbol of collective life, security has attracted special attention. CPTED is one of the most efficient approaches in environmental design to increase space security and decrease crime in urban areas.

Modern environmental design approaches point out that considering the functional structure of urban spaces and implementation of specific criteria, it will be possible to prevent crime to a large extent. This can be achieved by decreasing the natural potential capacity of urban areas in crime (Zahm, 2003). According to this point, this study concentrates on definitions, concepts, and strategies of environmental design approach to decrease crime in Shahrekord.

In previous decades, urban researchers and professionals, taking measures and policies, created favorable environments and appropriate designs for different urban uses and achieved theories such as defensible spaces to prevent crime through environmental design and criminology. They believed that by implementing principles and theoretical foundations in urbanism, it is possible to prevent crime in urban areas or decrease its level.

Recreational areas are very important due to urbanism and its development where people live in apartments. The use of these spaces will be suitable when people feel security and safety. This feeling can be enhanced using architecture design principles to decrease crime. In this study, first, an overview is presented about CPTED and global experiences. Then, the
The Use of Environmental Design Concepts to Prevent Crime in Urban Areas (Three Recreational Areas in Shahrekord)

research methodology is introduced and in the next stage, study will be conducted on recreational areas of Shahrekord considering principles resulted from previous studies. Finally, suggestions will be proposed relative to recreational areas and their existing quality.

2. REVIEW OF LITERATURE

In the United States, in late 1960s and beginning of 1970s, crimes increased significantly where politicians, statecrafts, researchers, and academics did their best to find practical ways to solve problems caused by crime in the society. Among the presented solutions, those solutions that were proposed by urban designers and engineers contained necessary criteria compared to other cases. The solution proposed by urban designers and engineers was simple:

Urban design and physical environment can influence the behavior of citizens by creating the possibility to observe criminals and prevent crime or arrest criminals. Physical environment can be used to decrease crime by increasing control and surveillance over urban areas and public places.

Crime and insecurity resulting from urban areas are big concerns of citizens. Nowadays, the failure of traditional criminal justice system against increasing trend of crimes in different societies has been emerged and for this reason, approaches such as crime preventions have been taken into consideration in recent years. The purpose of the present study is to investigate this approach using planning mechanism in crime prevention in urban areas. As an example, a study on eight districts of Tehran showed that among different crimes, drug dealing has the first rank (40%) and regarding the time of crime, 35% occur between evening and night. Also, the results of studies show that there is a relationship between crime prevention and use of urban lands and among urban areas, those areas that have greater diversity have decriminalization potential compared to those with less diversity. Also, these spaces provide citizens with more security. Also, by implementing appropriate strategies in urban planning, it will be possible to achieve security promoting solutions for citizens and prevent crimes in urban areas.

Increasing trend in urban population in recent decades has led to the expansion of urban areas and this has created numerous problems such as environmental pollution, lack of amenities, emergence of poverty, marginalization, and increased crime. One of the important factors in this context is the security of citizens where the biggest concern is related to crimes and in recent years, it has been one of the most important challenges of urban residents. The results of several studies point to this issue such as survey in January 1998 in Paris that showed air pollution and noise (62%), increased refugees (60%), insecurity (44%), and crime (48%) were their major problems (Allen Boer. 2003, 25). General studies about life quality, satisfaction, and social capital state that for most of people, crime is defined as a big concern. Indeed, fear of crime is one of the most popular topics in contemporary criminology and a big concern in managing the society.

The conducted surveys in eight big cities of Iran to determine satisfaction level showed that 81% of residents feel insecurity and some of insecurity factors were environmental conditions (Iranmanesh & Etaati 2010). Also, conducted surveys in marginalized areas of Tehran in 2004 and a survey in 2003 about feeling security in Tehran showed insecurity of citizens in terms of public appearances of addicts (82%), harassment (79%), rape (58%), and extortion (54.7%) (Iranmanesh & Etaati 2010). The results of a study in Tehran entitled “environmental criteria to prevent crimes in urban area” showed that 37% of males and 51% of females consider environmental factors of Tehran as the main reason for insecurity (Pakzad, 2006).

Security is one of the most important human needs. However, Maslow considers security after physiological needs. Researchers believe that various social, economic, and cultural
factors are effective in creating security where the role and effects of environment can be pointed out. The purpose of the present study is to investigate developmental stages of crime prevention approach by environmental design as the most important approach in crime prevention and create environmental security using planning and presenting solutions to help architectures and urban planners to design secure residential areas against crimes. Using documentary method, this study investigated the development of this approach based on the first generation of CPTED between 1960 and 1970 with a focus on physical changes to achieve security. The second generation critiqued the first generation due to its emphasis on physical aspects and instead, it proposed psychological and social aspects as the main foundations to create security. The third generation started by 2000 and proposed multi-dimensional model of security to stabilize security in residential area and used ideas to increase security in the environment. The results of this comparative study and changes in approaches in different generations show that environmental security is not a phenomenon resulted from physical interventions, but it requires deep insight and sociology that moves ideas and principles of the second generation as a complement for the first generation and finally, the implementation of these ideas by residents toward expanding security has been resulted from secure areas and will be stable over time.

Theories related to the effect of environmental factors on the occurrence of criminal behavior are known as location-based crime prevention theories. Location-based theories include approaches such as temporary crime prevention, crime prevention through environmental design, and security by planning. In this regard, crime prevention through environmental design has been considered in this study that was started by 1960s. The first efforts based on this approach were started by physical changes, but over time, the focus changed toward the role of relationship between residents and strengthening collective sense. Finally, to stabilize security in residential areas, the residents became responsible to establish and maintain it. These efforts became known as first generation CPTED, second generation CPTED, and multi-dimensional model of security.

Security in environmental design was introduced in 1960 to prevent crime in environmental design in different periods of time. In Table (1), main studies on crime prevention are presented according to periodic categories.

<table>
<thead>
<tr>
<th>1960s</th>
<th>Death and life of cities in the United States) Jacobs, 1961(</th>
<th>Need for secure streets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Separating public and private areas</td>
<td>Decreased natural potential for crime</td>
</tr>
<tr>
<td></td>
<td>Diversity of users and integrating them in the city</td>
<td>Public surveillance</td>
</tr>
<tr>
<td></td>
<td>Effective use of pedestrians in urban areas to decrease crime</td>
<td>Transparency and exposure of public places</td>
</tr>
<tr>
<td></td>
<td>People’s interest in reporting the crimes and dealing with violations</td>
<td></td>
</tr>
<tr>
<td>1970s</td>
<td>Preventing urban crimes with environmental design (Jeffery, 1971) Defensible spaces (Newman, 1972)</td>
<td></td>
</tr>
<tr>
<td>1980s</td>
<td>Urban criminology (Wilson et al. 1982)</td>
<td>Broken windows theory (windows that provide the opportunity for crime in cities)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decreased natural potential for crime</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inconsistencies in artificial environment designs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emphasis on inefficiencies of regulations and urbanism standards</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The role of natural barriers in decreasing opportunities for urban crimes</td>
</tr>
</tbody>
</table>

http://www.iaeme.com/IJCIET/index.asp 132 editor@iaeme.com
3. METHODOLOGY

The research method of this study is descriptive and analytical. First, the research course was specified by analyzing content of scientific literature. To collect data, systematic efforts were done at library studies and valid online databases. Data extraction was done carefully and using field study on recreational areas of Shahrekord, data of interest were provided from library studies. The results indicated that available recreational areas in Shahrekord have weaknesses in terms of environmental design quality that by comprehensive management, they can be corrected.

4. RESULTS

Shahrekord is the center of Chaharmahal and Bakhtiari province that is located at a highland region. Zagrous Mountains have limited usable lands for urbanism and for this reason, the value of land increases. This issue has intensified constructions and increased urbanization. Therefore, recreational needs of residents are considered as the primary goal in this area. In this city, three selected recreational areas were studied. According to the growing popularity regarding recreational area as well as limitations resulted from the design of apartments, it is necessary to design and use these areas carefully in a way they feel security and peace. In this context, CPTED principles can be helpful. In the following, the results of investigating these three areas are presented in the table. In this table, priorities are determined based on numbers and 25, 50, 75, and 100 are unfavorable, average, good, and favorable, respectively. Table 2 shows comparing the obtained scores in selected streets of Shahrekord.

<table>
<thead>
<tr>
<th>Area</th>
<th>Categorization</th>
<th>Access control</th>
<th>Environmental quality</th>
<th>Natural surveillance</th>
<th>capacity threshold</th>
<th>Collective culture</th>
<th>Social solidarity</th>
<th>Communication with outside the neighborhood</th>
<th>Sustainable security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mellat forest park</td>
<td>25</td>
<td>25</td>
<td>50</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>75</td>
<td>50</td>
</tr>
<tr>
<td>Tahlijan park</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>75</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>75</td>
</tr>
<tr>
<td>Local parks</td>
<td>75</td>
<td>75</td>
<td>25</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>25</td>
<td>75</td>
<td>75</td>
</tr>
</tbody>
</table>

The weaknesses of Mellat forest park can be due to inappropriate lightening, uncontrolled vegetation, gathering places without prior planning, lack of direct surveillance by people due...
to low residential population around the park, and lack of providing land-use planning for all lands of the park. However, its strengths consist of creating a common space with cultural, religious, and recreational uses. The site map can be seen in Figures (1) and (2).

**Figure 1** Site plan of Mellat forest park

![Site plan of Mellat forest park](image1)

**Figure 2** Mellat forest park

In Tehlijan park, weaknesses consisted of the existence of motorcycles in the park, weak lightening in entrance and exist and parking, small number of parking according to the location of the park, and lands with no use around the park and strengths consisted of suitable lightening for the green area, existence of windows toward the abandoned lands, controlled vegetation, gathering spaces with previous planning, direct surveillance by people, and providing land-use planning. In Figures (3) and (4), site plan and view of the park can be seen.

**Figure 3** Site plan of Tahlijan Park

![Site plan of Tahlijan Park](image2)
The Use of Environmental Design Concepts to Prevent Crime in Urban Areas (Three Recreational Areas in Shahrekord)

Therefore, weaknesses of the local park included lack of infrastructure and welfare facilities, inappropriate lightening, and lack of distinction between cavalry and infantry and the strengths consisted of social solidarity and natural surveillance. In Figure (5), three recreational areas are compared that can be seen graphically. Figure (6) shows graphical comparison of weaknesses and strengths of the selected recreational areas.

5. CONCLUSION

According to the study, it should be attempted to use CPTED approach in urban planning and design. Therefore, with the goal of preventing crimes in the city, the results of this study can
be as follow. In this part, the first generation CPTED theories are considered as the foundation:

5.1. Strengthening natural reserves
Using spaces by users through environmental design solutions
Using signs, symbols, and visual cues through the art of visual communication
Increasing natural surveillances and development of sense of ownership through social entities
Using deterrence strategies by social planning organizations
Using landscaping, fences, and railings in the design of the city

5.2. Access control
Using blocking barriers such as walls and fences
Informing people about entrance and exit
Using appropriate urban infrastructures such as coverings, wall, and landscaping
Appropriate lightening for gates, entrance and the type of access system

5.3. Natural surveillance
Observing urban standards such as lights and boards
Changing land uses through planning in recreational areas
Creating kiosks and newsagents or mobile stalls in recreational areas
The possibility for human presence with service facilities to increase public surveillance
Expanding landscapes with vegetation and appropriate landscaping consistent with CPTED
Expanding landscapes in the orientation of service buildings and parking
Replacing public spaces in areas with low surveillance
Incorporating service activities in areas with low surveillance
Increasing social activities in areas with high crime potentials

2.4. Repair and maintenance
Repair and maintenance of urban facilities such as board and communication signs
Protecting facilities installed using physical protectors in parks, especially lightening facilities
Landscaping based on criteria to expand landscapes and public surveillance

By investigating these cases and optimization measures in recreational areas in Shahrekord, we can be optimistic about the optimization of these spaces. The quality of recreational areas in this study can be one of the important aspects of urban life that by qualitative and field studies, more accuracy can be obtained. Long-term planning in this context and cooperation with urban managers are effective cases in this approach that can improve CPTED.
REFERENCES


