

# The effects of land use in urban crime commitment in the unofficial settlement of Islam Abad, Zanjan

Dr. Alireza Sayafzadeh<sup>1</sup> , Mohammad Javad Hassani<sup>2</sup>

DOI: 10.6007/IJARBSS/v4-i1/554 URL: <http://dx.doi.org/10.6007/IJARBSS/v4-i1/554>

## Abstract

To normatively, rationally and systematically locate urban land use plays an important role in reducing urban turmoils, especially all types of crimes. Based on this, the present paper seeks to analyze the effects of land use patterns in forming spatial patterns of crime by utilizing the descriptive-analytical pattern. The softwares used in this research include: Office Excel for data formation, GIS (Geographic Information System) for the comparative and graphic analysis, Crime Analysis, and Case in the environment of Arc GIS. The statistical society of this research is the number of crimes committed in the unofficial settlement of Islam Abad over the course of one year. The results of this study show that the highest rate of the crimes in Islam Abad were those committed in the vicinity of the residential uses. 199 cases (roughly 62 percent) of the whole crimes of Islam Abad were committed in the vicinity of the residential areas. While, the number of crimes committed in the vicinity of residential areas in the city of Zanjan is 1838 cases (roughly 48.75 percent of the whole crimes). On the other hand, 65 cases of the crimes committed in Islam Abad (roughly 20.25%) in mixed residential uses. In case of Zanjan, such cases are as many as 462, (roughly 12.25%), thus 82.25% of the crimes committed in Islam Abad were recorded in Islam Abad and mixed residential areas. Comparing this number with crimes committed in Zanjan where 61% of which were recorded in residential and mixed residential areas, Islam Abad is 21.25% ahead of Zanjan. Residential use is of great significance in Islam Abad in terms of crime commitment. On the other hand, no other uses required by the residents or related to residential use has ever formed around this area; most of the service uses required by this population either do not exist or are so scarce. Among these uses are sanitary, urban installations, cultural and military uses. This area seems to be in real shortage of leisure time uses. Such uses have great influence in filling the leisure time of the population who lives in that area, and it can make a great contribution to decreasing and preventing crimes. On the other hand, another influenced factor in the high rate of crimes in the studied area is the absence of military use. Lack of military station in the area has resulted in the faint presence of the officers in that specific area of the city, thus rendering the military control of the area impossible. Consequently, as the military control decreases, criminals have more opportunities to commit their crimes.

---

<sup>1</sup> Assistant professor., Department Of Geography, University of Payamnoor ,  
Email:sayafalireza@yahoo.com, (Corresponding author)

<sup>2</sup> MA Geography & Urban Planning, University of Payamnoor,  
Email:Mohammadjavadhasani944@yahoo.com

**Key words:** positional pattern of crime, land use, spatial-frame analysis, Islam Abad, unofficial settlements, crime hotspots

## **Introduction**

The world has become greatly urbanized in the 21<sup>st</sup> century. In 1900, only 10% of the world's population was living in the cities, while this number has reached 50% in present time (UNCHS, 2001; Short, 2006).

Such quick population growth in supercities has caused problems like unofficial housing, unofficial housing, and unofficial settlements in the suburbs of the cities (Anklesaria, 2002).

The quick growth of cities' population has resulted in emergence of various social disorders (higher rates of crime). As criminals dedicate time to wisely choose a suitable place, they prefer places where their crimes can be committed within the shortest time and the least risk. Thus, the frame structure of the cities has great influence in the occurrence of the crime and modifying the place's features will trigger the formation of specific spatial and temporal patterns for wrongdoing. Landuse planning is one of the main aspects of urban planning, which along with the network planning, green and open space, installations, etc. form the main skeleton of the city and determine its future development pattern. Not only does the use planning method play an important role in the quality and efficiency of the city's comprehensive plan, but it also plays a major role, but it also plays a major role in changing the physical and local conditions of the cities to reduce the crime rate. In terms of sustaining the urban environment, the way uses are arranged in the urban space is very important. Appropriate arrangement of coordinated uses together in one place and separating the conflicting occupancies from one another prevent many environmental issues. Identifying the environmental features of every use is very important. In other words, it has to be determined which uses, in which manner and in which range can influence their surrounding environment. 3 important points have to be taken into account while considering the environmental distribution of occupancies:

- 1) Determining the most appropriate seating location for every one of the uses involved in planning (district uses)
- 2) The manner of spatial order and mutual relations of uses with one another;
- 3) The environmental influences of the seating locations of uses on the environment whenever the settlement area is a kind of location use which puts the least possible pressure on the environment, the use itself, and other uses. Based on this hypothesis, it can be claimed that the use is sustained in the best place in environmental terms. Environmental criteria involvement in placing uses can lead to major developments in the image and quality of the urban environments (Emami, 2006, 48).

Methodical, rational and systematic placement of urban landuse plays an important role in decreasing urban disorders, especially crimes. By recognizing the properties and local facilities of crime in cities and making changes in this environment and also conducting environmental planning and designing to eliminate environmental facilities of crimes, city planners can minimize the crime rate in the cities.

Shortage of suitable housing for urban families with low income in developing countries along with high rate of rural settlers migration to cities has led to forming and increasing unofficial

settlements. These unusual nucleuses are usually formed by villagers' immigration to cities and consequently city's inability for attracting and accepting them in official parts with the minimum life facilities. As a result, these areas have paved the way for disorders and incongruities in urban mechanisms on one hand, and physical discontinuity on the other hand. These settlements that usually have ugly faces, low service, poor residents, and uncertain jobs are a suitable hotbed for accepting social disorders. The unofficial settlement area of Islam Abad is among the first great unofficial settlements in Zanjan which was formed in 1971 as the result of villagers' immigration.

### **Theoretical basis of the research**

Compared to developing countries, urbanization is developing very quickly in developed countries. Thus, cities in developing countries face problems like increasing level of unemployment, unofficial economy emergence, unofficial housing, violence, social disorders, crime and other issues. Urban environment is an ideal hotbed for committing all sorts of crimes. Thus, today urban geography has moved beyond its traditional borders and has entered new areas like paying attention to life quality, improving social welfare, fair distribution of wealth, income and facilities, paying attention to the influence of space and urban constructions in individual's personal and social behavior, studying the geography of crime and social disorders in cities and also designing the urban environment for prevention and reduction of urban crimes. The geographical and spatial analysis of crimes in cities tries to come up with appropriate strategies and methods to fight against social disorders and prevent crimes utilizing geographical analysis tools and technologies.

### **Journey to crime hypothesis**

An important issue in geography is the positioning of human settlement and work in the space through locative theories. Utilizing these theories, we can specify the optimized settlement area of actions, people and social events in a specific geographical terrain. Theoretical foundations of locative theories may be used in geographical crime studies. The journey to crime approach is based on the study of the location and distance of the trips criminals take to commit their crimes. Although the term "journey to crime" was first used by Harris in 1980, the origins of these studies can be traced back to White in 1932. He noticed criminals take longer trips for committing crimes against people's properties (like robbery) than trips taken to commit crimes against individuals (like murder or maim). Tuner proposed in another study that journey to crime reduces as we move away from the criminals' house. In other words, there is a negative relation between journeys to crime and the distance from the criminals' settlement area. Another point of significance here is that the distance of journeys to crime depend on factors such as the type of crime, commitment method, timing, and even the value (in financial crimes) of crime (Kalantari, 2001: 82-84).

### **Eyes on the street theory**

Jane Jacobs (1961) in his book (the life and death of American great cities) addresses this issue that there is a close link between crime and physical environment which can be measured and controlled. In his book, he criticizes modern cities which are formed according to zoning pattern and functional separation and proposes mixed application. He praises busy and lively streets.

He considers security and maintaining public peace through the operators' supervision appropriate and believes it will help improve their social relations. One strategy for overlooking spaces is the use of windows and balconies that face streets and public spaces. As a result, more eyes will observe their activities, so there will be less possibility for committing crimes. He believes three factors play major roles in creating freshness in the street and improving security:

- Clear distinction between public and private spaces,
- Providing the possibility of constant visual surveillance on streets and public spaces through windows and terrace, so that everyone in the public space feels there are always eyes watching him.
- Streets and specially their sidewalks must constantly be in use. To this end, attractive uses must be placed in ground floors (Rezazadeh and Kheybar, 2010: 59)

### **The relation between crime and population mass theory**

According to this theory, increase in the level of crimes is in direct relation with increase in population mass. In studying the street crimes of California in 1968, Angels proved the link between crimes and population mass. He also believed in the existence of crime growth and activity mass in city's streets (Kalantari, 2001: 80).

### **Crime Prevention Through Environmental Design Theory (CPTED)**

When in 1971, the article "Crime Prevention through Environmental Design" (CPTED) was first published by C.Ray Jaffery, it created a turning point in relation to studying social disorders and abnormal behaviors, because this issue used to be discussed under the field of criminology (Robinson, 196: 1). Since Jaffery's (1969) and Newman's (1973) research, CPTED has turned into one of the strong sub-divisions of criminology. The evidence for this issue is that in early 1970s and late 1980s, we witnessed the emergence of "Several geographies of crime" which seeks to explore the social ecology of crime and has focused its attention on situation, space, place and territory (Pyle, 1974; Harris, 1974; Davidson, 1981). Yet, we have to admit that many scholars have neglected Jaffery's initiatives. In fact, for more than two decades this theory was never seriously taken into consideration by criminologists and environmental planners and designers. In 1996, Matthew and Robinson published a paper about why Jaffery's theory has pervaded so deeply. While exploring the origins of Jaffery's theory, he studies the various reactions of politicians, architects and urban planners, real individuals, university members, and authorities about this theory. Over a course of 25 years, these reactions turned into the general concept of a theory named Crime Prevention through Environmental Design (CPTED) and evolved. Within the framework of this theory, a lot of efforts were made to realize the relation between environmental conditions and crime (Salehi, 2009: 128-129). Karw (2000) has given the following definition for the concept of Crime Prevention through Environmental Design: "appropriate design and effective use of human-made environment can help reduce fear of crime and crime commitment and contribute to the progress of life." In other words, environmental criminology is the study of crime, felony, and harassment in such a way that their reason is firstly due to special places, and secondly due to the way individuals and

organizations form their activities by spatial- or location-based factors (Bottoms and Wiles, 1997: 305). This view is based on designing and managing the physical environment to decrease crime, felony, and harassment opportunities. Moreover, this view is based on the assumption that criminals and offenders enter a logical decision-making procedure before they commit a crime. In fact, the whole set off CPTED theories recommend a methodology environmental re-planning and re-designing based on which architects and urban planners can reduce fear of crime and felony opportunity and improve life quality (Atlas, 1999: 11).

Crime prevention through environmental design has been demonstrated as a physical-social approach in criminology and urban planning framework. These believes have promoted “defendable space” to a Community-based and holistic approach. This view is always subject to reform and assessment, and it is based upon four key strategies including territory, natural supervision, supporting activities, and access control (Cozens, 2002: 132).

### **Research methodology**

The main hypothesis for this research is that the type and the level of landuse distribution in the unofficial settlement of Islam Abad has influenced the geographical distribution of type and level of crimes and formation of felony spatial patterns in this area.

The research method in this research is that of descriptive-analytical. To study the influence of landuse patterns in formation of felony situational patterns in the unofficial settlement are of Islam Abad, the geographical information system (GIS) and other softwares like Crime Analysis and Case were used.

The geographical information system (GIS) as the main geographical analysis tool for identifying the rules governing the mutual relationships between human (criminal) and life and activity environment or the main place of criminal behaviors is used so frequently. Using geographical information systems in the spatial study of crimes first started in 1970s. Through the tools and techniques of this system, the possibility of preparing location data, sorting, spatial representation of criminal information, information integration and their spatial analysis has been fulfilled (Kalantary, 2001: 60). Preparing a local database about the types and levels of committed crimes, criminals and the victims are among the most important possibilities of geographical information system. Geographical information system is one of the modern tools for identifying crime hotspots. Utilizing this system and other secondary softwares designed for this purpose which are activated in the geographical information system environment, areas with higher crime rates can be identified. Among these softwares are the mass analyzer in Arc View environment and Case in Arc GIS environment. These two softwares may be installed on the above mentioned softwares as secondary softwares and exclusive felony analysis can be done by them. Another function of geographical information software in felony analysis is that this software can be used in predictions, estimations, and foresighting. Predicting the possible areas of crime commitment in future according to the geographical distribution of settlement areas and the activities of experienced and serial criminals or the distribution pattern of criminal goals in the area studied are among these cases (Kalantari, 2007: 48-50).

The statistical population of the current research is the crimes committed in Islam Abad over the course of one year (march 20, 2004 to march 20, 2005) for which files have been made as a criminal event. In this research, we have also used the whole counting method and the whole criminal incidents committed in Islam Abad were studied over one year.

Table 1: exploring the types and levels of crimes committed in the unofficial settlement area of Islam Abad

Crime type	Frequency	Frequency Percent	Percent of the whole city
Felony, conflict, fights, and snickersnee	62	19.31	8.05
Addiction	62	19.31	9.06
Drug smuggling (preparing, buying, keeping and selling drugs)	51	15.89	9.35
Illegal affairs	35	10.90	8.04
Street Harassment	34	10.60	6.10
Illegal sexual affairs	17	5.30	5.72
Fencing	14	4.37	31.11
Burglary	11	3.43	8.8
Goods and alcoholic drinks smuggling	9	2.80	15.51
Selling illegal goods	7	2.18	6.42
Vehicle robbery	6	1.86	5.17
Shop lifting	5	1.55	8.19
Murder	3	0.93	42.85
Public and private property robbery	3	0.93	18.75
Pickpocketing	2	0.64	8.33
TOTAL	321	100	8.51

Source: Zanjan police command, 2005 and the authors' calculations

### Introducing Zanjan and the unofficial settlement are of Islam Abad

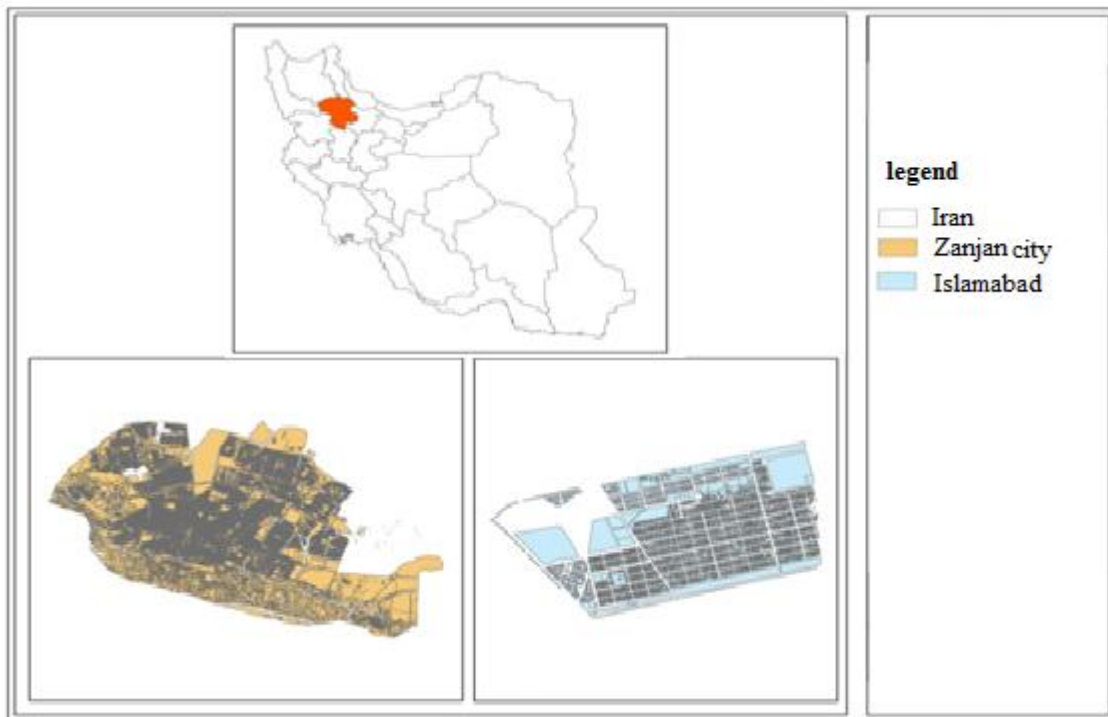
Zanjan is one of the central cities of Iran. It is also the political and economical center of Zanjan Province. As the expansion of every city is accompanied with various problems and events, various residential patterns have formed in cities over the recent 50 years. The unofficial settlements in Zanjan that dates back to 1940s are among the most significant settlement patterns in the city which have greatly influenced the physical development of the city. In terms of natural features and characteristics, Zanjan, with expansion limits to the north due to various heights and to the south due to steep lands and its decline near Zanjanrood and the existence of various orchards, has been greatly influenced by a specific mechanism of the new coming immigrants, unofficial markets, unofficial settlements and land black market.

Studying the demographic developments of Zanjan shows an upward mobility in population growth between 1956 to 2006. This growth rate is more visible in the period between 1966 to 1986. In the first census of human and houses conducted in 1956, the population of Zanjan was

57159 people. This number with the growth rate of 4.61% per year reached 286295 people in 1996. The city's population has doubled in the period between 1976 to 1986. In other words, the population has increased from 100351 in 1976 to 215458 in 1986 (Armanshahr Counseling Engineers, 2004). This growth is mostly the result of villagers' immigration from different parts of the province to Zanjan, and it has had various consequences such as formation of unofficial settlement areas.

The unofficial settlement area of Islam Abad (Safar Abad) located in the northwestern area of Zanjan was first founded as a result of villagers' immigration. The first settlements in that area were built in 1971 by the villagers. Although this area covers only 1.8 percent of Zanjan, more than 11.2 % of the city's population (some 39439 people) live there. With a family size of 4.1, relative mass of 422 per acre, and the pure residential mass of 588 per acre, it is one of the most stagnant areas of the city.

*Map 1: The location of Islam Abad unofficial settlement area in Zanjan*



Source: Authors

In the comprehensive plan of Zanjan, families residing in zone 2 of the city which also includes Islam Abad were classified as the average and low classes of the society. According to the results of Halaji's sampling and based on the income classifications in the statistical center, 60% percent of the families living in the area are grouped as low income families, 37% as little income families, and 13% as average income families. 69% percent of the families questioned were desperate to get out of their current financial conditions. Some 60% of heads of household had temporary jobs, and only 40% had permanent jobs (Halaji, 2002: 176). Islam Abad can be considered as a rich source of workers, especially construction workers in Zanjan. Additionally, it can also be considered as a source of workforce for other jobs like knife making, scrap collection, and carpet weaving. Thus, most of the people who live in the area belong to the lower classes of society and earn little money. Lack of required skills has resulted in

unemployment or their employment in false, nonproductive jobs (colportage, hawking, etc.) or in daily-waged labors in unofficial sectors that earns them little money despite their hard job. The unofficial settlement area of Islam Abad has been built without supervision and fulfillment of standard construction principles, and it lacks standard infrastructures. Hasty house construction, using non-standard and inappropriate materials, lack of technical supervision in many constructions, weariness of the buildings, inappropriate land division, inappropriateness and inefficiency of sidewalks and communication roads, lack of drainage network for surface waters, severe shortage of services and urban infrastructures, absence of green space, lack of recreation centers, and an environment with low quality of life and full of disease and pollution are among the most significant physical characteristics of the area.

*Table 2: physical characteristics of Islam Abad unofficial settlement*

<i>Characteristics</i>	<i>Specification</i>
<i>Average household in one residential unit</i>	<i>1.5 household in one residential unit</i>
<i>Average area of residential units</i>	<i>91 square meters</i>
<i>Gross residential mass</i>	<i>422 people per acre</i>
<i>Net residential mass</i>	<i>588 people per acre</i>
<i>Gross residential capitation</i>	<i>23.7 square meters</i>
<i>Net residential capitation</i>	<i>16.9 square meters</i>
<i>The quality of buildings</i>	<i>Conservable: 74.8%</i> <i>Newly constructed: 21.1%</i> <i>Restored: 0.1%</i>
<i>The Skeleton of buildings</i>	<i>Brick and iron: 75.5%</i> <i>Metal: 10.4%</i> <i>Brick and wood: 8.1%</i>
<i>Building facades</i>	<i>White cement: 51%</i> <i>Black cement: 14.4%</i> <i>Stone: 7.3%</i>
<i>Building antiquity</i>	<i>Less than 5 years: 7.2%</i> <i>5 to 10 years: 8.5%</i> <i>10 to 20 years: 8.7%</i> <i>20 to 30 years: 70.1%</i>
<i>Building floors</i>	<i>One floor: 75.2%</i> <i>Two floors: 21.2%</i>
<i>Occupation area of the building's units</i>	<i>40-60: 11.1%</i> <i>60-80: 37.4%</i> <i>80-100: 40.4%</i>
<i>Building mass</i>	<i>0-40: 11%</i> <i>40-80: 36.7%</i> <i>80-120: 34.8%</i>
<i>Separation system of building components</i>	<i>0-100: 64.1%</i> <i>100-150: 20.5%</i> <i>150-200: 9.6%</i>

*Source: Authors*



## **Research Results**

The unofficial settlement area of Islam Abad is one of the densest areas of Zanjan. Studying the relative density of Islam Abad region showed that some 422 people settled in every acre, while the relative density in Zanjan is 69 people per acre. In other words, the relative population mass in the area of Islam Abad is 6 times more than the average mass in Zanjan. This characteristic has made Islam Abad one of the densest areas in Zanjan. In addition to the relative population mass, studying the net residential density showed that Islam Abad was much denser than Zanjan, as the net residential mass in Islam Abad is 588 people per acre. However, the net residential mass in Zanjan was 343 per acre. Thus, net residential density in Islam Abad was 245 people (1.7 times) more than that of Zanjan. How the physical environment of cities are used; manner, type and the level of uses can be influential in forming the backgrounds and conditions for crime commitment. On the other hand, some situational features are barriers and obstacles for committing crimes.

Characteristics, type, and the mixture of uses in the unofficial settlement area of Islam Abad is shown in table 3-3. As you can see, 45.70 percent of the area of Islam Abad consists of residential areas, however this number in Zanjan is around 17.6 percent. Thus, residential uses in the areas around Safar Abad is 28.1 percent more than the whole city. More than 11 percent of the lands in Safar Abad are dedicated to mixed residential use. This is 2.4 percent more than Zanjan.

On the whole, some 56.7 percent of the whole area of Islam Abad consists of residential and mixed residential uses, while only 20 percent of the whole area of Zanjan is dedicated to this use. As a result, the level of residential and mixed residential uses in Safar Abad is 3 times as much as the whole city of Zanjan. This shows an imbalance in dedicating residential uses in this area and the same thing has caused the population density to be significantly high and dense in this area. In fact what is important about the type and level of dedication of urban land uses in Safar Abad is that the level of residential and mixed residential uses in this area is much more than the average level in Zanjan. On the other hand, some urban uses either do not exist in the area or are so scarce and it is far below the per capita required by the citizens of the area. Only 3.69 percent of these uses are dedicated to high education uses, 0.23 percent to high school education, 0.98 percent to junior high school education, 0.39 percent to elementary education, 1.59 percent to other types of education, 0.50 percent to educational spaces uses, while the educational use in Zanjan has occupied 4.2 percent of the area of the city. The high rate of relative population density in Safar Abad indicates its residents' need to more educational spaces. On the other hand, from the whole area of Safar Abad region, only 0.12 percent is dedicated to sanitary uses, and only 0.01 percent is dedicated to urban installations. Their severe shortage can easily be felt in Safar Abad. Another even more important point about the type and level of landuse dedication in Safar Abad is the shortage of some essential uses, in a way that some urban uses related to leisure time such as cultural uses do not exist in the area, while the cultural use percentage covers 0.2 percent of the whole are of the city.

Table 3: landuse in the area of Islam Abad in 2006

Landuse type	Number	Number percentage	Area (square meter)	Area percentage
Residential	5922	74.90	540213.409	45.70
Mixed residential	1143	14.43	130082.419	11.00
Special residence	1	0.01	61.433	0.00
Commercial	623	7.86	20506.861	1.75
Religious	11	0.13	4977.239	0.42
High education	1	0.01	0.916217	0.23
High school education	2	0.02	11649.077	0.98
Junior high school education	2	0.02	4712.813	0.39
Elementary education	6	0.07	18601.742	1.59
Other educations	1	0.01	7.1760	0.50
Administrative	2	0.02	71997.806	6.09
Sanitary	5	0.06	1506.007	0.12
Urban installations	4	0.05	162.066	0.01
Green space	18	0.22	39599.344	3.36
Transportation and the warehouses	1	0.15	9567.302	0.80
Under construction	3	0.03	494.12	0.04
Bare land	135	1.70	1.7872049	17.35
Ruins	4	0.05	693.22	0.05
Health	6	0.07	76560.56	6.49
Workshop and industry	15	0.18	737.254	0.06
Athletic	1	0.01	36306.144	3.07
TOTAL	7917	100	1182179.29	100

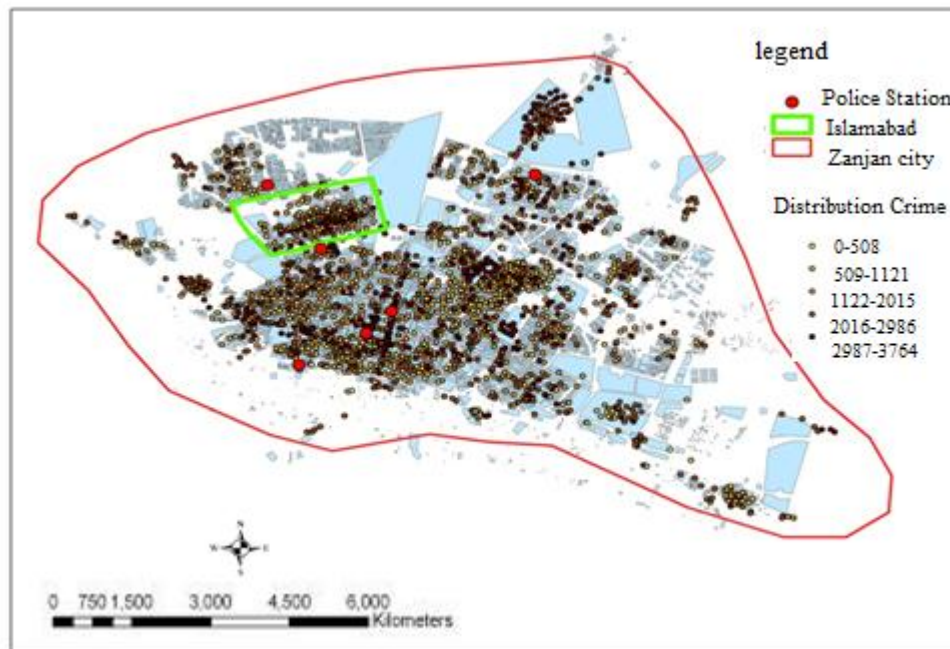
Source: detailed plan for Zanjan, 2006; Calculations by authors

One of the most important uses in cities which plays an important role in the health and organization of urban neighborhoods is the police use. One reason for the high crime rates in cities is the lack of supervision and involvement on the side of police and their timely attendance in crime scenes. Absence or weakness of organizations like police will create insecurity and fear in the hearts of people and encourages the criminals. Studies suggest that the absence of police and other security forces in cities is an important factor that contributes to the high crime rates. When criminals are sure about the absence of police and other security forces, they will perform their wrongs more easily, and they usually choose areas for their

activities where police has the least access. If criminals feel they might be spotted by people or police while doing their crimes, the probability of their crimes decreases.

Seemingly, one reason for the relatively high crime levels in Safar Abad is the absence of military bases and stations in these areas. Map 2 shows the distribution of police centers in Zanzan and the situation of Safar Abad in relation to these stations. As we can see, there are no police station in Safar Abad area and this use's percentage in Safar Abad is zero, while 4 percent of the whole area of Zanzan is dedicated to police use. Absence of military stations in this area has declined the presence of security forces in this area, thus rendering the possibility of appropriate military control of the region little. As the security control shrinks, felony opportunities for the criminal goes up and they will be able to pursue their criminal practice and hide themselves more easily and comfortably.

*Map 2: distribution of police stations in Zanzan and the position of Safar Abad in relation to them*



Source: Authors

The number of crimes committed in every use around Safar Abad in comparison to Safar Abad is shown in table 4. As the table shows, the highest number of crimes committed in Islam Abad has been recorded in the vicinity of residential uses. 199 cases (roughly 62 percent) of the crimes committed in Islam Abad have been recorded in the residential areas of this zone, while the number of crimes committed in Zanzan in the vicinity of residential areas is 1838 cases (roughly 48.75 percent). On the other hand, 65 cases of the crimes (roughly 20.25 percent) committed in Islam Abad have been recorded in mixed residential uses. This number is 462 cases (12.25 percent) in Zanzan. Thus, 82.25% of the crimes committed in Islam Abad have been recorded in residential and mixed residential area. This number is 21.25% more than the similar cases of crimes committed in Zanzan. So, residential use is very important in Islam Abad in terms of crimes commitments.

*Table 4: frequency and percentage of crimes committed in different uses of Safar Abad and their comparison with Zanjan*

<i>Landuse type</i>	<i>Number</i>	<i>Number percentage</i>	<i>Area (square meter)</i>
<i>Residential</i>	199	62	10.82
<i>Mixed residential</i>	65	20.25	14.06
<i>Commercial</i>	28	8.73	9.24
<i>Bare land</i>	14	4.36	8.91
<i>Green space</i>	6	1.87	1.68
<i>Health</i>	4	1.24	15.38
<i>High school education</i>	1	0.31	1.88
<i>Junior high school</i>	1	0.31	6.25
<i>Religious</i>	1	0.31	10
<i>Urban installations</i>	1	0.31	14.28
<i>Athletic</i>	1	0.31	6.25
<i>Special residence</i>	0	0	0
<i>High education</i>	0	0	0
<i>Elementary education</i>	0	0	0
<i>Other educations</i>	0	0	0
<i>Administrative</i>	0	0	0
<i>Sanitary</i>	0	0	0
<i>Transportation and warehouse</i>	0	0	0
<i>Under construction</i>	0	0	0

<i>Ruins</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Workshop and industry</i>	<i>0</i>	<i>0</i>	<i>0</i>
<b>TOTAL</b>	<b>321</b>	<b>100</b>	<b>8.51</b>

Source: Author

The crime commitment rate in the commercial use areas of Islam Abad had the frequency of 28 cases (roughly 8.73%), while the crime commitment rate in commercial use areas of Zanjan with a frequency of 303 cases was roughly 8.04%. Thus, the crime commitment rate in commercial use areas of Islam Abad unofficial settlement was 1% more than Zanjan. Studies of the crimes committed in the unofficial settlement of Islam Abad shows that 14% of crimes committed (roughly 4.36%) were recorded in bare land areas. While 157 cases (roughly 4.17%) of the crimes committed in Zanjan were recorded in bare lands. Consequently, the rate of crime commitment in bare land in Islam Abad is 1% more than Zanjan. The high share of residential use in Islam Abad and the lack or shortage of some uses required by citizens has an undeniable influence in increasing public welfare level and increasing social disorders in the area.

*Table 5: frequency and crime commitment percentage in different uses of Zanjan*

<i>Type of use</i>	<i>The rate of crimes committed in the city</i>	<i>Number percentage</i>
<i>Residential</i>	<i>1838</i>	<i>48.75</i>
<i>Mixed residential</i>	<i>462</i>	<i>12.25</i>
<i>Green space</i>	<i>356</i>	<i>9.45</i>
<i>Commercial</i>	<i>303</i>	<i>8.04</i>
<i>Bare land</i>	<i>157</i>	<i>4.17</i>
<i>High education</i>	<i>99</i>	<i>2.63</i>
<i>Transportation and warehouses</i>	<i>94</i>	<i>2.50</i>
<i>Administrative</i>	<i>55</i>	<i>1.46</i>
<i>High school education</i>	<i>53</i>	<i>1.41</i>
<i>Gardens</i>	<i>45</i>	<i>1.20</i>
<i>Workshop and industry</i>	<i>35</i>	<i>0.93</i>
<i>Special residence</i>	<i>35</i>	<i>0.93</i>
<i>Mixed non-residential</i>	<i>29</i>	<i>0.77</i>
<i>Plan 3</i>	<i>23</i>	<i>0.60</i>
<i>Under construction</i>	<i>21</i>	<i>0.55</i>
<i>Elementary education</i>	<i>17</i>	<i>0.45</i>
<i>Junior high school education</i>	<i>16</i>	<i>0.43</i>
<i>Athletic</i>	<i>16</i>	<i>0.43</i>
<i>Tourism and recreation</i>	<i>15</i>	<i>0.40</i>
<i>Police and military</i>	<i>15</i>	<i>0.40</i>

<i>Shelters</i>	11	0.30
<i>Religious</i>	10	0.26
<i>Ruins</i>	10	0.26
<i>Urban installations</i>	7	0.18
<i>Cultural</i>	6	0.15
<i>Other education</i>	4	0.10
<i>Urban equipment</i>	4	0.10
<i>Cemetery</i>	4	0.10
<i>Vocational and technical education</i>	3	0.07
<i>Sanitary</i>	1	0.02
<i>Social service</i>	1	0.02
<i>Agriculture</i>	0	0
<i>Kindergarten</i>	0	0
<b>TOTAL</b>	<b>3771</b>	<b>100</b>

Source: authors

### **Conclusion**

The high number of urban immigrants in developing countries has made the private and public sectors unable to provide them with suitable houses, so many of these families turn over to unofficial settlements. The major characteristics of unofficial settlements are public sanitary crisis, high poverty, and great felony levels. Studying the type and mixture of landuse in Islam Abad shows that the major areas of Islam Abad are dedicated to residential use, in such a way that residential and mixed residential uses in Islam Abad is 3 times as much as the similar uses observed in Zanjan. This shows some sort of imbalance in dedication of residential use in the area. The same reason has made this area densely populated and rush, that is why most of the crimes committed in Islam Abad are recorded in the vicinity of residential uses. 199 cases (roughly 62%) of the crimes committed in Islam Abad were recorded in residential areas, while the crimes committed in the vicinity of residential uses of Zanjan numbered 1838 cases (roughly 48.75%). On the other hand, 65 case of crimes (roughly 20.25%) committed in Islam Abad were recorded in mixed residential areas. This number equals 462 cases (roughly 12.25%) of the whole crimes committed in Zanjan, thus 82.25% of the crimes committed in Islam Abad were recorded in the residential and mixed residential areas. Compared to the number of crimes committed in the residential or mixed residential areas of Zanjan (roughly 61%), this number is 21.25% more in case of Islam Abad. Thus, residential use is very important in Islam Abad in terms of crime commitment. On the other hand, other uses required by the residents or those uses related to residential use have never been formed in this area, and many of the service uses required by the population either do not exist in the area or are very scarce. Among these uses are sanitary, urban installations, cultural and police uses. This area seems to be in real loss in terms of recreation and leisure time uses. The existence of these uses has a great influence in filling the leisure time of the population residing in the area and it can help prevent and reduce crimes. On the other hand, another factor which seems to be largely responsible for the high crime rates in the area is the absence of police use. The absence of police stations in the area

has made the presence of police officers in the area very weak, and the possibility of military control in the area has been reduced to the minimum level. As police control undermines, felony opportunities for criminals increase.

The high rate of residential uses in Islam Abad and the absence of some uses required by citizens has had an undeniable influence in increasing felony in this part of the city. Thus, the type and the manner of using urban lands affect the backgrounds of crime commitment. On the other hand, some situational features act as barriers and prevent felony. The results of the research also indicate that the unofficial settlement area of Islam Abad is one of the most densely populated areas of Zanjan. The population density in the area is 6 times as much as the average population mass in Zanjan, and the highest percentage of Islam Abad area is dedicated to residential use. Some 56.7% of the Islam Abad area is covered by residential spaces, thus leading to higher rates of crime commitment in this area compared to other regions of the city.

### **Recommendations**

Considering the results of this research and their analysis, some recommendations are put forward to reduce the rate of the social disorders in the area of Islam Abad, Zanjan.

- Building pathways and roads in Islam Abad that makes the quick and easy access of police and security forces and emergency services such as Ambulance and fire fighting trucks more comfortable.
- Providing sufficient lighting in streets and pathways. Experience has shown that crimes like robbery, maim and murder are more likely to happen in dark areas than in well-lit areas. Providing sufficient lighting in the unofficial settlement area of Islam Abad can help reduce the cases of crimes committed there.
- Fencing abandoned houses and lands, organizing and empowering physical constructions and social development in the unofficial settlement area of Islam Abad.
- Beautification of the appearance of buildings available in Islam Abad as it has been proved that dirty and bad houses have a great influence in committing crimes.
- Building healthy recreation centers, sport salons, libraries, parks and many entertainment areas to fill the leisure time of the residents, especially the youth. Such an act will make great contribution to preventing crimes.
- Functional refinement of incompatible activities and improving the roles of tourism, cultivation and service based on physical identity, especially by boosting urban spaces at nights and holidays.

For the more active presence of police in the unofficial settlement area of Islam Abad, it is necessary that police stations be appropriately located, and some urban facilities and equipments like proper lighting of streets and pathways and fencing abandoned buildings must be provided. Based on the above mentioned facts and considering various problems in the area studied in terms of physical, social, economic, and cultural conditions and in order to reduce the rate of crime commitment, it seems that appropriate policies for organizing and empowering physical constructions and social, economic, and cultural development of the residents must occupy high priorities in the agenda of urban managers and other stakeholders.

## References

- Emami, Seyed Mohammadreza; (2003), the role of landuse in sustaining urban environment; case study of Jolfa neighborhood in Isfahan, thesis submitted in partial fulfillment of the requirements for the degree of Master of Science, advising professor: Esmael Shi'e (Phd), Elm va San'at Iran university, urban planning department
- Halaji, Habib, (2002), planning for the settlement of low income immigrants (the case study of Safar Abad, Zanjan), thesis submitted in partial fulfillment of the requirements for the degree of Master of Science, Shahid Beheshti University.
- Rezazadeh, Raziye; Kheybar, Solmaz (2010), exploring situational approaches in preventing crimes from the view of architects and urban designers, *Abadi quarterly*, year 20, No. 31 (sequence 66).
- Salehi, Esmail (2009), the role of urban planning (environmental theory) in preventing abnormal urban behaviors, *journal of fine arts, architecture, and urban planning*, No. 39. Pp 127-137.
- Kalantari, Mohsen (2001), Studying the geography of crime and felony in Tehran municipal zones, dissertation presented in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Geography, with an attitude of urban planning, advising professor: Mohammad Taghi Rahnamaiee (Phd), faculty of Geography, Tehran university.
- Armanshahr Counseling Managers (2004), the detailed revised plan for Zanjan
  - Anklesaria, S,( 2002), *'Improving Urban Shanty Towns' Architecture Week, 21 August 2002.*
- Atlas, Randall,(1999),*Environmental Design that Prevents Crime, the construction specifier, Atlas Safety & Security Design. S antamonica.*
- Bottoms, A E and Wiles, P ,(1997), *Environmental criminology. In The Oxford Handbook of Criminology, (eds) M Maguire, R Moran and R Reiner. Clarendon Press, Oxford.*
- Cozens P M,(2002), *Viewpoint Sustainable Urban Development and Crime Prevention Through Environmental Design for the British City. Towards an Effective Urban Environmentalism for the 21st Century, Cities, Vol. 19, No. 2, pp. 129-137.*
- Davidson, R N ,(1981), *Crime and Environment. St. Martin's Press, New York. Economy, 76, 169-217.*
- Harries, K D ,(1974), *The Geography of Crime and Justice. McGraw-Hill, New York.*
- Pyle, G ,(1974), *The Spatial Dynamics of Crime. University of Chicago Press, Chicago.*
- Short, John Rennie, (2006), *Urban theory, a critical assessment, Routledge, New York.*
- United Nations Center for Human Settlements (UNCHS) ,(2001), *Cities in a Globalizing World. London: UK: Earthscan.*