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# Investigating the role of passive defense in reducing natural disasters (earthquake) to enhance security and justice of Tabriz metropolitan

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## ABSTRACT

In general, citizens' lives in cities and metropolitans are subject to a wide range of risks and crises. The urban management and planning in reducing the social spatial disagreements of the urban community has become especially important. Management of crisis means the planning and operation of governmental, nongovernmental, municipal and public authorities and executive bodies by observing, integrated comprehensive and coordinated crisis analysis using existing tools try to prevent crises or, in case of occurrence, take the necessary measures to reduce the effects, prepare the necessary requirements, cope, speed up the relief and improve the situation to normal and routine reconstruction. Space justice is a fair and democratic distribution of social interests and responsibilities in space with different levels. In addition to the military and political content of defense on the urban, national, and regional scale, defenses of established space constituents are also used. Therefore, the overall purpose of this research is to analyze the role of passive defense in the safety of cities in the event of natural crises, in particular, earthquakes in the metropolitan area of Tabriz. In this survey study, the method is descriptive and the type of research is applied. In order to collect data from 1600000 participants in Tabriz, two types of questionnaires were used. The first type (384 persons) was 180 people from target areas (Yusef Abad, Ahmad Abad, Seylab and Rezvan Shahr) and 204 people from other neighborhoods. The second type, among the experts and managers of crisis management, was 118 individuals, selected by random sampling according to the Morgan table. The participants were selected through simple cluster random sampling. SPSS software and descriptive and inferential statistics were used to analyze the data. The results showed that there is a relationship between urban planning in Tabriz and passive defense in the safety of urban environments. The positive, direct and incremental relationship between the two variables "urban planning" and "economic planning" with "passive defense" was confirmed with a high confidence of 99%. There was also a positive, direct and incremental relationship between the two variables "social planning" and "passive defense" with a high confidence of 95%.

**Keywords:** *Passive defense, crisis management, urban security, Tabriz metropolitan, space justice.*

**Introduction**

In general, citizens' lives in cities and metropolitans are subject to a wide range of risks and crises. These crises always threaten the safety and security of the city of households, individuals and citizens at local, urban and national levels. Although these crises may originate from different sources, in general, they can be divided into three categories, namely: 1. The crises caused by shortages of vital human needs such as food, clothing, housing and health, 2. Most notably crises that originate from the political, environmental, social, and economical nature of people's lives, are the over-population density, ethnic and racial disputes, lack of work and income due to economic crises and other urban crimes. And 3. those crises that occur naturally (earthquake, flood, storm) and man-made (bombing, urban turmoil, terrorism, etc.). The difference between these crises and the second set of crises is due to the volume and depth of the effects. Because the damage and losses caused by these crises can be very heavy. Knowledge about crisis forms an important part of the process of crisis management and passive defense. Therefore, the more precise recognizing of crises and its comprehensive dimensions are helping greatly to crisis control and the implementation of passive defense strategies (Branscomb, 2006: 6). In the event of crisis or turmoil, the basic values of a region, city, or country are often threatened. These fundamental values can include public security, urban welfare, citizens' lives and property, corporate property, government legitimacy and administrative stability. Creation of security is very important in crisis environments. Therefore, security is one of the fundamental and basic factors lack of which creates a crisis. Today, security development in metropolitan areas is one of

the most important tasks of governments (Coaffee, 2009: 44).

Cities should always be addressed by experts of different sciences, due to the fact that most of the country's population is dominated by economic centers, political, cultural, social and governance centers in countries. The larger population, compression and high density of the buildings and the population of big cities make the above issues more complicated. In the new definitions of sustainable development, the role of urban management and planning in reducing the social spatial disagreements of the urban community has become especially important. Because in new debates on sustainable development, emphasis is put on human development, and empowering socially disadvantaged groups as a necessary condition for achieving progress and reducing poverty is a strategy for empowering cultural, social, economic and political talents. Obviously, attracting public participation as paving the way for sustainable development can be the result of this strategy. This is not possible except through policies based on the issues of the priority of disadvantaged groups and the more efficient allocation of resources, which are themselves major issues of social justice (Statistical Report of Imam Khomeini, 2002: 9). Social justice in the city is the maintenance of the interests of various social groups in general and target groups in particular by optimal distribution of urban resources, incomes and expenditures. For this reason, environmental issues are now urgent with the emphasis on the synonyms of environmental justice and social justice concepts, the need for social auditing (from public institutions and organizations, etc.) as the basis of environmental auditing. Therefore, the main goal of urban planners is to

achieve a fair distribution of public resources (Marsosi, 2004: 22).

Familiarity with various types of crises will help urban planners to take appropriate strategies to deal with them and provide the city with optimal security. Among the most important strategies of planners to deal with crime and crises in metropolitan areas are using such effective judicial systems to deal with crime, optimize supervision and care, develop social strategies, design public space and set up better transportation systems, optimize employment for young people, communication development and the promotion of urban safety and security (Fardroo, 2009: 32). Research on urban crisis management has shown that crisis management is an important part of the urban crisis management and safety management process. Therefore, recognizing the crisis as well as its dimensions is great help to optimal control of the crisis and implementation of security strategies. Therefore, in the category of safety and urban security, the effectiveness and overall impact of executive responses to crises or chaos depends on the strategies developed at the stage of readiness. In many crisis management programs, preparedness and response phases are integrated. Conducting scheduled conferences and regular counseling sessions among active organizations in crisis management can increase the impact of response programs in urban disturbances and crises (Abbott and Roge, 2006: 12).

According to the definition, accidents and disasters are events that disrupt the routine social activities, and it is more than the ability of the affected area to deal with and bring financial and living harms. Effective management of these destructive and harmful events depends on the power to predict the complications and the disasters caused by the incident and to plan for effective response to the problems caused by them (Khankeh, 2012: 7).

Unprecedented and unexpected incident is the situation in which the necessary means and equipment to have a normal life fail to function as a result of a sudden natural or artificial disaster and the devastating and devastating impact of an incident eliminates the ability of a community to meet the needs and demands of health care. In other words, unexpected incident is referred to any situation or natural or artificial condition that results in damage to property and assets and personal injury to individuals. Unpredictable incidents, always as an undeniable part of human life, have threatened human life in different forms such as volcanoes, earthquakes, floods, hurricanes and so on (Maleki and Shojaei, 2010: 2). Any sudden unforeseen events that cause the weakening and loss of economic, social and physical capabilities, such as causality and financial damage, the destruction of infrastructure and the reduction of employment in the community, are introduced as natural disasters. Significant examples include earthquakes, floods, droughts, natural pests, volcanoes, and forest fires and atmospheric phenomena. There is a possibility of occurrence of incidents at any time and place, and often without previous alarms (Azizpour et al., 2011: 111).

Earthquake is one of the natural disasters occurring once in a while in all corners of the world. Our country is also located in an area of the earth that is very tumultuous and moving. In addition, experience has shown that the occurrence of any severe earthquake in Iran has caused a lot of causality and financial losses. An overview of the history of terrible events shows that earthquake always causes the destruction of the nation's soul and property. Also, some cities that are signs of the growth and progress of modern life, are themselves exposed to the most severe natural hazards and risks of human

activities. Our country is geographically located on the earthquake line in the world and is therefore frequently exposed to earthquakes. The review of the most important natural disasters occurred over the past fifty years and the damage caused by them in the world is estimated at about eight thousand people in a month. The country of Iran has always faced earthquakes because of its geographic location. Due to their severity, earthquakes destroy our cities and a number of our citizens every few years. Over the past three decades, terrible earthquakes have occurred in Boeen Zahra (1963), Beyaz Plain (1969), Qir (1979), Gulbaf Kerman (1982), Manjil (1991), and the most devastating ones in Bam (2004), which reflects the vulnerability of our country. The occurrence of such earthquakes has caused many human and economic losses due to the lack of planning beforehand to confront them and the lack of readiness to deal with their adverse effects after the occurrence. It should be noted that, as expected, earthquakes in the country, towns and villages should be waiting for damage and waste resulting from it, in other words, the earthquake crisis. Issues such as mortality, injury, destruction, contagious diseases, social delinquency

and migration are the permanent features of these crises, especially in the third World countries. Human efforts to cope with the earthquake have opened a window called crisis management. In fact, crisis management involves a series of actions that, after the earthquake, limit the extent of the crisis it poses and makes the crisis manageable. According to Figure 1, most regions of Iran have a relatively moderate and high risk (In Figure 1, the area with a very high relative risk, the region with a lower relative risk and the other areas are shown with the darkest color, the brightest color and between the two colors, respectively).

According to the current statistics, an earthquake of magnitude of six every year, an earthquake with a magnitude of seven in a decades and about 200 large and small earthquakes occur annually around Iran indicating extreme seismicity of this area of the earth. The movement of the hotspots and past figures indicates that almost all industrial centers in the country located near major cities are always subject to earthquakes. Figure 2 shows the seismic zoning map of East Azarbaijan.

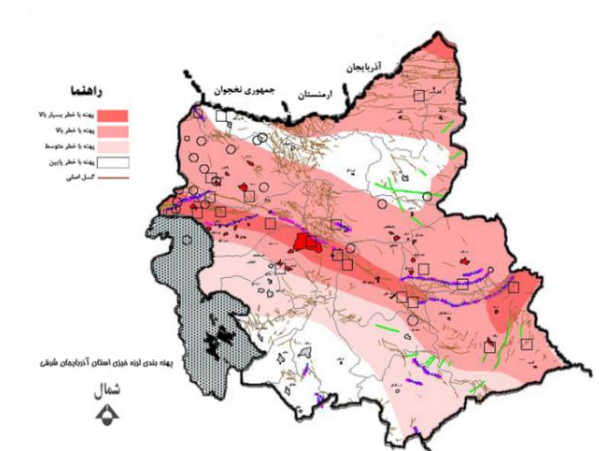


Figure 2. Seismic zoning map of East Azerbaijan

Some of the important dates of the earthquake occurrence in Tabriz are listed in Table 1.

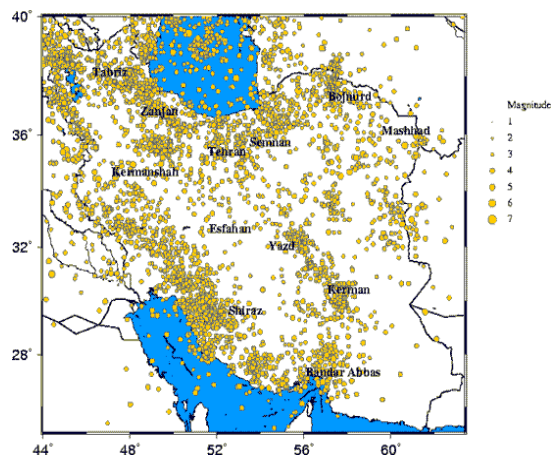


Figure 1. Dispersion map of earthquakes recorded in Iran

Tabriz was razed to the ground in 244 AH during the reign of the Abbasid caliphate and rebuilt before the

end of Mutawakil's rule. Tabriz suffered a severe earthquake in 434 AH. The earthquake caused significant damage to Tabriz in 1780. Table 1 shows

the deadliest earthquakes in Iran from 1910 to 2005 (Mousavi, 2009).

**Table 1. The Deadliest Earthquakes in Iran (Source: Mousavi, 2009)**

<i>Occurrences</i>	<i>Great</i>	<i>Month Occur</i>	<i>Year of occurrence</i>
Duorood	7.4	January	<b>1910</b>
North of Khorasan	7.2	October	<b>1930</b>
Salmas	7	May	<b>1931</b>
Saravan	7	June	<b>1935</b>
North of Khorasan	7.2	October	<b>1949</b>
Larijan	7.4	July	<b>1958</b>
Hamedan	7	December	<b>1948</b>
Boeen zahra	7	September	<b>1963</b>
Beyaz Plain	7.3	August	<b>1969</b>
Bandar Abbas	7	March	<b>1978</b>
Tabas	7.7	September	<b>1979</b>
Qain	7.3	November	<b>1980</b>
Kerman	7.1	August	<b>1982</b>
Manjil and Roodbar	7.4	June	<b>1991</b>
Qayenat	7.2	May	<b>1998</b>
Bam	6.8	January	<b>2004</b>
Zarand	6.4	March	<b>2005</b>

### **Background Research**

As noted earlier, the research conducted in the Urban Management Department indicates that crisis is an important part of the crisis management process and its recognition of the optimal control of the crisis and the implementation of security strategies is of great help. Here are some examples of this research:

Rezaei, a researcher of the passive defense organization in the article titled "Analysis of locations in defensive logistic and passive defense", concluded that "Proper placement has always been the first and most important step in the passive defense process. In this regard, efforts should be made to select appropriate areas based on the constraints and capabilities of the plan. In this process, descriptive and spatial information is

processed simultaneously. It should be noted that the required studies are very wide and widely available. Using satellite imagery and GIS, an important part of these studies can be done without physical presence in the area, but it should be noted that library studies require accurate information and observations, ground and field measurements (Rezaei, 2013: 2). In the research of Zargary and Mesgary Hushyar, they have concluded that "Given the similarities found in some types of natural hazards and human-made threats, it is possible to assess the potential hazards in each location by optimizing passive defenses in order to reduce the risk of various types of hazards, such as reducing earthquake damages and vibration of the explosive bombs. Interaction between passive defense measures against humanitarian threats on the one hand and its overlap with other natural hazards,

such as earthquakes, on the other hand, can lead to architectural stability. Thus using the principles of passive defense in comprehensive crisis management programs, using effective measures along with low cost and multi-purpose plans in the pre-crisis preparation phase can be used to greatly increase the severity and extent of damages and losses caused by the dangers of the crash (Zargar and Mesgari Hoshyar, 2006: 6).

Delavari and Jalali in 1388 in their research titled "The determinant role of passive defense in crisis management and its implementation methods" have addressed the role of passive defense in Iran and its important role at the time of the crisis and its methods for studying and using in vital arteries. The results of their research show that passive defense strategies are very effective in managing humanitarian crises. Urban planning and designing, identifying vulnerabilities, zoning hazardous areas in cities, and strengthening organizations involved in crisis and security management can be very effective in the stability of cities against insecurity (Recchia, 2005: 34).

In "On earthquake and urban crisis management, a case study: The city of Babol", the aim was to identify the ways to reduce the vulnerability of the earthquake using geography and urban planning techniques and the urban management approach, and express its policies and strategies (Abolhasani, 2010). Researchers have investigated the factors affecting urban vulnerability and offered solutions in urban design and architecture with an over-the-air defense approach (Faraji and Qarakhlo, 2009).

Schmidelin et al. (2011) studied the casualties of the earthquake model and its social vulnerability in Charleston, South Carolina. The

results of this study indicated that this region has experienced a high degree of social vulnerability. Therefore, there may be more barriers to post-event recovery in areas affected by social vulnerability (Schmidlein et al, 2011).

Inan (1999) studied post-earthquake housing recovery in Mexico City and Los Angeles, and how to plan for crisis response institutions. The study argues that the success of planning institutions throughout the crisis, mainly due to everyday issues, which was usually neglected, creates limitations under normal circumstances (Inan, 1999).

Rashed (2003), in research on measuring urban vulnerability to earthquakes by combining physical and socioeconomic indicators using the AHP method in the GIS environment, analyzed the vulnerability of the city of California to earthquake. AHP and fuzzy methods were proposed as reliable methods for investigating the vulnerability of cities to earthquakes. Fernandez (2009), in his doctoral dissertation titled "Geographic information for measuring the impact of earthquake vulnerability" studied the zoning of Social and Physical Vulnerabilities in Medellin city of Columbia.

Cheryl Chui et al. (2014) in "Preparation for developing directions in the field of earthquake crisis management in Taiwan" has reviewed the changing orientations in crisis management. The results of this study indicated that ACF is an effective tool for changing Taiwan's orientation towards natural disasters.

Mamoura Murata (2014) investigated appropriate measures in the prevention of earthquake hazards. The results show that prevention, like rebuilding proper building codes, requires time and cost.

According to a study by Asghari et al. (2012), entitled "The effect of urban texture on reducing earthquake-vulnerability", it has been concluded that the growing trend of urbanization and urban population are a potential source of significant damage during natural disasters. Distribution of cities in vulnerable locations, the old and worn-out texture of most cities, the existence of low-rise structures and buildings in some cities, the expansion of communication networks and urban infrastructure, and nonconformity of the most basic safety tips in urban construction and on the other hand unplanned growth and development of the city, provides extensive damage caused during the earthquake. However, this is becoming more and more important if the city is faced with the phenomenon of unplanned expansion of informal settlements, especially in neighboring areas of the fault. Among the various levels of physical planning, the most effective level to reduce the vulnerability of cities to earthquakes is the intermediate level or urbanization. Urban context as an urban planning concept plays an important role in the city's vulnerability to earthquakes. In assessing every urban texture, based on indicators such as the size and shape of parts, the ways of accessing them that is characterized by influence of natural and geographical factors as well as artifact factors, such as the network of main ways and social and economic factors, it should be noted that each of them has various patterns that recognize and categorize patterns for each of these indices in order to assess the reflection of urban texture and residential areas during natural disasters (Asghari Zamani et al., 2012). The aim of this study was to provide solutions to increase the effectiveness of non-operating defense components in confronting natural disasters and reduce their effects in vulnerable parts of Tabriz and

provide effective strategies for improving and promoting the performance and ability of managers and practitioners of crisis management and non-operating defense of the community in crisis management.

### **Aims and hypotheses**

The overall objective of this research is to analyze the role of passive defense in the safety of cities in the event of natural disasters, and in particular, the earthquake in the metropolitan area of Tabriz, which has four hypotheses:

Hypothesis 1: There is a relationship between urban planning in Tabriz and passive defense in the safety of urban environments.

Hypothesis 2: There is a direct relationship between economic planning in Tabriz and passive defense in the safety of urban environments.

Hypothesis 3: There is a direct relationship between physical planning in Tabriz and passive defense in the safety of urban environments.

Hypothesis 4: There is a direct relationship between social planning in Tabriz and passive defense in the safety of urban environments.

### **Theoretical Principles**

Passive defense refers to a set of actions which do not require the use of weapons and armaments and can be used to prevent financial losses to vital and critical military and civilian and human casualties, or minimize the amount of damage and casualties caused by the enemy's air missile attacks and bombardments (Jalali and Tajvar, 2008).

Passive defense is a set of non-insurgent activities that increase deterrence, reduce vulnerability, sustain vital activities, enhance sustainability, and facilitate crisis management against threats and crises (Hashemi, 2008: 6). It is the

use of methods that can minimize the effects of the crisis and the attack. In this type of defense, unlike the first type, no military weapons are used (Ziyari, 2008: 134). Passive defenses are all the principles and actions (non-use of weapons and armament) that prevent or minimize the use of financial damages to equipment, vital and critical military and civilian installations, and financial and mortal losses (Nabati, 2005: 52). According to some researchers, the difference between the agent and the passive defense is based on solutions and strategies developed by humans, which minimizes the negative effects of the crisis. In these programs, military equipment is never used (Asghryan Jeddi, 1995: 14). Passive defence actions include covering, dispersing, dividing and moving, deception, locating, announcing news, survival, fortifications, camouflage, concealment, deceptive replica, and secure structures. In the passive defense, all the institutions, forces, organizations, industries, and even ordinary people can play an effective role, while they are solely responsible for the agent's defense, such as anti-aircraft systems and interceptor aircraft. Therefore, the most common foundations of passive defense approach are defined below:

Conservation refers to all the measures and strategies that are being used to prevent the perceptions of perpetrators to sensitive centers and organizations. This category is important in times of crisis in metropolises, because protecting critical security and security centers can reduce many secondary crises.

Control is a set of measures that are implemented before and after the crisis to minimize the amount of damage and casualties resulting from the incident.

Injury is the damages and losses caused by the phenomena of a potential or actual disaster to human forces, equipment and facilities in the range of severity from zero to a hundred percent. The damage done to metropolitan areas in the event of a crisis occurs from both human and physical dimensions. The strategies of urban planners and managers should be formulated with regard to these two dimensions and take into account preventive strategies (Coaffee, 2009: 34). The damage done to metropolitan areas in the event of a crisis occurs from both human and physical dimensions. The strategies of urban planners and managers should be formulated with regard to these two dimensions and take into account preventive strategies (Coaffee, 2009: 34).

Vital centers are centers that have extensive national activities and the existence and continuity of their activities is vital to the survival of a city or country, and the injury or the occurrence of a crisis in them can create major disruptions in the city or country. These centers are often located in metropolitans and their safety and security are very important in the event of a crisis.

Defense is said to be a set of strategies and solutions that require the use of all tactical facilities to deal with potential crises.

Active defenses are used to use all military weapons and tools to deal with the enemy. Therefore, operating defenses means the use of offensive actions and programs aimed at preventing the advancement of the enemy. (Department of the Army, 2006: 19).

Space justice is a fair and democratic distribution of social interests and responsibilities in space with different levels. Space justice, by focusing on the fact that space is produced socially and the space created by social relations, strengthens the concept of social justice (Bromberg et al., 2007).



Crisis management is set of tasks and decisions that are made in dealing with the crisis, aimed at reducing the crisis, crisis management and crisis reduction and resolution. All actions related to prevention and risk management, organization and management of the resources needed to respond to

the crisis. Crisis management includes programs, structures, and regulations that help assist the government and non-governmental organizations in coping with disasters (Rezaeian, 2006).

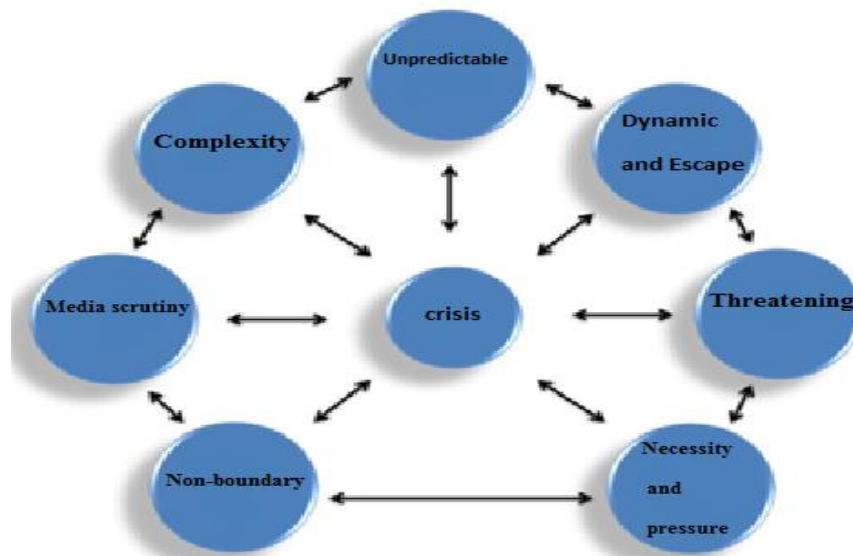


Figure 3. Explaining the features of the crisis (Hosseini et al., 2013: 63)

In the management of crisis and passive defense, all organizations work together to prioritize, integrate communication policies, coordinate information and decisions, provide systematic and accurate hierarchies of planning and management to deal with the crisis and reduce its negative impacts (Movahedinia, 2006: 56). Therefore, urban managers must play a very important role in managing crisis management with realistic views on management systems (Zhou, 2011: 19). Correcting the level of crisis and proper management plans can be a good solution for a comprehensive management of crisis and passive defense (Khodaei et al., 2007: 6). Urgent planning and design at city level, determining vulnerabilities, zoning hazardous areas in cities, and strengthening organizations involved in crisis management and security can be very effective in the

stability of cities against insecurity (Recchia, 2005: 34).

Management of crisis means the planning and operation of government and nongovernmental, municipal and public authorities and executive bodies that by observing, integrated comprehensive and coordinated crisis analysis using existing tools try to prevent crises, or, in case of occurrence, take the necessary measures to reduce the effects, prepare the necessary preparations, cope, speed up the relief and improve the situation to normal and routine reconstruction. Meanwhile, in Iran, in a macro perspective, crisis management is considered as a separate, not a dynamic process. And in most cases, they summarize crisis management in the aftermath of the crisis, and only after the crisis, they form the

crisis headquarters (Hataminezhad and Janbabnezhad, 2007: 63).

### **Data and Methods**

This survey study is descriptive/applied research. Questionnaires have been used to collect information from library methods from articles, theses, websites and field methods. The questionnaires used in this study were of two types. The first type was selected from 384 people of Tabriz 1,600,000 population, 180 participants were selected from target areas (Yusef Abad, Seylab (Ahmad Abad, Molla Zeynal, Idali and Rezvan Shahr) and the remaining (204) from other neighborhoods of the city were selected randomly for comparing and checking the differences and coordinates. The second questionnaire was administered among experts and managers of crisis management in 118 people based on Morgan's table. Sampling method was cluster simple random one. And the target population was the heads of urban households in Tabriz. Descriptive and inferential statistics were used to analyze the data. At the level of statistics, the frequency and percentage of the T-groups were descriptive and the Pearson coefficient and independent test, as well as the one-way ANOVA were used for inferential statistics. All data were analyzed using SPSS software.

### **Scope of the Research**

The city of Tabriz is located on the western side of East Azerbaijan Province and in the eastern and southeast of Tabriz plain. With an approximate area of 250 km<sup>2</sup>, at position 38° 11' 46" eastern, 38° 09' 38" western, north latitude, south with an average elevation of 1,340 meters above sea level in the valley named Tabriz, 50 kilometers northeast of the lake Urmia and also 50 km north of the northern slopes of Sahand Mountains are located in the middle of the province. The city of Tabriz with the population of 1,800,000 is the most populous city in the northwest of the country, followed by Tehran, Mashhad and Isfahan, the fourth largest population in the country. Figure 4 shows the position of the study neighborhoods (<http://www.mytabriz.ir/?type=page&page=Tabriz-Map>). The study neighborhoods in this study include Yusef Abad, Seylab (Ahmad Abad, Molla Zeynal, Iddali) and Rezvan Shahr as the marginal texture of Tabriz and mainly in marginal settlements in the north. The main features of this texture are its establishment in inappropriate lands with very steep slopes and tall slopes, disturbance of the communication network and the lack of urban amenities. These parts are considered as the most densely populated areas of Tabriz and have the highest average of density in the city.



**Figure 4. The map of the study neighborhoods: Yusef Abad, Seylab (Ahmad Abad, Molla Zeynal, Idali) and Rezvan Shahr in Tabriz (Source: Tabriz site, <http://www.mytabriz.ir/?type=page&page=Tabriz-Map>)**

### Geological and Tectonic Properties

Tabriz is located on the fault system, part of the system along a large slum in the northwest of Iran and eastern Turkey. One of the most striking flaws in Azerbaijan is the "Northern fault of Tabriz". The location of Tabriz in the vicinity of the two lines of the northern fault of Tabriz and the Azarshahr fault (Dehkarkhang) causes the occurrence of any of these active faults in Tabriz and its surroundings to be subjected to an earthquake. Research conducted by Dr. Zare and Dr. Ghanbari, as well as the determination of faults by Burberry, indicates a high risk of earthquakes in this historic city. This fault, which extends parallel to the main road of Tabriz-Bountyabad, caused the earthquake in 1721, with a magnitude of 6.6 degrees. Although this fault did not have a definite activity in the course of the century, there is some evidence that it can resume. Statistical data also shows that the return period of severe and destructive earthquakes in Tabriz could reach about 260 years (Zare, 2001).

### Description and Analysis of Results

One of the elements of town planning and designing in worn-out structures is the achievement of city stability, creating city safety and decreasing

human vulnerability due to natural and human hazards, and it is necessary to improve the living conditions (qualitative and quantitative) of citizens which is as safe as possible for the city and to protect citizens from the risks and incidents. Given the fact that there is a direct link between passive defense and urban planning, which means that as much as possible the consideration of passive defense components in urban planning, the safety of urban environments will be more in the face of natural disasters and earthquakes and will increase the tolerance threshold in urban neighborhoods. According to this and based on the observations of the writers of the study neighborhoods, they are at the low level of safety. The connection between social planning and passive defense is close and straightforward and this means that social planning is important in reducing the risks of natural disasters and it should be considered the crucial issue of passive defense in the social planning that reduces class distances and social justice in the urban areas and neighborhoods. Since economic power is an important factor in the location of urban neighborhoods and attention to the health and safety of residents, as a result, passive defense and

economic planning are interconnected and it's possible to say that they interact more than others. The need to address the relationship between physical planning and passive defense is clearly evident from the results, and the high percentage of solidarity between them confirms this claim, because the major physical planning is important in planning quality.

The most important affecting organizational, environmental, social, economic and political as well as geographic and climatic factors on the passive defense in the metropolitan area of Tabriz, the atmosphere of trust and empathy factors among members of member organizations, the presence of committed experts in the body of passive defense, the presence of high-educated forces in the management of passive defense, the presence of specialist staff for counseling centers and holding training courses on crisis prevention preparedness, inappropriate climatic conditions and unbalanced distribution of resources and facilities, the existence of infrastructure such as water and electricity, the existence of private and semi-private scientific institutions, the rapid expansion of communication facilities, intimate relationships between families to help fellow citizens, the distribution of income and wealth of the city and village, the establishment of population centers in the accidental areas, the distribution of inappropriate population in the territory of the land, the climate of Iran and the lack of water, proximity to natural

causes such as faults, proximity to catchment areas and watersheds, the atmosphere of trust and empathy among members of member organizations, the presence of committed experts in the body of passive defense, the positive attitude of the society to the non-operating defense, the presence of high-educated forces specializing in the management of passive defense and counseling centers had the highest priority in passive defense.

### **The first hypothesis:**

There is a direct relationship between urban planning in Tabriz and passive defense in the safety of urban environments. The Pearson correlation coefficient was used to determine the relationship between urban planning and passive defense, according to the hypothesis that both of these variables were measured at the distance measurement level, the data of this test are presented in Table 2. According to the data of the above table, Pearson correlation coefficient with the coefficient of 0.167 is significant at 0.01. Therefore, with a high confidence of 99%, there is a direct and positive relationship between "urban planning" and "passive defense". So the hypothesis of the research is confirmed. By improving management in urban planning, the success of "passive defense" management also improves

**Table 2. Pearson Test of the First Hypothesis**

<i>Pearson correlation coefficient</i>		<i>Passive Defense</i>	<i>Urban planning</i>
Passive Defense	Pearson Correlation	1	0.167(**)
	Sig. (2-tailed)	.	0.002
	N	118	118
Urban planning	Pearson Correlation	0.167(**)	1
	Sig. (2-tailed)	0.002	.
	N	118	118

**The second hypothesis:**

There is a direct relationship between social planning in Tabriz and passive defense in the safety of urban environments. Pearson correlation coefficient was used to determine the relationship between "social planning" and "passive defense", according to the hypothesis that both variables were measured at the distance measurement level. The data of this test are presented in Table 3. According to the

data of the above table, Pearson correlation coefficient with coefficient of 0.446 is significant at 0.01. Therefore, with a high confidence of 99%, there can be a direct and positive relationship between "social planning" and "passive defense". So the hypothesis of the research is confirmed. Improving management in "social planning" also improves the success of "passive defense" management

**Table 3. Pearson Test The Second Hypothesis**

<i>Pearson correlation coefficient</i>		<i>Passive Defense</i>	<i>Social planning</i>
Passive Defense	Pearson Correlation	1	0.446(**)
	Sig. (2-tailed)	.	0.000
	N	118	118
Social planning	Pearson Correlation	0.446(**)	1
	Sig. (2-tailed)	0.000	.
	N	118	118

**The third hypothesis:**

There is a direct correlation between economic planning in Tabriz and passive defense in the safety of urban environments. The Pearson correlation coefficient was used to determine the relationship between "economic planning" and "passive defense", according to the hypothesis that both variables were measured at the distance measurement level. The data of this test are presented in Table 4. According to the

data of the above table, Pearson correlation coefficient with coefficient of 0.387 is significant at 0.01. Therefore, with a high confidence of 99%, there is a direct and positive relationship between "economic planning" and "passive defense". So the hypothesis of the research is confirmed. By improving management in "economic planning," success in "passive defense" management also improves.

**Table 4. Pearson Test of the Third Hypothesis**

<i>Pearson correlation coefficient</i>		<i>Passive Defense</i>	<i>Economic Planning</i>
Passive Defense	Pearson Correlation	1	0.387(**)
	Sig. (2-tailed)	.	0.000
	N	118	118
Economic Planning	Pearson Correlation	0.387(**)	1
	Sig. (2-tailed)	0.000	.
	N	118	118

### The fourth hypothesis:

There is a direct relationship between physical planning in Tabriz and passive defense in the safety of urban environments. The Pearson correlation coefficient was used to determine the relationship between "economic planning" and "passive defense", according to the hypothesis that both variables were measured at the distance measurement level. The data of this test are presented in Table 5. According to the

above table data, Pearson correlation coefficient with coefficient of 0.115 is significant at 0.01. Therefore, with a high confidence of 99%, there can be a direct and positive relationship between physical planning and passive defense. So the hypothesis of the research is confirmed. Improving management in "physical planning" also improves the success of "passive defense" management.

**Table 5. Pearson Test of the Fourth Hypothesis**

<i>Pearson correlation coefficient</i>		<i>Passive Defense</i>	<i>Physical planning</i>
Passive Defense	Pearson Correlation	1	0.115(*)
	Sig. (2-tailed)	0	0.032
	N	118	118
Physical planning	Pearson Correlation	0.115(*)	1
	Sig. (2-tailed)	0.032	.
	N	118	118

### Conclusion

Regarding the damage caused by natural disasters in cities and the location of Iran in the natural hazards area, crisis management seems necessary and with proper planning before the crisis and having programs and plans after the crisis, we reduce some of the casualties and damages caused by these disasters. Therefore, all organizations at all levels of government of the country, in order to deal effectively with possible incidents, are required arrangement for making necessary preparations. It is also important to create awareness and readiness for the general public. In societies there is lack of readiness with the creation of crises, sustainable development will be seriously damaged, and it will take a long time for society to return to its previous condition. Studies have shown that a natural crisis can affect not only the inhabitants of the area, but also environmental influences, which itself can also lead to other crises in the future. Therefore, in order

to prevent the crisis and mitigate its effects, we need to manage the crisis.

The urban neighborhoods as the smallest and most effective urban unit based on the requirements of non-operating defense, is important in this regard that the most basic plan is to defend the city against any kind of threat. It is the most basic plan to defend the city against any kind of threat. Because the most fundamental components of this plan are the relationship between human beings, their space and their activities, which leads to the consolidation and sustainability of development. Indeed, in addition to the military and political content of defense on the urban, national, and regional scale, defenses of established space constituents are also used. Organizing, in a non-proportional manner, proportional to the non-operational defense, helps us carry out a set of actions, activities and methods that are implemented to reduce risks, damages, environmental

sustainability, and management on a small, tangible level on urban scale. Then, it will be implemented with less risk and more success at higher levels and wider urban scales. Organization is possible by considering components such as city structure, city texture, city form, urban land use (Hataminezhad and Azimzadeh, 2016).

However, any community may be in an emergency. Certainly, a society can overcome these conditions and maintain its structure, which has a predetermined, defined and specific program for the occurrence of natural disasters. In fact, it is a successful community that has an emergency plan along with its development plan. In this regard, training and improving human resources through training workshops, short courses and training of staff and people before a natural disaster can be a real key to readiness. The result of the research showed that the level of communication and dependency of urban, physical, social, economic and political planning on passive defense planning is a large degree, and the effectiveness of these interactions in helping to secure the lives and property of people in metropolitans is effective. Therefore, it is necessary to develop the principles of passive defense on the national, regional and urban scale, the city of power, the deterrent city and the city of defense, and the national power of the country will also be increased, power generation and re-production of power will also be practiced. The results of this research showed that there is a direct and positive relationship between urban planning in Tabriz and passive defense in urban environment safety.

Hypothesis 1: There is a relationship between urban planning in Tabriz and passive defense in the safety of urban environments.

The positive, direct and incremental relationship between the two variables "urban planning" and "passive defense" with a high confidence of 99% was confirmed.

Hypothesis 2: There is a direct relationship between economic planning in Tabriz and passive defense in the safety of urban environments.

The positive, direct and incremental relationship between the two variables "economic planning" and "passive defense" with a high confidence of 99% was confirmed.

Hypothesis 3: There is a direct relationship between physical planning in Tabriz and passive defense in the safety of urban environments.

The positive, direct and incremental relationship between the two variables "physical planning" and "passive defense" with a high confidence of 99% was confirmed.

Hypothesis 4: There is a direct relationship between social planning in Tabriz and passive defense in the safety of urban environments.

The positive, direct and incremental relationship between the two variables "social planning" and "passive defense" with a high confidence of 95% was confirmed.

### **Suggestions**

■ Based on the findings of the first hypothesis (the relationship between urban planning in Tabriz and passive defense):

- Urban planners and planners are suggested to consider non-operational defense components in order to increase the community's risk profile and reduce potential damage during the occurrence of earthquakes in planning. In order to increase the readiness of the people and residents of the neighborhoods to study reconstruction and

rehabilitation more seriously. In order to motivate the movement of people and their displacement when natural disasters occur in neighborhoods, the streets and highways leading up to highways are increased. Microhardness in residential units is a factor in reducing the width of the passageways and consequently the mobility of people. Therefore, aggregation of residential units and parts is effective in rehabilitating and reducing the effects of natural hazards.

■ Based on the findings of the second hypothesis (the relationship between social planning and passive defense):

It is proposed that social planning authorities consider social issues in planning and implementing measures for the development of the city and help reduce social inequalities and ethnic communities, and, in order to increase the awareness of people in relation to natural disasters, educational courses with the use of prominent professors among the public will be held. It is also suggested that areas of Tabriz metropolitan be designed to change the use of open spaces and gardens and parks in order to accommodate temporary injuries in the event of natural disasters and to provide effective and efficient cadre for passive defense of high-educated forces and Related to the topic in the management. For the implementation of passive defense projects, it is necessary to engage with organizations and infrastructures with high potential, such as the Basij and the Corps.

■ Based on the findings of the third hypothesis (relation between economic planning and passive defense in the safety of urban environments):

- Since the majority of residents of the target area have low incomes and it is not possible to retrofit and improve residential buildings, it is

suggested that the facilities provided for the physical development of cities and worn out tissues be directed to these areas.

■ Based on the findings of the fourth hypothesis (the relationship between physical planning and passive defense):

It is suggested that more coordination and cooperation between physical and urban planning of organizations and institutions should be done and in planning for different neighborhoods of Tabriz, each program will be tailored to the target area.

## REFERENCES

- 1) Abbott, C. & Roger, P. (2006). *Global Response to global Threats-security sustainable for 21 century*. Oxford research groups, Oxford.
- 2) Abolhassani, A. (2010). *Passive Defense, Urban Design and Architecture in Iran*; Khatam Alanbia Air Base, Tehran.
- 3) Asghari zamani, A., S. Alizadeh, A. Naderi, & PoorKarimi, S. (2012). The effect of reducing the vulnerability of the urban fabric caused by the earthquake (Case Study: Tabriz). The first National Conference on Retrofitting of urban tissue in the vicinity of active faults. 2 and 3 March 1391, Tabriz, Iran. (In Persian).
- 4) Asghryan Jeedi, A. (1995). Civil defense in Bam, Iran Proceedings of the Congress Architectural History. Volume II, Tehran. (In Persian).
- 5) Azizpour, M., Zangiabadi, Esmaelilian. (2011). a Prioritizing the effective factors in urban crisis. Management against the natural disasters (Studying sample: The organizations related to Isfahan's crisis), 22th Geography and Environmental Planning Journal. 2011 autumn, 3. No, 43. (In Persian).



- 6) Branscomb, L. (2006). Sustainable cities: Safety and security, *journal of Technology in Society*, 28 (5). 2-6.
- 7) Brent, R. (2003). Tourism Disaster Planning and Management: Response and Recovery to Reduction and Readiness. *Journal of tourism management*, 10 (2). 11-30.
- 8) Bromberg, A; Morrow, G & Pfeiffer, D. (2007). Editorial Note: Why Spatial Justice Critical Planning, 14, pp.1-4.
- 9) Chui, CH., Feng Joyce., Y., & Jordan, L. (2014). From good practice to policy formation the impact of third sector on disaster management in Taiwan. *International Journal of Disaster Risk Reduction*, Volume 10, Part A, December 2014, Pages 28–37.
- 10) Coaffee, J. (2009). *Terrorism, risk and Global city*, Birmingham University Press, Birmingham.
- 11) Coaffee, J. (2009). *Terrorism, Risk and Global city*. Birmingham University Press: Birmingham.
- 12) Department of the Arm. (2006). *Counter insurgency*, Military review, Washington.
- 13) Faraji, A., & qarkhlo, M. (2009). Earthquake and Urban Crisis Management - A Case Study: Babol Township; *Geography Magazine*) Journal of the Iranian Geographic Society (Eighth Edition, No. 25, summer 2010).
- 14) Fardroo, M. (2009). *Introduction to passive defense: public opinion and psychological war*. Abed Publications, Tehran. (In Persian).
- 15) Hashemi, Seyed Javad. (2008). the role of engineering in civil defense. *Monthly Social Sciences*, Issue I, Tehran. (In Persian).
- 16) Hataminejad, H., & Azimzadeh Iranian, A. (2016). Accounting neighborhoods based on the requirements of passive defense (Case Study: Mahalath areas of six districts of Tehran). *Scientific - Research Quarterly of Geographical Data (SEPEHR)*, Vo.24, No.96, p 91-111.
- 17) Hataminezhad H., & Janbabanzhad, M. (2006). Natural disaster crisis management (flood) in *Journal of Geographical Sciences*, Islamic Azad University, Mashhad, Issue 3.
- 18) Inam, Aseem. (1999). Institutions, routines, and crises Post-earthquake housing recovery in Mexico City and Los Angeles. *Cities*, Vol. 16, No. 6, PP: 391–407
- 19) Jalali, G. & Tajvar, I. (2008). *Fundamentals of Passive Defense and Education by the Swiss Institute of passive defense*. Malek Ashtar University, Isfahan. (In Persian).
- 20) Khankeh, H.R. (2012). *Disaster Hospital preparedness*. (Book), National program.Second Edition, ISBN: 978-600-6442051, NBN: 3110444, 2012 (in Persian).
- 21) Khodaei, H. and et al. (2007). *Environmental problems and challenges of the crisis and its solutions*. Tehran University, Tehran No. 16. (In Persian).
- 22) Maleki, M. & Shojaei, P. (2010). the preparation of educational hospitals of Iran University of Medical Sciences in dealing with the disasters regarding security. *Iranian Journal of Military Medicine Spring 2010*, Volume 12, Issue 1; 19-22. (In Persian).
- 23) Marsousi, N. (2004). *Development and Social Justice of Tehran*, Quarterly Journal of *Economic Research*, No. 14, Pp. 19-31.
- 24) Mehrabi mohebi, F. (2010). Adapted from the book of theoretical perspectives passive defense. <http://passive-defence.blogfa.com/post-6.aspx>.

- 25) Mousavi, GH. (2009). readiness against disaster rehabilitation centers in Zanjan province in 2009. Master's Thesis Rehabilitation Administration. University of Rehabilitation Sciences and Social Welfare. (In Persian).
- 26) Movahedinia, J. (2006). Theoretical and practical concepts of civil defense. The Joint Chiefs of Staff Corps planning and writing textbooks. Printing, Tehran. (In Persian).
- 27) Murata, Mamoru. ( 2014). A Science Instruction for the Prevention and Reduction of 2020 Nankai Earthquake Disaster in Tokushima, Southwest Japan, *Procedia - Social and Behavioral Sciences*, Volume 143, August 2014, Pages 404–406.
- 28) Nabati, E. (2005). *Principles of Passive Defense, Army Command School*. Publishing.Tehran. (In Persian).
- 29) Nazariyan A., & Rahimi, M. (2011). Analysisn Tehran City Management Model; *Geographical Research Journal Human*, No. 81, Pp 126-111.
- 30) Rashed, T. (2003). Measuring the Environmen-tal Context of UrbanVulnerability to Earthquake Hazards: An Integrative Remote Sensingand GIS Approach.Uc santa Barbara and San Diego State University.
- 31) Recchia, F. (2005). Immigration, politics and violence in urban France: between fiction and facts. *Journal of Environmental crisis*, 12 (9). 20-42.
- 32) Rezaei, S. (2013). Analysis of locating in the planning of defense and passive defense. National sustainable, land use planning and positioning. (In Persian).
- 33) Rezaeian, A. (2006). *Principles of organization and management*. SAMT publications. (In Persian).
- 34) Schmidtlein, Mathew C., John M. Shafer, Melissa Berry & Susan L. Cutter. (2011). Modeled earthquake losses and social vulnerability in Charleston, South Carolina. *Applied Geography*, 31, PP: 269-281.
- 35) Statistical Report of Imam Khomeini Relief Committee, Covered Persons, 2002.
- 36) Tabriz:  
<http://www.mytabriz.ir/?type=page&page=Tabriz-Map>
- 37) Taghvaei, M, & Khomslouei, A. (2012). Evaluation of the eight routes march Isfahan urban planning approach and passive defense. *Rescue Journal*, Issue 2, 2012. (In Persian).
- 38) Wu, W. Ma, T. Jiang, H. & Jiang, C.H. (2013). Multi-scale seismic hazard and risk in the China mainland with implication for the preparedness, mitigation, and management of earthquake disasters: An overview. *International Journal of Disaster Risk Reduction*, 4, 21– 33.
- 39) Zare, M. (2001). The risk of earthquakes and construction in the privacy of North Tabriz fault and fault zone earthquake faults Iran. *Journal of Seismology and Earthquake Engineering*, Issue II and III, summer and autumn. (In Persian).
- 40) Zargar, E. & mesgari hoshyar, S. (2006). Passive defense architecture in Brabrsvanh means of reducing risk. Third International Conference. *A comprehensive crisis management in natural disasters*, Page 10. (In Persian).
- 41) Zhou, W. (2011). Emergency Management of Urban Major Hazards Based on Information Synergy. *Journal of Procedia Engineering*, 15 (2). 1-3.
- 42) Ziyari, K. (2008). *Planning new cities*. The SAMT publisher, Tehran. (In Persian).

- 43) Naderi, E., & Seif Naraghi, M. (2011).  
Research methods and how to evaluate it in  
humanities (with emphasis on education), Tehran,  
Arasbaran pu.



