

## Recognition of Risk Reduction Methods against Disaster in Historical Places in Iran (Case study: Qazvin Old Bazaar)

Urban Studies  
Emergency Preparedness



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### Abstract

Bazaar is always considered as the main important space in historical Islamic cities, such as Qazvin, Iran. Although it was created by a long historical process, it seems surrounded today by modern urban elements. It has been functioning properly at all its eras, but now is lacking many structural characteristics to keep performance and are not able to reach present requirement for earthquake risks.

Qazvin is located on a risky region and has experienced severe damage caused by earthquakes. Its Old Bazaar has been acting as a main economic pole even it was receiving severe destruction by earthquake. Now it is facing increasing risk at the time being.

This paper is based on results of a research project conducted for MA degree in 2009 and 2010. Analytical-descriptive method was used to study data collected by in-depth interviewing both shop-keepers (owners) and customers (clients) who are frequently users of the Old Bazaar of Qazvin in 2009. Additional textual analyses were done on old documents about the Qazvin Bazaar and other Bazaars of Islamic cities such as Tabriz, Istanbul, etc. The research results have been formed as some indexes and criterions for reducing risk facing the Bazaar of Qazvin at earthquake events.

Lessons learned suggest that a Disaster Management Agency should be established to cooperate with the Municipality, the City Council, the Cultural Heritage Organization, as well as local people and Bazaar-men Syndicate. Workshops and training programs are also suggested in order to improve knowledge on earthquake hazards, preservation methods and disaster management.

**Key words:** Disaster, Risk Reduction, Historical Places, Qazvin Old Bazaar

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## 1. Introduction

Earthquake events are usually causing sever destruction to human settlements in Iran, but we can see many old cities, such as Qazvin still exist even they are located on earthquake risk regions. It seems that previous generations know how to behave regarding earthquake risks and learnt lessons that enabled them to make the city and its traditional Bazaar survive throughout its long lasted history. The most important urban places or buildings were built stronger and more suitable than others for risk reduction.

The main question that attempted in this research to answer is about how previous generations learnt to keep their buildings and urban more popular spaces safe in earthquake disaster? This paper endeavors to present some findings of the research with emphasis on “modern ways to preserve traditional Bazaars”.

The paper is constructed of parts that are presenting data and materials on some international case studies, research methodology, results analysis and a conclusion suggest some modern ways for destruction prevention for heritages such as the traditional Bazaar of Qazvin.

## 2. Data and Material

Investigation into literatures on traditional bazaars in Turkey and Iran, as two Islamic countries was done to benefits from experiences may be useful for comparison analysis.

### Grand Bazaar (Kapali Carsi) – Turkey

The Grand Bazaar (Kapali Carsi) is located on a big area of the historic downtown of Istanbul – Beyazit area, has been known as symbol of Turkey and Istanbul. This bazaar has suffered more than 20 earthquakes and fire disasters, from the fire of November 20, 1651 in Mehmet IV to the fire of November 26, 1954, and it underwent major restoration after the earthquake in 1894 till it took its final form.

To do reconstruction and restoration on the bazaar, a master plan was ratified at the city council of Istanbul for reconstructions of damaged parts of the bazaar. It was reported that the main reconstruction works was done throughout implementation of the plan. Main reconstruction works are briefed here:

- i. Repairing some ruined part of the bazaar;
- ii. Autonomous reconstruction and renovation at the bazaar and surrounded areas;
- iii. Development of sewage sub-system of the bazaar and connect it to urban the sewage system of the city;
- iv. Enlargement the water supply system for reducing incidents in the bazaar;
- v. Developing the electric supply system and allocate a transformer for each parts of bazaar due to reduce risk;
- vi. Formation of firefighting station near the bazaar and develop a water supply system with high pressure in order to be used for fire incident case.

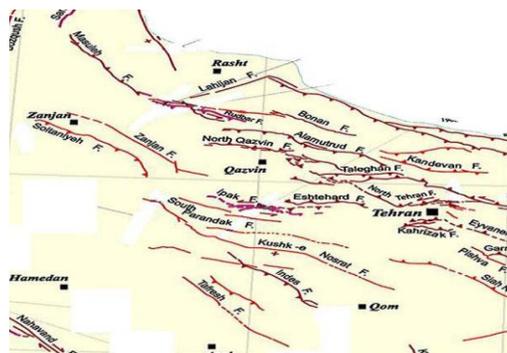
### The Traditional Bazaar of Tabriz

Tabriz has been the capital city of Iran in many periods. Its traditional Bazaar has many spaces and it is remarkable in its design which enabled it to resist against many disasters caused by fire and earthquake. A master plan for this bazaar included:

- vii. Construction of installation canals in bazaar;
- viii. Legislate some rules for prevention from probable misconduct;
- ix. Outfit whole stores to fire risk and learn to venter how it can be used;
- x. Cooperate amongst municipal corporations, governmental organizations and private sector;
- xi. Provide some criterions in order to prevent access by car, motorcycles and etc.

### Back Ground Hazards in Qazvin

Two severe earthquake events happened and caused severe destruction in the region of Qazvin during the last century. The first was in December 1962 with gravity of 7.2 Richter's in Boeing Zahra and the other in 21 June 1990 with gravity of 7.3 Richter's in Manjil (Berbery, 1992). Lack of prevention programs and mitigation caused high rising of risk. Maps of faults in the region of Qazvin shows critical location of Qazvin (see below).



**Figure 1:** Map of Faults of Qazvin Region (source: International Research Center of Seismology).

### Importance of Qazvin and its Old Bazaar

Qazvin as historical city is located on the Silk Road among 3 economic poles, Hamadan, Rey and Tabriz. When Qazvin was chosen as capital of Iran in safavid era, its location for trade was great and it kept continuity until now. The traditional Bazaar in Qazvin was acting as a center for trade at local, regional and national levels. It was also important for community and commercial activities and played main role in economic life of the region.

### The Traditional Bazaar of Qazvin and its Problems

Qazvin old bazaar is situated in the historical texture of the city and its location has been causing problems in emergency situations like lack of appropriate access to remedial center and firefighting stations.



**Figure2** :Qazvin old bazaar

Traditional Bazaar has been working using traditional ways of trade offering old style goods. Traditional way of trade was associated with traditional ways of conservation of old buildings, using traditional ways of resistance against earthquake as well as fire risks. Many of these ways were gained throughout a long process of lesson learning happened during the long history of the Bazaar. We can see many open spaces were designed to have multi-functions. Many large scale open spaces were designed to accommodate caravans used to trade with the Bazaar of Qazvin using camels. Many open spaces were designed for shipment, and they could be used as safer places while earthquake events. These traditional designs were interrupted by giving access to cars into the traditional parts of the bazaar.

Gradually, quality of places and open spaces were declined after trying to give access to automobile into some parts of the bazaar. Additionally, providing the traditional texture of the bazaar with electricity and gas supply networks, without considering their side effects, gradually turned the bazaar to be a public place associated with natural and man-made risks. The main problems are lying in mismatching traditional trade style with modern facilities, with lack of fully understanding of how to benefit from modern facilities without harming the traditional living style. So, the rational concepts of keeping open spaces to be clear at a risk condition were gradually lost, and these spaces began to be used as open storage places full of lay goods and waste materials. Finally, facilities and infrastructures at the bazaar did not match day needs. The result was rapid deterioration which turned the whole bazaar to be unsafe places.

### **3. Research Methodology**

It was learned from literature review that bazaars like Grand bazaar in Turkey and old bazaar in Tabriz (literature review) a qualitative approach was selected to be done. A data analysis was based on descriptive analyses. Data collection in this research was preformed by observation, in-depth interviews done with some key figures to some bazaar men and costumers.

### **4. Results and Analysis**

Some methods and models for analyses were used to examine some correlations between variables and to answer the research questions. A survey on pedestrian access to the traditional bazaar was conducted shows that pedestrian access is still the most available, safer and useful. Observing some surrounding alleys indicated problems at emergency situation for evacuating salesmen and customers. Evacuation of injuries during a crisis situation was indicated to be very difficult and risky. Storing goods with high risk of causing fire during earthquake and other disaster management was indicated to be critical.

Analyzing results of survey that was conducted show that awareness level about earthquake and aftermath conditions can definitely help reducing risk. It was also indicated that rising of awareness and sensitivity levels about earthquake and fire risk, can improve behavior during earthquake events and aftermath conditions. It was also found that levels of development can help to provoke people participation and cause sustainability.

Doing analysis using SWOT technique, some comparison works were done among strengths, Weaknesses, Opportunities and Threats with characteristics and results in the Bazar of Qazvin were done to indicate some important results are as following:

#### **Strengths:**

- Existence of many historical monument;
- Centrality of historical building and religious district;
- Operation values like attraction of tourist;
- Architectural values and existence of many historical building.

#### **Weaknesses:**

- Severe deterioration in the historical parts surrounding the Bazaar;
- Lack of open spaces to be used at earthquake and fire events;
- Lack of suitable urban infrastructures;
- Lack of control and monitoring suitable systems;
- Lack of appropriate risk management and alert risk awareness systems;
- Poor structure to resist destruction in disaster events.

#### **Opportunities:**

- High level of desire and commitment to reregulation of business activities;
- Commitment to restoration of historical elements by local authority for tourism;
- Common awareness and desires by people to be reserved;
- Capacities for tourism development;
- Some vacant historic buildings to be purchased and restored for urban services;
- Ability for establishing small stations for development.

#### **Threats:**

- Continuance of disorganization of the main tissue in the urban areas;
- Continuance of deterioration process in the historical parts surrounding the bazaar;

- High cost of restoration and insurance, especially at commercial parts of the area;
- Lack of management quality is discouraging people from proper participation;
- Willingness of people to demolish the old and build new commercial centers, in stead of restoration on the traditional style;
- Public desire for enlarging access routes which may damage the whole structure of the area;

## 5. Conclusions

Data analysis in this study was terminated into analyzing the main strategies that emerged from literature review, field observation and survey, then doing comparison study. The final analysis was done using SWOT technique as it is shown in the table below.

		<b>Strengths:</b>	<b>Weaknesses:</b>
		<ul style="list-style-type: none"> <li>• Existence of many historical monuments;</li> <li>• Centrality of historical building and religious district ;</li> <li>• Operation values like attracting tourist ;</li> <li>• Architectural values and existence of many historical building.</li> </ul>	<ul style="list-style-type: none"> <li>•Severe deterioration in the historical parts surrounding the Bazaar;</li> <li>•Lack of open spaces to be used at earthquake and fire events;</li> <li>•Lack of suitable urban infrastructures;</li> <li>•Lack of control and monitoring suitable systems;</li> <li>•Lack of appropriate risk management and alert risk awareness systems;</li> <li>•Poor structure to resist destruction in disaster events.</li> </ul>
<b>Opportunities:</b>	<ul style="list-style-type: none"> <li>•High level of desire and commitment to reregulation of business activities;</li> <li>•Commitment to restoration of historical elements by local authority for tourism;</li> <li>•Common awareness and desires by people to reserve heritages;</li> <li>•Capacities for tourism development;</li> <li>•Some vacant historic buildings to be purchased and restored for urban services;</li> <li>•Ability for establishing small stations for development.</li> </ul>	<ol style="list-style-type: none"> <li>1) Mobilizing historic heritage to be used for tourism development;</li> <li>2) Restoring religious historic places for pilgrimage;</li> <li>3) Enovation activities for tourism attraction;</li> <li>4) Establishing small units on architectural valuable historic sites for tourism industry.</li> </ol>	<ol style="list-style-type: none"> <li>1) Encouraging all parties participation in heritage restorations programs;</li> <li>2) Creating open spaces in harmony with heritage places;</li> <li>3) Put emphasis of participation on restoring urban infrastructure;</li> <li>4) Turning vacant places into needed services;</li> <li>5) Preparing some small stations for monitoring development process;</li> <li>6) Establishing control and monitoring systems.</li> <li>7) Using existing capacities for improving after disaster in urban areas</li> </ol>
<b>Threats:</b>	<ul style="list-style-type: none"> <li>•Continuance of disorganization of the main tissue in the urban areas;</li> <li>•Continuance of deterioration process in the historical parts surrounding the bazaar;</li> </ul>	<ol style="list-style-type: none"> <li>1) Planning for coordination between renovation processes and significant monuments;</li> <li>2) Conducting some restoration projects at</li> </ol>	<ol style="list-style-type: none"> <li>1) Preventing historical parts from rapid destruction;</li> <li>2) Turning value-less buildings for creating open spaces around the bazaar;</li> <li>3) Establishing supported</li> </ol>

	<ul style="list-style-type: none"> <li>•High cost of restoration and insurance, especially at commercial parts of the area;</li> <li>•Lack of management quality is discouraging people for proper participation;</li> <li>•Willingness of people to demolish the old and build new commercial centers, in stead of restoration on the traditional style;</li> <li>•Public desire for enlarging access routes which may damage the whole structure of the area;</li> </ul>	<p>deteriorated area;</p> <ol style="list-style-type: none"> <li>3) Using income of tourism industry to provide income to cover restoration costs;</li> <li>4) Mobilizing participation capacities for improving management quality;</li> <li>5) Local people participation should be restored for prevention of demolishing historic buildings;</li> <li>6) Using architectural existing values doing streets enlargement;</li> </ol>	<p>insurance industry for restoration of heritage elements;</p> <ol style="list-style-type: none"> <li>4) Establishing modern control and monitoring systems;</li> <li>5) Strengthening management systems and modern alarm systems;</li> <li>6) Preventing severe demolishing throughout education and training programs;</li> <li>7) Planning for enlarging access systems in poor structured buildings.</li> </ol>
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Table 1. Analysis of bazaar features based on SWOT technique

Generally conclusion shows that people can cope with disaster event aftermath, if they can prepare for it in advance. Deep understanding of the event itself, such as earthquake can help people to prepare for risk reduction prior to the event. They can cope with the consequences by doing necessary works in advance, working together as a team. Knowing what to do can enable them and be the best protection and responsibility. All people in vulnerable areas should learn more about disasters and participate in reconstruction planning time.

Finally, some principle suggestions should be done here for better risk management and reconstruction of heritage and public spaces such as the traditional bazaar of Qazvin using new technology:

- Enforcing traditional elements, building and spaces to resist earthquake destruction;
- Establishing modern monitoring systems for rescuing people at disaster time;
- Establishing modern alarm systems and training people for a better awareness;
- Preparing for a modern and systematic education program on risk management;
- Conducting some maneuvers for people evacuation at possible risk;
- Using modern and intelligent systems for storing goods in safer conditions;
- Redesigning the whole bazaar, emphasizing on safer open spaces;
- Establishing a modern emergency and security management system.

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