
Reconstruction of urban worn-out textures and reduction in risk taking (case study: Shushtar City)

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Abstract: Worn – out textures for a number of reasons such as lack of technical and engineering criteria in the construction of the buildings, non – efficient communication network, lack of urban installations and facilities, are more susceptible to natural hazards. The aim of this research is to reduce risk-taking of old and worn – out textures of Shushtar City in the process of reconstruction of this texture. Tools of gathering information in this research are the desk studies, observation, using of the maps, documents and queries. SWOT strategic model has been employed and the SPSS software has been used for the data analysis. The results of this research show that in this texture, the low quality of the buildings, construction material, narrow width of passages, inability of the inhabitants in reconstruction and renovation of old and worn – out textures, makes it necessary to seek a remedy for elimination of risk-taking.

Keywords: Worn – Out Textures, Risk-Taking, Urban Planning, Reconstruction, Shushtar City

1. Introduction

Human efforts to confront natural disasters and calamities in modern era possess 3 stages and approaches. The first approach based on offering emergency aids and rescue and relief actions, began at early 20 century and continued till the Second World War and during which rescue aids were offered to the injured. The second approach developed after the World War II and in the atmosphere of victory of scientific and technical dialogue, and schools of growth and development and Behaviorism, following the war in America – Europe and then all over the world. And by incorporating scientific and engineering outcomes in building and development of built environment such as buildings and roads and urban construction became a priority and remained the dominant and fundamental approach till the 1980s. The third approach, considering the inadequacy of scientific and Engineering approach in confronting disasters and calamities and not enough taking into account human factors and variables in preventing disaster, gradually a new approach named crisis management approach began to form at the end of 1980s and early 1990s which based its emphasis on the reduction of individual and social human environment risk-

taking against natural disasters and calamities and now is the dominant and widespread approach at the international level and in many countries of the world (1).

Old and worn-out textures are one of the many types of urban textures which, due to worn-out fabric and inappropriate possession and existing vulnerable infrastructure possess local and spatial instability (4).

The aim of urban reconstruction is the improvement of economic, spatial, natural and physical environments within and around the city. In the process of urban reconstruction, government organization, local authorities, regional development organizations, urban development companies, private developers and other business investors are involved (11).

Renovation means reconstruction of buildings and urban spaces, which through achievements or processes, the signs of weariness, destruction and lack of prosperity Disappear (5).

2. Problem Presentation

Natural disasters have influenced the lives of millions of people in the world and challenged the development of the nations. Despite many efforts to reduce risk-taking and

negative impact of disasters, the risk-taking of many disasters is increasing. This increase in risk-taking is due to the increase in people and assets encountered with hazards. For example through rapid economic and urban growth in the bay area's subject to storms or earthquake prone cities (8).

Therefore the goals of this research are to define indices of weariness determination, of the urban texture as well as . analysis and articulation of optimum guidelines for renovation to reduce risk-taking in this area.

As disqualified materials with low durability are used in the construction of almost all existing buildings, the renovation in these textures could be an appropriate mean to reduce risk taking in this area.

The present research methodology is a combination of descriptive, documentary and analytical methods.

3. Theoretical Bases

Being worn-out means, disfiguration of fabric components of the city from their main shape and movement towards fabric and functional destruction of the city (6, 9).

The main criteria for the establishment of the process of weariness of urban texture are:

1-Micro-residential blocks, indicating tightness and intensity of the blocks, more than 50% of blocks possess less than 120 square meters.

2-fabric instability, inappropriate structural system and lack of strength in buildings.

3- Inscrutability, indicating lack of access to and appropriate network of passages-Alleys less than 6 m in width (7).

Hyogo's framework has 3steering goals and is the most integrated and comprehensive global framework in disaster risk reduction and management. The steering goals of Hyogo's framework are:

(A)-Integration of the most influential considerations of disaster risk reduction into the policies and sustainable development programs.

(B)-Development and strengthening of institutions, mechanisms and capacities in all levels of local communities with the aim of helping empowering confronting risks.

(C)- Introducing reduction of risk taking approaches in the design and implementation of preparedness, respond and reconstruction of hazard destructed areas (8).

Main schools in the scope of urban improvement and renovation are listed in order in the Table 1:

Table 1. Theories of improvement of worn-out textures

| | |
|-------------------------|---|
| Cultural orientation | Priority of spiritual needs over material ones: improvement and renovation through revival of the past cultural values. |
| Progressive orientation | During renovation and reconstruction of the old cities, nothing is preserved except the roads |
| Ecological school | Recession of old texture because of social and economic groups and segregations due to social injustice |

| | |
|------------------------|---|
| Functional orientation | Improvement and renovation for the aim of economic and functional development of the city |
| Structural orientation | Collective like and systemic attitude towards city: improvement of fabric and spatial structures in collections and not single buildings. |
| Modernism | Extreme inclination for preservation of old monuments that even required the renovation and improvement of dead and non-historic buildings. |
| Post modernism | Thinks more about social relationships: provoking the sense of locality, revival of what that possesses local and special value. |
| Humanism | Considering people and their partnership in improvement and renovation of urban space and people-oriented intervention. |

Source: (1)

4. Museum-Like Attitude towards Urban Texture

This view is based on the preservation of cultural heritage and does not accept intervention in the old and historical textures, unless for their preservation. This attitude believes that the old texture should be preserved like things existing in a museum. This view has sheer emphasis on this that by least intervention in the buildings and urban elements should be preserved. In this attitude preservation of identity and heritage of ancestors are prioritized over requirements of contemporary life. In consequence the inhabitants of these textures , because of not applying the required changes in today's everyday life and shortages and insufficiencies of urban infrastructures which have roots in such insight, have been forced to leave the texture and after collapse of social texture, follows the destruction of fabric texture (3) .

5. Location of Study Area

Shushtar City has an area of 2436 square kilometers, and is located between 48° ,35' and 49° ,12' from Greenwich Meridian and between 31° ,36' and 32° ,26' from Equator, at the north of Khuzestan Province. Its population is about 111200 (according to census 1390) and is 57th city of Iran according to the population .And the fourth in Khuzestan Province after cities of Ahwaz, Dezful and Abadan. (2).

Table 2. SWOT Matrix

| SWOT Matrix | Strengths(S) | Weaknesses(W) |
|------------------|---|--|
| Opportunities(O) | Strategies that, based on the strengths, are founded to take advantage from opportunities (SO). | Strategies that based on diminishing weaknesses are founded to take advantage from opportunities (WO). |
| Threats(T) | Strategies that based on the strengths are founded to combat the threats (ST). | Strategies that based on the weaknesses, are founded to combat threats (WT) |

The old and worn-out texture of Shushtar has 176 ha. area which is located almost at the center of the city and the four boundaries of it are: from the north , Shahid Sherafat Street, from the south, Shahid Rejaei Street, from the east , Shahid

Shariati and Imam, Khomeini Streets and from the west , Taleghani Street. Considering the main business and economic activities being concentrated in this area which include all the shopping centers of the city like Bazaar and

insurance offices and banks, wholesalers and retailers...., the concentration and over crowdedness is well visible in this area (same source ,6).

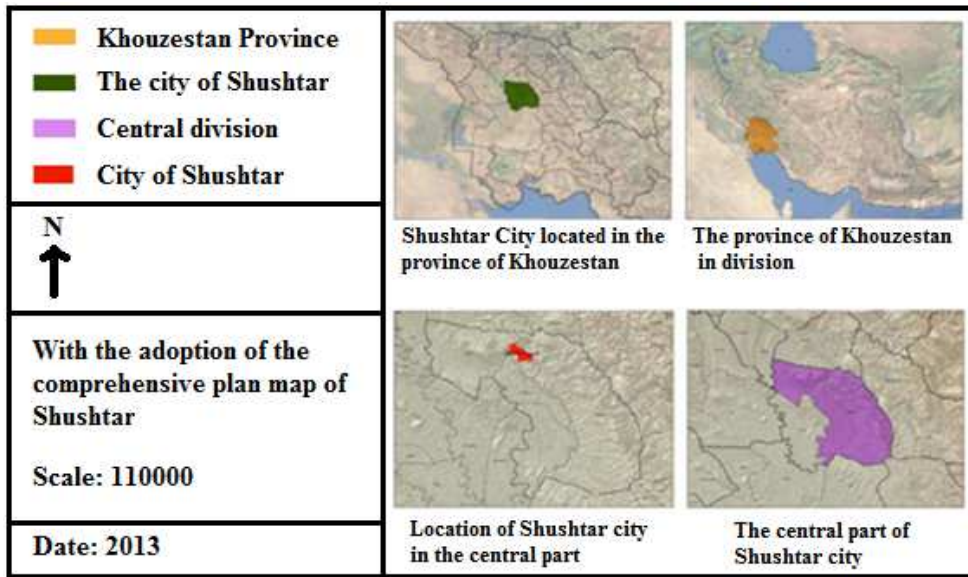


Fig. 1. Political divisions of Khuzestan Province

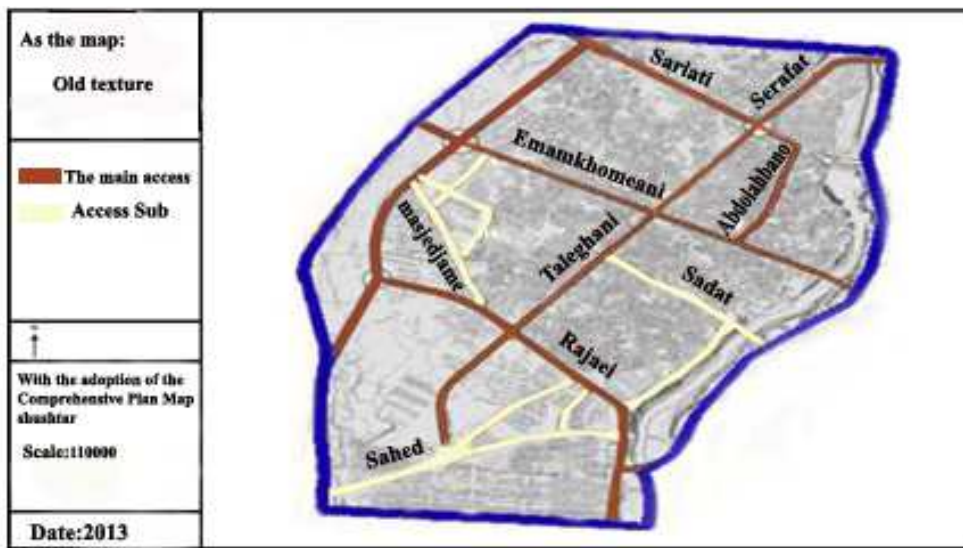


Fig. 2. Map of worn-out part of the Shushtar City

In the designed query, 4 general questions are asked which include, gender, education, age, career position. In this section we will analyze the data related to these questions.

1-The results of investigation into the quality of the buildings show that only 8.82% of buildings are recently built and live able and nearly 70% are completely worn or should be destroyed.

2-The investigation into the quality of construction material used in residential units of the worn texture, is among the indices which enables to analyze the fabric situation of the texture. The results and field studies show that 7.64% of houses of worn-out texture possess brick and steel material, 52.35% possess brick, wood and mud, 34.1%

possess brick, steel, wood, mud and 5.88% possess reinforced concrete material. The oldness of texture depends to a great degree on the age of the buildings. One of the characteristics of the old textures is the presence of old buildings. The results of the field studies show that 5.88% of the residential units , in the worn-out texture of Shushtar City do have an age less than 5 years,7.64% an age of 5-10 years,14.7% an age of 10-15 years ,20% an age of 15-20 years and the last 51.76% of buildings possess an age more than 20 years.

3-In investigation of the main problems of the neighborhood and based on the field studies, it is observed that 36.47% of people mentioned shortage of services

andeducation,12.94% mentioned social and cultural problems, 22.35% mentioned economic problems,7.64% mentioned environmental problems as the main obstacles.

4-In investigation of the kind of problems of the neighborhood, in improvement and reconstruction and based on the field studies, we can conclude that 24.11% have mentioned resistance to natural hazards , 45.29% have mentioned narrowness of passages and lack of access to material for improvement tasks, 8.23% have mentioned the age of buildings and juridical problems, 4.7% have mentioned the smallness of land parcels and atleast 17.64% have mentioned the lack of willingness for improvement and renovation as the main factors for not to achieve

improvement tasks.

6. SWOT Analysis

From this model view, appropriate strategies, maximize the strengths and opportunities and minimize weaknesses and threats. At this stage, based on the information from previous studies and investigations and by considering theories and views of experts and test assumptions, the guidelines and general and specific policies in every index for the purpose of reconstruction of the worn-out texture of Shushtar City, to reduce disaster risk, will be presented.

Table 3. Analysis of internal factors in the Strengths

| Strengths | weaknesses | opportunities | threats |
|--|--|--|---|
| Oldness of residence In the neighborhood. | | Economic saving through reconstruction of this part. | |
| Presence of historical And precious buildings in the neighborhood. | | Existing laws related to broadening of the passages. | Continuation of Population evasion. |
| Political and social History. | Intense weariness in the fabric texture of the neighborhood. | Possibility of reinstatement of space and fabric. | Weak authority of local management. |
| Presence of social institutions in the neighborhoods. | Low income and economic level of the employees. | Possibility of utilizing patterns of precious architectural buildings in the new designs. | Lack of incentive practices |
| Low rates of rent and price of houses. | Population evasion. | Ease of possessing buildings because of weariness and low strength of them, low intensity and low price. | Intense population concentration during day and it's evacuation at night. |
| Possessing willingness of partnership and cooperation in improvements and renovations of neighborhood. | Lack of strength of buildings against natural disasters. | Determination of authorities to intervene for reconstruction. | Not considering people's partnership. |
| Low noise pollution in the neighborhood. | Narrow alleys and passages. | Existing multitude of global and internal experiences in reinstatement and revival of worn textures. | Intense reduction in social security. |
| Private ownership of real estates. | Low strength of buildings against natural risks. | | Increase in poverty and un-employment rates among residents of the texture. |
| Existing low rise buildings. | Non-standard material used in most the buildings. | | Non uniformity between new constructions and the old structure. |
| Existing local councils. | | | |

Table 4. Analysis of internal factors in the Strengths

| Strengths | Weight | Ranking | Score |
|--|--------|---------|-------|
| Oldness of residence In the neighborhood. | 0.05 | 3 | 0.15 |
| Presence of historical And precious buildings in the neighborhood. | 0.05 | 3 | 0.15 |
| Existing Social institutions of the neighborhood. | 0.06 | 2 | 0.12 |
| Existing local councils. | 0.06 | 3 | 0.18 |
| Possessing willingness of partnership and cooperation in improvements and renovations of neighborhood. | 0.07 | 4 | 0.28 |
| Low noise pollution in the neighborhood | 0.03 | 2 | 0.06 |
| Existing low rise buildings | 0.04 | 2 | 0.08 |
| Private ownership of real estates. | 0.05 | 2 | 0.10 |
| Political and social History | 0.06 | 4 | 0.24 |
| Low rates of rent and price of houses. | 0.03 | 2 | 0.06 |

Table 5. Analysis of internal factors in the Weaknesses

| Weaknesses | Weight | Ranking | Score |
|--|--------|---------|-------|
| Intense weariness in the fabric texture of the neighborhood. | 0.08 | 4 | 0.32 |
| Low income and economic level of the employees. | 0.06 | 4 | 0.24 |
| Population evasion. | 0.07 | 3 | 0.21 |
| Lack of strength of buildings against natural disasters. | 0.07 | 3 | 0.21 |
| Narrow alleys and passages. | 0.06 | 3 | 0.18 |
| Low strength of buildings against natural risks. | 0.07 | 2 | 0.14 |
| Non-standard material used in most the buildings | 0.05 | 2 | 0.10 |

Table 6. Analysis of external factors in the Opportunities

| Opportunities | Weight | Ranking | Score |
|--|--------|---------|-------|
| Economic saving through reconstruction of this part. | 0.09 | 4 | 0.36 |
| Existing laws related to broadening of the passages. | 0.08 | 4 | 0.32 |
| Possibility of reinstatement of space and fabric | 0.07 | 3 | 0.21 |
| Possibility of utilizing patterns of precious architectural buildings in the new designs. | 0.06 | 2 | 0.12 |
| Ease of possessing buildings because of weariness and low strength of them, low intensity and low price. | 0.04 | 2 | 0.08 |
| Determination of authorities to intervene for reconstruction. | 0.05 | 2 | 0.10 |
| Existing multitude of global and internal experiences in reinstatement and revival of worn textures. | 0.05 | 2 | 0.10 |

Table 7. Analysis of external factors in the Threats

| Threats | Weight | Ranking | Score |
|---|--------|---------|-------|
| Continuation of Population evasion. | 0.08 | 4 | 0.32 |
| Weak authority of local management. | 0.06 | 4 | 0.24 |
| Lack of incentive practices | 0.06 | 3 | 0.18 |
| Intense population concentration during day and it's evacuation at night. | 0.05 | 2 | 0.10 |
| Not considering people's partnership. | 0.04 | 2 | 0.08 |
| Intense reduction in social security. | 0.06 | 2 | 0.12 |
| Increase in poverty and un-employment rates among residents of the texture. | 0.06 | 3 | 0.18 |
| Non uniformity between new constructions and the old structure.. | 0.04 | 3 | 0.12 |

7. Discussion and Conclusion

Among the most important consequences of rapid growth of urbanization in Iran , in addition to inappropriate urban infrastructures for the residents and urban emigrants, is the formation of irregular and problematic intra-urban textures and ultimately the high factor of risk-taking, which has had many challenges .This problem alongside the issue of land, becoming a scarce economic resource in recent decade, has caused that optimum use of old and worn-out textures (dead and non used urban spaces) ,which is one the main sources of land supply, gains special importance. Establishment of one institution or strong team for intervention management in worn-out textures and also management of risks is recommended. Based on the surveys done among residents of the texture, concerning its reconstruction, one could remark that: The plan of reconstruction of old and worn-out textures of Shushtar City as many other urban projects face financial problems. Neglect of authorities toward this texture during many years and also lack of serious measures in the implementation of the project, has caused distrust of the residents. Renovation and reconstruction of old texture to reduce risk-taking in them, is possible only through the cooperation and partnership of the people. Therefore reconstruction of these worn-out textures should be done by the municipality and cooperation of Cooperative-company, and this will be realized only when the municipality possesses adequate credits for these issues. What that could be derived from the referred discussions are as follows:

8. The Results of Research Assumption

Considering that low quality and nondurable material is used in the most of the existing buildings, Renovation in these textures could be a good practice for reducing risk-taking in theses region. As nearly 70% of buildings are completely worn-out, 52.35% of houses have brick, wood and mud material, 51.76% of buildings are more than 20

years old, 36.47% of people have problems to achieve construction and 45.29% is the rate for narrowness of passages and lack of access to material for improvement, therefore one could conclude that the assumption that “reconstruction in the worn-out texture of Shushtar City could be a good practice to reduce risk-taking” is confirmed.

9. Offering Appropriate Concepts and Recommendations in Reconstruction of Worn-Out Texture of Shushtar City

Real partnership of people in the projects and plans related to the revival and reinstatement in different dimensions, retrofitting of buildings within the texture and reducing the natural hazards risks, attempts to strengthening and restoration of buildings and historical monuments, pavement of the bed of passages with good and durable material , mitigation in reconstruction charges for buildings with non durable material(wood and mud), providing discounts in taxes for buildings' owners in order to begin the improvement and renovation tasks. Loans granted with low interest rates and with long terms to owners because of their financial in abilities to renovate their houses, attempts to eliminate obstacles, and solving problems and laws that have become obstacles to give speed to renovation and reconstruction of these textures, attraction of investors to accomplish improvement of textures, reconstruction and improvement in these neighborhoods to give neighborhood identity and reduce their risk taking against accidents, emphasis and supervision of urban management to widen passages within the textures, encouraging activities by municipalities, related organizations and people to reconstruct worn-out textures and reduction of risk taking in them, applying encouraging effective policies in regions that need retrofitting through the support, protection, maintenance, observation, strengthening and repair, establishment of one mediator organization to coordinate among the components

of reconstruction cycle(people, banking system, government and municipality) and facilitation of reconstruction, identification and prioritizing of buildings with respect to different kinds of instabilities with the help of municipality and partnership of people.

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