
Survey and analyze strategic approaches for development urban old fabric with using SWOT model, Case study: NehzatAbadneighborhood in Ahvaz city, Iran

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Abstract

In the present research, in order to study strength and weakness points, occasions as well as threats facing with the development of old texture in NehzatAbad neighborhood, descriptive-analytic method based on gathered data, questionnaire, documentary studies, and SWOT model has been applied, and in the end, strategic solutions have been presented to develop old texture of NehzatAbad neighborhood. SWOT Analyses according to obtained results of questionnaires and asking the number of 50 neighborhood habitants represent that the most important obstacles against old texture development of NehzatAbad neighborhood despite strength points in mentioned district include: deficiency of urban equipment service and existence of ruined areas, severe deterioration in the physical fabric of neighborhood, and domestic waste streams entering the passages as well as neighborhood pollution due to existence of household rubbishes. On the other hand the existence of intercommunity fields among people, the tendency of neighborhood habitants to development, and provision of cultural fields for developing and reclamation of old fabric and reduction of renting and housing price respectively with the weighted score of 65%, 44% and 44% are the most important strength points; people's intercommunity in managing of the neighborhood, consonance in cultural subjects among neighborhood habitants, and being old habitants interested in fabric in the mentioned district respectively with the weighted score of 60%, 40% and 40% are the most important occasions for developing of old fabric in the mentioned neighborhood. Moreover, lack of attention to people's intercommunity, diversity of decision making organizations related to municipal affairs of the neighborhood, and not to accepting responsibility for gathering garbage by the region municipality and probable emersion of disease in this neighborhood with the weighted score of 65%, 65% and 48% are the most important threats facing with the development of old texture in NehzatAbad neighborhood.

Key words: old fabric, strategic approaches, SWOT model, NehzatAbad neighborhood.

1. Introduction

Old urban center and tissues, in new developments of urbanization and its difficulties more than other urban places are prone to adverse effects of urban development, so the results of this problem can be seen clearly in face of the most cities in the world and also in Iranian cities and makes it inevitable the necessity of making certain revival of the urban tissues during the transformation (Rahnema, 2009). Indeed, on the one hand, population growth, Sudden increase in urbanization, Uncontrolled expansion of cities, Loss of land for housing and services and on the other hand, existence of worn-out and inefficient urban tissues that residents are not able to rehabilitate and reconstruct them because of poverty Led to the planners have to think about

solutions. These solutions, in addition optimal use of space, led to restrain excessive expansion of urban construction in virginal agricultural lands (Zndvy, 2007).

Old urban areas are exposed to a variety of problems, therefore their dilemma is multifaceted and multidimensional, that appear in each case in the specific form. Because of this various measures and programs to solve problems of old tissues usually comes that each one focuses on a particular aspect (Eftekhari, and Mahdavi, 2005). According to international experiences and the tendencies of modern urbanism can be said that one-sided approach to old urban issues is not very effective and successful (Sydney, 2010). In this regard according to issues in each city, Program should be comprehensive, multidisciplinary convention, coordinated and appropriate to be developed (Ahmadi et al, 2011).

Today, in most cities in the world and Iran, old tissues have become one of the serious challenges in planning and urban management that imposes the annual cost to municipalities (Lotfi et al, 2010). Now these tissues encompass about 65 hectare and in other words about 20% of urban spaces in Iran (Habibi et al, 2008). In lack of serious policy and administrative measures for rehabilitation and reconstruction of them, achieve to sustainable development will be impossible (Sajjadi et al, 2011). NehzatAbad neighborhood in Ahvaz city as a worn-out texture shows a model of traditional architecture and organic model. The texture of this neighborhood because of its high antiquity is suffering from skeletal and physical also social and economic deterioration.

2. Methodology

The type of this research is descriptive-analytical and is based on library research methods and field studies to gather information. The case study of this research is NehzatAbad neighborhood in Ahvaz city in Iran. This neighborhood is located in the western part of Ahvaz (Akbari and Emad Aldin, 2007). The neighborhood of nuclear and regular square-shaped, with straight streets and is composed of diagonal and a main square whit irregular parts that were organically created through the ownership (Momeni et al, 2010). This neighborhood has a population of 14956 people; family size is 5 people and average of 8 persons per housing. Residential block is composed of 48 pieces that its Arab inhabitants are majority about 95% (Movahed et al, 2008). In this research for complete information and inquire of neighborhood problems, household and physical questionnaire was completed. Finally SWOT model has been used to analyze problems. The way of this method is that Strengths and opportunities should be an effective strategy for the system to maximize and minimize weaknesses and threats (Piers and Rabinson, 2004). Finally, SO, ST, WO, WT strategies have been developed for operational improvement and modernization programs in the neighborhood (Falamaki, 2005). This model is a matrix of grid points in the internal and external that the final score on the X axis from 1 to 2/5 shows internal weakness and Score 2/5 to 4 indicates strength. External factors evaluation matrix of the final score from 1 to 2/5 indicates the threat level and scores 2/5 to 4 show the opportunity (AghahSafari et al, 2010), Placed on each houses of internal and external matrix of spatial grid points has a particular strategic concepts that will be discussed in the text.

2.1. SWOT analysis of the worn-out tissue of the neighborhood

The technic or matrix of SWOT is a tool to identify threats and opportunities in the external environment and recognition of its internal weaknesses and strengths in order to assess the situation and strategies for guidance and control system. This method is a direct result of the Harvard Business School (Movahed and Khzady, 2010). This technique involves an eight-step process that is presented in Figure 2.

Table 1: the SWOT model steps

Row	
1	Listing the major external opportunities of the study population
2	Listing the major external threats of the study population
3	Listing the main strengths of the study population
4	Listing the main weaknesses of the study population
5	Comparing the strengths and opportunities and recording SO strategies
6	Comparing the weaknesses and opportunities and recording WO strategies
7	Comparing the strengths and threats and recording ST strategies
8	Comparing the weaknesses and threats and recording WT strategies

Briefly we can say that this technique is a tool to analyze the situation and codify the strategy via:

- Recognition and classification of strengths and weaknesses within the system,
- Recognition and classification of existing opportunities and threats in the environment outside the system,
- Completion of SWAT matrix and planning various strategies to guide the system in future (Golkar, (2005).

SWOT model is a strategic tool to match the internal strengths and weaknesses with the external opportunities and threats of the system (Salahuddin, 2010). From the perspective of this model an appropriate strategy, maximize strengths and opportunities and minimize weaknesses and threats (Ebrahimzadeh and Agassi, 2009), for this purpose, Strengths and weaknesses and the opportunities and threats in general: WT, ST, WO, SO are linked as follows and Strategy of the option is selected between them. Analytical Framework SWOT Matrix within the figure 3 can be summarized.

Table 2: Analytical Framework SWOT Matrix

weaknesses W	strengths S	SWOT matrix
WO strategies	SO strategies	opportunities O
WT strategies	ST strategies	Threats T

The short-term and long-term development strategies

3. SWOT analysis to provide strategic solutions for improvement and modernization of NehzatAbad old texture

As was stated in the methodology, SWOT analysis in this study to identify and examine the internal factors (strengths and weaknesses) and effective external factors (opportunities and threats) in the neighborhood used to be prosperous (Buchanan, 2006). First with measurement of the internal environment and external environment a list of strengths, weaknesses, opportunities and threats facing the development of NehzatAbad worn tissue has been prepared and Based on surveys of residents the weight has been given to each of them(Rabi,2003). Finally, whit calculate and analyze them, firstly their priorities were identified, then Regarding priorities, eliminating or reducing the existing weaknesses and threats and Reinforce the strengths and

opportunities in relation to NehzatAbad neighborhood development, strategies for this purpose is presented.

3.1. Identifying internal factors affecting the development of worn tissue neighborhood

The purpose of this step is evaluation of indoor worn NehzatAbad neighborhood, to identify weaknesses and strengths it means aspects that can play favorable or inhibitory role in order to achieve the development goals of worn tissue. The most important of strengths and weaknesses associated with the development of worn tissue in table (1 and 2) are presented.

Table 3: internal effective factors in development of old fabric NehzatAbad neighborhood

Row	Internal factors
1	existence of participation contexts in public, having neighborhood residents tendency to develop, being provided cultural contexts for development worn tissue
2	Take advantage of open space and ruined for lack of required land use
3	existence of participation contexts in public
4	low rent and housing prices
5	Private ownership of property
6	Lake of facilities and equipment and services and existence dilapidated sectors
7	Domestic wastewater flows entering the neighborhood streets and pollution due to domestic waste
8	existence of inconsistent
9	Severe deterioration in the physical fabric of neighborhoods
10	Lake of urban facilities and equipment
11	Lake of appropriate construction

3.2. Identifying external factors affecting the development of worn tissue neighborhood

The aim of this phase of the study is explore in the external environment of NehzatAbad neighborhood and identifying opportunities and threats existing in the development goals of worn tissue. Based on survey and studies was done around the neighborhood, Total opportunities and threats existing over development of worn tissue was identified and in table (2) are presented.

Table4: External effective factors in development of old fabric NehzatAbad neighborhood

Row	External factors
1	being old residents interested in neighborhood
2	agreement on cultural issues among residents
3	Public participation in local governance
4	existence of health centers in surrounding neighborhoods in fabric
5	Public participation in local governance
6	Lake of green space and recreational
7	Lake attention to public participation
8	rejecting responsibility for garbage collection by the municipality and risk of disease
9	the multiplicity of decisions in connection with municipal affairs of neighborhood
10	Inconsistencies between legislation in organizations related to improvement and rehabilitation old fabric

4. Analysis of strengths, weaknesses, opportunities and threats facing the worn tissue of the NehzatAbad neighborhood

According to Tables (1 and 2), in the NehzatAbad neighborhood 5 strengths against 6 internal weaknesses and 5 external opportunities against 7 foreign threats has been identified and studied. Overall, 10 Strength and opportunities as the advantages and the number of 13 weaknesses and threats as the limitations and bottlenecks can be identified. All SWOT factors and criteria that stated in the text were given priority and weighting. Finally, based on weighted scores obtained in each of the factors, strengths, weaknesses, opportunities and threats were prioritized. In tables (3, 4) weight, gradation and weighted score of each factor in the SWOT analysis are presented.

Table 5: weighting and ranking points of strengths, weaknesses

Row	Internal factors	weight	rank	Weighted score
1	existence of participation contexts in public, having neighborhood residents tendency to develop, being provided cultural contexts for development worn tissue	%11	4	%44
2	Take advantage of open space and ruined for lack of required land use	%7	3	%21
3	existence of participation contexts in public	%13	5	%65
4	low rent and housing prices	%11	4	%44
5	Private ownership of property	%7	3	%21
6	Lake of facilities and equipment and services and existence dilapidated sectors	%12	5	%60
7	Domestic wastewater flows entering the neighborhood streets and pollution due to domestic waste	%9	3	%27
8	existence of inconsistent	%8	2	%16
9	Severe deterioration in the physical fabric of neighborhoods	%10	4	%40
10	Lake of urban facilities and equipment	%4	1	%4
11	Lake of appropriate construction	%8	2	%16
Total		1		3/58

Given the above table, existence of participation contexts in public, having neighborhood resident's tendency to develop, being provided cultural contexts for development worn tissue and low rent and housing prices, respectively with a weighted score 65%, 44%, 44%, are the main strengths in developing of NehzatAbad old tissues. Also lack of facilities and service equipment, run-down parts and severe fatigue in skeletal tissue in the neighborhood, entering domestic wastewater flows to the passages, neighborhood pollution due to domestic wastes as well are the main weaknesses in developing of NehzatAbad old tissues according to residents view, respectively with a weighted score 60%, 40%, 27%.

Public participation in local governance, agreement on cultural issues among residents, being old residents interested in neighborhood, respectively with a weighted score of 60%, 40%, 40%, are the main opportunities in development of neighborhood. At the same time lack of attention to the public participation, the multiplicity of decisions in connection with municipal affairs of

neighborhood, rejecting responsibility for garbage collection by the municipality and risk of disease in the neighborhood with a weighted score of 65%, 65%, 48%, are the main threats for development and planning in NehzatAbad old neighborhood improvement.

Table 6: Table 3: weighting and ranking points of opportunities and threats

Row	Internal factors	weight	rank	Weighted score
1	being old residents interested in neighborhood	%10	4	%40
2	agreement on cultural issues among residents	%12	5	%60
3	Public participation in local governance	%8	3	%24
4	existence of health centers in surrounding neighborhoods in fabric	%12	5	%60
5	Public participation in local governance	%10	3	%30
6	Lake of green space and recreational	%13	5	%65
7	Lake attention to public participation	%12	3	%27
8	rejecting responsibility for garbage collection by the municipality and risk of disease	%13	4	%48
9	the multiplicity of decisions in connection with municipal affairs of neighborhood	%10	5	%65
10	Inconsistencies between legislation in organizations related to improvement and rehabilitation old fabric	%1	3	%30
Total		1		4/22

4.1. Setting strategies

Aggressive / competitive strategy (SO)

In the competitive strategy that focuses on the internal strengths and external opportunities to good use, for the development of NehzatAbad worn tissue can be offered the following strategies:

- 1-Cooperation of Municipalities and organizations in charge with local people in the decision process about reorganization plans in the neighborhood.
- 2- Formation of voluntary non-governmental organization to support the development process
- 3- Building trust between residents and the custodians
- 4-Changing pattern of settlement in texture (release more levels for the service spaces, increase services per capita and per capita residential...)
- 5- User changes and create required user in order to eliminate the shortage of services
- 6-Reforming and strengthening accesses and in this regard preservation and promotion of tissue integration with the entire city
- 7-Improve the physical quality and widening of streets

Diversification strategy (ST)

In the diversification strategy that focuses on the internal and external threats, to reduce the pressure of external threats, the following strategies can be offered:

- 1-Providing contexts for the public administration institutions
- 2-Usage and attract public's participation in development projects

3-Create vibrant centers, active and with the identity in neighborhood to increase social interaction

Review Strategy (WO)

In this strategy, in addition to emphasizing the internal weaknesses, is trying to use the external available opportunities in order to minimizing the impact of the internal weaknesses. Such strategies can include:

- 1- Providing various incentives to private investors for the worn tissue development projects
- 2-New construction in order to retrofit based on the building regulations and obligation to observe with these regulations
- 3- Reduction of administrative bureaucracy in order to accelerate development projects of worn tissue
- 4-Production of affordable housing
- 5-Proper planning for garbage collection and disposal of it with partnership of residents

Defensive strategy (WT)

These strategies are focused on the vulnerability reduction. To reduce the vulnerability of the worn tissue the following strategy can be offered:

- 1- Holding regular meetings with local people and attract their support of Development programs and projects of worn tissue
- 2- Codification of joint programs between public and private sectors in order to upgrading and improvement infrastructures.
- 3- Use of specialized management in sectors, institutions and organizations associated with worn tissues
- 4- Granting incentive points to stakeholder groups for renovation and improvement of worn tissue (low-interest loans, removal of legal barriers, reduce complications...)

Threats	Opportunities	External factors
<p>T1: Lack of green space and recreational</p> <p>T2: Lack attention to public participation</p> <p>T3: rejecting responsibility for garbage collection by the municipality and risk of disease</p> <p>T4: the multiplicity of decisions in connection with municipal affairs of neighborhood</p> <p>T5: Inconsistencies between legislation in organizations related to improvement and rehabilitation old fabric</p>	<p>O1:being old residents interested in neighborhood</p> <p>O2: agreement on cultural issues among residents</p> <p>O3: Public participation in local governance</p> <p>O4: existence of health centers in surrounding neighborhoods in fabric</p> <p>O5: Public participation in local governance</p>	<p>Internal factors</p>

Diversification strategy (ST)	Aggressive / competitive strategy (SO)	Strengths
<p>1-Providing contexts for the public administration institutions</p> <p>2-Usage and attract public's participation in development projects</p> <p>3-Create vibrant centers, active and with the identity in neighborhood to increase social interaction</p>	<p>1-Cooperation of Municipalities and organizations in charge with local people in the decision process about reorganization plans in the neighborhood.</p> <p>2-Formation of voluntary non-governmental organization to support the development process</p> <p>3-Building trust between residents and the custodians</p> <p>4-Changing pattern of settlement in texture (release more levels for the service spaces, increase services per capita and per capita residential,...)</p> <p>5-User changes and create required user in order to eliminate the shortage of services</p> <p>6-Reforming and strengthening accesses and in this regard preservation and promotion of tissue integration with the entire city</p> <p>7-Improve the physical quality and widening of streets</p>	<p>S1: existence of participation contexts in public, having</p> <p>S2: neighborhood residents tendency to develop, being provided cultural contexts for development worn tissue</p> <p>S3:Take advantage of open space and ruined for lack of required land use</p> <p>S4:existence of participation contexts in public</p> <p>S5:low rent and housing prices</p> <p>Private ownership of property</p>
Defensive strategy (WT)	Review Strategy (WO)	Weaknesses
<p>1-Holding regular meetings with local people and attract their support of Development programs and projects of worn tissue</p> <p>2-Codification of joint programs between public and private sectors in order to upgrading and improvement infrastructures.</p> <p>3- Use of specialized management in sectors, institutions and organizations</p>	<p>1-Providing various incentives to private investors for the worn tissue development projects</p> <p>2-New construction in order to retrofit based on the building regulations and obligation to observe with these regulations</p> <p>3-Reduction of administrative bureaucracy in order to accelerate development projects of worn tissue</p> <p>4- Production of affordable</p>	<p>W1:Lake of facilities and equipment and services and existence dilapidated sectors</p> <p>W2:Domestic wastewater flows entering the neighborhood streets and pollution due to domestic waste</p> <p>W3: existence of inconsistent land</p> <p>W4: use Severe deterioration in the physical fabric of neighborhoods</p> <p>W5: Lake of urban facilities</p>

associated with worn tissues 4-Granting incentive points to stakeholder groups for renovation and improvement of worn tissue (low-interest loans, removal of legal barriers, reduce complications,	housing 5-Proper planning for garbage collection and disposal of it with partnership of residents	and equipment W6: Lake of appropriate construction
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5. Conclusions

Urban wear is a serious and unavoidable phenomenon that urban management is faced with it in all countries. What is important is that urban wear and worn-out tissue specific to a particular country or city is not certain but all the towns and villages around the world are involved with it but depending on condition, age, type and quality of construction materials, period defined for the useful life of buildings, quality and strength of materials, there are supportive-incentive government policies and urban management plans and programs.

In this regard, improvement and modernization program with using objectives and appropriate strategies can be provided suitable living conditions in these tissues and also in the surrounding areas. Given the complex social - economical and physical problems in the section studied and the necessity of preventing the corrosion process, using various methods in this regard is necessary. Therefore in this study, based on the SWOT model has been examined the weaknesses, strengths, opportunities and threats facing the development worn tissue.

The results using this model shows that lack of infrastructure facilities and equipment, lack of attention to public participation, severe deterioration in the physical fabric of neighborhood are the main obstacles in the way of neighborhood development. On the other hand existence of participation contexts in public, having neighborhood residents tendency to develop, being provided cultural contexts for development worn tissue and low rent and housing prices, respectively with a weighted score of 65%, 44%, 44% , are the main strengths in developing of NehzatAbad old tissues and public participation in local governance, agreement on cultural issues among residents, being old residents interested in neighborhood respectively with a weighted score of 60%, 40%, 40%, are the main opportunities in development of neighborhood. Also lack of attention to the public participation, the multiplicity of decisions in connection with municipal affairs of neighborhood, rejecting responsibility for garbage collection by the municipality and risk of disease in the neighborhood with a weighted score of 65%, 65%, 48%, are the main threats for development and planning in NehzatAbad old neighborhood improvement. Finally, based on the results in Table (5) was found that points of neighborhood in evaluating internal factors is 3/58 that as in the research method was expressed, number of 1 to 2/5 shows internal weakness and this result emphasizes the strengths within the neighborhood, that based on this can benefit from the internal advantages in the worn tissue neighborhood development. Also based on the table, in matrix external factors, the neighborhood final score is 4/22 that indicates the existence of favorable conditions and opportunities in this sector. These points can also be used to eliminate external threats. Finally, based on the results the best strategies that can be applied in this study, are the diversification strategy with points 2/33 and defensive strategy with points 4/01.

So in order to achieve the research objectives in worn tissue of NehzatAbad neighborhood following suggestions are offered:

1. Public participation at the highest level of programs in order to use them at least scale programs
2. Create effective incentives between owners, builders and non-governmental investors for neighborhood improvement and modernization of old texture
3. Implement incentive policies for the improvement and modernization with public participation in areas that requires retrofitting, protection, maintenance, care, strength and repair.
4. Improvement and Modernization in neighborhood scale in order to maintain social stability and spatial neighborhood identity
5. Awareness of current programs, initiatives and projects that are done
6. Concessions, banking facilities, tax exemptions and low interest loans to increase people's ability and private organizations for improvement and modernization of neighborhood.
7. Create a sense of trust and cooperation between the public and city officials
8. Encourage people to form neighborhood organizations
9. Employment in order to eliminate unemployment of residents
10. Identify and analyze factors affecting on stagnation and decline of worn tissue
11. Identifying bottlenecks and potential functional for development in the neighborhood
12. Providing optimal solutions to intervene and restore in the priority areas for improvement and modernization according to functional and physical deterioration of neighborhood in order to revive the old tissue and in this way, the city placed in the path of sustainable development.
13. Increase service levels and infrastructural equipment in NehzatAbad neighborhood
14. Setting prospect for sustainable neighborhood development in order that neighborhood could be developed for long-term goal.

References

- AghahSafari et al. (2010), Study of renovation and improvement of Khobbakht neighborhood (Tehran), Journal of Iranian City Studies, Vol. 61.
- Ahmadi, A.et al. (2011).Study of the old texture and urban management for solutions provide the optimal management strategy (Case study: Sanandaj City), 3th conference of the geography.Tehran University.
- Akbari, A. and Emad Aldin, A. (2007).Enabling of anatomical - functional tissue worn urban (the city of Gorgan) worn texture of urban sustainable development vision, values and challenges, Zahedan.
- Buchanan, M.H.(2006). The renovation of old Qazvin textures for urban management, Municipals Journal, No.70 (6).
- Ebrahimzadeh,E. and Agassi,A.(2009), Analyzing of affecting the factors to the development of tourism in coastal areas of strategic Chabahar using SWOT, Journal of Urban and Regional Studies and Research,107-128.
- Eftekhari, A. R. A. and Mahdavi, D. (2005), Rural tourism development strategies using the SWOT model: Small Lavasan villages, Journal of Modarres, Tarbiat Modarres University, 1-30.
- Falamak, S.M. (2005). Modernization and Urban Development, SAMT Press. Tehran.
- Golkar, K. (2005), The appropriate of analytical techniques of SWOT for use in urban design, Sofeh journal, No.41, pp. 65-44.
- Habibi, K.et al (2008).The upgrading and modernization of old town textures, the Kurdistan University.
- Lotfi, S.et al (2010).Strategic planning, urban wear tissues (Case study: Town of Babylon), Journal of human research, No.3 (1).

- Momeni, M.et al (2010).An analysis of restoration projects and urban renewal of worn-out tissue (Case study: Isfahan city), Journal of urban and regional studies and research, No.2 (7).
- Movahed, A.et al (2008).Examining the social - cultural dimensions of worn-out tissue Case study:NehzatAbad neighborhood,1th Congress of urban textures for sustainable development, values and challenges,Shahid Chamran University of Ahvaz.
- Movahed, A. and Khzady, S. (2010), Analyzing of affecting the factors to tourism development in Kurdistan province using the SWOT model, Journal of Urban research and Planning, No. 2, pp.85- 102.
- Piers, J., and R.Rabinson. (2004).Sstrategic management, implementation and control, SAMT Press, Tehran.
- Rabi,A.(2003),The economic basis of traditional textures (necessity to revise of the comprehensive plan) Seven City Journal, No.4 (14).
- Rahnema, M. (2009). Central planning of cities, Mashhad, Ferdowsi University of Mashhad.
- Salahuddin, R. (2010). Social - Economic Analysis of worn tissues for their organizing (Case study: Saghez city), MA of student, Payam Noor University, Sari.
- Sajjadi, J.et al (2011).Upgrading and renovation of old urban tissue with emphasis on public participation (Case study, Dolab neighborhood of Tehran), Journal of Environmental Research, Azad Islamic University of Malayer, No.14.
- Sydneya, A. (2010). Urban Management, the country's Municipalities Organization, Volume, 11, Tehran.
- Zndvy, M. (2007).Study of ancient texture of Babel city, MA dissertation, University of Mazandaran.