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Identifying the areas of intervention in renovation and rehabilitation of olden fabric using AHP method; case of Paytoop neighborhood in Bojnord

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Abstract

Paytoop neighborhood in Bojnurd in among those neighborhoods that are confronted with worn-out area problem, while have a potential capability to attract people. In spite of the implemented renovation plans, and having a long history and great capabilities, this neighborhood couldn't have any progress in constant spatial development, and we are still witnessing a horizontal expansion in the city. The objective of this paper is to analyze the renovation and rehabilitation plan in Paytoop neighborhood, and to prioritize the worn-out area zones in order to implement the Armaghan plan using AHP method and present some strategies to use these spaces optimally, while preserving their identity. In this research, AHP hierarchical method is used to determine the intervention area in the worn-out area. In order to measure and analyze the information we used interview, observation, questionaire, and library study.

Key Words: *Site Selection, rehabilitation, renovation, olden fabric, public participation, multi-criteria decision making.*

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Introduction

Following industrial revolution in social-economic technology backgrounds and the consequences of population and activity influx into central parts of cities, these areas experienced a physical, economic and social fall. This process led worn-out and central areas of cities to lose their dynamics and good neighborhoods turn to inferior and problematic neighborhoods. They lost their balance and no longer could respond to new requirements of urban societies. By inattention from urban management, the central areas of old cities became depressed and worn. Many owners and residents left their homes and these areas turned into a destination for low-income emigrants and lessees. Physical distress, social abnormalities, infrastructure deficiencies and a sharp economic drop are among the problems related to these regions. On the other hand, these areas are prone to loose valuable legacies, located mostly in these regions.

Problem statement

Bojnurd historical zones are a place for several formal and informal activities that seem conflicting or incongruent in first glance, but after some time and with physical structure changes, they are organized and their form and content in combination with each other have turned into the best origin of Iranian urban spaces. However, what has changed these neighborhoods into problematic obstacles, is their (physical, distress economic, social) distress as a result of time passage and material vulnerability.

Beside the distress of the neighborhood texture, the existence of historical indexes in this neighborhood has turned it into a well-known historical and cultural pole and has duplicated its importance in relation to other areas. And since this neighborhood is located in center of Bojnurd, it has been known as the main core of this city. The following necessities are undeniable in implementing the plan:

A) Implementing the plan in line with different cultural programs;

B) Reinforcing the internal structure of the city and reviving Bojnurd historical pole;

The main problems of the area are:

- Due to its proximity to the market and low price of land, smallholder businesses are resided there. The bad effects of structure, one of the business centers of the city on the area and turning the valuable spaces into storehouses, low-quality service spaces (field studies and interviewing the residents)

Importance necessity

Choosing Paytoop neighborhood to implement the renovation and improvement plan is important to us because this geographical location is not only the oldest residential neighborhood in Bojnurd, but also is considered by the citizens and geographers as a cultural, economic and residential complex because Jame Mosque, the oldest part of the market (Sabzeh Meydan), and Meydan Kohne are located in this part. This urban region is very valuable in terms of business, cultural legacies and tourist attractions, communication network and finally residential and physical aspects, discussing of which is necessary in such studies.

The necessity of improvement and renovation of Bojnurd old area as a part of the total urban system in terms of economic and social structures is unorganized and its organization is important.

Therefore, urban pathology and renovation and improvement of the worn-out area in Bojnurd as a potential factor can be effective in organizing and stabilizing the structure of the city.

Objectives

- Appropriate localization for implementing the renovation and improvement project
- Creating the required service per capita for the residents;
- Creating jobs through reviving and reclamation inside the neighborhoods, for example, building production centers, training and selling handy crafts, creating training workshops, setting up and reviving the small markets;

Planning policy	Plan scale	Action plan period	Type of action plan	Type of Urban Renovation	Deterioration field	formula
Changing, land use fixe, building physical form Maintenance	Action plan	Short term (up to 5 years)	Maintenance	Rehabilitation	land use	1
Land use changing in physical form of building	design	Mid – term (up to 15 years)	Restoration	Renovation	Physical form	2
Physical form determination	planning	Long term (up to 25 years)	Destruction and Repair	Reconstruction	Land use+ Physical form	3

Table 1. Renovation formula based on type of deterioration; Source: Habibi, 2005: 15-16

Questions and hypotheses

1- Can Armaghan plan meet the requirements and objectives of the city?

2- How much is Armaghan plan coordinated with the economic-social features of the neighborhood?

3- Public partnership is one of the most important contributors of success in renovating plans in Paytoop neighborhood.

Research methodology

This research is an applied research and uses a descriptive method. In order to gather the information both documentary and library method, and field methods such as observation, interview, and questionnaire were employed. Given the span of the study, it is divided into Sreban and Mofakham neighborhoods. The questionnaires are distributed among 175 people in each neighborhood, including the residents of worn-out area. In order to analyze the data and present the strategies to improve the worn-out area, AHP hierarchical analysis is employed.

The variables and indices

Distress is divided into 2 classes: partial distress and complete distress.

Partial distress is a distress that penetrates into an important element of urban space (physic or activity) and lead to partial distress of urban spaces. Complete distress is a distress that penetrates into an important element of urban space (physic or activity) and lead to complete distress of urban spaces. So distress, in physic or activity, or in both of them, penetrates entirely, and on this basis we can formulate some equations that indicate different distresss. So:

First class: intact physic + activity (partial distress) = partial distress of the space

Second class: partially distress physic + activity (intact) = partial distress of the space

Third class: distress physic + activity (distress) = complete distress of the space

We can show the above-mentioned in table1.

Physical distress determination indices:

According to the act of the urbanization and architecture council of Iran (6.13.1384) the following indices are determined to detect the worn areas:

Index 1: (fine fragments) blocks with more than 50% fragment that have less than 200 square meter.

Index 2: (structure instability) blocks with more than 50% worn buildings (without structural system) on the other hand, unstable and non-standard.

Index 3: (low permeability of the texture) blocks with more that 50% of passages that are less than 6 meter.

Bojnurd city as the capital of Bojnurd County (capital of North Korasan province) is located in the South of Bojnurd County. Its area is about 25 square kilometer (2500 Hectare)

and is 250 kilometer away from Mashhad. Bojnurd city is one of the old cities of Khorasan and before the country-wide divisions was approved legally in 1316, it had municipality. After approving the law of country-wide divisions in that year, this city was upgraded into the county capital. Currently, according to the latest country divisions approved by the ministry of interior, Bojnurd County includes 3 boroughs and 8 rural districts and Bojnurd is the capital of North Khorasan province.

Bojnurd is located in a plain land, which is like a semi-closed pit with continuous and mild slope from South to North. Dimension of this plain from Western-North to East is 10 kilometer and from South to North is about 17 kilometer. Bojnurd is surrounded by main and secondary faults with tectonic origin, which has created a partially unstable zone in terms of seismicity for it. The important surrounding mountains are: Sefid Yoodagh mountain of Binalood Mount, Ghare Blagh mountain of Binalood Mount and Shamshir Mountain located in 5 kilometer in Eastern-North. This city plays an important role in agriculture and trade in North of Khorasan. Bojnurd has had 12 towers in East, 12 towers in South and 2 towers in both sides of Qibla gate. There were also some towers in North but there were none in West. There was also a 5712 meter long ditch, dug-out around the city. After the city developed, this ditch moved and is now located in the West and passes the gas station of Niroogah neighborhood from South to North. According to the Census in 13985, Bojnurd population was 172772, with 44217 households, 3.9 people for each family, and a relative density of 1/69 people in each hectare.

According to the detailed plan, prepared for Bojnurd, the city area is divided into three parts: the Northen margin area, the central area and the South margin area. In the central area, there is 154 hectare worn area which is approved by the employer and is observable in the attached map. This area contains three main characteristics of worn areas as the following.

1- Fine fragments, where more than 50% of the breakdown fragments have an area of less than 200 meter.

2- Unstable area in case of unexpected disasters and urgent services, so that more than 50% of passages are less than 6 meter wide.

3- Unstable buildings due to different kinds of depreciation, especially physical depreciation, so that more than 50% of the buildings don't have skeleton pr footing beam in them.

According to the abovementioned provisions, in the 154-hectare worn area it can be claimed that the area posses all the characteristics of an inefficient or problematic area including: residential value reduction, cessation of renovation and even improvement inside the area, reduction in environmental qualitative values, increase in emigration to other places, inefficiency of access hierarchy, low public open space and landscape, denied access to appropriate services, problems from inappropriate sewage disposal, social problems inside the area, and finally the residents' isolation in relation to the adjunct areas. This is why in answering the questions to trouble soothing; we prioritize the different reasons - the first choice (internal development and evolution) - to external development.

This is obviously one of the most important urban development policies in developed counties. In a part of the 154-hectare area, there is a span with an area of about 5 hectare under the ownership of Maskan Sazan Sharg, which is being revived and renovated. This area is visible in the attached maps.

The project of this study is a 154-hectare area, and is important in terms of the following five main indices:

1- Area limitation in an urban block.

2- Continuance and exposure of renovation and rehabilitation in adjunct areas.

3- Observing the standards inserted in the detailed plan.

4- Observing the determined area, 154 hectare.

Identifying and determining the area of different types of worn area including valuable historical, valueless worn, worn area with rural or marginal core

The studied area, all of which is regarded as worn area, and naturally includes all the characteristics of this kind of area, needs mending and repair and renovation. Since the entire area cannot be organized or renovated at once, or a combination of them cannot be conducted, and naturally such a renovation should be done during a certain time and on the basis of different prioritizations, so it is necessary for the area to be break down into small and separate zones with different characteristics. This provides an appropriate base to implement different and extensive construction works. In line with this, according to service description provisions, the entire area of 154 hectare is divided into two sections: valuable historical area and worthless area. Since the studied area is the primary core of the city, and thus the area lacks rural or marginal background, so in terms of segmentation, the area is just divided into valuable historical area and worthless area. This division means that in the valuable zone organization and improvement is prioritized and in the worthless zone, land acquisition and renovation projects are preferred to other activities (repair and improvement).

Identifying the role, position and characteristics (physical, economic, cultural, functional, and environmental characteristics)

The studied area possesses a special position in Bojnurd. This feature results from the concentration of business and service activities and their increasing development, which revolts the visage of this area. In this section of our report, the characteristics and position of the studued area in the city is described.

1-2-1. The area position in terms of establishment in the city

The zone of worn area in Bojnurd is located in the Northern part of the city and this central part is divided into 5 regions, one of which (region 2) is exactly coincident with the studied area. According to the attached map, this zone (region 2) is confined to Shohada St. (Shahrebazi) from North, to Shahid Reza Emami St. from West, Imam Khomeini St. from South, and to 17th Shahrivar St. from East.

The most important feature of the zone is its position in physical-spatial skeleton of the city, and the existence of two business and service centers in it.

1-2-2. The physical-functional position of the area

In terms of urban physical status, as provided in the detailed plan of Bojnurd, this city is divided into three regions: Northern margin, Central part and Southern margin. According to the attached map and the following table, this division is as follows: 7 areas in Northern margin, 5 areas in the central part, and 5 areas in the Southern margin.

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Area	Population	Regions	Urban Districts	
836.91	46750	Regions 1 to 7	Northern Districts	City of Bojnurd
755.13	90087	Regions 1 to 5	Middle Districts	
957.5	29590	Regions 8 to 12	Southern Districts	
2549.54	166427			

Table 2. City Divisions in Regions and Districts; Source: comprehensive plan of Bojnurd

According to the above table and the provided detailed plan, population of Bojnurd in 1383 was 166427 people and its area was 2549 hectare. On this basis, population density is 65 people for each hectare, which seems a low population density. In the central part of the city, where region 2 is located, the population is 90,000 people and the area is 755 hectare. Population density in this part is 119 people/ hectare which is twice the equivalent index of the entire city. Both od the two above indices show that the central region has a higher population density than Northern and Southern margin areas, and consequently this leads to lack of urban services and a host of problems. Table 2 presents the existing land-uses and their levels and per capita, along with their percentages. This central area includes the worn-out area of the city which is the primary core of Bojnurd and there are some old buildings in this area which includes two different parts: A) Sareban Mahale located in Eastern-North of the worn-out area, in front of a hill. In this part high and long walls, with minimum opening in them, are among the effected factors of the climate. As such, there are a minimum of open and public urban spaces, and urban installations. Old buildings of this part are mostly are made of adobe and mud, with a wooden overlay and thatch roof. In this zone renovation of residential places has begun, however, due to low economic power of the households, implement method is weak. B) Paytoop and Mofakham neighborhoods, which are the business center of the city, are in a better condition Sareban neighborhood. The residents are in a higher economic level and the buildings are bigger and better. Many renovations, especially in zones near to the market, have begun and buildings with relatively high densities are being constructed. Breakdown fragments in this zone are bigger and more regular. Its narrow alleys (4-5 meter wide) cannot hold cars in them and most of the passages are for pedestrians, which have created a peaceful environment. Along this worn-out area, other buildings of the central area are formed, and in terms of physical structure, have a plaid order with a vertical angle. This area features wider streets that the worn-out area and straight alleys with mean life of 30 years. New settlers, resided in this part near the traditional residents of the city, are mostly governmental, private, or military employees. Most buildings are two-story and new material, like brick, iron and stone overlay, are used in them. In terms of traffic pattern, possesses the hierarchy of passage networks, and most of the passages are for cars. Breakdown fragments of this area are bigger and public service complexes have formed along the streets.

In table 2, 41% of the central area, with an area of 333 hectare and 37 square meters per capita, is allocated to residential use, which is much higher than standard levels. (Housing per capita according to international standards is about 20-30 square meters and their usage percentage varies between about 20 to 30%). This is because buildings are mostly one or two-story and their area to height ratio is high. Also, 5.7% of the lands are useless and are regarded as wasteland. All of these lead to a lack in other uses, including open space use, sport use, sanitary use, etc. In Bojnurd, new developments including constructions in legal zone of the master plan, and the constructions in lands belonged to governmental organizations and agencies added to the area, have been conducted. The buildings of this area have a mean age of 30 years, which have been constructed under the criteria and regulations of the urbanization plan and municipality. Construction and breakdown pattern, material type, and residence in these areas show a significant and sudden change in relation to worn-out and central areas. All the alleys are appropriate for cars and construction patterns make it possible for cars to enter the residential fragment for fragments. In addition, in this area, with unfinished buildings (buildings without façade and some equipment), where

life is continuing, or intact fragments as well as graveled streets, we are faced with problems in disposal of surface waters and inadequacy in infrastructural services. Urban margin includes some areas in rural areas, areas with rural function, which try to mimic urban visage in an abnormal manner. This part, which is mostly constructed without monitoring and attention from the responsible organizations, is the result of low-income rural immigrants' need to shelter, who cannot have a home in legal zones of the city.

These residential complex with minimum economic and technical facilities, have been constructed to just meet the rural people. In these areas, we can see various abnormalities and shortages. Several physical issues in these areas have made desired life impossible, and different social and cultural problems are a result of economic poverty and unfamiliarity with and inability to attract facilities by its residents.

Very humble buildings, breakdowns subordinated to agricultural borders, and natural factors without any infrastructural facility, are the result of a life style that is more comparable to living in slums than in a city.

The studied area (region 2) is one of the 5 regions in the central area, which (according to the detailed plan) had an area of 49 hectare and a population of 20448 people in 1383. According to the criteria of housing and urban development organization, this region is called the worn area of the city and naturally posses these three factors: fineness, instability, and impermeability. These items will be analyzed in next sections as basic reviews. Tow main urban indices, i.e. population density and urban land per capita in this region is provided in the following table and is compared to the central part of the city and the whole city.

In the above table it can be seen that density in the studied area (region 2) is higher that the central part and the whole city while per capita or land for every person is very lower than the mentioned areas. These figures mean a higher population density and a lower land per capita, which merely describe the distress of this area and the low environmental quality and lack of services. Generally, the main usages of this area are as follows

- Residential usage – 50% of the total area
- Access networks – 24% of the total area
- Business usage – 6.4% of the total area
- Wastelands – 5.2% of the total area

This way, 4 usages account for 86% of the total area of this region. This region is consisted of 4 neighborhoods (the attached map), and totally, in terms of service usage distribution in different neighborhoods, the Western region (i.e. 1-2 and 2-3 neighborhoods) has a better condition than the other two neighborhoods. Table 4 provides the level and per capita of different usages.

According to table 4, it can be seen that of 73 square meter land per capita in the studied worn area, about 50% is allocated to residential usage (per capita of 36.7 square meter), followed by passage network with 18 square meter, and then business usage with 4.7 square meter. Per capita of 73 square meter in this type of cities with a population between 100 and 200 thousand people should be higher than 100 square meter, which indicates the area compactness, distress and inappropriateness of residential indices and several other shortages.

1-2-3. the economic position of the area

Economically, the studied area (region 2) plays several roles, the most significant of which are business usages (wholesale and retail), workshops, offices, financial and bank services, respectively. Northern parts of this area are economically poorer than other parts and are aplace for lower class people. However, this economic poverty is generalized to the entire area and is recognizable in shortages of different land usages such as public open space, passage networks and appearance of the buildings.

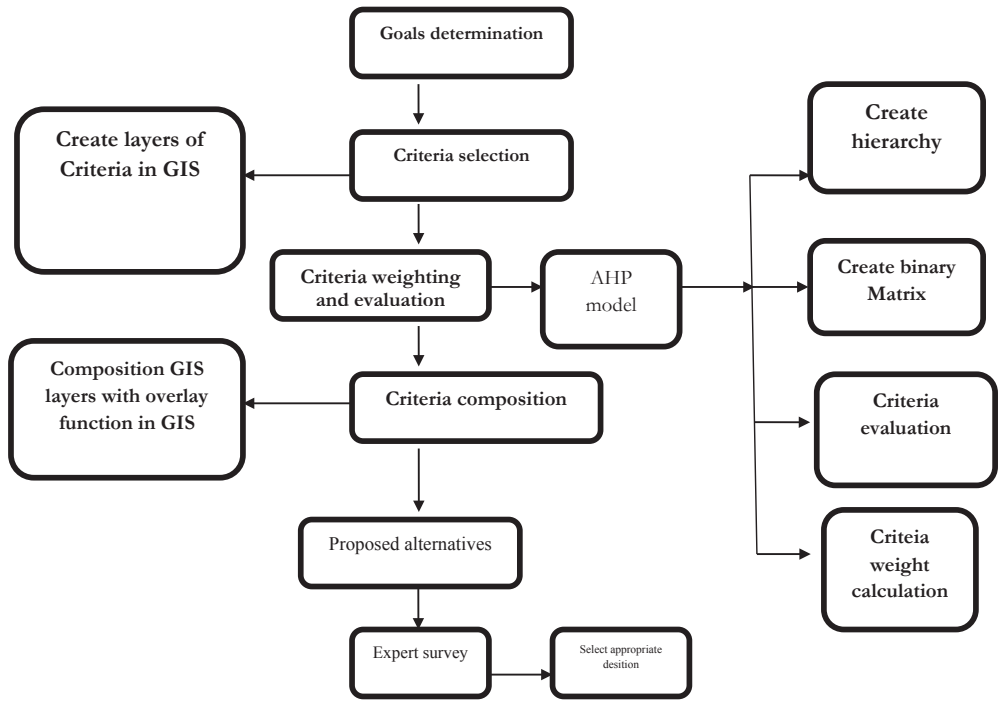

Figure 7. model of Multi criteria desition making (MCDM) of AHP; Source: Habibi and Koohsari, 2006:6

Introducing the hierarchical analysis procedure

AHP is a simple computational method based on the main functions on a matrix that creates the appropriate hierarchy and processes adaptive matrixes step by step in different hierarchical levels, computes their eigenvalues and determines the relative importance of each item in the final weight coefficients.

Characteristics and advantages of AHP model

- Converting a complex problem in hierarchical principle framework and in fact opening the problem;
- Analyzing and evaluating the quantitative measures;
- Employing collaborative planning under the effect of strategic planning and strengthening group decisions;
- Possibility of investigating the results compatibility and adjusting them.
- Paying attention to factor effectiveness in order to reach the final goal;
- Final rating of the results and the possibility of combining it with GIS and quantitative models; and
-Compatible decision-making and binary comparisons.

Weakness of AHP model:

- Giving relative value to choices and applying tastes; and
- In some cases it is impossible to convert a set into a hierarchical set.

Analyzing the findings

3-1. Operational stages of AHP

Given the research objectives and hypotheses and past experiences, the measures and choices were selected in the highest level and then the hierarchical tree was formed according to figure 8.

3-2. Data standardization

The surveyed qualitative and quantitative indices are definite and the relationship between different levels can be measured. On the other hand, the investigated data are measure with thresholds rather than means. Given the mentioned characteristics, the linear method was used to standardize the data. Because the software does not accept decimal numbers, the obtained weighs between zero and one are

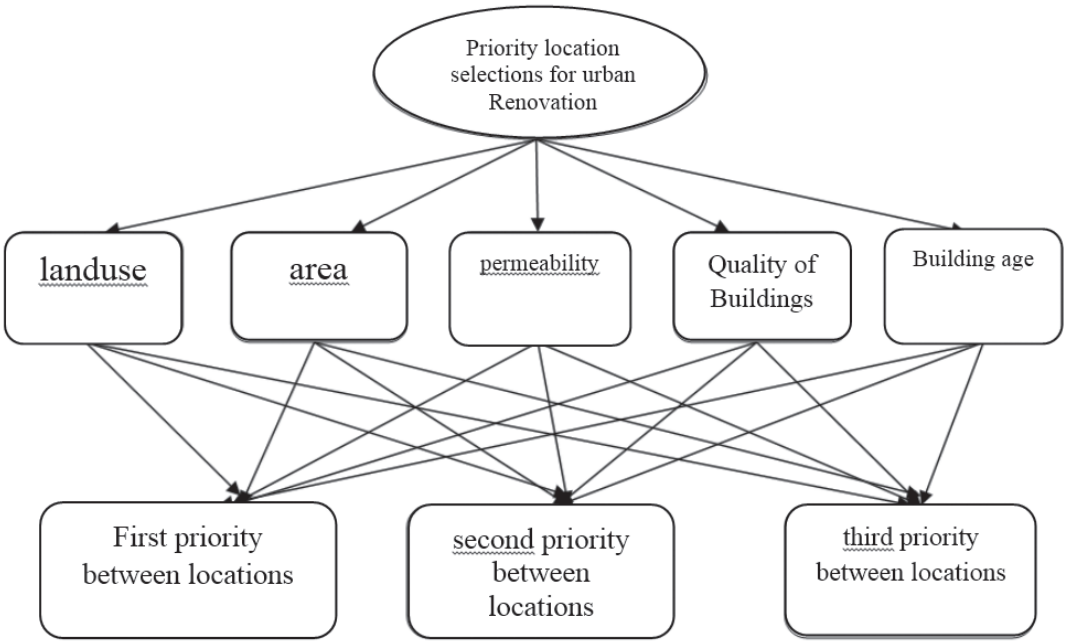

Figure 8. Hierarchy creation of Criteria and Alternatives

Area (meters)	weights
0-100	1
101-300	0.85
301-500	0.6
Bigger 500	0

Table 3. weighting based on parcel area; Source: authors

Age (year)	weights
0-10	0
10-20	0
20-30	0.5
older 30	1

Table 4. weighting based on parcel age; Source: authors

Permeability (width of streets)	weights
Under 6 meters	1
Bigger 6 meters	0

Table 5. weighting based on permeability

Landuse	weighting
Residential	1
rental	1
Retail and so on	0.5
historical	0
others	0.3

Table 6. standard matrix for parcel landuse

Parcel quality	weighting
new	0
Repair needed	1
destructive	1

Table 7. standard matrix for parcel age (parcel quality)

converted into 1 to 10. This weighing is obtained from investigating the hypotheses, objectives, scientific literature, experiences and interviewing people and authorities.

Choosing Preferences (binary weighting) is the most important and most effective parts in obtaining the final weights. To this end, we tried to use comments from executive experts, scientists and interviewing people, to select the appropriate choices. Then, for final evaluation of the measures, binary adaptive method is used in which two measures are compared and according to their importance and our objective, different values are given to them our basis of comparison in this stage is the clock 9-quantity table, in which 1 represents the same desirability and 9 represents the desirable choice and reference.

Comparisons in (N*N) matrix is registered here as (5*5) and the numbers in the table are presented in one of the following ways: 1) quantities of 1 to 9 according to the clock table; and 2) the reverse of the mentioned numbers. Whenever a change occurs in the hierarchical structure, the evaluation process should be resumed.

If this ratio is lower than 0/1, the comparisons are accepted and the computed weights are extracted. If the ration is more the 0/1, then after applying some changes in the binary comparison matrix, it is adjusted for an acceptable value. Given the fact that CR or lasting ratio is 0/09 and is lower than 0/1, so the acceptable level of lasting is obtained (table 8).

Binary comparison of the final obtained weights are as the following:

- Estate area: 0/3176
- Passage permeability: 0/2856
- Land usages: 0/0866
- Building quality: 0/02856
- Building lifetime: 0/0246

The land usage of the studied zone is classified into 43 classes and physical removal is 149.8 hectare. Residential usages with an area about 72.8 hectare, account for 48.6% of the total area of this zone. The passage network with an area of 38.9 hectare includes 26% of the total area. Business and service usages totally account for 7.9% of the total area. The existing wasteland covers 5.2%% of the total are of this region.

Investigating the size of residential fragments in the area

The size of residential fragments is regarded as a distress index. This index, along with access and permeability of the area, and the quality of the residential buildings, determines the distress extent of the area. According to the conduced researches in the worn-out area of Bojnurd, about 1.5% of the residential fragments have an area less than 50 square meters. 12.1% of the fragments have an area between 50-100 square meters. About 43.2% of the fragments have an area between 100-200 square meters, which is the highest percentage. Fragments with 200-300 square meter area account for about 24.9% of the buildings. Fragments with an area of more than 300 meter account for 18.3% of the total fragments. This way, it can be seen that the worn area has allocated the highest abundance to fragments with less than 200 square meter area and is considered as a fine fragmented area.

	Street width	Parsel area	Building age	Land use	Quality of parsels
1	7	9	1	1	Parsel area
1	5	9	1	1	Street width
0.11	0.11	1	0.11	0.11	Building age
0.2	1	9	0.2	0.1429	Land use
1	5	9	1	1	Quality of parsels

Table 8. binary criteria scoring matrix using el saati's scoring

Building life

According to the conducted physical removal in the studied area, of 3353 buildings located in the area 1580 residential buildings are 30 years old. This number accounts for 47.1% of the entire buildings. About 14.5% of the buildings are less than 5 years old, which is a significant share and indicates the residents' tendency toward renovation. Near 10.1% of the residential buildings are between 5-10 years old. 28.3% of the buildings are between 10-20 years old. The fact that about half of the residential buildings are more than 30 years old indicates that this area is a worn area, which includes the central and worn-out part of the city.

Physical intervention strategies in the urban worn area

The city is as a dynamic system that is constantly affected by internal and external factors. Consequently, the urban area is changing, which reveals its formation and physical status of the city. Worn-out areas are formed according to pedestrian access and usage distribution inside them was in equilibrium. After cars entered the cities, and the necessity to create appropriate access and to construct roadway systems was appeared, areas disjointed and the need to space for new buildings and the modern elements of the modern industry formed in the margins of the ancient areas. Retardation of the worn-out areas and their incompatibility with urban development and evolution, and inattention to these areas from urban management, reduced their attraction and gradually lead to their distress. So that worn areas are now a problem that most of the cities in our country are faced with.

Urban worn areas, depending on the type and extent of the distress, their historical value, and their position in the city, require different strategies and actions to encounter the distress. Generally, according to loyalty to the past, different types of intervention in worn areas are divided into three groups: improvement, renovation and reconstruction. Each of these three types of intervention include a wide range of activities according to the needs. In Bojnurd, according to the investigations and the position of the area organization in the city in terms of functional, communication, and physical aspects, and given the general requirements of this area in each of the mentioned fields, the general strategies and objective of the special detailed plan and urban design in the area is presented with some general approaches. The studied zone includes a combination of residential areas and service functions in city scale. Given the effect of the mentioned characteristic on the zone, we need to provide a strategic plan and determine the intervention strategies in the area. According to this, the general intervention strategies in the area include the following two general levels:

1- Intervention in the central area scale with a mostly service-business usage

2- Intervention in the residential scale

1- Intervention in the central area scale with a service-business format

According to this strategy, in some parts of the central area, where business activities are accumulate, intervention considering the service areas, strengthening and adjusting the communication spaces of this area, supplying the space for functions related to service centers like parking lots, etc. is made, and also the intervention method in residential spaces in this zone should be in association with the changes and interventions made in the service areas.

2- Intervention in the residential scale

In residential area scale and blocks with mostly residential usage, organization and improvement activities are applicable in different levels.

a) Renovation in multi-urban block scale

This method, which is achievable in long term, is usually in the form of macro-scale renovation activities, and adjusts the physical structure and improves the complex function. The main objective of this method is to up-

date and organize the spatial organization of the complex to be appropriate for a capital city. In order to achieve this goal in this level, we pay attention to organizing the transformations made in the spatial structure that has led to its functional and physical inefficiency. Therefore, the activities of this method are performed in a long term process. If the complex and its spatial structure possess historical, cultural or structural value, the activities of this level are applicable as improvement interventions, too. This approach uses protective methods and adopts appropriate measures in order to protect and preserve the complex and its valuable elements, and prevents the possible treats. This method employs actions to strengthen the durance and integration of the spatial organization and the complex skeleton.

b) Improvement in urban blocks in medium-term processes

This type of intervention is realized in medium-term process and is mostly for physical interventions. The general objective of this intervention is to repair and adjust the area or complex conditions. It adjusts the network and renovates the buildings by applying encouraging criteria. On the basis of this objective, in addition to supplying the service requirements in medium-term, the required motivations for renovation is created in the residents.

c) Renovation in the scale of units of an urban block

This type of intervention is conducted in short-term and identifies the units with severe physical distress, and destroys, removes and reconstructs the units. It is obvious that the implementation of these interventions will be in short-term in encouragement grant format.

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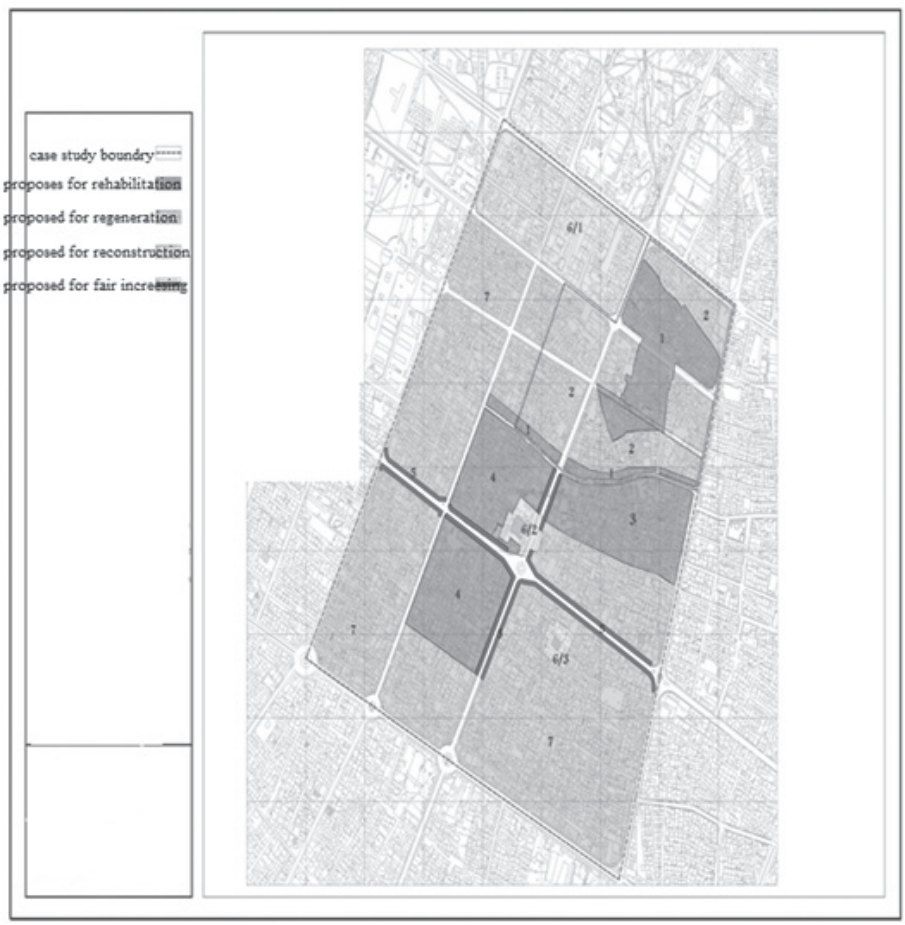

Figure 1. proposed policies for case study; Source: Authors

This type of intervention is recommended in residential unit scale or blocks with severe and hasty problems.

Conclusion

According to the above discussions, the present paper explains the scientific model and method of prioritizing the physical area in improvement and renovation operations of urban areas, and wants to reach a method and model generalizable to other cities in different parts of the country and to present a flexible process to exit the existing conditions of the worn areas. Some results obtained from this study include:

- In the neighborhood, the effect of estate area in relation to other factors is more obvious in the area distress, following by passage permeability.
- Regions 1 to 5 with an area of 755.13 hectare possess the first priority for renovation and improvement. This means that an extensive part of the neighborhood needs renovation.
- Due to low income of the residents, the projects are depended upon governmental loans. If the government lends money to all the applicants, it needs a huge budget which is out of government responsibility.

Strategies ahead the management are:

- In large-scale project, the residential area of the neighborhood can be allocated to free market, as a result of which the residents will abandon the neighborhood and transfer it to new (rich) investors.
- Slam-scale projects can be implemented with a low standard and in a long time with public participation and government contribution.

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