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In the Name of Allah

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9-4. Research theoretical literature: includes scientific descriptions, latest theories and scientific discussions related to the article's topic, viewpoints of the connoisseurs, background information and finally a conceptive model for the research.

9-5. Methodology of the research: includes designing the research, time and place of doing the research, samples under study, sampling method, and process of gathering data, measurement tools and methods of quantity and quality analysis.

9-6. Findings: presenting precise results of important findings according to scientific principles and using the required tables and charts.

9 -7. Discussion and conclusion: includes the effects and the importance of the findings of the research and those of similar researches emphasizing on the differences between them and the reasons for those differences, explains the article's potential to be universal and the scientific usage of the findings and presents necessary guidelines for continuing relative researches, conclusion, possible suggestions and recommendations.

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- Turgat, H. (2001). Culture, continuity and change: Structural analysis of the housing pattern in squatter settlement. *Global Environment Research (GBER)*, *1*(1), 17-25.

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Scientific Advisers Journal

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Evaluating the Effectiveness of Resettlement Patterns in Improving Quality of Life Indicators in the Earthquake-Stricken Villages (Case Study: Varzeghan County)

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Abstract

Purpose- Nowadays due to the variety of hazards and inappropriate location of some villages, the necessity of their displacement and resettlement is sometimes unavoidable. In order to resettle the villages, they should consider a wide range of social, economic, environmental and political issues so that resettled villages can survive. The present study was conducted to investigate the effect of resettlement on the quality of life of the earthquake-stricken villages and explain the factors affecting it in the resettled villages of Varzaghan County.

Design/methodology/approach- The research methodology is descriptive and analytical and the required data were collected using the questionnaire instrument. The study population was 7975 people living in 11 resettled villages in Varzeghan County. The sample size was 382 people who were randomly selected. The validity of questionnaire was confirmed by experts and its reliability was also obtained 0.921 using Cronbach Formula.

Finding- Results indicate that the quality of life of villages in Likert six-point scale was equal to 3.47, and the highest and lowest levels of satisfaction are related to the areas of infrastructure, employment and income. In addition, the results of the factorial analysis were identified in four dimensions for quality of life. In this regard, the four factors of physical, economy, psychology, and housing clearly explain the 90.95% of the variance of quality of life. The results of T, Tukey, and Scheffe tests also showed a significant difference between the resettlement patterns and the quadruple dimensions of quality of life.

Practical implications- With respect to the importance of quality of life in the development and welfare of human societies in resettlement projects, it is necessary to considerate the effects and consequences concerning the quality of life in addition to selecting the optimal rural site in order to improve the residents' wellbeing while identifying the strengths and weaknesses of these projects.

Keywords: Resettlement, quality of life, rural settlements, Varzeghan, Iran.

Paper type- Scientific & Research.

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1. Introduction

Since man came in life on the Earth, nature has always challenged him. Studying the history of life on the Earth also suggests that "unwanted events of natural origin such as flood, earthquake, hurricane, lightning, landslides and hail have constantly challenged man's material and spiritual life". (Bathrellos., Gaki-Papanastassiou., Skilodimou., Papanastassiou., Chousianitis, 2012). Earthquake has existed over the life of the Earth as a receptive and non-preventive phenomenon. This natural disaster has always been "a serious threat to human societies and has torn apart the headband of many communities" (Blaikie et al., 2014). In order to prevent the further losses of life and property, "displacing and changing the location of the villages affected by natural disasters or implementing economic or even some natural, social and political projects become inevitable" (Tashi & Foggin). In fact, "locating and displacing rural settlements without conducting a detailed study will have different economic, social, political, environmental, and physical consequences; therefore, these interventions can lead to the instability and confusion of rural environment" (Fan et al., 2015). These conditions cause "economic, natural and physical values of land, such as the natural beauty, spirit and identity of places to experience erosive process" (Xu et al., 2011, pp. 59-60).

The general objective of rural resettlement is to create a suitable environment for the establishment of villages located in high risk areas and villages which should be displaced for various reasons. In this case, the livelihood and welfare of residents get improved from different aspects after displacement and with the passage of time; therefore, "it is necessary to resettle and locate the optimal location of villages based on appropriate methods and in accordance with environmental characteristics" (Connell, 2012).

The main purpose of rural resettlement is to pave the way for the establishment of villages located in high-risk areas and villages that their displacement is necessary for various reasons so that the residents' livelihood and well-being improve from different aspects after displacing and with the passage of time. As said above, it is thus essential to resettle and locate the villages based on appropriate methods consistent with environmental characteristics (Connell, 2012). Displacing human is often done along with anxiety, cost increases and the delay of actions, while inevitable displacement can be an opportunity for development. In displacement, the beneficiaries should participate in programs; this close relationship make them to overcome their problems easier. Spending more time and effort at this stage will reduce many of future issues (Dunford & Li, 2011). Displacing population is not a purely physical phenomenon and the nature of economic and social organization, especially in rural environments with the natural environment, has a twofold action. With regard to the close relationship of rural communities with the natural environment and the fact that major parts of villages are formed and affected by natural elements, such as rivers, spring, and mountain, displacing and transporting them to another location certainly breaks their social, economic, and natural bonds with nature and raises some problems concerning the residents' acclimatization to a new environment (Wilmsen et al., 2011). In addition, projects entitled "rural integration" have been implemented in Iran that their most important goal was to establish towns and assemble scattered and sparsely populated villages in order to facilitate the provision of services, expand productive activities, provide the welfare of the population, and reduce the discrimination against rural-to-urban migration (Afrakhteh, 1996).

In general, in reconstructing damaged regions and especially in improving earthquake-stricken villages, several executive policies are suggested. Therefore, as new practical models can be implemented in the damaged community, reconstructing and renovating in the unsuitable place can be prevented (Wang, 2015).

With respect to the importance of quality of life in the development and welfare of human societies, measuring quality of life and explaining its effective factors is highly important. Therefore, it is necessary to analyze the villagers' life status in addition to selecting the optimal location of the village after the resettlement of the villagers (Tersoo, 2014). Quality of life is "an interdisciplinary issue and a multidimensional and dynamic concept composed of objective and subjective dimensions" (Poomalar & Arounassalame, 2013, p. 137). Quality of life is "affected by the time and geographical location and the value system of the society and it refers to individual's satisfaction feeling of life conditions" (Rezvani, 2012, p. 17). Finally, the subjective indicators of quality of life are obtained from the survey of residents' perception, assessments and satisfaction of life, while objective indicators are relevant to observable facts, which are often obtained from secondary data (Petrosillo et al., 2013). Therefore, given the avoidance of the displacement and resettlement of some villages as well as the necessity and importance of examining its effects on the quality of rural life, the main objective of this paper is to examine and answer the following basic question: What are the effects of rural resettlement on the quality of rural life? Thus, the

overall satisfaction with the quality of life and areas as well as the dimensions and factors of affecting quality of life in the resettled earthquake-stricken villages of Varzeghan are studied and analyzed.

2. Research Theoretical Literature

Quality of life is a multifaceted and relative concept affected by the time and place, personal and social values, which covers objective and external as well as subjective and internal dimensions. Pacione (2003) believes that the term quality of life refers to "the environmental conditions in which people live such as pollution and housing quality as well as some of the traits and characteristics of people like health and access" (p. 19-20). Historically, "the first attempts to measure the quality of life are rooted in the movement of social indicators" (Biderman, 1974). In addition to the problem of the definition of quality of life, various discussions are suggested regarding the areas used in the study of quality of life. Micheal (2000) depicts the areas of quality of life as security, health, personal development, social development, physical environment, natural resources, goods, and services. Henderson et al. (2002) have proposed twelve areas, including education, work, energy, environment, health, human rights, income, infrastructures, security, reforms, and housing . Hagerty et al. (2001) stated that the seven areas including "relationships with family, emotional well-being, physical well-being, health, labor and productive activity, sense of belonging to society and personal security" can cover the space of quality of life" (p.1). In this regard, Ballesteros (2002) also considers nine areas, including economic resources and consumer conditions, labor and employment status, education and access to schools, health and access to health services, life and social relations, housing and its facilities, culture and leisure, personal security and resources, and political resources and participation.

From the perspective of sustainable rural development, some criteria are effective to measure quality of life. In this general framework, the component of quality of life is defined in order to reach rural social stability, which includes the criteria of the quality of employment, income, services, and housing (Liu et al., 2013).

From another perspective, the indices effective in measuring quality of life can be divided into several categories. These indices include:

- Bioenvironmental indices such as protected areas, environment pollutants and natural landscapes
- Indicators related to natural disasters such as zoning (floods, earthquakes, etc.)
- Economic indices such as the distance from agricultural lands and active place of residence, economic value of land in a new location of establishment and land ownership of the mentioned lands

- Social indicators such as ethnic and cultural issues, and the social acceptance of a new place by residents, dependence on previous place and their level of willingness to displace;

- Physical indices such as the way of accessing roads, upstream service centers, plans and programs of executive departments in the new settlement location (Kolodinsky et al., 2013).

In recent studies, quality of life is measured through two methods. The first method uses objective indices to measure quality of life. Measurable objective, social, and economic indices reflect the total amount of satisfying human needs analyzed using official reports and statistics. In the second method, subjective indices evaluate individuals and groups' satisfaction levels, which are called "subjective well-being" (Costanza, 2007).

Hardoy and Satterthwaite (1993) believe that in the past, resettlement and displacement have been from high to low and government-led and refused public participation; therefore, it has led to housing that people were reluctant to accept it in the place where no one wanted to live there. Currently, planed displacement is continued in many developing countries in various forms. Based on the politics and strategies of the World Bank, resettlement sites should be in consultation with the displaced individuals and host communities. The resources and plans for land-use should be fully evaluated. Site selection, available options for shelter and infrastructure used in the new site should be reflected in terms of people's preferences and the best opportunities for the timely reconstruction of living site. Locating and protecting the community are among the most important fields considered in the resettlement site selection. Thus, resettlement sites should provide people with access to productive resources, employment, and business opportunities (Xu et al., 2011). In this context, examining the experience of the examples of India, Bangladesh, Philippines, and Thailand shows that resettlement benefits include the legal popularity of land or housing to ensure the tenure and improve the body and the infrastructure. However, these projects have failed in poor location, suffering from the lack of employment opportunities and high cost of transportation. Based on the lessons learned from the resettlement program in Dhaka, it was concluded that the five key forces including organizational issues, resources, cultural understanding, use of appropriate technology, and public participation constitute the process for the implementation of any resettlement program. The consideration of the issues relevant to the enhancement of resettlement discussions, the nature of the settlement

process and the significant beneficiaries has become a key to the success or failure of the projects (Townsend et al., 2014). The operational policies for reconstruction include assembly and integration, displacement or transmission, and reconstruction, which are analyzed in the following:

2. 1. Assembly and Integration

One of the executive policies in the reconstruction of damaged region due to natural disasters (earthquake) or human accidents is the policy of integrating damaged residence regions. In this way, small and disperse settlements, especially the settlements with massive damage or those with major problems due to great distance in terms of providing new services and infrastructures are assembled in a new site (without previous residence), or several villages are assembled in one village and the reconstruction is conducted in that particular site (Birch, 2012).

2.2. Reconstruction

In this method, a village is reconstructed in its original location. Reconstruction operations (without changing site) are implemented in order to promote the quality of environment and the available infrastructure, prepare social services and implement economic plans for people's welfare. Reconstruction policies are implementable in cases where:

- The previous village texture is garden house and family's dependence on the area of the existing house is high;
- The destruction resulted from calamities is less and excavation is economic;
- No suitable land exists for the reconstruction close to the settlement or the transfer is not needed.

2.3. Displacement and Transfer (Resettlement)

he resettlement of destructed residence centers is one of the conducted ways in damaged areas depending on the site and sometimes due to inattention. In this method, owing to the high volume of destruction or intensive movements and ground sliding (concerning earthquake) in case of the appropriateness of lands surround the village, the residence site would be transferred to a location adjacent to the previous site and reconstructed (Chung, 2010).Generally, along with displacement plan, individuals' health and economic status should be controlled, and they should be informed of the public interest of national development plans and their identity should be maintained. Many people, especially the elderly, have emotional attachment to the place where were born and grown. Therefore, in these cases, they should be treated with care and respect, and compulsion should be always avoided. On the contrary, they should be encouraged to displace in order to enjoy higher living

standards so that they are ensured that resettlement is on their behalf and can improve their conditions. Therefore, they should participate in it (Ibid., p. 432). The monitoring indices (assessing the potential effectiveness) of resettlement programs from the perspective of the World Bank (1996) include the following cases:

- How much enjoyment of the community is affected?
- Is the quality of built houses standard?
- Is the dislocated site selected and developed according to the standards?
- Are the displaced people resettled in new houses?
- Is there any supportive measure in the community?
- Are repair and reconstruction measures implemented for Social infrastructure and service infrastructure?
- Do the resettled communities have access to schools, services, health and cultural activities sites?
- Are income and livelihood restoration activities (such as alternative land use, restarting production and training individuals) included in the program?
- What changes have occurred in employment patterns, production and the use of resources compared to the previous status?
- What changes have occurred in the cost of living and income compared to the time before the project?
- What changes have occurred in social and cultural parameters associated with living standards?
- What changes have occurred in vulnerable groups? (Wilmsen et al., 2011).

Therefore, in resettlement of rural settlements, Sustainable rural environments are provided when stakeholders' perspectives, including local residents, spatial planners, farmers, managers and other groups are considered. In other words, rural managers need to understand rural development indicators and implement them in practice; In this case, the efficiency and effectiveness of these projects will be improved.

2.4. International Experience of Resettlement

In all parts of the world, displacement and resettlement occur due to development. In Asia, the number of people who have been displaced or homeless during construction projects is high, while the demographic proportion and the damaged areas during these projects are extremely lower than some projects in Africa. In addition, displacement in Latin American and Caribbean is not like Asia; however, the number of resettlement operations is reported extensive and noteworthy. A brief overview of these experiences is given below.

Asia and the Pacific - China and India have the largest share in these statistics. The National Research Center for Resettlement estimates that the number of people displaced between 1950 and 2000 was 45 million. Taneja and Thakkar (2000) pointed out that owing to dam

projects in India, it is estimated that between 21 and 40 million people have been displaced. During the dam project of Sardar Sarovar in India, 127 thousand people were displaced, while probably it has been the greatest force for displacement and resettlement throughout history. In this case, due to local residents' dissatisfaction with the project, the World Bank refused to finance the project, and the governments of India alone proceed to advance the project without any foreign aid. In another research, the displacement of 40 to 50 thousand people in Indonesia during the construction project for the development of Jabotab City has been pointed out. This project includes the widening and improvement of roads in Jakarta and its nearby towns. Countries such as India and China have the largest number of development-related resettlements. But the number of people that affected by natural and human disasters is much lower than in African countries. For example, Akosombo Dam in Ghana displaced 80 thousand people, which is approximately one percent of the country population. In Sardar Sarovar Dam project in India, 127 thousand people were displaced, it is approximately 0.013 % of the Indian population. Furthermore, development projects in African countries have often included a large percentage of the country's territory, that is, the dam reservoir has flooded 3.5% of rich land. Estimates of environmental engineering and sustainable development engineers show that the refugees of Kariba Dam in Zambia approximately 57 thousand people.

Latin America and the Caribbean: Although displacement in Latin American and the Caribbean is not generally like the one in Asia, a large number of notable resettlement operations are performed. La Rovere and Mendes (2000) state a detailed description of Tucuri Dam in Brazil that its first phase was conducted from 1975 to 1984. In this project, 25 to 30 thousand people were displaced, while the displacement of only 1750 families in the area had been anticipated. The report by WFP (1996) with a brief overview of the dam project presented the components of resettlement and the impacts of the project on the displacement. Robinson (2000) presented a comprehensive study of the history of dam construction and resettlement in Mexico. The earthquake report indicates the region of Miguel Aleman in Mexico where 20 to 25 thousand Mezatec Indians were replaced. In this case, a program was not designed to prevent homeless people's poverty, but when many problems arose, the planners were forced to perform resettlement operations for the success of the project.

Europe, the United States, and Canada: Nowadays, displacement on a large scale is not common in industrialized countries of Europe and North America;

however, history is full of examples of displacement as a result of the implementation of various projects in these countries, especially in North America, even if it not written in the literature. Scudder's research (1996) is well-known owing to measuring the displacement of life site and political displacement in the project of James Gulf in Canada. The report by Ortolano et al (2000) provides an accurate survey of the dam project of Grand Coulee in the United States. The project took more than 42 years from 1933 to 1975 and had 5100 to 6350 native and non-native refugees while it strongly influenced the indigenous peoples of North America Strongly.

2.5. Resettlement in Iran
Among the provinces that have experienced resettlement in the form of assembly, displacement optimal settlement, and reconstruction plans of villages, the provinces of Gilan, Fars, Khorasan, Sistan and Baluchistan, East Azerbaijan, and Khuzestan can be mentioned. The sample of temporary and permanent resettlement can be extensively observed in Gilan, Zanjan, Roodbar Area, and Manjiland Lushan. Owing to the earthquake in 1990 in the vast area of 1600 villages, a massive damage was caused and some villages were destroyed (Rahmati, 2006). More than 80 percent of the displaced and assembled villages had more than 70% destruction. Finally, in the present paper, the quality of life in the resettled villages was measured by emphasizing the subjective approach. Since there is no single methodology to determine the number of life areas, choosing areas for each area is based on researchers' personal judgment, available data, and the features of the area and objectives of the study. In this study, seven areas, including housing, infrastructures, environment, utilities, information and communications, well-being and employment, and income are selected to investigate the quality of life in these areas.

3. Research Methodology
3.1. Geographical Scope of the Research
Varzeghan County as one of the earthquake prone cities in northwest of Iran has experienced numerous earthquakes. The last earthquake, which was higher than 6 degrees on the Richter Scale in the province, was within the surroundings of cities of Varzaqan and Ahar that damaged more than 200 villages, causing both financial and life losses. Aside from this earthquake, various earthquakes have occurred leading to the resettlement of 11 villages in the entire province since 25 years ago, which are studied in the present research. Among these villages, 2 villages were in the form of displacement, 5 villages in the form of integration, and 5 villages in the form of complete reconstruction.
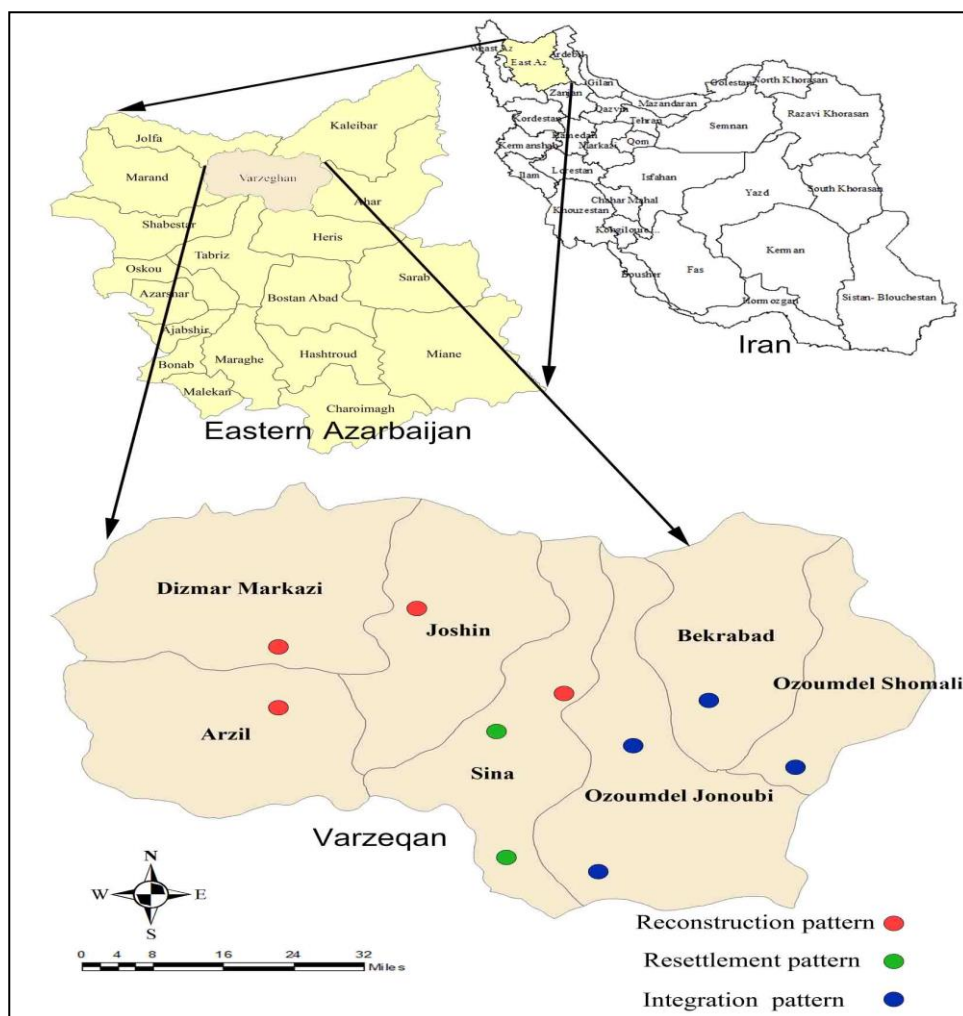
Figure 1. Study areaThe total of 11 villages in this study have 7975 people and 1996 households

A total of 45 villages in this study had 34785 people and 7782 households. Of the participants of the study, 29, 46, and 25 percent of people are resident in assembled, reconstructed, and displaced villages, respectively. Other characteristics of the villages are shown in Table 1.

Table 1. Social profile rural area
Source: Research findings, 2017

Type of village	Percentage of males	Percentage of females	Employment of males	Employment of females	Literacy of males	Literacy of females
Displaced villages	50.45	49.55	82.20	75.31	64.40	57.50
Reconstructed villages	54.5	46.50	84.24	80.50	68.15	59.15
Assembled villages	52.25	47.75	83.15	78.11	71.30	62.2

3.2. Methodology

The main objective of this research is to investigate the role of resettlement (the displacement method, resettlement with integration and the complete reconstruction) in the quality of life of resettled villages in the 2012 earthquake in Varzaghan. In this way, the indices affecting the quality of life were determined through various aspects of library studies and

reviewing the literature in different parts of Iran and the world. By studying the research literature, seven areas including housing, infrastructure, environment, utilities, information and communications, well-being and employment, and income were selected to analyze the negative and positive consequences of resettlement and their effect on the quality of rural life in order to identify the necessary principles and criteria for improving resettlement projects. The research statistical population is the households living in the resettled villages.

The research methodology is descriptive-analytical. To conduct the research using Cochran Formula, 382 samples were randomly selected among the population of the villages' residents. Their quality of life was studied using subjective indices. The data collection tool was the questionnaires that researchers prepared according to the research objectives. In addition, to complete

the questionnaire, the field survey method, Individual and group interviews with the villages' residents and local officials and reviewing available documents were used.

The used questionnaire included closed-ended questions with answers on a 6-point Likert Scale (from completely satisfied 6 to completely dissatisfied 1) in which the questions were defined within seven major areas of life. To measure the internal validity, first content validity was used to increase the questionnaire validity. In this method, using tested scales in the research of quality of life and also the professors and experts' views, the first step was taken. Then, 40 questionnaires were used to calculate the reliability of the questionnaire. The final questionnaire was developed. Alpha's Cronbach was employed to measure the reliability of the questionnaire (see Table 2).

Table 2. Indices of quality of life
(Source: Research findings, 2017)

Areas	Indices
Housing	Quality of housing in terms of used materials, housing facilities (bathroom, kitchen etc.), housing area, proportion of the number of rooms to the number of households, housing position to environmental and noise pollution, feeling peace and convenience in house, people's ability to provide appropriate housing, supervising housing construction, status of registering residential estate
Infrastructures	Condition of drinking water in the village, providence of oil products for cooking and heat, quality of power and lighting in houses and public passages, condition of roads to villages, quality of passages, streets, alleys and squares of villages, making villages safe against natural disasters normal such as flood and earthquake, distance between life location and agricultural lands and gardens, status of water required for watering farms and gardens
Environment	Condition of collecting and discharging surface waters, collecting and discharging sewage, collecting and discharging garbage disposal, cleaning streets, sidewalks and alleys, quality of natural and artificial landscapes of villages, quality of life environment beautification
Welfare services	Access to health facilities such as doctor and pharmacy, access to educational facilities such as schools, access to cultural facilities such as public library, access to recreational and sports facilities, access to food stores such as bakery, butchery, and supermarket
Information and communications	Access to public transportation and telecommunications facilities such as phone, access to postal facilities such as post box and post office, access to the Internet, newspaper, magazine, village residents' relationships with adjacent villages
Well-being	Feeling security in village, family health condition, relations with neighbors, feeling attachment to village, trustworthiness of villages' residents
Income and employment	Household income, household saving, household properties such as housing, land, and car, people's economic condition, job security

Subjective approach was used to measure quality of life. For this purpose, intuitive and logical responses were used to measure the overall quality of life. First, in the overall quality of life questionnaire, the respondents were asked and

after raising the questions concerning satisfaction with various areas of life, the respondents' overall quality of life was asked again. The first and second questions were considered as the intuitive

quality of life and the logical quality of life, respectively.

Descriptive statistics, factor analysis method and regression analysis were used to summarize the results of the survey, identify the quality of life dimensions, establish a causal model of quality of life or identify the factors affecting quality of life (through the SPSS Software), respectively.

4. Research Findings

According to the literature, seven areas of quality of life were identified and used to analyze the positive and negative consequences of resettlement and its effect on quality of life.

4.1. Life Satisfaction

To measure life satisfaction, the method proposed by Fu (1998), Ibrahim and Chang (2002), and Das (2008) was used. In this method, two questions in 6-point Likert Scale (from 1 completely dissatisfied to 6 completely satisfied) were used at the beginning and end of the questionnaire. The proposed questions at the beginning and end of the questionnaire were considered intuitive and logical answers, respectively. The value of the average of answers to these two questions shows the rate of life satisfaction in the study area. Using intuitive and logical responses to measure life satisfaction in addition to comparing the two answers provides the opportunity to a more accurate and more confident answer regarding the individuals' overall quality of life. The data analysis indicated that the average value of life

satisfaction was 3.47 in terms of the intuitive answers in the studied villages. According to the intuitive answer, in all the studied villages, in fact, 51.6% of the respondents were dissatisfied with their life in general. The average value of life satisfaction in terms of logical answer did not show much change in relation to the intuitive answer, whereas the average life satisfaction was 3.51 in terms of the logical answers. According to the logical answer, in the whole studied sample, 42.09% of respondents were dissatisfied with their life in general.

4.2. Satisfaction with Various Areas of Life

Respondents' satisfaction with the various areas of life based on 6-point Likert scale was asked. The objective was to measure the individuals' satisfaction with the study areas and identify the areas that individuals have the highest and lowest level of satisfaction with.

The highest and lowest average values were relevant to the areas of infrastructures as well as employment and income. Approximately 81.6% of respondents were satisfied with the status of the infrastructures in their village, while only 14.3% of respondents were satisfied with the status of employment and income in these villages. The area of housing also showed a good condition and had an average value of 2.31 on the 6-point Likert scale. The area of welfare services had an inappropriate condition with an average of 2.52 (see Table 3).

Table 3. Satisfaction with areas of quality of life
(Source: Research findings, 20170

Domains of quality of life	Average	Quite satisfied	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Completely dissatisfied
Housing	3.778	6.3	15.2	49.4	17.7	6.1	5.3
Infrastructure	3.549	5.1	27.8	45.6	7.6	6.3	7.6
environment	3.149	1.3	12.7	32.9	22.8	12.7	17.7
welfare Sevices	2.558	1.3	2.5	17.7	39.2	12.7	26.6
Information and communication	3.445	2.5	7.6	43.0	34.2	5.1	7.6
Welfare	3.554	7.6	11.4	43.0	13.9	13.9	10.1
Employment and income	2.567	1.2	2.6	12.8	41.7	18.7	23.1

4.2. Quality of Life Dimensions

According to the multi-dimensionality of the concept of quality of life, in this study, factor analysis was used to identify the dimensions of quality of life. To identify the dimensions of quality of life, 37 subjective reagents studied in

the survey of households were used. In general, factor analysis is a statistical technique that is often used to extract the unclosed subsets of the reagents, which explains the observed variance in the initial data set. The value of KMO for this study was 0.912 and Bartlett's test had a

significance level of 0.000, which indicates that the data were suitable for factor analysis. The results of factor analysis are shown in Table 4.

The number of extracted factors by Eigen value and scree plot were four factors. These four factors explained 81.756% of the total variance of the data.

The First Factor: This factor has the highest load in determining the quality of life indices, which is loaded by 14 factors, including condition of roads to villages, distance between life location and agricultural lands and gardens, cleaning streets, sidewalks and alleys, making villages safe against natural disasters such as flood and earthquake, quality of natural and artificial landscapes of villages, quality of passages, streets, alleys and squares of villages, collecting and discharging garbage disposal, ability of people in providing appropriate home, the location of house in accordance to environmental and acoustic pollutions, sense of comfort and peace in the house, the facilities and amenities of house, the relation of village with adjacent cities and the proportion between the number of rooms and households. This factor is called "physical development". This factor with the value of 12.657 explains 37.364% of variance).

The Second Factor: In this factor, four variables are loaded, including household savings, household income, household assets such as housing, land, cars, etc., the economic situation of the people. These are 4 variables, with a special amount of 8.653, can be explains about 24.615% of variance changes.

The Third Factor: This factor is loaded with five coefficients of the feeling of belonging and attachment to the village, the reliability of the people, neighborhood affairs, the health status of the family, and the feeling of security described as a psychological factor. This factor with amount of 5.367 explains 16.912 of variance. The highest factor load is for housing area, proportion of the number of rooms to the number of households, household facilities (bathroom, kitchen etc.), and people's ability to provide appropriate housing. This factor can be called "household facilities". The factor is loaded with five factors with the eigen value of 5.367 explains 16.912 % of variance.

The Fourth Factor: This factor is loaded with three coefficients of supervision of construction, quality of housing in terms of materials and property registration status called "house" factor. The factor with the eigen value of 4.647 explains 12.065% of variance.

Table 4. Matrix of factorial loadings for quality of life
(Source: Research findings, 2017)

variables	1	2	3	4
The status of roads leading to the village	0/985			
Cleanliness of the streets, sidewalks and alleys of the neighborhood,	0/981			
Distance of residence place to the agricultural lands and gardens	0/967			
Immunization of the village against natural disasters such as floods and earthquakes,	0/912			
Collection and disposal of sewage,	0/897			
People's ability to provide adequate housing	0/887			
The quality of natural and artificial landscapes of the village,	0/869			
Quality of passages, streets, alleys and squares of the village,	0/848			
Housing location in accordance to environmental and noise pollution,	0/809			
Feel calm and comfort in housing,	0/796			
facilities for housing	0/719			
The relationship between villagers and neighboring towns	0/717			
Relations with neighboring villages	0/707			
The proportion of the number of rooms with the number of households	0/703			
The status of roads leading to the village	0/985			
Cleanliness of the streets, sidewalks and alleys of the neighborhood,	0/981			

Table 4.

variables	1	2	3	4
Distance of residence place to the agricultural lands and gardens	0/967			
Household savings		0.686		
Household income		0.668		
Household assets such as housing, land, cars and ...		0.659		
The economic situation of the people		0.694		
A sense of belonging and attachment to the village			0.746	
Trustworthiness of the villagers			0.736	
Relations with neighbors			0.721	
Self and family health status			0.718	
Sense of security in the village			0.676	
Supervision of housing construction				0.862
The quality of materials used in building house				0.852
Residential Real Estate Registration Status				0.816
special amount	12.657	8.653	5.367	4.647
Percentage of variance	37.364	24.615	16.912	12.065

4.3. T-test results for variables related to the physical factor

Variables in the field of physical factor include: social trust, distance between houses and agricultural lands and gardens, cleaning streets, sidewalks and alleys, protect the village against natural disasters such as flood and earthquake, quality of natural and artificial landscapes of villages, collecting and discharging garbage disposal, ability of people in providing appropriate home, the location of house in accordance to environmental and acoustic pollutions, sense of comfort in house, the facilities of house, the relation of village with adjacent cities and proportion between the number of rooms with family members, significant differences were observed at the confidence level of 0.05% in all three studied patterns in this index. The average scores of the physical index in displacement and reconstruction and aggregation patterns are 2.3652, 2.4285, and 3.0421, respectively, which indicates a decrease in the status of displacement and reconstruction indices as compared with the aggregated pattern. Most of the items in both of the analyzed models are faced with a completely different view of the respondents. Also, the results of aggregation of items explaining the physical index in the table below indicate a significant difference between the physical indices of the studied patterns and the average of the items, which is the number 3, that is, the theoretical moderate (see Table 5).

Also, t-test results of independent samples showed a significant difference in the physical index between the three patterns among the studied villages (see Table 6).

Table 5. Estimation of the significance of the difference level of physical index from the mediocre of the items in resettlement common patterns
(Source: Research findings, 2017)

index	pattern	average	Difference in average	T	Significant level
Physical factor	displacement	2.3652	-0.16985	-3.687	0.000
	reconstruction	2.4285	-0.3999	-12.639	0.000
	integrated	3.0421	0.3785-	-12.487	0.000

Table 6. Comparison of displacement patterns, reconstruction and aggregation in physical index
(Source: Research findings, 2017)

component	pattern	Number of samples	average	Standard deviation	T test	
					T statistic	Significance level (percent)
Physical component	displacement	100	2.8371	0.36520	5.658	0.000
	reconstruction	170	2.5159	0.36750		
	integrated	112	2.6985	0.75632		

4.4. T test results for variables related to the economic factor

According to the obtained results of factor analysis method, and in order to calculating the significance of indexes related to economic factor, the four variables of household savings, household income, and household assets such as housing, land, cars, and economic status of people were analyzed. A significant difference was found in the confidence level of 0.05% in all three considered patterns (displacement, reconstruction, and aggregation). The average scores of the economic index in the pattern of displacement and reconstruction and aggregation were 2.1658, 2. 5324 and 2.2693, respectively. Table 2 shows the effect of resettlement on the social trust component of displacement and aggregation patterns (see Table 7).

Table 7. Estimation of the significance of the difference level of economic index from the mediocre of the items in resettlement common patterns
(Source: Research findings, 2017)

index	pattern	average	Difference in average	T	Significance level
Economic componenet	displacement	2.1658	-0.16985	-3.687	0.000
	reconstruction	2.5324	-0.3999	-11.639	0.000
	integrated	1.2693	-0.3785	-9.487	0.000

In addition, the t-test of independent samples was used to determine the significant difference, which shows a significant difference in the physical index between the three patterns among the villages studied. In other words, with a t-value of 5.658 and a significant level of 0.000 in terms of economic variables, there are differences between the three common patterns of resettlement (see Table 8).

Table 8. Comparison of displacement patterns, reconstruction and aggregation in economic index
(Source: Research findings, 2017)

component	pattern	Number of samples	average	Standard deviation	T test	
					T statistic	Significance level (percent)
economic component	displacement	100	2.2358	0.4569	4.3655	0.000
	reconstruction	170	2.2378	0.5863		
	integrated	112	2.2793	0.8754		

4.5. T-test results regarding the variables related to the psychological factor

To measure the significance of the indices related to the psychological factor, five variables, such as the feeling of belonging and attachment to the village, the reliability of the population, neighborhood relationships, the health status of the family, and the sense of security were investigated. The results showed a significant difference in the confidence level of 0.05% in all three considered patterns (displacement, reconstruction, and integration). The average score of the psychological index in displacement, regeneration, and aggregation patterns are 2.0365, 2.1245, and 1.1698, respectively (see Table 9).

Table 9. Estimation of the significance of the difference level of psychological index from the mediocre of the items in resettlement common patterns
(Source: Research findings, 2017)

index	pattern	average	Difference in average	T	Significance level
psychological component	displacement	2.0365	-0.7452	-3.125	0.000
	reconstruction	2.1245	-0.6985	-8.365	0.000
	integrated	1.1698	-0.7839	-10.236	0.000

Also, the t-test of independent samples was used to determine the significant difference, which indicates that there is a significant difference in the physical index among the three studied villages. In other words, with a value of t=5.3655

and a significant level of 0/000 there is differences between the three common patterns of resettlement in terms of economic variables (see Table 10).

Table 10. Comparison of displacement patterns, reconstruction and aggregation in psychological index
(Source: Research findings, 2017)

component	pattern	Number of samples	average	Standard deviation	T test	
					T statistic	Significance level (percent)
psychological component	displacement	100	3.5873	0.2145	6.5241	0.000
	reconstruction	170	3.6575	0.3258		
	integrated	112	3.8745	0.2548		

4.6. T-test results for variables related to the housing factor

To calculate the significance of indices related to housing, three variables of construction, supervision, the quality of materials were used in housing and the status of real estate was reviewed. The results showed a significant difference in confidence level of 0.05% in all three considered patterns (displacement, reconstruction, and integration). The average scores of the economic index in the pattern of displacement, reconstruction, and aggregation were 2.1368, 2.7542, and 3.6985, respectively, which shows that the economic situation of the people in case of reconstruction is better than the two cases of displacement and aggregation (see Table 11).

Table 11. Estimation of the significance of the difference level of housing index from the mediocre of the items in resettlement common patterns
(Source: Research findings, 2017)

index	pattern	average	Difference in average	T	Significance level
housing component	displacement	3.1476	-0.3265	-3.369	0.000
	reconstruction	3.2148	-0.4212	-10.785	0.000
	integrated	3.0698	-0.2659	-12.698	0.000

In addition, the t-test of independent samples was used to determine the significant difference, which shows a significant difference in the physical index between the three patterns among the villages studied. In other words, with a value of t=6/5241 t and a significant level of 0/000 there is differences between the three common patterns of resettlement in terms of economic variables (see Table 12).

Table 12. Comparison of displacement patterns, reconstruction and aggregation in housing index
Source: Research findings, 2017

component	pattern	Number of samples	average	Standard deviation	T test	
					T statistic	Significance level (percent)
housing component	displacement	100	2.1368	0.6548	4.2478	0.000
	reconstruction	170	2.1978	0.7542		
	integrated	112	2.2008	0.6985		

The results of Tukey and Scheffe following up the tests showed that the internal difference between the three groups of studied patterns in any of the research stages was not significant; however, the external differences in the terms of the effects of the triple resettlement patterns on the quality of resettlement villages had a significant difference. Overall, the results indicate that there is a significant difference between the effects of these three patterns in terms of the residents of the three spectra of the studied villages (see Table 13).

Table 13. The results of Tukey and Scheffe's tests on the gap between the effects of rural guidance plans in terms of triple groups
(Source: Research findings, 2017)

Effects of Resettlement		Triple groups	Average difference (1,2,3)	Est.error	Sig	Confidence interval	
						Lower bound	Upper bound
Tukey-HSD	Displacement (X₁)	X_2	-2.6000	1.62617	X_2	-6.5065	0.6985
		X_3	-5.2000	1.62617	X_3	-8.9095	-1.2547
	Reconstruction (X₂)	X_1	2.6000	1.62617	X_1	-0.9095	6.3658
		X_3	-2.4000	1.62617	X_3	-6.1095	1.3647
	Integration (X₃)	X_1	5.2000	1.62617	X_1	1.4905	8.6857
		X_2	2.4000	1.62617	X_2	-1.3095	6.3652
Scheffe	Displacement (X₁)	X_2	-2.6000	1.62617	X_2	-6.6760	1.1458
		X_3	-5.2000	1.62617	X_3	-9.0760	-1.6587
	Reconstruction (X₂)	X_1	2.6000	1.62617	X_1	-1.0760	6.3625
		X_3	-2.4000	1.62617	X_3	-6.2760	1.7854
	Integration (X₃)	X_1	5.2000	1.62617	X_1	1.3240	9.3695
		X_2	2.4000	1.62617	X_2	-1.4760	6.3625

4.7. Factors Affecting Quality of life

To determine the most important areas of subjective quality of life that explains the variance of satisfaction with quality of life, stepwise regression analysis was used. Logical quality of life was considered as the dependent variable. In addition, the nine factors of subjective quality of life including physical development, welfare services, housing quality, economic status, well-being, housing resistance, hygiene, comfortable housing, and the relationship with neighboring cities and villages were used as predictors. In this model, four factors explain 63.5% of the variance of logical quality of life. Regression analysis results are shown in Table 5. The adjusted coefficient also indicates that other variables have been in the rate of the quality of life in the studied villages, which is not investigated in the present study.

5. Discussion and Conclusion

In the present research, quality of life and the factors affecting it in the resettled villages were measured and explained. The approach used to measure quality of life is subjective approach and the emphasis is on individuals' overall satisfaction with life and different areas of life. The results showed that the mean value of life satisfaction in terms of intuitive response was 3.47. The average value of life satisfaction in terms of the logical answer is 3.51. Comparing the scores for the intuitive and logical answer of the quality of life indicates a low average value of the quality of rational life versus intuitive quality of life. This shows that respondents have changed their views on life satisfaction after considering all dimensions and areas of life. However, the average value of 2.31 for the whole studied sample shows satisfaction with the mean life in the resettlement villages.

To measure individuals' overall satisfaction with life, intuitive, and logical answers were considered. The results indicated that the average value of life satisfaction in terms of intuitive answers is 3.677. The average values of life satisfaction in terms of logical answers is 3.669. The comparison of the scores related to intuitive and logical quality of life answers shows the low average value of quality of life as compared with the intuitive quality of life. This shows that the respondents changed their views on life satisfaction after considering all aspects and areas of life. However, the average value of 3.673 for the entire studied sample represents the average life satisfaction in the

resettled villages. The average value of life satisfaction in terms of the logical answers in the study of Fu (1998) using a 5-point Likert Scale, Ibrahim and Chang (2002) using a 5-point Likert Scale, Das (2008) using a 5-point Likert Scale, and Rezvani et al. (2012) using a 10-point Likert Scale was 3.65, 3.637, 3.37 and 6.56, respectively. The results of the logical quality of life in the present study also showed almost the same status as compared with the mentioned studies. To measure individuals' satisfaction with areas of life, seven areas including housing, infrastructures, environment, utilities, information and communications, well-being and employment, and income were considered. The results of the respondents' satisfaction with the seven areas of life showed the highest satisfaction was related to the area of infrastructure with the average value of 2.36, while the lowest level of satisfaction was related to the area of employment and income with the average value of 2.52. The results of measuring respondents' satisfaction with the areas of life indicate the desirable plan and preparation of infrastructure and housing in the resettled villages; however, only paying attention to some areas of life does not bring good quality of life for the residents. The area of income and employment in the resettlement of the studied areas are utterly ignored, because displacing many income sources has discredited households in the previous location and it is also designed for employment and income in the new location.

To identify the factors affecting the quality of life in the resettled villages, stepwise regression analysis was used. Before stepwise regression, facto analysis was employed in order to identify aspects of quality of life. The results of the factor analysis provide us with components that are inconsistent and independent. Therefore, entering these components as independent variable in the regression analysis creates the possibility of establishing a causal model with the lowest error for us. The results of the factor analysis identified nine components for quality of life in the studies area. These four factors including physical development, welfare services, housing quality, economic status, well-being, housing resistance, hygiene, comfortable housing and relationships with neighboring cities and villages explain approximately 63% of the variance of the initial data. The results of regression analysis indicated four factors of physical, economic, psychological and housing that totally explain approximately 63.5% of the initial data. The results of regression analysis showed that the four physical, economic, psychological and housing factors explain 90.95% of the variance of logical life quality. The results of T-test, Tukey, and Scheffe's also show the effect of resettlement patterns on changes in quality of life as well as the difference between resettlement patterns and the quality of life.

In addition to the above-mentioned analysis results, the group interviews with residents and local authorities, which were conducted with regard to the qualitative approach in these two villages, indicate the fact that rural communities are closely linked with their surrounding natural environment, and a major part of villages are formed and affected by natural factors, such as rivers, springs, and mountains. Therefore, displacing and transporting them to another location certainly breaks their social, economic, and natural bonds with nature and raises some problems concerning the residents' acclimatization to a new environment. In addition, according to the displacement, problems such as distance from agricultural lands, the degradation of pastures and livestock due to the lack of access to mountains and pastures and the reduction of site attachment due to the lack of collective memories of the past can be mentioned. Furthermore, with respect to the displacement and integration, problems such as disturbance of the neighborhood system, fading of social relationships due to the disruption of the past system, fading of traditional customs owing to the arrival of people from other villages and the integration of the residents of different villages in one location can be stated. About visiting of villages, the mismatch between the width of accessing paths and the volume of traffic, residents' need, the lack of green spaces and visual beauty suitable for the rural environment is visible. Moreover, according to the interviewee' views in each of the studied villages, building incomplete houses due to the lack of loans and owners' financial affordance in completing the buildings after their displacement can be mentioned. Therefore, the suggested planned by government organization not be welcomed by villagers. Therefore, it is suggested that the people themselves propose plans and the government will be responsible for supporting these plans.

Although the socioeconomic, physical, and bioenvironmental effects of resettlement are

considered so far, this framework cannot be perfect. According to the results of this study and the impact of resettlement on the different areas of quality of life, it is proposed to regard the framework of quality of life in the evaluation prior to the implementation of the plan of resettlement and the assessment of the potential impacts of these projects, because quality of life regards all aspects of human life and includes the subjective and objective aspects.

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ارزیابی کارایی الگوهای اسکان مجدد در ارتقای شاخص‌های کیفی زندگی در روستاهای زلزله‌زده (مطالعۀ موردی: شهرستان ورزقان)

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چکیده مبسوط

۱. مقدمه

هدف کلی اسکان مجدد روستایی، ایجاد زمینه مناسب برای استقرار روستاهای واقع در پهنه‌های پرخطر و روستاهایی است که بنا به دلایل مختلف جابجایی آن‌ها ضروری می‌باشد، به‌طوری‌که وضعیت معیشتی و رفاه ساکنین از جنبه‌های مختلف پس از جابجایی و گذشت فاصله زمانی از آن بهبود یابد؛ لذا بر این اساس ضروری است اسکان مجدد و مکان‌یابی بهینه مکان استقرار روستاها بر مبنای روش‌های مناسب و منطبق با ویژگی‌های محیطی صورت پذیرد، بنابراین با توجه به اجتناب‌ناپذیری از جابه‌جایی و اسکان مجدد برخی از روستاها همچنین با توجه به‌ضرورت و اهمیت بررسی اثرات آن بر روی کیفیت زندگی روستائیان هدف اصلی این مقاله بررسی و پاسخ‌گویی به این سؤال اساسی می‌باشد که اسکان مجدد روستایی چه تأثیراتی بر کیفیت زندگی روستائیان دارد؟ بر این اساس رضایت کلی از کیفیت زندگی و قلمروها، ابعاد و عوامل مؤثر بر کیفیت زندگی در روستاهای زلزله‌زده استان آذربایجان شرقی که اسکان مجدد یافته‌اند، موردبررسی و تحلیل قرار می‌گیرند.

۲. مبانی نظری تحقیق

تجمیع و ادغام: یکی از سیاست‌های اجرایی در بازسازی مناطق آسیب‌دیده براثر حوادث طبیعی (مورد خاص زلزله) یا حوادث انسانی، سیاست ادغام یا یکپارچه‌سازی مناطق سکونتی آسیب‌دیده است.

درجاسازی: در این روش روستا در محل اصلی خود موردبازسازی قرارگرفته است.

عملیات درجاسازی (بدون تغییر مکان) به منظور ارتقای کیفی محیط‌زیست و زیرساخت‌های موجود و تهیه و تدارک خدمات اجتماعی و اجرای برنامه‌های اقتصادی جهت رفاه افراد اجرا می‌گردد. در نزدیکی سکونتگاه هیچ‌گونه زمین مناسب برای بازسازی وجود نداشته باشد و یا نیازی به انتقال نباشد.

جابجایی و انتقال(اسکان مجدد): در این شیوه به علت حجم زیاد تخریب‌های ایجادشده و یا به سبب حرکات شدید و ایجاد لغزش‌های زمینی(در مورد زلزله)، در صورت مساعد و مناسب بودن اراضی پیرامون روستا، مکان سکونتی به نقطه‌ای در جوار مکان قبلی انتقال‌یافته و اقدام به ساخت می‌کنند.

۳. روش تحقیق

روش انجام تحقیق توصیفی-تحلیلی است و برای انجام تحقیق با استفاده از فرمول کوکران تعداد ۳۸۲ نمونه از بین ساکنین روستاها به‌صورت تصادفی ساده انتخاب و با استفاده از شاخص‌های ذهنی، کیفیت زندگی آن‌ها موردمطالعه قرار گرفت. ابزار اصلی گردآوری اطلاعات، پرسشنامه‌ای است که محققین آن را با توجه به اهداف پژوهش تهیه‌کرده‌اند. علاوه بر تکمیل پرسشنامه، با رویکردی کیفی از تحقیقات میدانی، انجام مصاحبه‌های موردی و گروهی با ساکنین روستاها و مسئولین محلی و نیز بررسی اسناد و مدارک موجود نیز استفاده و اطلاعات این دو جامعه جمع‌آوری گردیده است.

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۴. یافته‌های تحقیق

عامل اول: این عامل با ۱۴ عامل بارگذاری شـده اسـت. ایـن عامـل "توسعه فیزیکی" نامیده می شود. عامل بـا ارزش ۱۲/۶۵۷ ۳۷/۳۶۴ درصد واریانس را توضیح می دهد. عامل دوم: چهار ضریب در ایـن عامل شامل پس انداز خانوار، درآمد خانوار، دارایی های خانوار مانند مسکن، زمین، اتومبیل ها و غیره، وضعیت اقتصادی مردم است کـه با مقدار خاصی از ۸/۶۵۳، حدود ۲۴/۶۱۵ توضیح می دهد

درصد تغییرات واریانس. عامل سوم: عامل با چهار عامـل بارگـذاری شده با مقدار خاصی از ۲/۵۵۹ توضیح می دهـد ۶/۸۷۵٪ واریـانس. این چهار عامل، ۸۱/۷۵۶٪ از واریانس کل داده را توضیح می دهند. عامل چهارم: این عامل با پنج ضریب بارگذاری می شود. این عامـل دارای بالاترین بار در تعیین شاخص های کیفیت زنـدگی اسـت کـه توسط ۱۴ عامل بارگذاری شده است. این عامل "توسـعه فیزیکـی" نامیده می شود. عامل با ارزش ۱۲/۶۵۷ ۳۷/۳۶۴ درصد واریـانس را توضیح می دهد .

در هر سه الگوی مطالعه شده در این شاخص تفاوت معنـی داری در سطح اطمینان ۰/۰۵٪ مشاهده شد. نمره متوسط شـاخص فیزیکـی در جابجـایی و الگوهـای بازسـازی و تجمـع ۲/۳۶۵۲، ۲/۴۲۸۵ و ۲/۰۴۲۱. در هر سه الگو در نظر گرفته شده (جابجـایی، بازسـازی و تجمع) اختلاف معنی داری در سطح اطمینان ۰/۰۵٪ مشاهده شـد. نمره متوسط شـاخص اقتصـادی در الگـوی جابجـایی و بازسـازی و تجمع ۲/۱۶۵۸، ۲/۵۳۲۴، ۲/۲۶۹۳ بود. نتایج نشان داد که اختلاف معنی داری در سطح اطمینان ۰/۰۵ درصد در هر سه الگوی در نظر گرفته شده (جابجایی، بازسازی و ادغام) وجود دارد. نمـره متوسـط شاخص روانشناختی در الگوهای جابجـایی و بازسـازی و تجمـع بـه ترتیب ۱/۱۶۹۸، ۲/۰۳۶۵ و ۱۲۴۵/۲ بوده است. نتایج نشان داد کـه اختلاف معنی داری در سـطح اطمینـان ۰/۰۵ ٪ در هـر سـه دوره وجود دارد. ارزش متوسط شاخص اقتصادی در الگـوی جابجـایی و بازسازی و تجمع ۲/۱۳۶۸، ۲/۷۵۴۲ و ۲/۶۹۸۵ است. نتایج حاصـل

از آزمون پیگیری توکی و شفاف نشان داد که تفاوت درونی بین سه گروه از الگوهای مورد مطالعه در هر یک از مراحل تحقیـق، معنـادار نبود. اما تفاوت های خارجی در زمینه اثرات الگوهای اسکان مجـدد سه گانه بر کیفیت روستاهای اسکان مجـدد، تفـاوت معنـی داری دارند

۵. بحث و نتیجه گیری

نتایج نشان داد که میانگین رضایت از زندگی بـا توجـه بـه پاسـخ بصری ۳/۴۷ بود. میانگین ارزش رضایت از زندگی با توجه به پاسخ منطقی ۳/۵۱ است. نتایج نشان داد که میـانگین رضایـت از زنـدگی عینی برابر با ۳/۶۷۷ و میانگین رضایت از زنـدگی ذهنـی برابـر بـا ۳/۶۶۹ است. نتایج تحلیل عاملی ۹ مولفه را برای کیفیت زندگی در منطقه مورد مطالعه شناسایی کرده است. این چهار عامل از جملـه توسعه فیزیکی، خدمات رفاهی، کیفیت مسکن، وضـعیت اقتصـادی، رفاه، مقاومت در برابر مسکن، بهداشت، مسکن راحـت و روابـط بـا شهرهای و روستاهای همسایه حدود ۶۳ درصد از واریانس داده های اولیه را توضیح می دهد. نتایج تجزیه و تحلیل رگرسیون نشان داد که چهار عامل فیزیکی، اقتصادی، روانشناختی و مسکن کـه تقریبـا ۶۳٪/۵ از داده های اولیه را توضیح می دهد. نتایج تجزیه و تحلیـل رگرسیون نشان داد که چهار عامـل جسـمانی، اقتصـادی، روانـی و مسکن ۹۰/۹۵ درصد واریانس کیفیت زندگی منطقـی را توضیح مـی دهد. نتایج آزمون T ، آزمون‌های توکی و شفه نیز نشان دهنده اثر الگوهای اسکان مجدد بر تغییرات کیفیت زندگی و همچنین تفـاوت الگوهای اسکان مجدد و کیفیت زندگی است.

کلمات کلیدی: اسکان مجدد، کیفیت زندگی، سکونتگاه روستایی، ورزقان، ایران.

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The Role of Creative Tourism in Sustainable Development of Rural Areas (Case Study: Historic-Cultural Villages in North-West of Iran)

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Abstract

Purpose- Ineffectiveness and unsustainability of classic approaches to respond to socioeconomic challenges in rural areas is one of the biggest barriers to sustainable development and achieving its goals. Hence, modern tourism as a new strategy has been able to be effective in the evolution of sustainable development in rural areas. Such that today emergence of postmodern tourism has made the tourists be more willing to use cultural attractions and unique experiences in tourism destinations, and the big entertaining places are not attractive to them anymore. On the other hand, rural areas have constantly faced difficulties in attracting tourists because of poverty and economic problems; therefore, creative tourism has been presented as an appropriate approach in developing rural tourism, since it does not need huge investments and uses the existing cultural and natural aspects. Therefore, the present study aims at investigating the role of creative tourism in rural sustainable development and ranking the sample villages according creative tourism components .

Design/methodology/approach- The present study is an applied study with regard to function and is a descriptive-analytic study with regard to its nature. We used field and library methods based on observation and questionnaire for data collection. Validity of the questionnaire items was confirmed by experts and using Cronbach alpha formula (0.856). The statistic population includes the households of six historic-cultural villages in northwest of Iran; 313 household heads were randomly selected using the Cochran formula. Statistical tests such as one sample t-test, multi-variate linear regression, and Kruskal–Wallis test were used for data analysis .

Findings- The results indicated that the mean values are higher than 3 for all the components of creative tourism except risk taking which is 2.99; the components are also significant at 0.01 level indicating desirable conditions of the target villages with regard to creative tourism. Investigation of regression fitness model indicated that 0.83 of the positive effect of tourism on rural sustainable development is due to creativity in tourism. Also, according to beta values, among the five components of creative tourism, participation (0.286) and and risk taking (0.181) were the most and least effective factors in rural sustainable development through tourism, respectively. The results of Kruskal–Wallis test indicated that Kandovan (65.257) was at the first rank and Varkaneh (41.71) was at the sixth rank with regard to creative tourism and the consequent sustainable development .

Keywords- Creative tourism, rural sustainable development, historic-cultural villages, North-West of Iran.

Paper type- Scientific & Research.

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1. Introduction

Today most of the rural areas in developing countries are facing different challenges with regard to economic, social, and environmental aspects to achieve sustainability (Awasthi, 2012; Obonyo & Fwaya, 2012; Van Schalkwyk, 2015). These challenges accompanied with weak management have led to retardation of rural areas. Meanwhile, economic problems including seasonal unemployment, low income and poverty are the most important barriers in the development of rural habitations (Nemirschi & Craciun, 2010; Surchev, 2010), leading to social isolation of these areas and consequently augmentation of poverty (Bertolini, Pisano, Sivini, & Scaramuzzi, 2008; Hickey & Du Toit, 2013). Chapman believes that "poverty is just one feature of rural life" (Shucksmith, 2003, p:5). Studying the backgrounds and experiences of different countries to overcome such challenges and develop the villages shows that since the 1950s various solutions have been presented, which are categorized in four groups: economic approaches, social approaches, spatial-physical approaches, and comprehensive approaches (Rezvani, 2010). However, most of the preceding development approaches such as industrialization and agricultural development have not been able to lead to socioeconomic sustainability in rural areas (Pivcevic, 2005).

One approach to overcome the economic challenges in rural areas is to consider non-farming activities and variety in income (Barrett, Reardon, & Webb, 2001; Cunguara, 2011) which can have the following positive effects (Gordon & Craig, 2001):

- It absorbs work surplus in rural areas.
- It helps farm-based households to spread risks;
- It represents more profitable activities to add or replace agricultural income.
- It is a potential for income in times other than the working season.
- It is a tool to survive and confront failure.

Non-farming rural economy helps employment and income growth. Such that it is important for the families who do not have lands, and for farmer families because of risk variety, seasonal income oscillations, and financial supply for agricultural goods (Davis & Bezemer, 2004; Rantšo, 2016; Sundaram-Stukel, Deininger, & Jin, 2006).

Generally, the key to the development of rural non-farming economy is the economic growth in key main markets in the area, or in agriculture, tourism or mining, or the connection and communication among rural areas. Foreign motors of economic development lead to development of the perspective of rural markets. Interactions of working market- between agriculture and non-farming businesses and among rural and urban areas- presenting a cohesive texture for workers' communication especially the poor, is very important (Haggblade, Hazell, & Reardon, 2010). With regard to the role of tourism in the variety of non-farming income, one can refer to villages in Honduras (Isgut, 2004). Household motives to make variation as well as the opportunities available to them are essentially different depending on the environment and among different income groups. Moreover, there is an important distinction between verification for the purpose of accumulation which is mainly caused by pull factors, and verification for risk management, confronting shocks, or relieving from disappearing agriculture which is mainly caused by push factors. Pull and push factors are found in many case studies on the households and areas in which income verification patterns in developing countries are explained. While pull verification is usually accompanied with income and assets increase for the engaging households, push verification sometimes releases a family from poverty (Haggblade, Hazell, & Reardon, 2007).

Rural households can participate in non-farming activities like employment in activities such as trade, production and service, along with traditional rural agricultural activities. Such off farm incomes can generally help the increase of income of rural households in developing countries (Lanjouw & Shariff, 2004).

The study by De Janvry, Sadoulet, and Zhu (2005) using the data obtained from investigating households in Hubei province in China indicates that non-farming income can help inequality in rural incomes to decrease; also, it indicated that participation in non-farming activities has positive effects on farming activities. The study by Ellis and Freeman (2004) in African countries including Kenya, Uganda, Tanzania and Malawi indicates that 3 countries still obtain 40% of their gross production from agriculture. This index in Kenya has reduced to 20% because of the importance of

services, tourism, and industry in the economy of this country.

Rural non-farming economy (RNFE) may include all non-farming activities containing the household income (including the income resulting from income and money transfer) through working wage or self-employment. In some cases, rural non-farming activities are the main sources for local economic growth (e.g. tourism, mining, wood processing …). The DFID (Department for International Development) study indicates that development of non-farming sector in a special region depends highly on the natural resources there. Other than the activities related to the farming sector, the non-farming sector includes wood processing and trade, alcohol production, fish processing and trading, mining, construction, and tourism. Therefore, in most scopes, desirable natural resources are the necessary conditions for the development of the non-farming sector and rural economy, although not sufficient (Davis, 2003).

Hence, most of the countries seek to find or create new methods to realize rural developments; and development of tourism was raised as a new approach toward rural development. It is because rural tourism boosts the networks and communication among various activities in rural areas as a multi-function activity. These communications have positive socioeconomic effects on rural areas; and can be followed by a variety in farming sector and increased efficiency, creation of complement activities, development of infrastructures, development of local, handcrafts, improvement of life standards, improvement of the link between village and city, and finally development of local communities. (Elisabete & Raschi, 2013; Ramjit, 2015). In other words, development of tourism is a tool used by many rural communities to confront decrease of economic activities in more traditional sectors like agriculture and industry.

In fact these communities consider tourism as a way to promote local jobs and heighten the level of economic activities (Briedenhann and Wickens, 2004; MacDonald and Jolliffe, 2003). However, tourism in rural areas is not a new phenomenon; in fact, rural tourism has been developed in many central and northern European countries since 1960s and a few decades later in Southern Europe, to encourage the villagers to decrease immigration

and develop deprived areas. (Sgroi, Di Trapani, Testa, Tudisca, 2014)

However, currently tourism has been exposed to changes due to transition from industrial era to creative era. such that with the emergence of postmodern tourism and cultural consumer, the standard experiences presented by grand entertainment places are not enough anymore to fulfill the needs of these consumers; Since they are seeking for opportunities to experience validly and uniquely by transiting expression like culture, cultural heritage, entertainment activities, and natural landscapes. (Stolarick, Denstedt, Donald, & Spencer, 2011). In other words, tourism has reached the third generation (creative tourism) by passing from the first generation (beaches) and the second generation (cultural – historical, (UNESCO, 2006).

In such new conditions only having tourism potential is not enough to benefit from tourism industry, as Iran is not able to compete effectively in the tourism market in spite of enough potentials that is because of such reasons as the lack of necessary infrastructures. Hence, due to the cultural variety and rich artsy works and handcrafts which are the most important credit for development of creative tourism and the present generation has inherited it freely and without investment, creative tourism can be considered as the most desirable type of tourism for Iran (Shafiei, Farokhian, & Mirghadr, 2014). Also, the rural areas in this country has always faced problems in attracting foreign tourists because of poverty and lack of facilities and invests to create tourism infrastructures. There for, the present study is seeking a way to boost tourism in rural areas in order to achieve sustainable development in lower cost and through using domestic facilities.

The area to be studied here includes cultural-historical villages in the Northwest of Iran including Kandovan village in East Azerbaijan, Oraman village in Kurdistan, Amboah in Gilan, Shit and Darsjin in Zanjan, and Varkane village in Hamedan.

The villages have been selected by considering the indices and determiners for tourism performance. The present study aims at answering the following questions:

- Do the cultural-historical villages in this area have creative tourism resources (required potential to develop creative tourism)?

- Is there any relationship between creative tourism and sustainable development in rural areas?

2.1 Literature review

There are a few domestic studies regarding rural tourism and sustainable development; however there have not been studies in Iran with regard to rural creative tourism, and only urban creative tourism has been studied so far. However, there are several international studies in this regard which are mentioned below. Stolarick et al (2011) concluded in their paper, "Creativity, tourism, and economic development in a rural context: The case of Prince Edward country" that tourism specially centralized tourism along with entertainment and cultural experiences and heritage can lead to economic development in rural areas. They also introduced the approach of attracting creative tourists and citizens as a potential for success in economic development in rural areas. Alvarez (2010) concluded in his paper "Creative cities and cultural spaces: New perspectives for city tourism" that creative tactics may be alternatives for the strategies of cultural renewal and lead to increase in cities' capability to characterize themselves among rival palaces. Lee and Wall (2012) in their paper: "Food clusters: Towards a creative rural economy", presented a conceptual model of shaping a food cluster as a part of place- oriented creative economic development and concluded that the present conceptual model shows a creative food economy that makes a place attractive through creating or enriching the identity and image of that place. Tan, Luh and Kung (2014), in their study: "A taxonomy of creative tourists in creative tourism", identified five distinct groups of creative tourists including modernizers, knowledge and skill seekers, people who are aware of their journey partners' growth, people who are aware of green issues, and people who are seeking to spend their free times and have fun. Luka and Luka (2009) found in their study: "Developing creative tourism destination" that creative tourism is a form of cultural tourism development focusing on increasingly changing requirements in the tourism market (shorter and more frequent trips, demands for experience and etc.). The existing infrastructures and presented services make the tourists able to go everywhere in practice and see what they even cannot see in their dreams. Therefore, it can be said that contemporary and modern tourists insist on choosing holiday destinations and activities more. Hence, tourism destinations are faced increasingly with the challenge of developing new competitive and unique products adapted to the special tastes and markets demanding particular products and experiences. Tan, Tan, Luh and Kung (2016) concluded in their paper: "Understanding tourists' perspectives in creative tourism" that there are three groups of tourists: peace finders, emotion finders, and existentialists. Peace finders emphasize on environmental affairs, emotion finders emphasize on the issues related to tourist guide, and existentialists focus on self-activity features. Ghanbari, Ghasemi and Pourjopari (2013) in their study: "The study of tourism effects on road development from the viewpoint of the host society: The case of Mahan County in Kerman", concluded that although the villages in Mahan County are highly capable to attract tourists, enrichment of required infrastructures is necessary for developing rural tourism in Mahan County. Sepehrnya (2015) in his paper: "Creative attitude to tourism industry in promoting cultural capital in Iran", concluded that there is a positive significant relationship between tourism and maintaining cultural heritage and promoting cultural capital in Iran and the indices can truly predict promotion of cultural capital in Iran, especially in current conditions. Mohammadi and Mirtaghian Rudsari (2016) in their study: "modeling the creative product of tourism: expansion of the 4p model (people, process, place, and product)", concluded that it is necessary to create integration among creativity features (people, place, process, and product), and the emphasis is on the factor of creative people and identifying and recruiting them; because they provide the basics for a creative working place, creative working process, and consequently a creative product. Dorostkar, Habib, and Majedi (2016) concluded in their study: "Feasibility of forming a creative area with industrial tourism theory: The case of Yazd city", that industrial tourism theory is considered as a suitable option for forming a creative area; and the creative area cycle includes innovation, social capital, life quality, and creative human capital.

The literature review confirms that most of the resources have tried to analyze the concepts and definitions of creative tourism and its basics and conditions. The present study deals with localizing the components and variables while investigating the resources; it tries to study the role of creative

tourism in rural sustainable development regarding social, economic, environmental, and physical aspects.

2. Research Theoretical Literature

Today rural tourism includes a wide range of tourism activities (Dimitrov & Petrevska, 2012), rely mostly on local resources such as natural environment, cultural activities and protecting heritage. These resources have become the main motivations for the tourists to visit the places especially in rural tourism development (Stolarick, Denstedt, Donald, & Spencer, 2011). Generally, tourism is considered in rural societies as an alternative for two reasons: a) ability of tourism in helping to resolve the problems and challenges such as planning, city-village balance, and preparation for social change, and b) economic and infrastructural development and better access to income and employment opportunities; both of these goals help the rural people to stay in the village (Drăgulănescu & Druțu, 2012). Also many rhetoricians believe that rural tourism may have a very important role in diversification of rural economy (Butler, Hall, & Jenkins, 1998), improvement of infrastructures and increased capacity of habitations (Holland, Burian, & Dixey, 2003), and creating various job opportunities beside other rural activities (Anvari, Baluchi, & Hashemzahi, 2012).

In fact tourism development and rural development are two interweaved factors and development of one will have a positive effect on the other one (Arntzen, Setlhogile, & Barnes, 2007). Meanwhile due to transition from the industrial era to the creative era, a kind of tourism has been growing since 1990 which deals with creativity in both cities and rural areas. In fact, creative tourism has been presented as a topic annexed to cultural tourism, which has been suggested as an addition and antitoxin in different forms of cultural tourism or to prevent the cultural chains to be repeated (Richards & Wilson, 2006).

Creative tourism is a form of cultural tourism leading to satisfaction and fulfillment of needs at a higher level of self-fulfillment and its main focus is on development of active skills of the tourists (Ohridska-Olson & Ivanov, 2010). An example for this type of tourism deals with handicrafts in a project called EUROTEX between years 1996 and 1999 in Finland, Greece, and Portugal which led to increased interest in local and daily life. Also

learning active creative experiences through willingness to participate is inspired by this project. It led to definition of creative tourism (Jarábková & Hamada, 2012). This concept was defined by the United Nation's scientific, cultural, and educational organization as follows: creative tourism is travelling to original and interesting experiences and learning art, making familiar with heritage or the special features of a place as well as making connection among tourists and the local people who are creators of that biological culture.

Richards and Raymond (2006) were the first to introduce the term "creative tourism". They emphasized that not only tourists should get involved in creative activities, but also the destination should by itself present the typical experience for the tourists. Considering all creative aspects of a place is inevitable and can attract creative tourists. Creativity is an important part of the destination. Any destination may be a unique combination of knowledge, skills, tangible heritage, social capital, and a space creating the required potential for creative and attractive activities. This uniqueness can be associated with local traditions such as pottery and wood, and carving or cultural movements and events, etc. On the other hand, Raymond (2007) defines creative tourism as a sustainable form of tourism which presents a valid experience of local culture using informal and applied seminars. The places of these seminars are in their small family groups and work places and visitors will have an opportunity to discover their creativity and interaction with the local people through them. Accordingly, Ohridska-Olson and Ivanov (2010) claim that there are two kinds of creative tourism:

A) Creative tourism dependent on a specific destination: following this approach, creative cities and municipalities were formed. It is this image of creative cities and municipalities that is used by the operators of tourism agencies to increase the attractiveness of their tour products on holidays.

B) Creative tourism based on creative activities: this approach is based on the assumption that creative tourism products are published spatially and the creative activities in which visitors can participate in different places independently. For instance, Renaissance painting courses which may be held in France and Italy.

On the other hand, Richards (2011) identifies different types of creative tourism regarding the type of participation and the amount of tourists'

participation. Creativity may be an activity associated with a higher level of participation, or a background which is a more passive form of

participation, and is consequently associated with cultural tourism trips (Richards, 2011), which is shown in Figure 1.
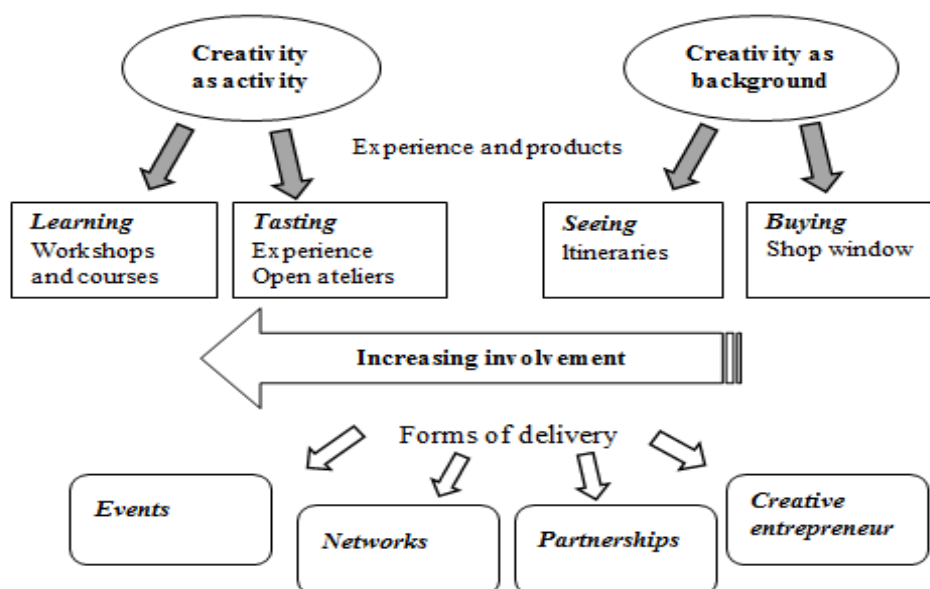
Figure 1. Different forms of creativity in tourism
(Source: Richards, 2011)

Regarding the role of creative tourism in development of tourism destinations it can be remarked that any tourism destination endeavors to adapt with new demands in tourism market and survive through developing innovative products. In fact, because creativity includes adding a new thing to the existing tourism products, it can be considered as the main resource of innovation. A creative destination is able to produce benefit of innovation, culture and finally reinforcement of its identity capital. The main motive for travelling to specific destinations is not often creative supply, but the tendency to discover destinations through creative plans as a part of excess supply (Stipanović and Rudan, 2014). Creative tourism as a process can be developed quicker than any other type of tourism. In development planning and this form of tourism, it is very important to understand the value of cultural and historical heritage, since imposing creative tourism development (especially that part which is based on heritage) can lead to bad results for

inhabitants and tourists. What is very important and critical in this regard, is the principles of sustainable creative tourism. Such that comprehensive planning for development of creative tourism is of great importance to ensure positive experience by the visitors, benefits for local inhabitants and the least side effects. In fact, tourism planning should be followed locally and focused on the links between cultural resources and local community life. Any destination can be creative and develop creative tourism, provided that it allows for the category of tourism products effective in attracting tourists in a tourism destination who are looking for new experiences. In this regard, Lindroth, Ritalahti and Soisalon-Soininen (2007) believe that creative elements can also be applied in the scope of destination development and management to ensure success in growing competition among tourism destinations. Therefore, feasibility of development of creative tourism as a part of cultural tourism

depends on realization of the following factors (Stipanović & Rudan, 2014):

- Creativity of beneficiaries at destination is necessary for creative tourism.
- Tourism development should not eliminate natural and cultural values and resources, that means development should be sustainable.
- Even destinations without enough cultural resources can develop creative tourism.
- This form of tourism is promotion of the existing tourism products of destination.

Today the concept of creativity is usually accompanied with city areas, whose main resources of growth are creative people. Such that Florida (2002) claims that places with high congestion of creative class are suitable for new entrepreneurship investments. On the other hand, creative people are often attracted to the cities because of high quality of life, good facilities, culture and cultural activities, potential for resting, and entertainment, and … This leads to increased investment to develop culture and tourism in these areas. Although creative sectors and class seem to accumulate only in cities with ideal working and living conditions, many authors like Stolarick and Densdst and Donald and Spencer (2011) believe that rural areas have a high potential for locating creative sectors and rural managers can even attract creative class. Such that rural areas can represent many of the attracting conditions of the cities like a good environment, culture or social facilities. Such that Morgan, Lambe and Freyer (2009) believe that executive managers in the villages can use one of the three following strategic approaches to develop themselves. These approaches to develop themselves. These approaches are based on local and economic development, creativity and talent.

- The first approach is associated with local features, cultural heritage, traditions, and natural conditions. It is resulted from using local resources for tourism development. In this approach village assistants ought to have a peaceful and comfortable space to present valid experiences.
- The second approach highlights economic development through supporting entrepreneurial activities. Village assistant should create an appropriate business context for the local entrepreneurs.

- The third approach emphasizes on supporting creativity and talent by village assistant as well as the advantages of using this kind of support regarding continuous economic growth. Creative economy in rural areas will be in the presence of art and culture. Also, development based on creativity through supporting artistic talents, art and handcrafts and training programs for design and performance has been emphasized in this approach.

Generally local development can be achieved by mobilizing local capacities (economic, social, technologic, and political capacities) and resources (natural, economic, and infrastructural). However, there are problems including special distribution of resource and capacity use, limited capital or very special developmental strategies.

While such a special developmental strategy may be profitable in short term, it's not profitable in long term because of the side effects. For this, tourism is considered. On the other hand, developing rural tourism using local resources (potential natural, historical and cultural resources) will be the visitors' motives to participate in tourism. For this purpose, the resources of the village itself may be used for postmodern and creative visitors to get a unique and valid experience of rural areas. In this regard, appropriate infrastructures and resources are the main factors in rural development. Thematic routes are a good example for reviving and inciting economic growth, which can be can be managed by the village assistant. Thematic routes allow for a link among different parts of natural, cultural, and historical potential and are presented under a theme, a brand which incites entrepreneurial activities and new services for tourists (Jarábková & Hamada, 2012).

According to the literature, it seems that creative economy and creative class are considered as two basic theories with regard to development through creativity.

Such that on one hand, today creative economy is considered as a very strong transformer around the world with high potential for development. This aspect of economy is one of the fastest rising parts of the global economy both regarding income and employment and export incomes (Sung, 2015). Therefore, the potential for creative economy can emerge through developing comprehensive creativity in communities, confirming the distinct identity of each class and promoting life quality of

the inhabitants. Such a potential may be used by promoting people's access to resources for drafting a new future to improve the image and spatial validity (Isar, 2013). In this regard, creative industries which originate from creativity, skill and individual talent, have the potential for creating wealth and employment through producing and exploiting intelligent and cognitive assets. A creative economy includes advertisement, architecture, art, handcrafts, designing, fashion, film, music, performing arts, publication, research and development, software, toys, different games, radio and television, and video games. On the other hand, the concept of creative class and creativity as a new validity is more reasonable and stronger than financial capital (Rahimi, Mardali, Daha, & Fallahzadeh, 2013, p. 17).

Therefore, it plays a very important role in economic development in the areas (Milotová & Chreneková, 2012). In other words, creative class which is considered as a part of social capital in rural areas is a main resource in these areas, because it affects their actions and improves life quality in rural communities in all aspects (Tiepoh & Reimer, 2007). Such that those villagers who have higher social capital, can easily access cognition and awareness to promote their production and added value and create new economic activities while protecting their current economic activities and even improve them (Batjargal, 2007).

Generally, the creative class and creative economy are the main factor for sustainable development in these areas which is realized through rural tourism activities (Figure 2).
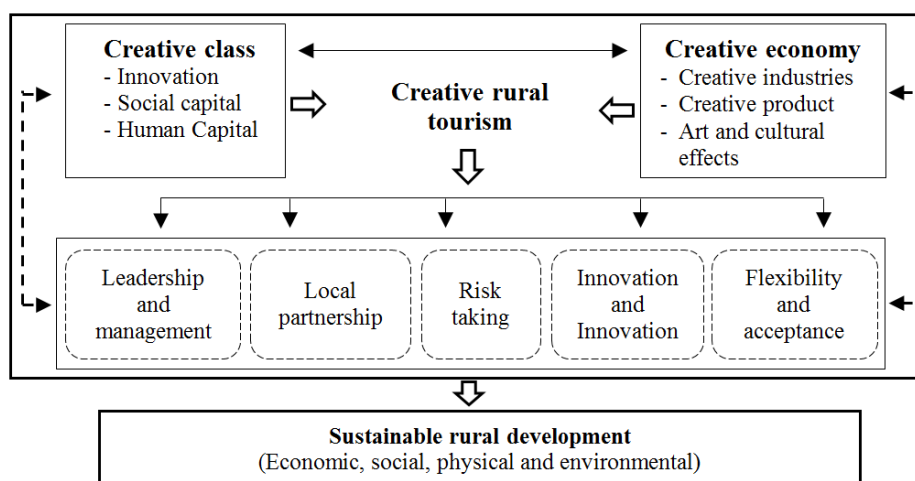
Figure 2. Conceptual model of the role of creative tourism in sustainable rural development.
(Source: Findings of the study based on the theoretical principles, 2018)

3. Research Methodology
3.1 Geographical Scope of the Research
The area under study includes cultural-historical villages in the northwest of Iran. These villages have been selected due to the indices and determiners of tourism performance such as having registered national and international works, having historical texture or special architectural style and defined cultural ceremonies at special times, having a fixed population, and having a national and international action scope. Regarding resources and tourism attractions, Kandovan village has a historical texture with hand-carved houses in the heart of rocks and mountains, and Oraman and Shit and Darsajin have historical texture and architecture and cultural ceremonies and local costumes, Anbouh has abundant natural attractions, in addition to traditional and local texture and special traditions. Varkaneh has stone architecture and is known as the Renaissance village in Iran (Table 1). Political and official position of these villages are shown in Figure 3.

Table 1. Political and official position of the villages under study
(Adapted from the Statistical Centre of Iran, 2011)

Province	Township	Rural
East Azarbaijan	Osku	Kandovan
Zanjan	Abhar	Darsajin
Zanjan	Tarom	Shit
Kurdistan	Sarvabad	Oraman Takht
Gilan	Rudbar	Anbouh
Hamadan	Hamadan	Varkaneh
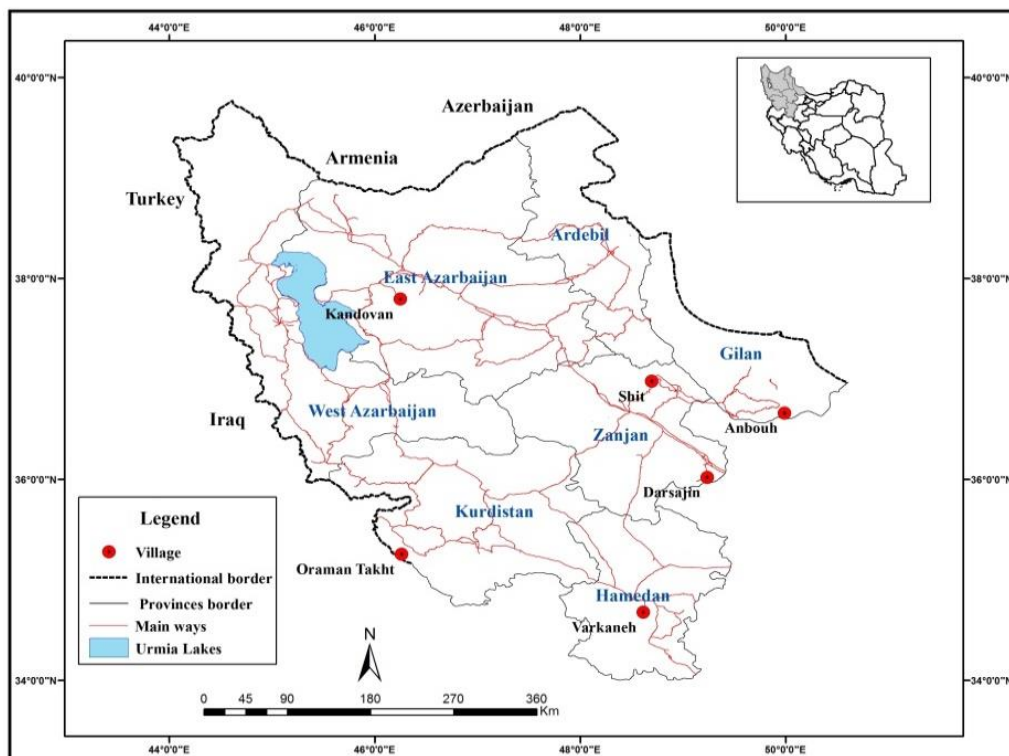
Figure 3. location of the area
(Adapted from the National Cartographic Center, 2013)

3.2 Methodology

The present study is an applied study with regard to its purpose, and it is a descriptive-analytic study regarding its nature and methodology. The library method and field study (questionnaires and observation) were used for data collection. The questionnaire of the study includes five-level Likert scale items. To confirm the validity of the items, the pretest method was used by completing 10% of the sample size. The validity was confirmed by the elites and the reliability was confirmed using Cronbach Alpha which was equal to 0.856. In order to operationalize the study, six cultural-historical villages located in the northwest of Iran (Kandovan, Oraman takht, Varkaneh, Anbouh, Shit, and Darsajin) were selected because they have creative tourism features. According to the public population and housing census (2011) the present society has 1693 households and 6011 people (Table 2). Cochran formula was used to determine the sample size. Considering p=0.51 and q=0.49 (to show the population attributes gap and higher accuracy) and sampling error equal to d=0.05 and the percentage of discourse correctness equal to 95%, 313 households were selected as the sample. For data analysis we used descriptive statistics and one sample test, multivariate regression, route analysis and Kruskal–Wallis.

Table 2. selecting sample size for each village
(Source: Research findings, 2018)

Rural	Province	N. households	Population	N. Sample
Kandovan	East Azarbaijan	183	586	34
Darsajin	Zanjan	711	2761	131
Shit	Zanjan	195	528	36
Oraman Takht	Kurdistan	150	437	28
Anbouh	Gilan	235	889	43
Varkaneh	Hamadan	219	800	41
Total	-	1693	6011	313

3.2 Variables and indices

Due to the title of the study that deals with the study of the role of creative tourism in rural sustainable development, Table 3 shows the study items in two categories: independent variable (creative tourism) and dependent variable (rural sustainable development).

Table 3. Components and items related to rural creative tourism
(Source: Research findings, 2018)

variable	Components	Items
Independent variable (creative tourism)	Flexibility and acceptance	Paying attention to maintain the environment, beautification of the village, protecting the beautiful landscapes around the village, accepting new believes and values by the rural people, willingness to protect past cultural values, welcoming inventions and innovations by the rural people, welcoming tourism by local residents, using cultural and local and national symbols on passages and squares of the village, using domestic materials suitable for the environment of the village, trusting educated people in decision makings and managing village affairs, suitable base for the educated people to stay in the village, tendency of the rural people toward new ideas
	Initiative and Innovation	Ability to use creative solutions to solve the tourism problems, holding festivals and celebrations to attract tourists, holding artistic and cultural exhibitions, beautifying landscapes and views of the village, public places for tourists and rural people to rest, advertisements in social networks and media to attract tourists, using new methods to sell handcrafts along with training, advertising tourist attractions of the village by making films and serials, supporting entrepreneurial tourism plans by the local officials, innovation among the village residents in presenting tourists services.
	Risk taking	The ability to accept failure consequences in individual activities, fear of failure risk because of the low amount of capital, risk taking to fulfill fundamental requirements, welcoming the activities associated with tourism, preparation for employment of non-local people, preparation for training people in self-employment activities, absorbing capital from city resources, immigrating form cities to the village and investment in the village, increase of small industries and jobs with regard to tourism, preparation of the bases for artists and handcraft producers in the village, feasibility of supplying and selling handcrafts and artistic products to the tourists, engagement of rural people in new activities, people's ambition and persistence in launching new activities in the village
	Leadership and management	Ability of the local managers to lead the village to development tourist, authority of the local managers among local people, paying attention to local people's creativity by the local managers, employing skillful and expert people in management affairs, facilitating legal and institutional barriers to artistic activities and productions by the local managers, appropriate performance of village managers in attracting services, appropriate development of communicational and transportation infrastructures, ability of the village managers to communicate with other villages and cities, willingness of the managers to transfer knowledge of handcrafts, collaboration of government and local mangers in marketing the products and handcrafts, willingness of the managers to support tourism in the village.
	Participation	Participation of village people in social, cultural, economic, and political affairs of the village, unity and sympathy among the people in different situations (problem or accidents for others), welcoming the tourists and passengers by the village residents, team work spirit among villagers to develop tourism, awareness of villagers of tourists and market requirements, participation of villagers in art and cultural activities, preparation for people's participation on self-employment and handcraft production, feasibility of tourists' participation in creative cultural activities such as handcrafts, participation of local people and tourists in protecting village cultural heritage, social trust, collaboration and social cooperation among rural people, participation of people in activities attracting tourists

Table 3

variable	Components	Items
Dependent variable (rural sustainable development)	Economic	Development of employment, the role of tourism in the income of the families, diversifying the income resources for the rural households, the effect of tourists presence on the price of essential commodities in the village, the role of tourism in preventing the youth immigration, selling rural productions (handcrafts, local dairy and, …) to tourists, boost of tourism and increase of the price of land and properties in the area, selling lands to the tourists, the role of tourism in improvement of roads and transportation, developing entrepreneurial activities, …
	Social	Entertaining facilities as a result of tourism development, the role of the presence of the tourists who own the second houses on local participations (road construction, water and power supply), the role of culture and information exchange between local households and tourists on knowledge, public awareness, and experiences of the local people; development of consumerism among the villagers and imitation form tourists, familiarity with spare time and using entertaining spaces culture among local families, the role of tourism boost on social anomalies, the role of tourism on promotion of living standards in the area, the role of tourism on family and social integration and cohesion, required security for the tourists and public security in the area
	Physical	Improvement of housing standards, changes in village texture, Building Materials, taking patterns form the second houses, development of villas construction, development of passage network in the village, development of roads network, …)
	Environmental	Protecting the environment in the area, damaging rural beautiful landscapes, the role of tourism in vulnerability of the environment by trash and waste water spread, increase of noise and air pollution in the area because of tourism, increase in construction and change in rural environment landscape, improvement of trash disposal methods, availability of health and sanity services,, considering cleanness of the environment as a result of tourists' presence, …

4. Research Findings

In order to reach from the first idea to truth, the research was conducted to analyze the collected data. The results of descriptive statistics indicate that the age groups of respondents are 20-30 years (45%), 31-40 (28%), 41 years and above (27%). The educational level of 30.4% of the respondents was secondary school, 28% were high school, 25% had assistant degree, and 19.6% of them had bachelor's degree. Also 80.5% of the respondents were men, and 75.1% of whom are married. With regard to occupation, 39.9% of the respondents were self-employed, 37% were farmers, 12% were employed by the government, and other jobs included 11.1%. 94.6% of the sample population had lived more than 5 years in the village. In addition, inferential statistics was used, the results of which are as follow:

4.1 study of creative tourism state in the area

The results of the analysis of data collected through questionnaires using one sample t test and considering numerical desirability of 3 (as the mean of 5 item Likert scale) indicated that the numerical average calculated for all creativity indices in rural tourism were higher than the target numerical average (3) except for risk taking component. Also, the significance level was 0.01 which indicates the desirability of these indices in the studied villages (table 4). Participation index with the average equal to 3.37 was the most different component from the numerical average and in contrast, risk taking index with the average equal to 2.96 and negative difference from desirable level had a state lower than desirable level in the area under study. According to the respondents' opinions it seems that participation and cooperation spirit among the people in rural areas, contribution of people and tourists in sociocultural affairs, holding cultural-artistic festivals, using new method in absorbing tourists, welcoming new beliefs and congruence with new values, and presence of informed managers interested in tourism makes these indices desirable. In contrast, weak training for local people and lack of capital leads to weakness of risk taking and low desirability. It is also noticeable that participation and leadership components with the means equal to 3.37 and 3.30 respectively, were the mostly different components from positive desirable, and risk-taking component with the average of 2.96 and difference from negative desirable level was the weakest tourism component.

Table 4. Study of the difference among indices averages from desirable limit
(Source: Research findings, 2018)

The components of creative tourism	Test Value = 3						
	Mean	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Flexibility and acceptance	3.17	6.912	312	.000	.197	.128	.230
Initiative and Innovation	3.26	10.269	312	.000	.268	.217	.319
Risk taking	2.96	-1.322	312	.187	-.039	-.098	.019
Leadership and management	3.30	5.836	312	.000	.204	.135	.273
Participation	3.37	10.396	312	.000	.374	.303	.445

4.2 Investigating the role of creative tourism on rural sustainable development in the area

To answer the second research question and study the effectiveness domain of each component of creative tourism on sustainable development in the rural areas under study from the respondents' point of view, five components flexibility and acceptance, innovation, risk taking, leadership and management, and participation were used as independent variables, and questionnaire data (the questions related to rural sustainable development) was used s dependent variable in multiple regression analysis. Investigation of regression fitness model indicates that about 0.83 of the positive effect of tourism in rural sustainable development, is due to creativity in tourism in the area under study (Table 5). This is because the target villages have had national and even international action and tourism is in fact known as their prominent feature.

Table 5. Variance analysis of the factors affecting rural creative development
(Source: Research findings, 2018)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.829	.687	.682	.27277

In order to determine the role of creativity factors in rural sustainable development, conjoint regression model was used. The results of variance analysis indicate that all the five indices of creative tourism (flexibility, innovation, risk taking, management and leadership, and participation) are significant at the level of 0.01 (Table 6).

Table 6. Variance analysis based on the linear relationship between rural sustainable development and creative tourism
(Source: Research findings, 2018)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	50.083	5	10.017	134.629	.000[b]
Residual	22.841	307	.074		
Total	72.924	312			

a. Dependent Variable: rural sustainable development
b. Predictors: (Constant), flexibility, innovation, risk taking, management and leadership and participation

According to beta values in Table 7, it was found that among the five components of creative tourism, participation (0.286) was the most effective index and leadership and management (0.280) was the second most effective on rural sustainable development in this area; while risk taking was the least effective factor.

Table 7. The coefficients of the intensity of the relationships among creative tourism and rural sustainable development variables
(Source: Research findings, 2018)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.011	.138		.081	.935
Flexibility and acceptance	.266	.036	.252	7.419	.000
Initiative and Innovation	.182	.026	.238	7.137	.000
Risk taking	.154	.033	.181	4.718	.000
Leadership and management	.186	.028	.280	6.695	.000
Participation	.199	.028	.286	6.985	.000

a.   Dependent variable: rural sustainable development

After the relationships among creative tourism (independent variable) components and rural sustainable development (dependent variable) were determined, direct and indirect effects of creative tourism on rural sustainable development were analyzed using route analysis and priority diagram of the variables prepared based on the authors' inference from the theoretical principles of the study (Kalantari, 2008). In this method, direct and indirect effects of each component of the independent variable on the dependent variable are determined. As it is shown in Figure 4, participation components have affected other components including management, flexibility, innovation, and risk taking; and the management component has affected other components except participation. On the other hand, innovation component has been influenced by other components.
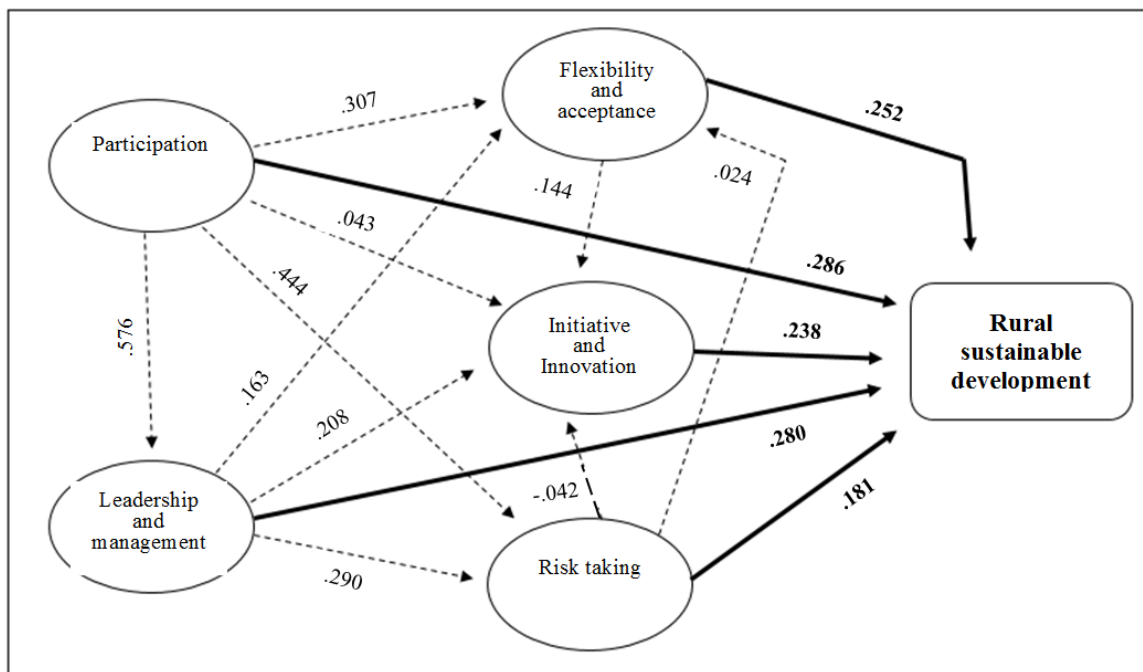
Figure 4. Route analysis model of the factors and variables of creative tourism variables and its effect on rural sustainable development
(Source: Research findings, 2018)

According to the information obtained from route analysis (Table 8) direct and indirect effects of creative tourism indices (flexibility and acceptance, innovation, risk taking, management

and leadership, and participation) on rural sustainable development are determined. It was found that participation (0.671) was the most effective component. In other words, the participation component has been the most effective factor in sustainable development of the villages in this area by making local people contributing in village activities (social, cultural, economic and political), welcoming tourists by

inhabitants, team work spirit to develop tourism, preparing conditions for participating in self-employment, cooperation among local people and tourists to protect cultural heritage and cooperation and participation in tourist attracting activities. In contrast, risk taking (0.178) has had the least effect on rural sustainable development in the area under study.

Table 8. Measuring the effects of tourism on rural sustainable development
(Source: Research findings, 2018)

Components	direct impact	indirect impact	Whole effects	Priority
Flexibility and acceptance	.252	.034	.286	3
Initiative and Innovation	.238	-	.238	4
Risk taking	.181	.003	.178	5
Leadership and management	.280	.147	.427	2
Participation	.286	.385	.671	1

In order to study the differences among the rural areas under study with regard to creative tourism components and ranking the target villages in this regard, Kruskal–Wallis test was used. According the results obtained from this test (table 9), the studied villages have significant differences regarding all the components of creative tourism (flexibility and acceptance, innovation, risk taking, leadership and management, and participation) at 0.01 level. Regarding the average of creative tourism Kandovan village (257.65) is at the first rank. It is because of some reasons including rock structure, better introduction compared to other sample villages, locating in mountain area with variety in vegetation and appropriate climate, as well as infrastructures and investment out of the village on tourism carriers, night lightning in passages, using rock houses as exhibition and residual homes, and so on. The second place goes to Oraman takht village (203.53), which is because of the eye-catching mountain area, unique architecture, Pir Shaliyar religious ceremony, handcrafts workshops, and so on. Darsajin village (141.21) is at the third rank, which in addition to beautiful scenery can be due to the traditional architecture of the rural houses, using traditional

costumes in ceremonies and celebrations, beautification of the passages (stone pavements, houses façade, routes ornaments, and balconies decorated with flower-pots, …), annually holding grapes festival, using the village for producing local TV serials and so on. The fourth place goes to Shit village (135.12) because of the intact nature and locating among the mountains, stepping structure of the physical texture, multitude gardens, river, regularly holding cherries and pomegranate festival, and investment on serving homes and extent of fishery. Anbouh village (62.39) is at the fifth place due to its stepping architecture (known as the second Masouleh in Gilan), pomegranate festival, beautiful natural context, local clothes, and handcrafts. Varkane village (41.71) is at the sixth rank, and stone texture of the houses, passage optimization, ecotourism residence, being selected for a few historical TV serials, beautiful natural context, and gardens are its prominent features.

In addition, attracting creative class specially handcrafts activists, preparation for the presence of people and investments from outside, the variety of the services presented to tourists, as well as cultural and natural attractions played important roles in ranking the above villages.

Table 9. Ranking villages regarding creative tourism
(Source: Research findings, 2018)

Villages	Flexibility and acceptance	Initiative and Innovation	Risk taking	Leadership and management	Participation	Creative tourism	Rank
Kandovan	230.88	226.53	227.15	235.22	237.91	257.65	1
Darsajin	219.30	156.70	82.88	172.38	134.73	141.21	3

Table 9

Villages	Flexibility and acceptance	Initiative and Innovation	Risk taking	Leadership and management	Participation	Creative tourism	Rank
Shit	179.97	134.21	193.42	116.79	125.94	135.12	4
Oraman Takht	161.05	181.82	197.67	203.28	213.27	203.52	2
Anbouh	89.17	102.71	57.63	77.67	62.46	62.39	5
Varkaneh	78.88	92.82	68.56	45.59	40.90	41.71	6
Chi-Square	89.343	67.086	155.582	159.267	191.897	185.921	-
df	5	5	5	5	5	5	-
Asymp. Sig.	.000	.000	.000	.000	.000	.000	-

5. Discussion and conclusion

Today, due to the evolutions and replacing development concept by sustainable development concept, most of the experts and researchers consider rural sustainable development as a multi-aspect process, whose final goal is improvement of life quality of the people resident in rural areas along with protecting environment and resources. In this regard researchers have presented a number of theories which were unsuccessful to achieve their goals. Therefore, rural tourism theory was raised as a solution for sustainable development in rural communities, especially less developed ones. Gradually and by emergence of consumers and postmodern tourists, tourism also shifted to its third generation that is creative tourism, such that tourism destinations are looking for presenting a unique combination of knowledge, skill, tangible heritage, social capital, and a space capable to create potentials for creative and especially attractive activities. The results obtained from the field studies through researchers' observations regarding creative tourism in cultural-historical villages in southwest of Iran indicate that they have a desirable state regarding rural creative tourism because of appropriate development of tourism infrastructures and raising as a brand and tourism destination and having creative resources such as natural resources (green context, perspective, gardens, …), cultural resources (holding special ceremonies, local clothing, local food, …), historical resources (ancient works), and creative products (like handcrafts), creative processes (festivals), creative people (rural artists) and creative context (texture of the villages). On the other hand, according to the statistical analyses, the villages under study are in a good position regarding creative tourism. Such that the results of one sample t test and considering numerical desirability of 3 (as the mean of 5 item Likert scale) indicated that the numerical average calculated for all creativity indices in rural tourism were higher than the target numerical average (3) except for risk taking component; also 0.01 significance level indicated the desirability of these indices in the considered villages (table 4). Participation index with the average of 3.37 was the most different component from the numerical average; in contrast, risk taking index with the average equal to 2.96 and negative difference from desirable level had a state lower than desirable level in this area. According to the state of rural sustainable development as a result of development of creative tourism, the regression fitness model indicates that 0.83 of the positive effect of tourism on rural sustainable development is due to creativity in tourism in this area. Therefore, development of creativity in tourism has been a main factor in improving rural sustainable development improvement in target villages. However, the amount of development of tourism was not equal in these villages; as a result, the development in these villages is different as well. According to the results of Kruskal–Wallis test, regarding the average of creative tourism, Kandovan village (257.65) is at the first place, and Varkaneh village is at the sixth (41.71). To improve all target villages regarding creative tourism the following suggestions are presented:

- Protecting historical textures in target villages and preventing modern constructions and disturbing village scenery (cooperation among housing foundation of Islamic Revolution and local managers through supplying suitable materials with physical texture) due to the will of rural people;
- Investment to develop cultural resources through holding more brilliant ceremonies and local festivals;

- Paying attention to the rural artists and the creative class to develop cultural-artistic products;
- Indirect introduction of the rural areas by using the village context as the location for filming TV programs;

- Preparing the basics for engaging the tourists especially foreign tourists in daily life of rural people and experiencing farming on rural areas.

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نقش گردشگری خلاق در توسعه پایدار مناطق روستایی
(مطالعه موردی روستاهای تاریخی- فرهنگی شمال غرب کشور)

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چکیده مبسوط

۱. مقدمه

گردشگری در حال حاضر با عبور از نسل اول (گردشگری سواحل) و نسل دوم (گردشگری تاریخی-فرهنگی) به نسل سوم خود یعنی گردشگری خلاق رسیده است. در این شرایط جدید تنها دارا بودن پتانسیل‌های گردشگری برای بهره‌مندی از صنعت گردشگری کافی نیست. همان طور که ایران با وجود پتانسیل‌های کافی، توانایی رقابت موثر در بازار گردشگری عصر حاضر را به علل مختلف از جمله کمبود زیر ساخت‌های لازم، ندارد. لذا با توجه به تنوع فرهنگی و غنای آثار هنری و صنایع دستی موجود در کشور که بهترین پشتوانه برای توسعه گردشگری خلاق هستند و تقریبا به صورت رایگان و بدون سرمایه گذاری کلان برای نسل حاضر به ارث رسیده‌اند، می‌توان گردشگری خلاق را مطلوب‌ترین نوع گردشگری برای کشور ایران دانست. همچنین مناطق روستایی کشور نیز به علت فقر و کمبود امکانات و عدم امکان سرمایه‌گذاری کلان جهت ایجاد زیر ساخت‌های گردشگری، همواره در جذب گردشگر به ویژه گردشگران خارجی با مشکل مواجه بوده است. لذا پژوهش حاضر در پی راهی برای رونق گردشگری در مناطق روستایی جهت رسیدن به توسعه پایدار است و برای نیل به این هدف گردشگری خلاق در مناطق روستایی را مورد بررسی قرار داده است.

۲. مبانی نظری تحقیق

گردشگری خلاق به عنوان موضوع الحاقی به گردشگری فرهنگی اقامه شده و به عنوان افزوده و پادزهر در اشکال مختلف گردشگری

فرهنگی و برای جلوگیری از تکرار زنجیره‌های فرهنگی پیشنهاد شده است. این مفهوم توسط یونسکو (۲۰۰۶) این گونه تعریف شده است: «گردشگری خلاق یعنی سفر به سوی تجربه‌های اصیل و جالب توجه و آموختن هنر، آشنایی با میراث یا ویژگی خاص یک محل و نیز برقراری ارتباط میان گردشگران و اهالی آن منطقه که پدید آورندگان آن فرهنگ زیستی هستند». در ارتباط با نقش گردشگری خلاق در توسعه مقاصد گردشگری می‌توان چنین اظهار نظر کرد که، هر مقصد گردشگری در تلاش برای سازگاری با تقاضاهای جدید بازار گردشگری بوده و از طریق توسعه محصولات نوآورانه به دوام خود ادامه می‌دهد. در واقع خلاقیت به دلیل اینکه شامل افزودن چیزی جدید به محصولات موجود گردشگری است، می‌تواند به عنوان منبع اساسی نوآوری مطرح با شد. یک مقصد خلاق قادر به تولید سود از نوآوری، فرهنگ، پژوهش و تولید هنری و در نتیجه تقویت سرمایه هویتی خود است. انگیزه اصلی برای سفر به مقاصد خاص، اغلب عرضه خلاق نیست، بلکه تمایل به کشف مقاصد از طریق برنامه‌های خلاق به عنوان بخشی از عرضه مازاد است.

۳. روش تحقیق

تحقیق حاضر از لحاظ هدف، کاربردی و از لحاظ ماهیت و روش، به صورت توصیفی- تحلیلی انجام شده است. برای جمع‌آوری اطلاعات از روش کتابخانه و میدانی(پرسشنامه و مشاهده) استفاده شده است. پرسشنامه تحقیق به صورت پنج گزینه‌ای طیف لیکرت بوده و روایی آن از طریق خبرگان و پایایی آن با استفاده از آلفای کرونباخ، به میزان ۰/۸۵۶ تایید شد. به منظور عملیاتی کردن تحقیق حاضر شش

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روستای تاریخی – فرهنگی واقع در شــمال غرب کشــور(روستاهای کندوان، اورامان تخت، انبوه، ورکانه، شــیت و درســجین) به عنوان جامعه آماری انتخاب شده‌اند. طبق سرشماری عمومی نفوس و مسکن در سال ۱۳۹۰ جامعه آماری حا ضر دارای ۱۶۹۳ خانوار و ۶۰۱۱ نفر جمعیت اسـت. برای تعیین حجم نمونه در بین کل خانوارها از فرمول کوکران اسـتفاده شـده اسـت و از بین ۱۶۹۳ خانوار ۳۱۳ خانوار به عنوان نمونه برآورد گردید. به منظور تجریه و تحلیل داده‌ها از آمار تو صیفی و آزمون‌های آماری (t تک نمونه‌ای، رگر سیون چند متغیره (تحلیل مسیر) و کروسکال والیس) استفاده شده است.

۴. یافته‌های تحقیق

نتایج آمار توصیفی نشان می‌دهد که ۴۵ در صد از پا سخگویان دارای سن ۲۰-۳۰ سال بوده و ۳۰/۴ در صد جامعه نمونه دارای تح صیلات مقطع راهنمایی و ۸۰/۵ درصد آنان مرد بوده و همچنین ۳۹/۹ درصد افراد نمونه دارای شغل آزاد بوده و ۷۵/۱ درصد آنان متاهل می‌باشند. همچنین ۹۴/۶ درصد جامعه نمونه سابقه سکونتی بیش از ۵ سال در روسـتا را دارند. با اسـتفاده از آزمون t تک نمونه‌ای با در نظر گرفتن مطلوبیت عددی ۳ نشانگر آن است که میانگین عددی محاسبه شده برای همه شـاخص‌های خلاقیت در گرد شگری رو ستایی به ا ستثنای مولفه ریسـک‌پذیری بالاتر از میانگین عددی مورد نظر بوده اسـت. بررسی مدل برازش رگریسیون نشان می‌دهد که حدود ۰/۸۳ از تاثیر مثبت گردشـگری در توسـعه پایدار روسـتایی، متاثر از خلاقیت در گرد شگری رو ستایی در محدوده مورد مطالعه، بوده ا ست. بر ا ساس اطلاعات به دست آمده از تحلیل مسیر، شاخص مشارکت با ۰/۶۷۱ به عنوان موثرترین مولفه بوده است و در مقابل شـاخص ریسـک‌پذیری (۰/۱۷۸) کمترین اثر را در توسعه پایدار روستایی از طریق گردشگری در روستاهای مورد نظر داشته است. بر اساس اطلاعات به دست آمده از آزمون کروسکال والیس، از نظر میانگین گردشگری خلاق، روستای

کندوان (۲۵۷/۶۵) رتبه اول و روستای ورکانه (۴۱/۷۱) رتبه ششم را دارا است.

۵. بحث و نتیجه‌گیری

نتایج بررسـی مطالعات میدانی از طریق مشـاهدات محقق در رابطه با گرد شگری خلاق در رو ستاهای تاریخی- فرهنگی شمال غرب کشور نشان می‌دهد که این رو ستاها به علت توسعه مناسب زیر ساخت‌های گردشـگری و مطرح شـدن روسـتاها به عنوان یک برند و مقصد گرد شگری و همچنین برخورداری از منابع خلاق، و ضعیت مطلوبی از نظر گردشگری خلاق روستایی دارند. از ســوی دیگر بر اســاس تحلیل‌های آماری صورت گرفته نیز روستاهای مورد مطالعه از وضعیت مطلوبی از نظر گردشـگری خلاق قرار دارند. همچنین با تو جه به وضعیت توسعه پایدار روستایی در نتیجه گسترش گردشگری خلاق، بررسـی مدل برازش رگرسیون نشان می‌دهد که حدود ۰/۸۳ از تاثیر مثبت گردشــگری در توســعه پایدار روسـتایی، متاثر از خلاقیت در گردشگری روسـتایی در محدوده مورد مطالعه، بوده است. بنابر این در روسـتاهای هدف، گسـترش خلاقیت در گردشگری به عنوان یک عامل اساسی در بهبود شاخص‌های توسعه پایدار روستایی بوده است. ولی میزان گسـترش گردشگری در این روسـتاها به یک اندازه نبوده و با همدیگر تفاوت دارد و در نتیجه توسـعه ناشـی از آن نیز در سـطوح متفاوتی قرار می‌گیرد. به طوری که نتایج آزمون کروســکال والیس نشــان می‌دهد، از نظر میانگین گردشــگری خلاق، روسـتای کندوان (۲۵۷/۶۵) رتبه اول و رو ستای ورکانه (۴۱/۷۱) رتبه ششم را به خود اختصاص داده است.

کلمات کلیدی: گردشگری خلاق، توسعه پایدار روستایی، روستاهای تاریخی- فرهنگی، شمال‌غرب ایران.

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The Effect of Household Head Characteristics on Poverty and its Intensity in Rural Households of West Azerbaijan Province

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Abstract

Purpose- In the present study, the impact of the household head's features on poverty and its intensity in rural households was investigated using the data related to income cost of rural households of West Azerbaijan during 2014 .

Design/methodology/approach- To this end, the relative poverty line of the rural households was first estimated in this study. Then, the effect of household characteristics on the intensity of poverty and its incidence was examined as well. The two-step Heckman model was used in this regard through which the impact of variables on household poverty was explored and the likelihood of household poverty was calculated. Afterward, assessing the poverty intensity of poor households, the effect of the study variables on the intensity of poverty of these households was investigated .

Findings- The results of the study showed that the age, marital status, employment, and literacy level of the household head had a significantly positive effect on decreasing the incidence of poverty of the households. In addition, being married, the higher level of education, and employment of the household head, and also increasing the number of employed members in the household alleviated the severity of poverty among rural households.

Research limitations/implications- The main limitation of this study was the lack of direct access to statistics and that extraction of **data from micro-**households was time-consuming .

Practical implications- Considering the high probability of poverty at the beginning of the young age and retirement, actions must be taken to minimize the negative consequences of poverty in these ages through appropriate social security systems. Furthermore, given that being married reduces the incidence of poverty, careful planning is required to increase employment opportunities, to develop the culture of marriage, and therefore, to reduce the level of divorce in the society.

Originality/value-In this article, an attempt has been made to study the influence of individual characteristics of the household head on poverty incidence and its severity in rural households of West Azerbaijan Province using the relative poverty line system. Moreover, based on the aim of the study, the severity of poverty and its incidence are to be separately investigated .

Key words- Intensity of poverty, personal characteristics of the household head, relative poverty line, Two-step Heckman model, West Azerbaijan Province.

Paper type- Scientific & Research.

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1. Introduction

P overty is a dilemma which human communities have somehow been facing with during all time periods. This phenomenon is a sign of economic, social, and cultural underdevelopment that threatens political stability, social solidarity, and also mental and physical health of the nations. Besides, it leads to an increase in the rate of mortality, a decline in average life expectancy, and economic productivity. In addition, poverty results in the appearance of social diseases and corruption in the community. Therefore, poverty reduction is considered one of the most important discussions of development. A number of scholars in the field of economic development such as Emwanu, Kanyerezi, Bwoogi & Muwonge (1995) believe that combat against poverty is a prerequisite for growth. Nevertheless, anti-poverty programs depend on the identification of various aspects of poverty phenomenon and its causes and consequences in addition to policy-making efficiency and implementation of the programs. Accordingly, as stated by Najafi and Shooshtarian (2007), investigation and awareness of poverty status in a society is the first step in planning for combating the poverty and deprivation.

According to the World Bank (2005), poverty is not just a problem of low income, but it is a multi-dimensional phenomenon and problem which includes less accessibility to opportunities for human capital development and education. The United Nations Development Program Reports (1996) state that income poverty is only part of the problem and that poverty must be considered with regard to various dimensions and human poverty concept. Singh et al. (2013) indicates that the rate of human poverty is more than that of income poverty, depriving every individual of assets and opportunities s/he deserves to have.

Demographic and economic characteristics of the households are among the factors affecting the rate of poverty of the households. Population variables such as marital status and age of the household head and the size of the household along with other economic factors including the type of occupation and the source of household income, etc. are contributing factors to household poverty. Marital status of the household head can also be effective in alleviating the rate of poverty

and increasing the rate of income. This is accomplished by providing a soothing environment for living and enhancing productivity by increasing the concentration on job-related issues. Besides, the age of the household head can have an impact on the living standards of the household in two ways. First, according to the life cycle hypothesis of Modigliani, individuals enjoy better productivity and efficiency in young and middle ages. Second, in middle age, people can have better occupations and further access to higher positions by increasing their skills and expertise (Mohammadzadeh, Motefakerzade, Sadeghi, & Hekmati Farid, 2012, p. 8). As mentioned by Balazadeh (2006), human capital is an accumulation of knowledge which is non-physically embedded in the workforce. This capital includes a set of personal skills and abilities that each individual brings to the work market and increases the potential capacity of the household income generation and alleviates the likelihood of poverty through efficiency and productivity. Being aware of the extent of the ruling poverty in society and its effective causes, is regarded as the most significant issue in designing the programs for poverty alleviation. Given the importance of this issue, in the present study, attempts are made to evaluate the effect of individual characteristics of the household head on poverty occurrence and its intensity among the households of West Azerbaijan Province employing micro-data.

2. Research Theoretical Literature
2.1. Poverty line

One of the most controversial issues in welfare economics is probably measuring poverty and minimum livelihood. The expansiveness of the concept of poverty and its different perceptions have an influence on the development and selection of poverty indicators. It can be considered in three types of the absolute, relative, and subjective poverty line.

According to Bagheri, Daneshparvar, & Kavand (2007), absolute poverty line is defined as the amount of income that is required considering the cultural, social, economic, etc. contexts of the community under investigation in order to meet the minimum needs of the individuals (such as food, clothing, housing, etc.), or providing the least conditions (like minimum amount of income,

education, housing, etc.) the lack of which cause the person under study to be considered as poor.

In addition, relative poverty line, as mentioned by Khodadad Kashi, Heidari, & Bagheri (2005), is generally considered as a certain percentage of the median (average) distribution of the income (cost) of community, and those whose income (cost) is lower than this threshold are regarded as poor. According to them, the poverty line, based on the relative concept, can be measured by calculating the average of the households' expenditures and determining a percentage of it as the poverty line. Of course, in this method, although the concept of relative poverty is emphasized, there is no reasonable viewpoint to determine the desired percentage. Besides, as they pointed out, determination of 50% or 66% is, in fact, optional and empirical and every researcher can calculate it for himself. In this method, the average of the households' expenditures is first calculated, and then at the next stage, 50 or 66 percent of the average expenditures are considered as the poverty line.

Various factors affect the likelihood of poverty including the age, marital and employment status as well as the literacy level of the household head which will be briefly discussed in the following sections.

2.2. Poverty and age of the household head

As the age of the head of household increases, at first, the household income increases whereas poverty decreases, but during the time and after reaching a stage, the household incomes are reduced and the incidence of poverty increases. This confirms the life cycle hypothesis of Modigliani. According to this hypothesis, people are more efficient during middle age. However, their efficiency and income gradually decrease as they become older and reach the age of retirement (Anyanwu, 2013, p. 11).

2.3. Poverty and activity status of the household head

Mohammadzadeh et al. (2012) found that the following issues can affect the household poverty through productivity or income rate of each sector: the type of household occupation regarding the employment in industry, agricultural, and services sectors in addition to the household income sources respecting that the household income is obtained either from a public/private

salaried sector or a self-employed agricultural or a non-agricultural site.

2.4. Poverty and literacy level of the household head

Increasing the literacy level of the household head reduces poverty in two ways: a) innate and individual abilities, and b) behaviors and decisions that increase the probability of success in achieving different basic needs. Schultz and Becker who are the pioneers of human capital literature claim that education is considered as an investment on the existing resources (cost of time opportunity and direct costs) to obtain future returns. Schultz believes that acquiring knowledge either through formal education or in-service training is regarded as an investment on human beings. In his viewpoint, education and health, in other words, human acquired abilities are the most important source of growth for economic development in recent years. In addition, Becker indicated that human capital is acquired not only through the accumulation of educational capital, but also through unlimited ways. Zuluaga (2007) also considers human capital and skill training as a form of investment which leads to higher profitability as obtaining more income. Furthermore, Sen thinks that education affects individuals' attitudes, inherent competence, behavioral tendencies, and their acquired opportunities. Besides, according to Zuluaga, through education not only individuals are able to earn more financial income but also their decisions and attitudes are affected by it, increasing the likelihood of being successful in meeting the primary needs, which both lead to a decline in the rate of poverty.

2.5. Poverty and marital status of the household head

In some studies, it has been demonstrated that marriage had a great effect on reducing the incidence of poverty. They discussed that the occurrence of poverty was higher in single people and single-child families as compared to married people (Blank, 1997; Furstenberg, 1990; Garfinkel & McLanahan, 1986; White & Rogers, 2000). Being married, as mentioned by Mohammadzadeh et al. (2012), can provide a comforting environment for living and increase productivity by enhancing the focus on occupational issues. Therefore, it can be effective

in increasing income and reducing the rate of poverty.

According to Anyanwu (2013), marriage has significant features which increase the accumulation of wealth. One of these features is that it yields long-term commitments that enhance the productivity and efficiency of the family through the specialization of the couple in their specific skills and duties. Second, marital expectations and obligations encourage people to purchase a house, save up for the child education, acquiring a car and other assets. Third, the economic scale of consumption demonstrates that married people as compared to the single ones can meet their needs at a lower cost. Fourth, married individuals may have access to various benefits including health and life insurance which are offered by their employment opportunities. Fifth, studies indicate that married people have more income than single ones. Eventually, marriage expands the social network and support which often includes opportunities and benefits that lead to savings.

2.6. Poverty measurement indicators

As stated by Mohammadzadeh et al. (2010), the number of poor people and the poverty line cannot describe the pattern of poverty per se since poverty intensity can vary depending on the poverty line and a similar number of poor people in two or more societies. Therefore, to understand the rate of poverty in every society, there exist some indicators showing the severity of poverty. According to them, rate of income inequality among poor people, average income of poor people, rate of poverty line, total number of the poor, and total number of people of the community are among the factors affecting the severity of poverty, and the difference in each of them results in diversity in poverty intensity. Some of these indicators are focused on in this section.

Poverty gap index- The reason for employing this indicator is that it is based on the total distance of the poor from the poverty line, which reflects the depth of poverty. In other words, it is an indicator of the average poverty gap in the society, in which the poverty gap is equal to zero for those who are not poor. Using the index function, it can be written as:

$$G_i = (Z - Y_i) \cdot I(Y_i < Z) \quad (1)$$

Where G_i and denote the poverty gap and Y_i expenses of the individual i. As a result, the poverty gap index of P_1 can be defined as follows:

$$P_1 = \frac{1}{N_P} \sum_{i=1}^{N_P} \frac{G_i}{Z} \quad (2)$$

This index, according to World Bank (2005), is an indicator of the extent of poverty but ignores inequality of income among poor people.

This indicator can be expressed as follows:

$$P_1 = \frac{1}{N_P} \times \frac{G}{Z} \quad (3)$$

in which G is referred to as the sum of the poverty gap and is defined as follows:

$$G = \sum_{i=1}^{N} G_i = \sum (Z - Y_i) \quad (4)$$

The intensity of the poverty index (the square of poverty gap)- This indicator not only considers the distance of poor people to the poverty line (poverty gap) but also calculates the inequality among the poor. That is, a higher coefficient is assigned to those households that are away from the poverty line. Similar to the poverty gap, the application of this indicator faces a limitation regarding some non-monetary indicators (World Bank, 2005, p. 70-71). This index can be written as follows:

$$P_2 = \frac{1}{N_P} \sum_{i=1}^{N_P} \left(\frac{G_i}{Z} \right)^2 \quad (5)$$

2.7. Theoretical background

In this regard, many studies have been conducted inside and outside of the state some of which are briefly discussed in this section. Merz and Rathjen (2011) investigated the determinants of poverty intensity using cross-sectional data of German households during 1992-2002. In this study, estimating time and income poverty line, the researchers attempted to calculate the intensity of poverty, and then to examine the determinants of poverty intensity using the two-step Heckman model. The effect of gender, age, marital status, education level, occupation, and household head's type of activity on the incidence of poverty and its intensity were also explored.

Similarly, Singh et al. (2013) in their study tried to examine the factors contributing to rural poverty in India. In this study, to explore the determinants of poverty and also poverty line, socio-economic indicators and the $2 per day

method were used, respectively. In addition, to identify factors affecting poverty, the Probit model was undertaken. The results indicated that the length of education years of the household head had a significantly positive influence on poverty alleviation. Besides, household size, dependency burden, and employment in the agricultural sector had an impact on poverty.

In the same vein, Anigbogu, Onwuteaka, Anyanwu, & Okoli (2014) in an article studied the impact of household composition and anti-poverty programs on household welfare applying the ANCOVA-regression model and survey data obtained from two socio-cultural and economic communities in northern and eastern rural districts of Nigeria. The results demonstrated that the effect of household composition on welfare was dependent on geographical, socio-cultural, and economic characteristics of the area and that anti-poverty programs had a significant impact on welfare in one of the areas. However, no effect was found on other areas in this respect. Therefore, policies regarding the elimination of poverty should recognize the particularities of the area.

In another paper by Salman and Ekong (2015), the determinants of poverty were explored among fishing households of AkwaIbom state in Nigeria employing questionnaires and descriptive statistics. To this end, the two-stage least square (2SLS) model was used to analyze the data. The results showed that the average age of the household head was 41.9 years (7 persons per household). It was also found that the household belonged to at most two communities among which fishing was one of the most important associations with 52.6% participation index in decision making.

Siwar et al. (2016) also attempted to examine and assess the relationship between poverty and socio-demographic characteristics of the households in Malaysia using the Implementation and Coordination Unit (ICU) data obtained from the household survey in 10 districts of Kelantan during 2008-2011. The results demonstrated that the majority of the households of every district were experiencing poverty. The findings also revealed that most of the households (55% on average) of various ethnics were exposed to poverty. Similarly, the highest number of households in every occupation group were susceptible to poverty.

In addition, Sissons, Green, & Lee (2017) investigated the connection between the employment structure and household poverty in the United Kingdom using the data obtained from the Family Resources Survey (FRS) and income-expenditure data of 20,000 households per year (during 2009-2012). To this end, this research proposed distinct patterns regarding the effect of the employment sector and other factors on poverty. The findings indicated that the household head's characteristics particularly the employment of the individual strongly alleviated the rate of poverty.

Mohammadzadeh, Falahi, & Hekmati Farid. (2010), using the data obtained from the income-expenditure pattern of the urban households of the state and employing the linear expenditure system (LES), sought to estimate and calculate poverty line and poverty measurement indicators, respectively. In addition, they investigated the determinants of poverty at the micro level. The effect of the household characteristics on the incidence of poverty was also explored through the Probit model in 2008. The results revealed that the highest rate of poverty incidence reduction of urban households belonged to the age and education level of the household head. Moreover, the age of the household head, the ratio of the number of household members earning income, and the household size were influential in decreasing the incidence of poverty in the households.

Furthermore, in another study, Mohammadzadeh et al. (2012) investigated the poverty gap determinants of urban and rural households of the state. In this respect, poor rural and urban households were first identified according to an implicitly directly additive demand system (AIDADS), and then the determinants of poverty and poverty gap incidence were explored employing the two-stage Heckman model. The results indicated that age, level of education and the main activity of the household head along with the literacy rate of the household and also having a computer and Internet line were among the most important factors affecting the occurrence of poverty. In addition, gender and education level of the household head in addition to literacy rate of the household, the number of employed members of the household, and the type of household income source were considered as the

determinants of poverty gap among urban and rural households of the country.

In the same vein, Grivani, Ahmadi Shadmehri, & Fallahi. (2013) examined the characteristics of rural households in North Khorasan Province. In this study, data obtained from the household income and expenditure plan of Statistics Center (2010) regarding 679 households were used. Besides, the Tobit model was employed in order to explore the effect of variables like dependency burden, gender, age, expenditures on education and health, and being a farmer and non-farmer household on the probability of becoming poor. The results of the model showed that the variables of the dependency burden, age, and gender of the household head had a direct correlation whereas other variables demonstrated a reverse relation with the likelihood of becoming poor.

Investigation and identification of factors affecting the multi-dimensional poverty in rural areas of Iran were also conducted by Yousefi, Mehdiyan, & Khalaj (2015) in three groups of regional, relational, communal (social), and economic characteristics of the households. The statistical population of this research included all the households residing in rural areas of the country. To this end, population and housing census raw data of Statistic Center (2006) were applied. The results of this investigation indicated that 21.4% of the rural households were poor and the average deprivation of poor households was 31.5%. Moreover, investigation of influential factors in households poverty using logistic regression revealed that literacy, gender, education, marital status, occupation and age of the household head, the source of drinking water supply, sewage disposal system, the ownership of the residential unit, the number of children, dependency burden, the number of literate members of the household, geographical location, and the type of household nationality had a significant impact on poverty rate of rural households.

Similarly, Salmani Moghadam, Zanganeh, & Bani Assad (2017) tried to study the factors that had an effect on poverty in urban areas of Iran employing a library method during 1974-2015. The results of this research demonstrated the impact of various social, economic, physical, and cultural factors on poverty. Based on the income ranking obtained from 173 countries, Iran ranked 96th and was far from the top rankings of other countries. In

addition, the results showed that the relation between income and the cost of urban household in Iran was negative during the years 1974-2015. This implies that the purchasing power of people decreased and more people living in urban areas of Iran were at the risk of relative poverty. However, the relationship between income and expenditure was positive during 2014-15. Investigation of previous studies in this regard indicated that in the majority of them the estimation of poverty line was followed by exploring factors affecting the poverty. However, the impact of individual characteristics of the household head, through the relative poverty line system, on poverty and poverty intensity of rural households in West Azerbaijan Province has not been explored in these studies. Besides, in most of the studies, the likelihood of poverty incidence has not been addressed separately, which will be focused on in the present study.

3. Research Methodology
3.1 Geographical Scope of the Research
Data available in the cost and income plan of West Azerbaijan Province (2014) was collected from a sample of 638 rural households. The obtained data was related to the cost information in addition to other household information such as age, level of education, and also activity and marital status of the household head. In this study, poverty was defined as a virtual variable that took two values. If the household expenditure was below (that is, the household was poor) or above the poverty line, this virtual variable would be set as 1 or 0, respectively. Before estimating the Heckman model, the relative poverty line was determined.

3.2. Methodology
This was an applied study in which the data were collected using library and documentary methods. The data were applied to determine the poverty line including questionnaire survey data of the rural households' cost and income plan of West Azerbaijan in 2014. In this research, following extracting the relative poverty line, the households below the poverty line were identified. To determine the relative poverty line, 50 percent of the household average cost was used. Several studies also employed this method (Elmi & Alitabar, 2012; Khalidi & Permeh, 2005; Mahmudi, 2013;Makiyan & Saadaatkhah, 2011).

3.3. The Two-stage Hackman estimation method

Direct single-equation methods, among the econometric methods, are very useful for the ease of application. In terms of econometric methodology, two types of estimation errors are possible when using these models. First, the error which is due to the non-accidental nature of the samples and the second one which is related to the same assumption taking of the factors affecting the occurrence of poverty and poverty gap. Non-random sample selection means that the statistical sample only includes the households below the poverty line and people who are above the poverty line are excluded from the statistical sample. The concept of the second-type error is that factors that have an impact on the reduction of poverty incidence are not necessarily the same as those factors that determine the rate of poverty gap, but they can be as two different sets of variables.

The Tobit model eliminates the first-type error or non-randomness of the sample using both groups (poor families and those who are not poor). However, the likelihood of the second-type error still persists. Heckman has proposed a two-stage method for estimating the Tobit model and also to solve the second problem. In Hackman's approach, the Tobit model is broken into the Probit and linear regression models in order to determine the effective factors in each of the two sets of variables mentioned above. Factors that can affect the probability of poverty and those affecting the poverty gap are included in the Probit and linear regression models as independent and independent variables, respectively. The dependent variable in the Probit pattern consists of a binomial variable with values of 1 and zero. That is, the dependent variable is a vector of 0 and 1, in which number 1 represents that the household is poor and 0 which denotes that the household is placed above the poverty line. To this end, in cases where the poverty gap value (Y_i) was greater than 0, the dependent variable of the Probit model (Z_i) was considered as 1. In cases where the poverty gap was equal to 0, the dependent variable of the Probit model was also considered 0. According to the above explanations, the two patterns obtained from the separation of the Tobit model are shown as follows:

The Probit model:

$$Z_i = B'W_i + V_i \qquad :i = 1,2,3,\ldots,N \quad (6)$$

$$Y_i^* > 0 \quad \text{if} \quad Z_i = 1$$

$$Y_i^* \leq 0 \quad \text{if} \quad Z_i = 0$$

The linear regression model:

$$Y_i = B'X_i + \sigma\lambda_i + e_i \qquad i = 1,2,3,\ldots,N \quad (7)$$

According to Heckman (1979), in the above models B' and σ are parameters of the model. Besides, W_i and X_i represent explanatory variables affecting the incidence of poverty and the poverty gap, respectively. In addition, e_i and V_i are error sentences in the above-mentioned patterns which are independent of explanatory variables and are based on the assumption of the normal distribution with a mean of 0 and a constant variance of δ^2. Moreover, λ_i shows inverse Mills ratio which is calculated using the estimated parameters of the Probit model for all observations $Y_i > 0$ through the equation $\lambda_i = \frac{\phi(\beta'W_i)}{\Phi(\beta'W_i)}$. In this equation, $\phi(\beta'W_i)$ and $\Phi(\beta'W_i)$ are density function and the cumulative distribution function of the random sentence, respectively.

To estimate the Probit model, the maximum likelihood estimation (MLE) method was used. The Probit pattern applies logistic and normal cumulative functions. For example, the cumulative distribution function of the randomized sentence ($\Phi(X'\beta)$) of the Probit model has a normal distribution. Therefore, the probability of (p_i) choosing the option 1 versus 0 is expressed as the following equation:

$$(8) \quad p_i = prob[Y_i = 1 \mid X] = \int_{-\infty}^{x'\beta} (2\pi)^{-\frac{1}{2}} \exp(-\frac{t^2}{2})dt = \theta(X'\beta)$$

$$\frac{\partial p_i}{\partial x_{ik}} = \phi(X'\beta)\beta_k$$

where Y_i and X demonstrate the dependent variable and a vector of explanatory variables that includes the properties of the studied households. Besides, β is the vector of the model parameters that should be estimated. The relationship between a particular explanatory variable and the possible consequences of choosing the desired option or $P(Y_i = 1)$, is interpreted by means of the final effect, which is defined as a minor change in

the probability of choosing the value of 1 depending on the change in the intended explanatory variable. In other words, the final effect is the derivative of the estimated function relative to each of the explanatory variables at a given point. The final effect of the continuous explanatory variable on the probability of an option occurring under the condition of the stability of other variables is obtained from the following equation. In other words, the final effect is the derivation of the estimated function relative to each of the explanatory variables at a given point. The final effect of the continuous explanatory variable x_k on the probability of occurring the option $Y_i = 1$ under the condition of the stability of other variables is obtained through the following equation:

$$\phi(X'\beta) = \frac{1}{\sqrt{2\pi}} \exp[-\frac{1}{2}(X'\beta)^2] \quad (9)$$

in which ϕ denotes the density function of the standard, normal, and random variable probability and is as follows:

$$\frac{\partial p_i}{\partial x_{ik}} = \phi(X'\beta)\beta_k \quad (10)$$

The symbol of the final effect is dependent on the symbol β_k and its size varies by $\phi(X'\beta)\beta_k$. As a result, the size of the final effect depends on the levels of all the variables available in the explanatory variables matrix. As stated by Greene (2008), various values of the independent variables provide different estimates of the final effects, but it is better to estimate the final effects in the mean value of the independent variables. If the explanatory variables are virtually defined as 0 or 1, the final effect is interpreted as a minor change in the probability of choosing the value of 1 depending on the change in the virtual explanatory variable of 0.

In the second step, the linear regression model (Model 2) is used for the observations that their Y_i is higher than 0. As equation 7 shows, at this stage, the inverse variable of the Mills ratio λ_i is added to the independent variables set in the regression model. The coefficient of this variable specifies the error caused by the sample selection. If this coefficient is statistically significant, deleting the zero observations from the observations set leads to the skewness of the

estimated parameters of the model. However, if such a coefficient is statistically equal to zero then, although deletion of the zero observations does not lead to the skewness of the estimated parameters, it results in the loss of the estimated efficiency. In addition, the presence of a reverse variable of the Mills ratio in the linear regression model eliminates the existence of heteroscedasticity in the original pattern and allows the application of the OLS (ordinary least squares) estimator (Greene, 1993).

In the MLE method, the likelihood function or its logarithm is employed, and thus a criterion called pseudo R^2 is used instead of R^2 which is as follows:

$$Pseudo - R^2 = 1 - (\frac{LLR}{LLUR})^{\frac{2}{n}} \quad (11)$$

where $LLUR$ is the logarithm of the likelihood function for a model that contains explanatory variables plus the width from the origin. Besides, LLR denotes the logarithm of the likelihood function for a model that only contains the width from the origin. Since absolute magnitude $LLUR$ is smaller than absolute value LLR, therefore pseudo R^2 will be a value between 0 and 1. Note that since the value of the likelihood function is between zero and one, then its logarithm is negative.

3.4. Research variables and indices
In this study, age, level of education as well as activity and marital status of the household head were considered as the variables indicating the characteristics of the head of household. Besides, their effects on the probability of poverty reduction among rural households were investigated. To estimate this model among the rural households, the two-stage Hackman method as well as the MLE method and Stata software, were applied. The model used in this research was selected according to the theoretical principles of the subject and the experimental literature and using the data of the studies carried out by Merz and Rathjen (2011) and Njong (2010).

3.4.1 The first stage equation of the Heckman model
The regression equation of the Probit model (first stage of the Heckman model) is as follows:
In this model, the variables are defined as follows:

POV : The poverty variable for the households below or above the poverty line is 1 and 0, respectively (dependent variable).

AGE : The age group of the household heads according to their range: less than 20 years = 1; 20-30 (years)=2; 30-40 (years)=3; 40-50 (years)=4; 50-60 (years)=5; and 60-70 (years)=6. In addition, 70-80 (years)=7; and 80-90 (years)=8 (demographic variable).

$AGES$: The age square of the household head (demographic variable).

EDU : The education level of the household heads based on their classification: illiterate = 0; less than junior high school (third-grade) = 1; between junior high school (third-grade) and diploma=2; between diploma and BA=3; and between BA and higher=4 (human capital variable).

MAR : The marital status of the household head (having a spouse), where in case of not having a spouse (i.e., being single, divorced, or if the spouse is dead), it is 0 and if the person has a spouse (married) has a value of 1 (demographic variable).

FAL : Which indicates the activity status of the household head, where vales 0 and 1 are indicators of the lack of employment or employment of the household head, respectively (demographic variable).

3.4.2. The second stage equation of the Heckman model

The simple linear regression equation (second stage of the Heckman model) is as follows:

$$PGAP2_i = \beta_1 MAR_i + \beta_2 SHAG_i + \beta_3 EDU_i + \beta_4 FAL_i + V_i \tag{13}$$

In this model, the variables are defined as follows:

$PGAP2$: The severity of household poverty, which is defined as the square of poverty gap of the household (dependent variable).

$SHAG$: Number of employed members of the households (demographic variable).

3.5 Research hypotheses

The main aim of this research was to investigate the effect of individual characteristics of the household head on the incidence of poverty and its severity among households in West Azerbaijan province. Accordingly, the research hypotheses were proposed as follows:

- The ageing index of the household head decreases the poverty occurrence of urban and rural households before the retirement age. It also increases the incidence of poverty in rural households after the retirement age.
- The marriage index of the household head alleviates the likelihood and the severity of poverty of rural households.
- A higher level of education of the household head leads to a decrease in the probability of poverty and also its severity in rural households.
- Employment of the household head reduces the incidence and severity of poverty in rural households.
- An increase in the number of employed members of the household results in a decline in the rate of poverty in rural households.

4. Research Findings

4.1. Estimation of the relative poverty line

In this study, detailed data on the cost and income plan of rural households in the West Azerbaijan province (2014) were used in the experimental part. In this year, the data were collected from 638 rural households by the Iranian Statistics Center using questionnaires. The obtained data included information regarding the costs of the households and other data such as age, education level and also the activity and marital status of the household head as well as the number of employed members of the household. Prior to estimating the Heckman model, two steps were taken to determine the relative poverty line. The results of the relative poverty line estimation based on the 50 percent average cost of the rural households indicated that the relative poverty line of the rural households in West Azerbaijan province in the year 2014 was 80725171 Rials, according to which the households whose costs were below the poverty line were considered as the poor.

4.2. Model estimation

4.2.1 Results of the first stage of the Hackman's model

The estimation results of the research model demonstrated that the regression was generally significant among the rural households since the LR statistic was more than the critical values of the table. In rural households' community, all the coefficients of explanatory variables were significant at a level of <.05. It should be noted

that the reported coefficients in Table 2 were the values of β_k and only indicated the effect of independent variables on poverty reduction. The results showed that the likelihood of poverty in rural households was significantly affected by the variables of age, the square of age, education level, marital status, and employment of the household head.

The rate of $Pseudo\ R^2$ for rural households was estimated 0.1944. The reported coefficients in

Table1 are the values of β_k. Examining the output coefficients in this table revealed that being married, the higher level of education, and also the employment of the household head decreased the incidence of poverty. Moreover, an increase in the age of the household head in the early stages decreased the incidence of poverty while increasing it at subsequent stages.

Table 1. Estimation results of the Probit model of rural households in West Azerbaijan Province through MLE method

(Source: Research Findings, 2014)

Row	variable	β_k	Z
1	Constant	1.5342*	3.97
2	the age of the household head	-0.5941*	-3.48
3	The age square of the household head	0.0216*	3.39
4	The education level of the household head	-0.0983*	-2.84
5	The marriage of the household head	-1.002*	-5.07
6	The head of the household was employed	-0.6086*	-3.56
7	Number of observations	638	-
8	Log likelihood	-243.6928	-
9	LR chi2	117.62	-
10	Pseudo R^2	0.1944	-
11	Prob	0.000	-

* Significant at a level of <.05

To determine the final effects of each of the explanatory variables on the probability of poverty in rural households, the likelihood density function of the standard, normal, and random variable $\phi(X'\beta)$ was used. Besides, the final effect of the change in the explanatory variable was obtained through the calculation of $\phi(X'\beta)\beta_k$. The obtained values are presented in Table 2.

The investigation of the final effects' results among the rural households showed that the probability of poverty decreased by 13.61% with an increase in the age of the household head, but at older ages, the incidence of poverty increased slightly (1.68%). The negativity of the age coefficient of the household head and positivity of this variable's square indicated that it followed the second-grade form. As the age of the household head increased, at first, the household income increased and the occurrence of poverty decreased. However, through the time and after reaching a stage, the household incomes reduced and the incidence of poverty increased. This confirms the life cycle hypothesis of Modigliani.

Based on this hypothesis, middle-aged people had higher productivity and efficiency, but becoming older and reaching the age of retirement gradually decreased their efficiency and income level.

In the case of the marriage of the household head, the probability of poverty among rural households decreased by 31.50%, which, among other variables, had the highest effect on reducing the probability of poverty. In some studies, it has been shown that marriage had a remarkable impact on alleviating the probability of poverty. According to these studies, the incidence of poverty was higher for single people and single-child families as compared to married people. Married people compared to single ones were wealthier since the first group saved and accumulated a large proportion of their incomes and assets.

The education level of the household head was considered as an indicator of the human capital of the household and the potential capacity of income generation of the household increased through efficiency and productivity so that higher educational qualification, resulted in a decline in the probability of poverty by 6.4%. The results

also showed that the probability of poverty decreased by 16.36% in case the head of the household was employed (Table 2).

Table 2. Estimation results of marginal effects after the Probit in the average of independent variables of $\phi(X'\beta)\beta_k$ of the rural households
(Source: Research Findings, 2014)

Row	variable	β_k
1	the age of the household head	-0.1361*
2	The age square of the household head	0.0168*
3	The education level of the household head	-0.064*
4	The marriage of the household head	-0.3150*
5	The head of the household was employed	-0.1636*

* Significant at a level of <.05

4.2.2 Estimating the poverty incidence in rural households

Figure 1 shows the probability of poverty based on changes in the age of the household head. As can be seen, the incidence of poverty among rural households was higher at a young age. However, as the age of the household head increased so did the probability of poverty, but from the age of 50, an increase in the age of the household head also led to an increase in the probability of poverty.
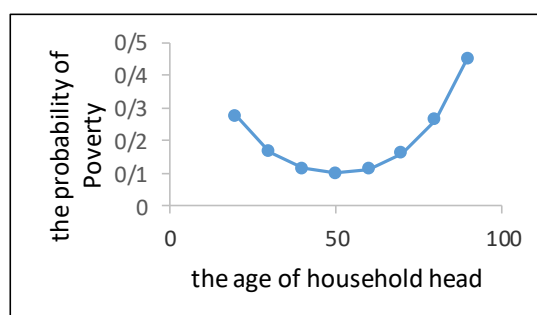
Figure 1. The probability of poverty by the age of the household head
(Source: Research Findings, 2014)

The probability of poverty of the rural households in terms of the basic level or educational degrees of the household head is provided in Figure 2. As the results show, the incidence of poverty among rural households was equal to 20.29% when the household head was illiterate. An increase in the basic level or the educational qualification of the household head led to a decline in the incidence of poverty so that the probability of poverty was 2.63% for rural households with a BA degree and above.
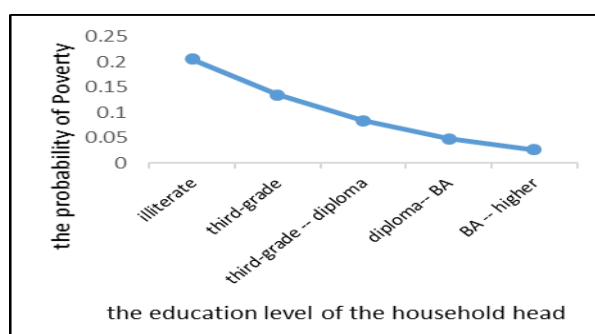
Figure 2. The probability of poverty by the basic level or educational degrees of the household head
(Source: Research Findings, 2014)

The probability of poverty by the marital status of the household head is represented in Figure 3. As can be seen, if the household head was married, the probability of poverty would be decreased. That is, being married declined the probability of poverty among rural households from 43.87% to 12.36%.
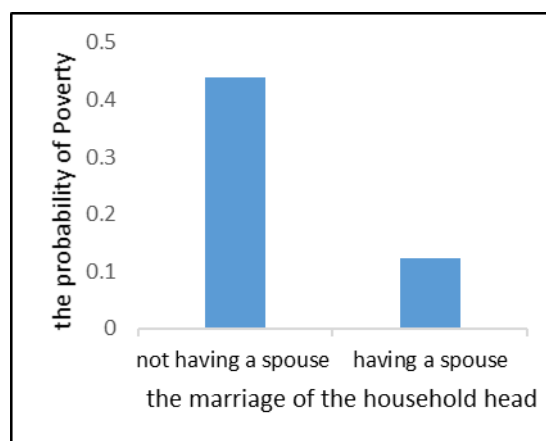
Figure 3. The probability of poverty by marital status of the household head
(Source: Research Findings, 2014)

The incidence of poverty respecting the activity status of the household head is shown in Figure 4. Analyzing the data indicates that the probability of poverty decreased if the household head was employed so that the incidence of poverty alleviation among rural households reached from 28.10% to 11.73% upon the employment of the household head.
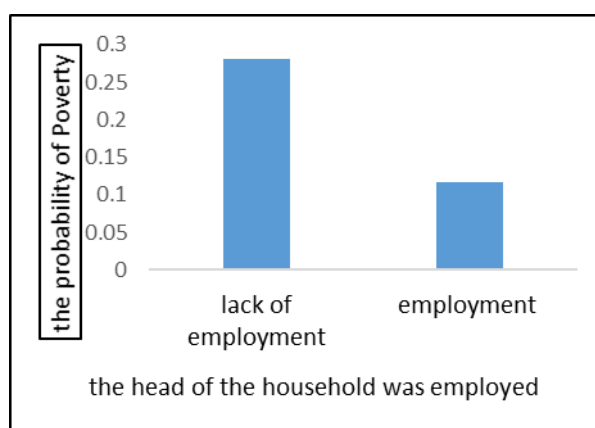
Figure 4. The probability of poverty by the activity status of the household head
(Source: Research Findings, 2014)

4.2.3 The results of the second stage of the Hackman model

The household poverty gap is defined as the ratio of the "gap between the poor household's expenditures and the poverty line" to "household poverty line". The results of the second stage estimation of the two-stage Heckman model are represented as a linear regression model in Table 3. The impact of variables such as age, level of education, and activity state of the household head, and also the number of employed members in the household on the severity of poverty were explored. At this stage, based on the results of the Probit model, the inverse coefficient of Mills ratio was calculated for households with a high degree of poverty and was considered as one of the variables affecting the severity of poverty. The estimated results indicated that the effect of this variable on the severity of poverty was quite significant, indicating the need for using the two-stage Hackman model to avoid sample selection bias. Examination of other estimated coefficients demonstrated that the coefficients of activity status

and education level of the household head and also the remaining model coefficients were significant

at the levels of <.10 and <.05, respectively.

Table 3. Estimation results of the second stage of theTwo-stage Heckman model (linear regression model-the effect of independent variables on the severity of poverty).
(Source: Research Findings, 2014)

Row	variable	β_k
1	activity state of the household head	-0.2173**
2	The marriage of the household head	-0.3667*
3	The education level of the household head	-0.0894**
4	the number of employed members in the household	-0.1494*
5	inverse coefficient of Mills ratio	0.5327252
6	ρ (correlation between e_i and V_i)	1
7	σ (Log of the standard error of residual in linear regression model)	0.53272519
8	Prob	0.001
9	Wald chi2	17.01

*[*] & [**] Significant at the levels of <.05 and <.10, respectively.

As the above table shows, the education level and the activity status of the household head reduced the severity of poverty among the rural households so that owing to the marriage and employment of the household head, the severity of poverty decreased about .3667% and .2173 %, respectively. Besides, the results indicated that higher educational qualification and the number of employed members of the household decreased the severity of poverty.

Discussion and conclusion

As previously mentioned, two types of errors were found possible in investigating the effect of family head characteristics on the severity of poverty. The first error was related to the non-random selection of the sample. It means that the statistical sample determining the factors affecting the poverty line only included households who were below the poverty line and those above the poverty line were not involved in the statistical sample. The second type of error was that influential factors in reducing the probability of poverty were not necessarily the same as those factors that would determine the severity of poverty, but could be of two different sets of variables. The Heckman model provided a two-stage method for estimating the poverty line determinants model, in which both types of error were avoided. The Hackman model included both Probit and linear regression models. In the first stage of the Hackman model, the Probit pattern was used to examine the effect of determinant indicators of individual characteristics of the household head and other factors affecting the probability of poverty reduction. And in the

second step, adding a reverse Mills coefficient, the effect of determinant indicators of individual characteristics of the household head and other factors affecting the severity of poverty were investigated. The results of this study are in line with the findings of several studies (Grivani et al. 2013; Merz & Rutjen, 2011; Mohammadzadeh et al. 2010, 2012; Singh et al. 2013;). The innovative nature of this study was related to the application of relative poverty line method in studying the impact of individual characteristics of the household head on the poverty level of rural households in West Azerbaijan Province and also the calculation of poverty incidence following the estimation of the Probit model.

The findings related to the age of the household head among the rural households demonstrated that the probability of poverty was high when the household head was very young. As was previously mentioned, as the age of the household head increased, at first, the household income increased and the probability of poverty decreased. However, over the time and after reaching a stage, the households' incomes showed a decline and the incidence of poverty increased. This confirmed the life cycle hypothesis of Modigliani and indicated that the probability of poverty was found to be high at the beginning of the young age and also retirement age. With regard to the age of the household head which was effective in reducing the probability of poverty, young people and retirees need more support in different economic areas. Accordingly, attention to employment, housing, and marriage of young people, as well as

providing effective social services for the retired people can play an important role in reducing the probability of poverty of the households. Villagers' accessibility to financial and credit resources, appropriate extension, skill, and technology training, and participation in economic and social decision-makings at the local level are suggested to increase the welfare and reduce the poverty level of the youths and rural retirees.

The results of the study revealed that increasing the level of literacy of the household head would reduce the poverty and its severity in rural households. Besides, it was found that a higher level of education on the part of the household head decreased the probability of poverty. In this regard, it should be noted that the poor are less involved in raising the education level of the household head. In addition, combating poverty requires investment in more endangered households. In this respect, low-income rural households need to be given priority in state-run education investments in schools and universities.

The results also demonstrated that the incidence of poverty in households of the Province was highly affected by personal characteristics of the household head so that being married led to a decline in the incidence and severity of poverty among the rural households. Accordingly, the importance of developing the culture of marriage along with providing the necessary economic environment for the marriage of young people are considered as the most important and required movements toward reducing the occurrence of poverty. Providing easy marriage conditions as well as conditions for housing and granting bank facilities can be a source of motivation for young people to be able to take responsibility for marriage. It is also recommended to study methods that increase the strength of the families and reduce the rate of divorce.

Meanwhile, the findings of the activity status of the household head in rural households also showed that employment of the household head alleviated the incidence and the severity of poverty. Therefore, considering the reducing effect of the household head's employment on the likelihood and the severity of poverty of the rural households, it is suggested to create productive employment opportunities for earning income by the household heads.

Moreover, the results of the simple linear regression model (second stage of Hackman model) indicated that having a spouse, employment, higher education level of the household head, and the number of employed members in the household reduced the intensity of poverty among the rural households.

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بررسی تأثیر ویژگی‌های سرپرست خانوار بر فقر و شدت فقر خانوارهای روستایی استان آذربایجان غربی

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چکیده مبسوط

۱. مقدمه

پدیده فقر معضلی است که جوامع بشری در تمامی دوران‌ها به نوعی با آن روبرو بوده و هستند. این پدیده نمودی از توسعه نیافتگی اقتصادی، اجتماعی و فرهنگی است که ثبات سیاسی، همبستگی اجتماعی و همچنین سلامت جسمی و روحی ملت‌ها را تهدید می‌کند، موجب افزایش مرگ و میر، کاهش متوسط طول عمر و بهره‌وری اقتصادی می‌گردد. از سوی دیگر، فقر موجب پیدایش بیماری‌های اجتماعی و فساد در جامعه می‌شود. کاهش فقر به عنوان یکی از مهم‌ترین مباحث توسعه می‌باشد. تعدادی از محققان اقتصاد توسعه نظیر نظیر اموانو و همکاران (۱۹۹۵)، بر این عقیده هستند که مبارزه با فقر شرط لازم برای رشد است. با این حال، برنامه‌های مبارزه با فقر همان اندازه که به کارایی سیاست‌گذاری و نحوه اجرای برنامه نیاز دارد، به شناخت ابعاد مختلف پدیده فقر و دلایل و پیامدهایش نیز وابسته است. بدین ترتیب بررسی و آگاهی از وضعیت فقر در یک جامعه اولین قدم در مسیر برنامه‌ریزی برای مبارزه با فقر و محرومیت است.

۲. مبانی نظری تحقیق

مرور کلی بر مبانی نظری و پیشینه پژوهش نشان می‌دهد که ویژگی‌های جمعیتی و اقتصادی خانوارها از جمله عواملی هستند که بر میزان فقر خانوارها مؤثر می‌باشند. متغیرهای جمعیتی نظیر وضعیت تأهل سرپرست خانوار، سن و بعد خانوار در کنار سایر متغیرهای اقتصادی نظیر نوع شغل و منبع درآمد خانوار و دیگر متغیرها از جمله مواردی هستند که بر فقر خانوارها مؤثر می‌باشند.

همسردار بودن سرپرست خانوار نیز از نظر مهیا نمودن محیطی آرام بخش برای زندگی و افزایش بهره‌وری از طریق افزایش تمرکز بر مسائل شغلی می‌تواند بر افزایش درآمد و کاهش فقر مؤثر باشد. همچنین، سن سرپرست خانوار از دو طریق می‌تواند بر سطح زندگی خانوار تأثیرگذار باشد. سرمایه انسانی انباره‌ای از دانش است که به صورت غیرفیزیکی در نیروی کار نهفته شده است. این سرمایه، مجموعه‌ای از مهارت‌ها و توانایی‌های فردی را شامل می‌شود که فرد در بازار کار آنها را به همراه دارد و از طریق کارایی و بهره‌وری به ظرفیت بالقوه درآمدزایی خانوار می‌افزاید و موجب کاهش احتمال فقر می‌شود. اطلاع از گستردگی فقر حاکم بر جامعه و عوامل مؤثر بر آن از مسائل مهم در تدوین برنامه‌های کاهش فقر به شمار می‌رود. با توجه به اهمیت این موضوع این مطالعه برآن است با استفاده از داده‌های خرد، تأثیرپذیری احتمال وقوع فقر و شدت فقر خانوارهای استان آذربایجان غربی از ویژگی‌های فردی سرپرست خانوار را مورد ارزیابی قرار دهد.

۳. روش‌شناسی تحقیق

در این مطالعه برای بخش تجربی مطالعه از داده‌های تفصیلی طرح هزینه و درآمد خانوارهای روستایی سال ۱۳۹۳ استان آذربایجان غربی استفاده شده است. در این سال مرکز آمار ایران از ۶۳۸ خانوار روستایی پرسشنامه پر نموده و اطلاعات هزینه‌ای به همراه سایر اطلاعات خانوار نظیر سن، سطح تحصیلات سرپرست خانوار، وضع فعالیت سرپرست خانوار، تعداد افراد شاغل در خانوار و وضعیت تأهل جمع‌آوری گردیده است که در این مطالعه از این داده‌ها بهره گرفته شده است.

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پس از تعیین خانوارهای فقیر می‌توان نسبت به تعیین مقادیر متغیر فقر اقدام نمود که در آن متغیر فقر برای خانوارهای زیر خط فقر مقدار یک و برای خانوارهای بالای خط فقر مقدار صفر را اختیار می‌کند. برآورد الگوی هکمن در دو مرحله صورت می‌پذیرد. در مرحله‌ی اول لازم است عوامل مؤثر بر فقر در قالب مدل پروبیت مورد ارزیابی قرار گرفته و احتمال وقوع فقر محاسبه می‌گردد. در مرحله‌ی دوم عوامل مؤثر شدت فقر با اضافه نمودن ضریب معکوس نسبت میلز در قالب مدل رگرسیون خطی صورت می‌پذیرد. که با استفاده از متد MLE و به کمک نرم‌افزار Stata به برآورد مدل اقدام می‌شود.

۴. یافته‌های تحقیق

نتایج تخمین مدل تحقیق نشان‌دهنده معنی‌دار بودن کلی رگرسیون در بین خانوارهای روستایی می‌باشد چرا که آماره LR بیش از مقادیر بحرانی جدول می‌باشد. در جامعه خانوارهای روستایی، تمامی ضرایب متغیرهای توضیحی در سطح کمتر از پنج درصد معنی‌دار می‌باشند. باید دقت داشت ضرایب گزارش شده در جدول شماره دو مقادیر β_k بوده و تنها نشان‌دهنده جهت تأثیر متغیرهای مستقل بر کاهش فقر می‌باشد. نتایج حاکی از تأثیر معنی‌دار متغیرهای سن سرپرست خانوار، مجذور سن سرپرست خانوار، میزان سطح تحصیلات سرپرست خانوار، همسردار بودن و شاغل بودن سرپرست خانوار بر احتمال وقوع فقر خانوار در خانوارهای روستایی می‌باشد. میزان Pseudo R^2 برای خانوارهای روستایی ۰/۱۹۴۴ برآورد شده است. نتایج برآورد مرحله دوم مدل هکمن دو مرحله‌ای در قالب مدل رگرسیون خطی نشان داده شده است و متغیرهای سن سرپرست خانوار، میزان سطح تحصیلات سرپرست خانوار، وضع فعالیت سرپرست خانوار، تعداد افراد شاغل در خانوار بر شدت فقر خانوار مورد بررسی قرار گرفته است. در این مرحله بر اساس نتایج مدل پروبیت، ضریب معکوس نسبت میلز برای خانوارهایی که شدت فقر در آنها مقداری مثبت است محاسبه شده و به عنوان یکی از متغیرهای تأثیرگذار بر شدت فقر در نظر گرفته شده است. نتایج برآورد نشان می‌دهد تأثیر این متغیر بر شدت فقر کاملاً معنی‌دار است که نشان‌دهنده لزوم استفاده از مدل هکمن دو مرحله‌ای برای پرهیز از تورش انتخاب نمونه می‌باشد. بررسی سایر ضرایب برآورد شده نشان می‌دهد ضریب وضع فعالیت سرپرست خانوار و میزان

تحصیلات سرپرست خانوار در سطح زیر ۱۰ درصد و بقیه ضرایب مدل در سطح زیر ۵ درصد معنی‌دار می‌باشند.

۵. بحث و نتیجه‌گیری

در بررسی تأثیر ویژگی‌های سرپرست خانوار بر شدت فقر وجود دو نوع خطا محتمل است. خطای اول به انتخاب غیرتصادفی نمونه برمی‌گردد، به این معنا که نمونه آماری تعیین‌کننده عوامل مؤثر بر میزان خط فقر تنها شامل خانوارهای زیر خط فقر بوده و افرادی که بالای خط فقر هستند، در نمونه آماری در نظر گرفته نشده‌اند. مفهوم خطای نوع دوم این است که عواملی که بر کاهش احتمال وقوع فقر تأثیر گذارند با عواملی که میزان شدت فقر را تعیین می‌کنند لزوماً یکسان نیستند، بلکه می‌توانند دو مجموعه متفاوت از متغیرها باشند. روش هکمن، یک روش دو مرحله‌ای برای برآورد مدل عوامل تعیین‌کننده خط فقر فراهم می‌کند که در آن از بروز هر دو نوع خطا اجتناب می‌شود. الگوی هکمن، دو الگوی پروبیت و الگوی رگرسیون خطی را شامل می‌شود که در مرحله اول الگوی هکمن برای بررسی اثر شاخص‌های مشخص کننده ویژگی‌های فردی سرپرست خانوار و سایر عوامل مؤثر بر احتمال کاهش فقر از مدل پروبیت استفاده شده و در مرحله دوم با اضافه نمودن ضریب معکوس میلز اثر شاخص‌های مشخص کننده ویژگی‌های فردی سرپرست خانوار و سایر عوامل مؤثر بر شدت فقر مورد بررسی قرار می‌گیرد. نتایج این مطالعه با نتایج مطالعات مرز و راتجن (۲۰۱۱)، سینگ و همکاران (۲۰۱۳)، محمدزاده و همکاران (۱۳۸۹و۱۳۹۱) و گریوانی و همکاران (۱۳۹۲) همخوانی دارد. نوآوری این مطالعه به استفاده از روش خط فقر نسبی در بررسی تأثیرپذیری فقر خانوارهای روستایی استان آذربایجان غربی از ویژگی‌های فردی سرپرست خانوار و نیز محاسبه احتمال وقوع فقر پس از تخمین مدل پروبیت مربوط می‌شود.

کلید واژه‌ها: شدت فقر، ویژگی‌های فردی سرپرست خانوار، خط فقر نسبی، مدل هکمن دو مرحله‌ای، استان آذربایجان غربی.

Sustainability Evaluation of Rural Settlements in South Donbaleh Roud Dehestan of Izeh County Using V-Promethee Technique and Fuzzy Inference

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Abstract

Purpose- Due to the dewatering of Karun Dam, the village of Southern Donbaleh Roud of Izeh County has been surrounded by water since 2004 until now and has been deprived of services and amenities and communication. Moreover, their access to the cities of Dehdez and Izeh has been limited. Given the importance of the issue, the aim of this study is to assess and evaluate the sustainability of development in rural areas of Southern Donbaleh Roud District.

Design/methodology/approach- This research is based on the applied purpose and has an analytical- descriptive nature. Required data were collected using library and field (questionnaire) method. The area under study includes 18 villages and 1460 households. The sample size was estimated based on Cochran formula of 300 family guardians and the questionnaires were distributed among them. To analyze the data from the questionnaire, the Prometheus model (in the visual Prometheus software environment) and the fuzzy inference system (in MATLAB software) were used.

Finding- Based on the Prometheus model, the villages are ranked according to three positive (Phi+), negative (Phi-) and pure flows. The villages with the highest positive minimum negative flows are in the first place, and the villages with the least positive and the most negative flows are at the last place of development sustainability. The results obtained from the Fuzzy inference system also indicate that the sustainability of the studied rural area is between the medium and low levels.

Originality/value- There have been a lot of changes in spatial organization of the studied villages due to water logging of the villages. These changes have created disruptions in the system and functioning of the settlements and have affected the quality of life and wellbeing of the inhabitants. Because the construction of dams has destroyed the communicative routes between villages and the city, agricultural lands and gardens, schools, rural healthcare centers, residential houses, provincial villages and… and the villages have been left behind the dam so far. Therefore, considering the special circumstances of these settlements, the problems of these villages have been scientifically examined and addressed to planners and officials. Because, through this, the authorities and development experts gain knowledge about the opportunities and capabilities, limitations and impasse of the villages.

Key words- Sustainability evaluation, PROMETHEE Technique, Fuzzy System, Southern Donbaleh Roud Dehestan.

Paper type- Scientific & Research.

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1. Introduction

In recent years, sustainability has been considered as a fundamental approach to any type of development, including rural development. Each rural settlement consists of a variety of economic, social, cultural and political arenas, each of which represents one aspect of social life. Accordingly, rural space has a certain structure with regard to its environmental and ecological characteristics and its socioeconomic features which indicate the fundamental capabilities and potentials. Whenever there is an interruption in the development and improvement of the spatial organization of settlements, there will be a disruption that leads to unsustainability of rural settlements (Khosrobeigi, Shayan, Sajasi Qeidari, & Sadeghlou, 2011). Today, rural issues such as population decline, rural poverty, the lack of employment grounds in villages and lack of facilities and services and abundant and wasteful migration of the villagers to cities in order to find a better job and life, food insecurity, major population living on the margins and… have attracted the attention of authorities and planners. Therefore, rural planning as a mechanism to eliminate such problems and modify the population displacement is essential for the sustainability of the rural population and the prevention of the destruction of renewable and nonrenewable natural resources (Ameri Siahouii, Rostam Gourani, & Beiranvandzadeh, 2011).

The rural areas of Iran are under the influence of a wide variety of heterogeneous factors sometimes arising from natural conditions like geographical coordinates, geographical isolation, geographical conditions and weather differences and sometimes arising from human condition like the prevalence of patterns and practices of urban life which, in turn, has affected the diversity and economic and social differences of the villages of the country (Rezvani, 2008). Hence, the starting point to pay attention to sustainable rural development is the recognition of the extent of rural settlements' development based on various economic, social and environmental indicators. The reason is that through this the officials and development experts are provided with a deep recognition about opportunities and capabilities, on one hand, and the challenges, limitations and impasse of the

villages, on the other hand, and provide the grounds for adopting macro and micro policies and opelogical and executive plans and projects (Heshmat Kaboudvand, Mirdamadi, Farajollah Hoseini & Pasban, 2014). The area under this study is the Southern Donbaleh Roud of Dehdez district of Izeh city. The Izeh city has two parts which are central and Dehdez districts. The central district includes 7 rural districts and Dehdez includes 3 rural districts, each of which has a total of 20 to 35 villages.

Following the construction of the Karun 3 Dam in 2004, about 64 villages (a population of over 16000) were evacuated from three rural districts of Dehdez. Due to the damping of the dam, the villagers lost their agricultural lands and pastures and they turned to marginalization in the cities of Khouzestan and Isfahan. Also, in the second phase, about 6 villages with a population of 2000 people were forced to be evacuated due to the transfer of high-voltage electric power carriers of the Karun 3 dam power plant. In addition to mentioned 70 villages, 18 villages belonging to Southern Donbaleh Roud rural district were also surrounded by water and their communications were cut off. The inhabitants of these 24 villages, are more than 8 thousand people by the census of 2011. They have been surrounded by the dam lake water since 2004 until now and are forced to use launches (boats) of "Iran Water and Power Resources Development Company" for crossing. These launches operate from 8 a.m. to 8 p.m. at half-hour intervals. Thus, people are deprived of the possibility of transportation for half a day, and in the remaining half, their access to the launches is limited to once in every half an hour. So far, a significant number of people in these villages have lost their lives due to the lack of rural roads and late arrivals to the hospital. Apart from access problems in these villages, there are some problems like shortages and lack of infrastructure services-welfare, low productivity, lack of employment opportunities, immigration, management weaknesses, and so on. Therefore, despite the potential of these villages in various fields, including many natural tourist attractions, handicrafts, fertile soil prone to agricultural production, medical plants, abundant water resources, etc, they have not yet succeeded to achieve the position they deserve. Accordingly, the current research seeks to study the

sustainability of villages based on the three dimensions of sustainability (economic, social, and environmental) using a Prometheus decision model and a Fuzzy inference system. Three questions are raised in this regard:

- What is the status of the indicators of sustainability of development in each of the studied villages?
- In terms of sustainable development, which villages are in the first place of sustainability and which villages are in last place?
- According to the rule if-then of the Fuzzy inferential base, what is the level of sustainability in the studied villages?

2. Research Theoretical Literature

The concept of sustainable development and sustainability has been defined by various scientific approaches, each of which has been for a special purpose and was applicable to different fields (Winograd, 2010).

The presented definitions can be considered as various concepts such as expressing the perspectives, exchange of values, moral development, social reorganization, the process of transformation towards a better future, not endangering the environmental quality, empowering people, creating new capacities, increasing knowledge and information, making people feel happy about their lives, and freedom of choice and equality in access to opportunities (Lee & Greed, 1993), all of which somehow explain the main idea of sustainable development, meeting the needs of the present generation with consideration of the needs of future generations (Tanguay, 2010).

The expressed concepts are indicated in an overlapping framework of economic, social and environmental context.

Meanwhile, each of the mentioned triple structures has its own particular aspects and different goals (Khosrobeigi, Shayan, Sajasi Qeidari, & Sadeghlou, 2011).

The concept of sustainability in the theme framework of rural sustainability expresses the balance and dynamism of rural settlements in relation to natural-ecological, socio-cultural and physical-spatial structures, so that it guarantees the sustainability of the settlement during the spatial-temporal trends (Boosle, 1999). Sustainable rural development can be considered

as a process of change and transformation aimed at improving the quantitative and qualitative levels of rural community life, a process which ends in creating ecological balance and harmony between the two urban and rural spheres and mainly seeks to create empowerment and efficiency necessary for the poor and low income rural population who are not able to sustain themselves and stand on their own feet.

In general, rural sustainability can be considered as a process during which the well-being of rural residents and the ecosystem is preserved and improved simultaneously.

Economic development comes with social justice and environmental protection and the durability and persistence of the settlements is increased, economic diversification and income resources are increased and social cohesion and participation are internalized. Rural inhabitants utilize the available resources in an efficient way so that all the society members, now and in the future, achieve a higher level of prosperity, economic and physical-spatial security and at the same time, maintain the integrity of ecological systems (Badri, Yari Hesar, Pourtaheri, & Faraji Sabokbar, 2013). In order to assess sustainability, appropriate indicators and frameworks to achieve accurate and logical conclusions is necessary.

The serious challenge about the indicators and criteria is that, sustainable development is a relative concept depending upon the location and variety of the communities (Tavakoli, 2014).

The limitations are more evident during the assessment of sustainability of rural settlements since a lot of indicators and standard methods are not desirable for local levels. A lot of needed data do not exist in villages or gathering data through field operations has problems.

In this regard, the defined assessment indicators of sustainability based on global scales must be adapted to national and local circumstances based on two main criteria of appropriateness and access (United Nations, 2007).

Also, the indicators must be sensitive to temporal and spatial changes, must not have a value bias and must be able to predict future conditions (Liverman, Hanson, & Brown, 1988).

Therefore, it is important to select the indicators carefully so that, they can show the desired knowledge of sustainable development. In the present study, systematic and organized analysis has been used to identify and categorize the

indicators. Accordingly, the basic and effective indicators have been identified in the form of triple dimensions and systems of sustainability. (Table1).

Table 1. Dimensions, indicators and criteria of rural sustainable development

Dimension	indicator	criterion
Social	Health	Benefit from health facilities, Dietary Diversity, level of health , healthy entertainment and leisure
	Individual and social security	The amount of crime, Hope for the future, Benefit from rural insurance, Happiness, Ethnic integration in the village
	Social relations	Co-operation and Partnership, social connection, social relations,
	Participation	Individual Participation, Social Participation
	Education	Access to educational Infrastructures, Benefit from educational facilities, Knowledge Level
	Access	Satisfaction with the Amount of Access to the Service, Satisfaction with City Access
	Communication	Access to Communication Infrastructures, the Level of Application of Communication Technology
Economic	Employment and Efficiency	Job Satisfaction, diversity of job opportunities
	welfare	Income Satisfaction, Income and Wealth of Family, Rural Households' Saving
Environmental	The Quality of Environment	Weather Condition, Pollution of Soil and Water Resources of Villages, The use of Fertilizers and Pesticides, Quality of Garbage and waste Collection
	Housing	Quality of Housing, Housing Satisfaction, Benefit from Housing Services
	Vulnerability	Vulnerability to Hazards, Vulnerability to Incidents
Source:: Roknoddin Eftekhari & Aghayari Hir, 2007, Faraji Sabokbar, Badri, Motiee Langroudi & Sharafi 2010, Roknoddin Eftekhari, Sajasi Qeidari & Sadeghlou, 2011, Badri, Faraji Sabokbar, Javdan & Sharafi, 2012, Badri, Yari Hesar, PourTaheri & Fariji Sabokbar, 2013, Anabestani, Shayan,Shamsodini, Taghilou & Zareei, 2013, Akbarian Ronizi & Sheikh Beiglou 2015, Imani, Bakhtar & Khosh Raftar 2016.		

Studies have been conducted on the development and understanding of the sustainability level of the villages, including the research by Luo, Li, and Fu (2011).

In a research titled "Factors influencing social sustainability in China rural areas" it has been concluded that the studied area is in a favorable situation in terms of social sustainability and economic factors, security measures, religious differences between villagers, and justice, which are factors influencing social sustainability. Knight (2014) in China, showed that no income increase, economic inequality, lack of economic security, and mismanagement are among the key threats of social sustainability among Chinese citizens.

Roknodin Eftekhari & Aghayari Hir (2007), in a research on the sustainability rural development level in Hir district in Ardabil, concluded that the development of rural areas in Hir district is in the medium level.

Faraji et al. (2010) have investigated the sustainability of rural areas in Fasa. Their findings showed that due to the linkage between indicators and criteria in different dimensions, for accurate measurement of sustainability, attention to different groups and dimensions of sustainability, independently of each other, as well as the use of surveys and consideration of expert opinions is necessary.

Roknoddin Eftekhari, Sajasi Qeidari, & Sadeghlou (2010) have evaluated the rural sustainability using a strategic model in Khodabandeh City. The results from the implementation of the model showed that the villages of Khodabandeh City are in a poor level in terms of sustainability.

Ebrahim Zadeh & Raeis Pour (2011) in a research, investigated the trend of changes in the degree of development in rural areas of Sistan and Balouchestan.

The results indicated an imbalance between the villages, and the change in the status and development level of the villages, mainly consisting of the central parts of the counties.

Khosrobeigi, Shayan, Sajasi Qeidari, and Sadeghloo (2011) in a study titled "Sustainability assessment and evaluation in rural areas in the City of Komijan" concluded that, Fazl Abad and Ali Abad villages had high levels of sustainability and the villages of KasrAsef and Chalmyan had a lower level of sustainability compared to other settlements.

Badri, Faraji Sabokbar, Javdan & Sharafi (2012) have ranked the level of sustainability of rural areas in the villages of Fasa. Their findings revealed that there is a difference between the amount of sustainability of the economic, social and environmental dimensions of rural areas.

Badri, Yari Hesar, Pourtaheri, & Faraji Sabokbar (2013) have explored and explained the process of selection of indicators for investigation and assessment of the sustainability of the rural settlements in the metropolitan areas with an emphasis on Tehran Metropolis.

The results of their study indicated that in relation to the average analysis of the value of the selected indicators, socio-cultural indicators with a score of 7.92 compared with other indicators have more credibility in sustainability analysis. The economic, natural, and physical infrastructural indicators are at the next level.

Anabestani, Shayan, Shamsoddini, Taghilou, and Zareii (2013), in a study on economic sustainability assessment in rural areas of Jafar Abad district of Qom, concluded that there is a difference in economic sustainability between villages. Tavakoli (2014) conducted a research to measure the socioeconomic sustainability of rural settlements in the northern and Southern Khaveh District of Lorestan Province.

The results showed that with the TOPSIS method 92% and with the Maurice method 96% of studied villages are in semi stable conditions. Shamsoldini, Jamini & Jamshidi (2016), in a study titled "Assessment and analysis of social sustainability in rural areas of Javanroud City", concluded that social sustainability among villagers in the city of Javanroud is in a good

condition. A review of the research records shows that the economic, social and environmental sustainability dimensions include several indicators, and these three dimensions are interrelated. In order to measure the sustainability of the villages in the Southern Donbaleh Roud District of Izeh City, these three dimensions each containing different indicators and indices were used.

Among the differences between the present research and previous studies, it can be cited that the villages are studied at the level of the indicators and the Prometheus method and the Fuzzy inference system are used for data analysis.

3. Research Methodology

3.1 Geographical Scope of the Research

The city of Izeh with an area of about 182329 square kilometers, is located in an elliptical plain in the northeast of Khouzestan Province.

The city is located between Chahar mahal Bakhtiari and Kohgiloyeh and Boyer Ahmad Provinces and the cities of Masjed Soleiman and Baghmalek. Due to its mountainous and semi mountainous position and its proximity to the Zagros Mountains, this city has a more independent and cool climate than other cities of the province.

The minimum annual temperature in this city is about 2 degrees below zero in winter and 42 degrees centigrade in summer, and the amount of rainfall is estimated at 600 to 800 mm per year. The city of Izeh has two parts, the central district and Dehdez district. The central part includes 7 rural districts and Dehdez includes 3 rural districts (Southern Donbaleh Roud, Northern Donbaleh Roud and Dehdez), each of which has a total of 20 to 35 villages. According to the latest data from the general population and housing census in 2011 the city has a population of over 203594 people, with an urban population of 122013 and a rural population of 8151 (www. Amar. org.ir, 2011). The area under study in this research is Southern Donbaleh Roud rural district.

This area has 18 villages and a population of more than 8 thousand people. In Figure1, the distribution of the studied villages and in Figure 2, a view of these villages are shown.
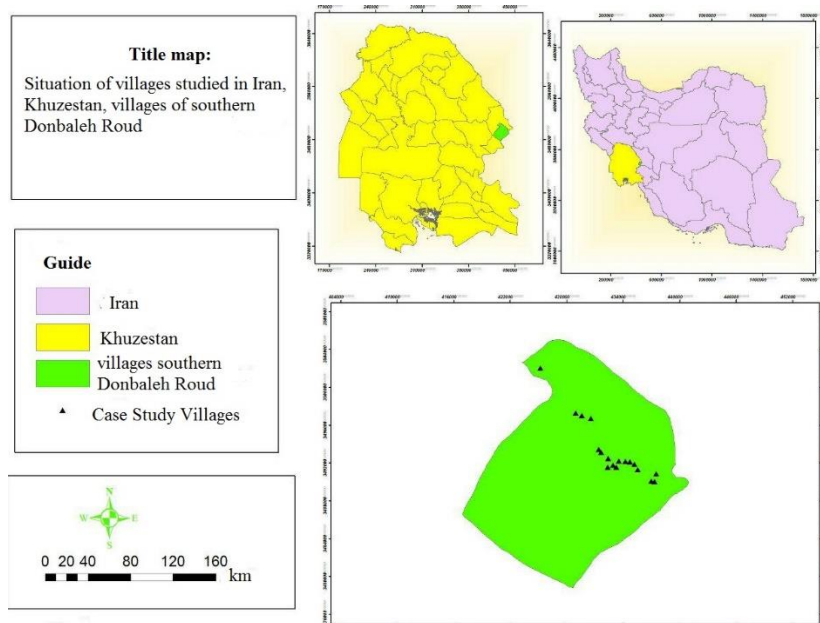
Figure1. The geographical location of the City of Izeh, Dehdez District, and the villages of Southern Donbaleh Roud Rural District
Source: Political divisions of Iran (https://www.amar.org.ir, 2017)

Figure2. A view of location, natural attractions and routes of the villages of Southern Donbaleh Roud Rural District
(Source: research findings, 2017)

3.2. Methodology

The present study is based on the purpose of the applied type and in terms of the nature and data collection is descriptive-analytic. Two types of methods, i.e. library (taking notes) and field (questionnaire) were used to collect the required data and information. The statistical population of the research is 1460 households in 18 inhabited villages of Southern Donbaleh Roud Rural District of Izeh City. The sample size was calculated based on Cochran formula of 300 household heads that the number of samples has been distributed in villages based on their population ratio.

In the following, in order to evaluate the validity of the questionnaire experts' views on geography

and rural planning were used. Then the obtained data from the questionnaires were entered into the SPSS software and mean indicators were obtained. Finally, to analyze the data and information to study the sustainability of villages based on triple dimensions of sustainability (economic, social, environmental) the Prometheus decision model and Fuzzy inference system have been used in MATLAB software.

PROMETHEE method

This technique which is used to enrich evaluations, was put forward by Jean-Pierre Bronze and Bertrand Marskal for the first time in 1986. The PROMETHEE method is one of the MADM methods and as an efficient method using two terms, preference and indifference, is to seek the best option (Faraji Sabokbar, Badri, Sajasi Qeidari, Sadeghlou, & Shahdadi Khajeh Asgar, 2011). This method is used to evaluate and prioritize the discrete options and to select the best option based on several criteria (with different measurement scales) (Chou, Lin, Cho, & Haung, 2004). Also, the PROMETHEE methods have good performance in cases where the decision criteria conflict with each other and decision makers regard the basic information as undesirable (Arab Halvaee, 2009).

The first step: is to get the deference between each of the options based on (a,b)=fj(a)_fj(b) in each of the indicators relative to each other.

Step two: the amount of priority of each option to the other options. After calculating the amount of difference between options, the value of Pj(a,b) will be obtained.

Step three: the sum of the values indicates the priority of the options.

Step four: gaining Positive (Outlet) and Negative (Input) ranking stream: options can be ranked by positive or negative flow.

Output flow: states that how much an option such as a is prior to the other options. The higher the value, the better this option.

Input flow: states how much other options are prior to option a. the less this value, the better.

Step five: gaining a net stream of ranking, this stream is the balance between positive and negative ranking stream. The higher net stream indicates the prior option (Firouzi, Ne'mati, & Dari Pour, 2014).

The Fuzzy inference system model (FIS):

The Fuzzy inference system is one of the most powerful tools in the field of expert systems and artificial intelligence which is applicable in numerous studies (Faraji Sabokbar, 2016; Ratnayake, 2014). Theories of Fuzzy sets provide tools by which human reasoning and decision making can be mathematically formulated and use the obtained mathematical pattern in various fields of science and technology. The Fuzzy inference system in general includes a Fuzzy input, a knowledge base (including base low and data base) which provides the necessary logical base and field for reasoning and as the main stage of analysis is responsible for approximate reasoning and Fuzzy inference in the form of Fuzzy rules (If=Then) in its different stages. (Adriaenssens, 2004). In the next step, the output of each stage is used as the input of the next stage until the last Fuzzy output is extracted and in the next step the final fixed values are obtained through the non Fuzzy making operation for primary and basic components (research indices and components) (Amini Faskhoudi, 2006; Kiani, Pasban Isalou, Badly, & Kanouni, 2015).

4. Research Findings

In order to have access to research goals, after the primary steps of related data collection, 13 criterion of rural sustainable development have been given weight. Then, using the obtained weights and the PROMETHEE model in (V0PROMETHEE), first GAIA has been conducted and finally the villages have been prioritized based on their rank.

In the complete prioritization method, equilibrium is made between positive and negative classification flows. The net flow represents the better option. In Figure 3, whenever, a criterion has the least positive values and the most negative values, that option will be lower than the other options and indicates less priority. As this figure shows, based on the values of net ranking flow (phi), the villages of Abolkheir and Dehno have the best options or the most priority and BarAftab Fazeli and Chaman have the least priority.
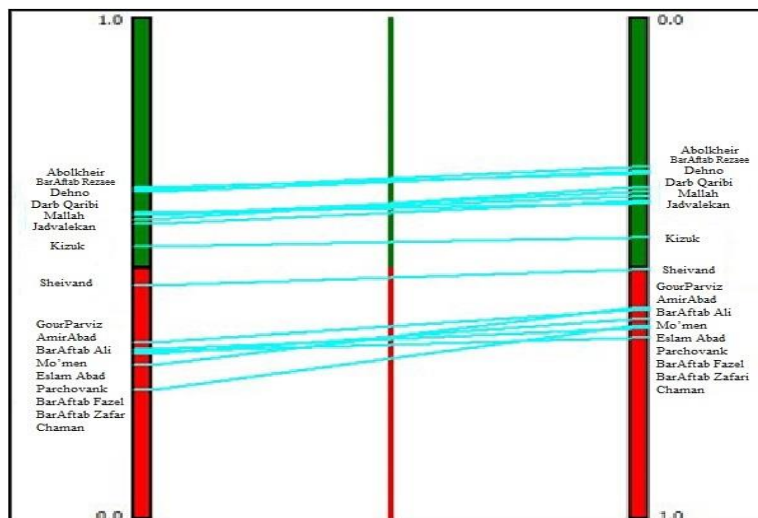
Figure 3. Complete prioritization of options
(Source: Research Findings, 2017)

In Table 2, the villages of Southern Donbaleh Roud Rural District have been ranked based on three output analysis (positive ranking, negative ranking and net output). Based on the intended table, the villages of Abolkheir, Dehno, BarAftab Rezaee, Darb Qharibi, Mallah, Jadvalekan, MirAhmad, Faleh and Kizuk have the most positive flow and the least negative value. The villages of Sheivand, Gour Parviz, AmirAbad, BarAftab Ali Mo'men, Eslam Abad, Parchovank, BarAftab Fazel, BarAftab Zafari and Chaman are in the next ranks. It should be noted that the average social, economic and environmental sustainability in the intended villages are 2/61, 2/04 and 2/92, respectively.

Table 2. Ranking of the villages based on output flow from the PROMETHEE model
(Source: Research Findings, 2017)

Villages	Positive Ranking (phi+)	Negative Ranking (phi-)	Net Ranking (phi)
Abolkheir	./654	./298	./357
Dehno	./660	./312	./348
BarAftab Rezaee	./651	./307	./343
Darb Qharibi	./606	./348	./257
Mallah	./597	./339	./257
Jadvalekan	./606	./357	./248
MirAhmad	./610	./371	./239
Faleh	./588	./366	./221
Kizuk	./543	./438	./104
Sheivand	./466	./502	-./036
GourParviz	./352	./583	-./230
AmirAbad	./307	./579	-./271
BarAftab Ali Mo'men	./307	./579	-./271
Eslam Abad	./330	./601	-./271
Parchovank	./339	./619	-./280
BarAftab Fazel	./334	./638	-./303
BarAftab Zafari	./257	./615	-./357
Chaman	./257	./615	-./357

Table 3, shows the status of 13 development indicators for each of the villages separately, based on the scores of -1 and +1. The indicators with +1 score are at an appropriate level and the

indicators with -1 score are at an undesirable level. For instance, in the village of Abolkheir the status of indicators of ecological diversity, health, education, social relations, welfare, security, participation, quality of environment, and employment are appropriate and the indicators of vulnerability, communication, access and housing are in an undesirable status. Or in the village of

Chaman the status of indicators such as quality of environment, housing and welfare are appropriate and the criteria of education, communication, health, participation, ecological diversity, social relations, employment, access, vulnerability and social-individual security are in an undesirable status.

Table 3. The status of indicators of rural sustainable development of studied villages seperately
(Source: Research Findings, 2017)

Indicators Villages	Health	Security	Social relations	Participation	Education	Access	Communication	Employment	Welfare	Quality of environment	Ecological diversity	Housing	Vulnerability
Abolkheir	+1	+1	+1	+1	+1	-1	-1	+1	+1	+1	+1	-1	-1
Dehno	+1	-1	+1	-1	+1	-1	-1	-1	+1	-1	+1	-1	+1
BarAftab Rezaee	+1	+1	+1	-1	-1	-1	-1	+1	+1	+1	+1	-1	+1
Darb Qharibi	+1	+1	-1	+1	+1	-1	-1	+1	-1	-1	+1	-1	+1
Mallah	+1	+1	+1	+1	+1	-1	-1	+1	+1	-1	+1	-1	+1
Jadvalekan	+1	+1	+1	-1	-1	-1	-1	-1	+1	+1	+1	+1	+1
MirAhmad	-1	+1	+1	-1	+1	-1	-1	+1	+1	-1	-1	+1	+1
Faleh	+1	+1	+1	+1	+1	-1	-1	-1	-1	-1	+1	-1	+1
Kizuk	+1	+1	+1	+1	+1	-1	-1	+1	-1	-1	+1	-1	+1
Sheivand	+1	+1	-1	+1	-1	-1	-1	+1	-1	-1	+1	-1	+1
GourParviz	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	+1	-1
AmirAbad	-1	-1	-1	-1	-1	-1	-1	+1	+1	+1	-1	+1	-1
BarAftab Ali Mo'men	-1	-1	-1	-1	-1	-1	-1	+1	+1	+1	-1	+1	-1
Eslam Abad	-1	-1	-1	+1	+1	-1	-1	+1	-1	+1	-1	+1	-1
Parchovank	-1	-1	+1	+1	+1	-1	-1	-1	-1	+1	-1	+1	-1
BarAftab Fazel	-1	-1	-1	+1	+1	-1	-1	-1	+1	-1	-1	-1	-1
BarAftab Zafari	-1	-1	-1	-1	-1	-1	-1	-1	+1	+1	-1	+1	-1
Chaman	-1	-1	-1	-1	-1	-1	-1	-1	+1	+1	-1	+1	-1

In the following, in order to complete the results obtained from the PROMETHEE model in (V-Promethee) environment, the Fuzzy inference system has been used in MATLAB environment. Fuzzy inference steps to obtain the rural sustainability level include knowledge base,

creating a data base (Fuzzy sets and membership functions) and creating a rule base (Fuzzy Logic Rules).

To form the knowledge base (Figure 4), the real data exists only at the first level of the model, that is, the basic development variables. Therefore, each of the indicators are the linguistic variables which are inferred using Fuzzy Logic and approximate reasoning from basic data. Therefore, the main necessity for designing an expert Fuzzy

system is first, to select membership functions with high efficiency for linguistic variables and define input Fuzzy sets and output of each stage (form the database), and then, to gather knowledge about the studied problem and encoding knowledge collected in the form of Fuzzy logical rules if-then (form rule base) (Kiani, Pasban Isalou, Badly, & Kanouni, 2015).
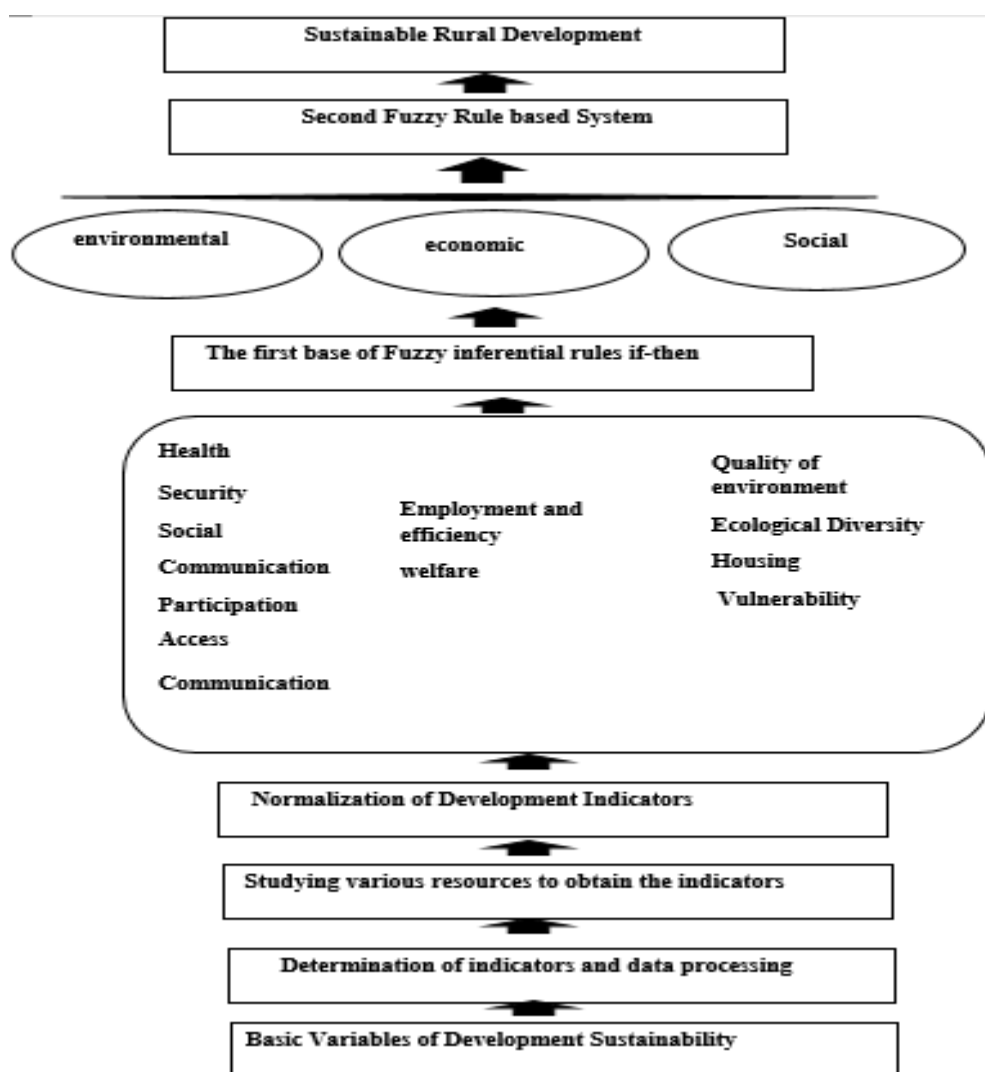
Figure 4. The main stages of inference and figure of the used Fussy model
(Source: Research Findings, 2017.)

In the next step for each dimension of economic, social and environmental sustainability, the input of Fuzzy sets with five values or linguistic amounts were defined as very low, low, medium, high and very high, and for sustainability of development, the output of Fuzzy sets with

membership functions were defined as good, moderate and weak. In the third stage, which is the most important part of Fuzzy inference method (building rule base) the rules from the level of basic indicators to highest level are obtained. These rules represent the

interdependence between indicators, components and their interaction and impact on each other (Amini Faskhoudi, 2005). An example of the if-then rules used in the model is:

If the social development is low and the economic development is very low, then the degree of sustainability of development is undesirable.

If the economic factor is moderate and social development is good and environmental development is weak, then economic development is low.

As can be observed, each rule contains two parts of top (if) and tale (then). The tale part is always a nominal phrase but the top part usually includes several phrases (or so-called several conditions)
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which are connected to each other with a relation (and) logic.

The number of these rules depend on the number of inputs and the number of classes between inputs (different levels of components) and also, the type pf defined Fuzzy sets in the database (the number of linguistic values of each primary and secondary components and indicators).

In the first base of the rule of inference of development components, the main components (economic, social and environmental development) require to set 27 rules (5 linguistic values). These 27 rules are set forth in table 4. In three linguistic variables, three linguistic values, i.e. weak, moderate and good are involved

Table 4. (Fuzzy) Linguistic rules related to the components of rural development sustainability
(Source: Research Findings, 2017)

27 base rules to infer the components of development sustainability			
Input			**Output**
Rule	**If social development**	**And economic development**	**And environmental development are;**	**Then the level of Rural sustainability**
1	Good	Good	Good	Very high
2	Good	Good	Moderate	High
3	Good	Good	Weak	Medium
4	Good	Moderate	Good	High
5	Good	Moderate	Moderate	Medium
6	Good	Moderate	Weak	Medium
7	Good	Weak	Good	High
8	Good	Weak	Moderate	Low
9	Good	Weak	Weak	Very low
10	moderate	Good	Good	High
11	moderate	Good	Moderate	High
12	Moderate	Good	Weak	Low
13	Moderate	Moderate	Good	High
14	Moderate	Moderate	Moderate	Medium
15	Moderate	Moderate	Weak	Low
16	Moderate	Weak	Good	Medium
17	moderate	Weak	Moderate	Low
18	Moderate	Weak	Weak	Very low
19	Weak	Good	Good	High
20	Weak	Good	Moderate	Medium
21	Weak	Good	Weak	Very low
22	Weak	Moderate	Good	Medium
23	Weak	Moderate	Moderate	Low
24	Weak	Moderate	Weak	Very low
25	Weak	Weak	Good	Low
26	Weak	Weak	Moderate	Very low
27	Weak	Weak	Weak	Very low

In this stage, the three selected indicators (economic, social and environmental factors) are transformed to Fuzzy values according to linear equations of membership functions. The first

input is the economic factors, the second input is the social factors, and the third input is the environmental factors. Referring to the rules in Table 4, only four rules 5,8,14 and 17 have the

membership value. Accordingly, the results of these four rules on the intended rural district will be:

Rule 5: If the social development is good at 0/261 and economic development is moderate at 0/201 and environmental development is moderate at 0/291, then the sustainability level of development is moderate at 0/57 (0/261 and 0/201 and 0/291).

Rule 8: If social development is good at 0/201 and economic development is weak at 0/261 and environmental development is moderate at 0/291, then sustainability level of development is weak at 0/38 (0/261 and 0/201 and 0/291).

Rule 14: If social development is moderate at 0/261 and economic development is moderate at 0/201 and environmental development is moderate at 0/291, then the sustainability level of development is moderate at 0/48 (0/261 and 0/201 and 0/291).

Rule 17: If social development is moderate at 0/261 and economic development is weak at 0/291 and environmental development is moderate at 0/201, then sustainability level of development is low at 0/38 (0/261 and 0/201 and 0/291).

The membership value or the result of the other 23 rules to infer the sustainable development in southern Donbaleh Roud rural district is zero. Figure 5, shows the above implication in graphical form.
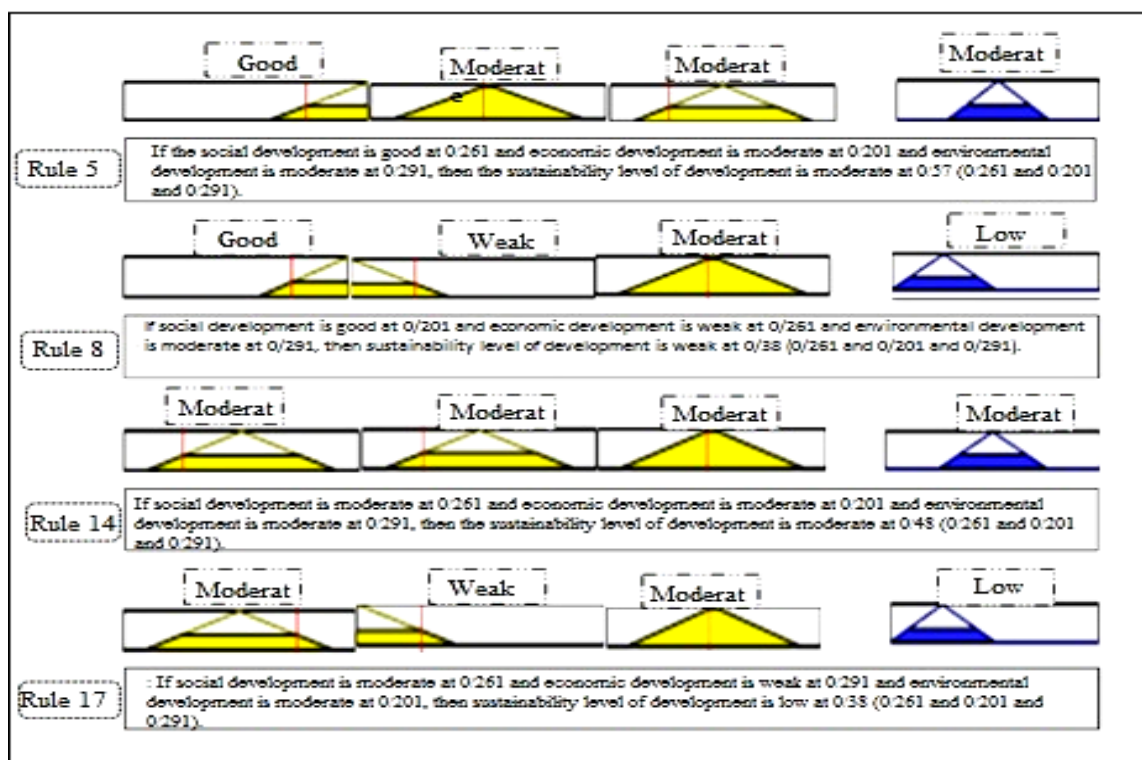
Figure5. Outputs (economic, social, environmental) and output (sustainability level) of Southern Donbaleh Roud Rural District
(Source: Research Findings, 2017)

Discussion and conclusion

It can be concluded from the theoretical discussions that, sustainable development is the process of achieving a coherent and future-oriented approach to development through understanding of human-environmental relationships with an emphasis on the rights of all human beings. Achieving this desired perspective is possible through continuous evaluation in different levels of planning and management of rural settlements; because, rural areas are currently facing many problems, they also face different choices for their future. In order to achieve sustainable rural development, explaining the status quo and the current status of our rural areas is considered to be a starting point. Accordingly, planning sustainable rural development is in fact, a future-oriented program

and investigates the rural communities and their issues in different environmental, social and economic aspects. In this regard, the use of appropriate evaluation techniques and models is of key importance to determine the sustainability status. One of the methods and techniques of new sustainability assessment, which is also emphasized in the global literature, is the multivariate evaluation method. Beyond the conventional decision models, in this study, models were used that allowed the simultaneous entry of several decision makers with various criteria and goals and options. Hence, in the current study, first dimensions, indicators and criteria of sustainable rural development were determined then the required data were collected. Finally, for data analysis, the PROMETHEE technique and the Fuzzy inference system were used in MATLAB software environment. It can be inferred from the results obtained from PROMETHEE technique that, the villages of Southern Donbaleh Roud Rural District of Izeh City are in a different situation in terms of sustainability, especially the socioeconomic sustainability. In social dimension, health, security, social relations, participation, education, access and communication are not equally and consistently presented and the status of health , security and social relations indicators are fairly appropriate and indicators such as participation, education, and especially access and communication, are not desirable. Also, in the economic dimension, villages are facing a lot of problems. Job satisfaction, variety of job opportunities, satisfaction with family income and savings among villagers are low. It can be said that, despite the tourism and agricultural capacities, the economic condition of southern Donbaleh Roud rural district is unorganized. In the environmental dimension, villages also have good climatic condition, and appropriate water and soil resources and biodiversity. However, there is a difference in terms of housing quality, housing satisfaction and availability of services for vulnerability among the villages studied and the housing situation and their vulnerability to hazards and accidents are not in good condition. This issue is considered a serious threat to inhabitants. Generally, in terms of sustainability of economic, social and environmental dimensions, the villages of Abolkheir, Dehno, BarAftab Rezaee, Darb GHaribi, Mallah,

Jadvalekan, MirAhmad, Faleh and Kizuk have the most positive flow (Phi+) and the least negative flow (Phi_). The villages of Sheivand, Gour Parviz, Amir Abad, Bar Aftab Ali Mo'men, Eslam Abad, Parchovank, Bar Aftab Zafari and Chaman with the least positive values and the most negative values are in the last place of ranking. The achieved ranking indicates the difference in sustainability and the unbalanced growth of development among the villages of Southern Donbaleh Roud.

In the following, tn order to complete the results obtained from the PROMETHEE technique, the Fuzzy inference system was used to obtain the level of rural sustainability. The obtained results of the 27 base rules, indicate that only four rules, 5,8,14 and 17 have membership values and the membership value for the other 23 rules to infer the sustainable development in Southern Donbaleh Roud Rural District is zero.

Considering the Fuzzy logical rules if-then the sustainability membership value in rule 5, is moderate at 0/57, the sustainability membership value in rule 8 is low at 0/38, the sustainability membership value in rule 14 is moderate at 0/48, and the sustainability membership value in rule 17 is low at 0/38. In general, the sustainability condition of the studied rural district is between two moderate and low levels. That is, a number of villages in Southern Donbaleh Roud are moderate in terms of development and some of the other villages are at the lowest level of development.

Many studies have been conducted on the sustainability of rural settlements, where the development or lack of development of settlements has had the same or different conditions. But in the studied villages, the reason for the lack of sustainability and deprivation of rural settlements may be different from other settlements. The reason is that there have been a lot of changes in spatial organization of the studied villages due to water logging of the villages. These changes in the system and the functioning of the settlements have created disruptions and have affected the quality of life and well-being of inhabitants. The construction of the dams has destroyed the communicative routes of the villages with the cities, agricultural lands and gardens, schools, offices of rural health, residential houses, community service villages and… and the villages have been left behind the dam by this time. The total of the above factors

led to the forced immigration of many households and the hope and motivation of other residents to be ambiguous about the future of the villages. Therefore, in such circumstances, the intervention in the settlement system is necessary in order to stabilize and optimize it. Hence, today, considering the important role of quantitative and qualitative sustainability and development of employment, income condition, welfare, access, housing quality, participation, increasing the quality of residential environment, creating and, of course, fair distribution of facilities and services in various sectors of development in rural areas is necessary. In general, considering the pivotal role of economic, social and environmental sustainability, for achieving sustainable development, on the other hand, the significant difference in the studied villages in terms of sustainability, it is required to strengthen the indicators and criteria of sustainability in all villages, especially the villages that are placed in lower levels.

According to the results of this study, suggestions were made to eliminate the deprivation of rural settlements of Southern Donbaleh Roud Rural District and to move towards development:

- In order to prevent the evacuation of the intended villages, the authorities must establish

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communicative routes from villages to city by building bridge over Karun River. This may give more residents access to welfare services and facilitate the transportation of people and vehicles.

- Improving facilities and infrastructure services in villages, especially in less developed villages.
- Considering the desirable capacities and capabilities of the region, the boom of tourism, agriculture and the transformation industries can make the region's employment and income sustainable and reduce poverty and unemployment.
- Considering the old housing texture in some villages, the Housing Foundation should provide low-interest loans to improve residential buildings and passages.
- It is necessary to establish more empathy among villagers, governors of rural districts and authorities in order to solve the problems of these villages.

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ارزیابی پایداری سکونتگاه‌های روستایی دهستان دنباله رود جنوبی شهرستان ایذه با استفاده از تکنیک V-PROMETHEE و سیستم استنتاج فازی

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چکیده مبسوط

۱. مقدمه

نواحی روستایی در ایران متأثر از عوامل گوناگون نـاهمگونی زیـادی دارد که گاه ناشی از شـرایط طبیعـی ماننـد مختصـات جغرافیـایی، انزوای جغرافیایی، شرایط جغرافیایی و تفاوت‌های آب و هوایی و گاه ناشی از شرایط انسانی مانند رواج الگوها و شیوه‌های زندگی شـهری است که به نوبهٔ خود، بر تنوع و تفـاوت‌هـای اقتصـادی و اجتمـاعی روستاهای کشور تأثیر گذاشته است. از این رو نقطه آغازین توجه به توسعه پایدار روستایی شناخت میزان توسعه یافتگی سکونتگاه‌هـای روستایی بر اساس شاخص‌های گوناگون اقتصادی، اجتماعی و زیست محیطی است. در این پژوهش سعی شده به ارزیابی پایداری توسـعه در دهستان دنباله رود جنوبی شهرستان ایذه بپردازد. در پی احداث سد کارون ۳ در سال ۱۳۸۳، حدود ۶۴ روستا (جمعیتی بالغ بـر ۱۶ هزار نفر) از سه دهستان دهدز تخلیه شدند. به دلیل آبگیـری سـد، روستائیان زمین‌های کشاورزی و مراتع خود را از دست دادنـد و بـه حاشـیه نشـینی در شـهرهای خوزسـتان و اصـفهان روی آوردنـد. همچنین در فاز دوم، حدود ۶ روستا با جمعیتی بالغ بر ۲ هزار نفر به خاطر عبور دکل‌های برق فشار قوی نیروگاه سد کارون ۳ مجبـور به تخلیه شدند. علاوه بر ۷۰ روستای مذکور، تعـداد ۱۸ روسـتا کـه مربوط به دهستان دنباله رود جنوبی هسـتند؛ نیـز در محاصـره آب قرار گرفتند و راه ارتباطی آنان قطع گردید.

بجز مشکلات دسترسی در این روستاها می توان به مشکلاتی چون، کمبود و ضعف خدمات زیر ساختی – رفاهی، بهره‌وری اندک تولید، کمبود فرصت‌های اشتغال، مهاجرت فرستی، ضعف مدیریتی و غیره اشاره کرد. لذا این روستاها علیرغم پتانسیل‌ها در زمینه‌های مختلف از جمله جاذبه‌های طبیعی فراوان برای گردشگری، صـنایع دسـتی، خاک حاصلخیز و مستعد برای تولیدات کشاورزی، گیاهان دارویـی، منابع آب فراوان و ... تاکنون نتوانسته به جایگاهی که مستحق آنهـا است دست یابند.

۲. مبانی نظری تحقیق

مفهوم پایداری در چارچوب مبحث پایداری روستایی، بیانگر تعادل و پویایی سکونتگاه روستایی در ارتبـاط بـا سـاختارهای طبیعـی - اکولوژیکی، اجتماعی- فرهنگی و کالبدی- فضایی است، بطوری که متضمن پایداری سکونتگاه طـی رونـدهای مکـانی- زمـانی گـردد. توسعه پایدار روستایی را می‌توان فرآیندی از تغییـر و تحـولات، بـا هدف بهبود و ارتقای کمی و کیفی سطح زندگی جامعهٔ روستایی دانست، فرآیندی که به ایجاد تعادل و توازن زیستی بین دو فضای شهری و روستایی می‌انجامد و عمدتاً در پی ایجاد تـوان‌افزایـی و کارایی لازم برای جمعیت کم درآمد و فقیر روستایی است کـه کمتـر قادر است بر توان خود بسنده کند و بر روی پای خود بایستد. برای سنجش پایداری به فراخور بعد مـورد بررسـی، وجود شـاخص‌هـا و چارچوب مناسب برای نیل به نتیجه‌گیری صحیح و منطقی ضروری است.

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پژوهش زیادی در راستای پایداری توسعه سکونتگاه های روستایی صورت گرفته است. کـه توسـعه یـا عـدم توسـعه هـر کـدام از ایـن سکونتگاه‌هـا دارای شـرایط مشـابه و یـا متفـاوتی بـوده‌اند. امـا در روستاهای مورد مطالعه شاید دلیل ناپایداری و محرومیت سکونتگاه-های روستایی نسبت به دیگر سکونتگاه ها متفاوت باشد. چرا کـه در سازمان فضایی روستاهای مورد مطالعه بـه دلیـل آبگیـری روسـتاها تغییراتی زیادی صورت گرفته است. این تغییرات در نظام و عملکرد سکونتگاه ها نابسامانی‌هایی بوجود آورده اسـت و کیفیـت زنـدگی و رفاه ساکنان را تحت تأثیر قرار داده است. به عبارت دیگر مـی تـوان گفت شرایط زندگی قبل از آبگیری سد کارون۳ بهتـر از حـال بـوده است. چرا که احداث سد مسیرهای ارتباطی روستاها با شهر، زمـین های کشاورزی و باغات، مدارس، خانه بهداشـت روسـتایی، منـازل مسکونی، روستاهای خدمات دهنده و ... را تخریب کرده و روستاها تا این زمان در پشت سد به حال خود رها شده اند. مجمـوع عوامـل فوق سبب شد که خیلی از خانوارها به اجبار مهاجرت کنند و امید و انگیزه، دیگر ساکنان نسبت به آینده روستاها در ابهام باشد. لـذا در چنین شرایطی دخالت در نظام سکونتگاهی به منظور پایدار نمـودن و بهینه سازی آن ضروری است.

کلید واژه‌ها: سنجش پایداری، تکنیـک پرامتـی، سیسـتم فـازی، دهستان دنبالۀ رود جنوبی.

در ارتباط با شاخص‌ها و نماگرها توسعه پایدار بسته به شرایط زمان، مکان و جوامع گوناگون مفهومی نسبی است. بنابراین مهم است کـه شاخص‌ها با دقت انتخاب شوند تا بتواننـد شـناخت مـورد نظـر را از توسعه پایدار نمایان سازند.

۳. روش تحقیق

این پژوهش بر اساس هدف کاربردی و براساس ماهیـت توصـیفی – تحلیلی است. داده‌های مورد نیاز با اسـتفاده از شـیوه کتابخانـه‌ای و میدانی (پرسشنامه) گردآوری شده است. محـدوده مـورد مطالعـه شامل ۱۸ روستا دارای سکنه و ۱۴۶۰ خـانوار اسـت. حجـم نمونـه براساس فرمول کوکران ۳۰۰ سرپرست برآورد گردید که بـر حسـب تعداد خانوار موجود در هـر روسـتا بـین سرپرسـت خـانوار توزیـع گردید. تحلیل داده‌هـای حاصل از پرسشـنامه بـا اسـتفاده از مـدل پرومتی (در محیط نرم افزار ویژال پرامتی) و سیستم استنتاج فـازی (در محیط نرم افزار MATLAB) انجام گردید.

۴. یافته‌های تحقیق

براساس تکنیک پرامتی روسـتاها بـا توجـه بـه سـه جریـان مثبـت (Phi+)، منفی (phi-) و خالص رتبه‌بندی شده‌اند. روستاهایی کـه دارای بیشترین مقـدار مثبـت و کمتـرین جریـان منفـی باشـند در جایگاه نخست و روستاهایی که از کمترین مقدار مثبت و بیشـترین مقدار منفی برخوردار باشند، در جایگاه آخـر پایـداری توسـعه قـرار گرفته‌اند. نتایج به دست آمده از سیستم اسـتنتاج فـازی نیـز نشـان دهنده آن است که وضعیت پایداری دهستان مورد مطالعـه بـین دو سطح متوسط و پایین قرار دارد.

۵. بحث و نتیجه‌گیری

ارجاع: کریم‌زاده، ح،. حسینی شه‌پریان، ن. و حسینی کهنوج، س. ر. (۱۳۹۸). ارزیابی پایداری سکونتگاه‌های روستایی دهستان دنبالـه رود جنـوبی شهرستان ایذه با استفاده از تکنیک V-PROMETHEE و سیستم استنتاج فازی. *مجله پژوهش و برنامه‌ریزی روستایی، ۸*(۲)، ۵۹-۷۶.
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Land Suitability Evaluation for Tourism Development in Desert Areas (Case Study: Eastern Regions of Isfahan Province)

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Abstract

Purpose- Today, tourism has become the largest industry in the world with both direct and indirect socio-economic effects. Given the diverse climatic conditions and limited water resources for agriculture in Iran, among various forms of tourism, tourism in desert areas with a multifaceted approach can narrow the gap caused by environmental constraints and play an important role in the development of different areas such as eastern regions of Isfahan province, which have many tourist attractions. In this research, we try to identify and evaluate land suitability for tourism development in counties located in desert areas of Isfahan province.

Design/methodology/approach- In this research, the multi-criteria evaluation (MCE) method was used in the GIS environment. Considering the variety of criteria used, before preparing the final map of land suitability, selected criteria were categorized in different groups with regard to topography, climate, land covers and animal species diversity, environment, hazards, socio-economic aspects (infrastructure and tourist attractions). Then, land suitability classes in each of the mentioned groups were identified. In the following step, the maps produced in each of these groups were given to the relevant experts to generate the final map of the land suitability according to the current situation, weigh the selected criteria based on the AHP paired comparison, and implement the results of this comparison in the GIS environment through applying weighted linear combination (WLC) method.

Findings- The results of multi-criteria evaluation showed that the study area has highly suitable lands in almost all assessment groups, and there were no specific human and natural constraints in this area. The result of the final land suitability map also showed that 21044 square kilometers of the total area (nearly 30 percent) were ranked in the "very suitable" and "suitable" classes, indicating high capacity and capabilities or minimum natural and human constraints for tourism development in the region.

Practical implications- Making use of the capabilities of desert areas in eastern regions of Isfahan province and providing the necessary conditions for tourism development with regard to the particular natural and human conditions of this region can offer the best available, affordable, and effective alternatives in the short term to tackle the current problems based on the principles of sustainable development in these areas. The problems include socioeconomic inequalities between developed and underdeveloped regions of Isfahan province, limited water resources for development of agricultural activities, and low ecological capacity of the region for some activities especially in vulnerable communities.

Key words- Land potential, desert tourism, multi-criteria evaluation, Weighted Linear Combination (WLC), Geographic Information System (GIS), Eastern regions of Isfahan.

Paper type- Scientific & Research.

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1. Introduction

The tourism industry, as a lucrative and inexpensive industry, is one of the key components of sustainable development in areas where there are such capabilities, and is also known as invisible exports (Rezvani, 1995). Ecotourism, unlike other types of tourism, including mass tourism, which merely emphasizes on benefits of tourism, has a multidimensional nature (Higham, 2007). This form of tourism makes human leisure activities possible mainly in nature and is based on targeted travels together with cultural, spiritual, observation impressions and the study of natural attractions and enjoying various natural phenomena (Rezvani, 2003). In general, this form of tourism is a responsible journey to natural areas, protects the environment and improves the well-being of local people (Fennell, 2008).

Desert tourism is a relatively new type of ecotourism. To walk in desert regions and enjoy desert attractions, vegetation, animal life, morphological forms, sports activities and other attractions have created a special type of tourism called 'desert tourism' (Hashemi & Ramesht, 2014; Jomepour & Nemayandeh, 2012).

Iran, situated in the dry regions of the world, has an average rainfall of 252 millimeters, and about 65 percent of its area is in arid and semi-arid regions with annual rainfall of less than 150 millimeters (Jomepour & Nemayandeh, 2012, p. 48). This vast area is mostly desert. The characteristics of desert areas include: annual rainfall of less than 50 mm which is mainly in inappropriate time; as it may not rain for many years and vegetation becomes very poor in such areas. Desert is the land strongly affected by salt in a way that the growth of crops such as wheat, barley, cotton, date and pistachio and the like is unlikely; however, it is possible that salt resistant plants grow in deserts, in this case they are called desert pastures (Kardavani, 1995).

Any investment in desert and arid regions initially seems to be illogical which may end in failure; the same way, investment in tourism and ecotourism development in desert areas has been neglected (Shariaat Panah & Estelaji, 2008).

These seemingly unimportant areas have valuable natural and human attractions, which proper planning and management while preserving the environment can change them into a source of sustainable economic development and employment.

The study of the geographical situation of Isfahan province in central Iran shows that the eastern regions of the province, including Nain, Ardestan, Aran and Bidgol, Khor and Biyabanak, Isfahan and Natanz, with an area of 71368 square kilometers, comprise nearly 66% of the total area of the province.

These arid and semi-arid areas with a minimum altitude of 596 meters, and a very gentle slope and warm and dry climate can make ground for ecotourism. Preliminary study of the geography of the region shows that the problem of water scarcity and environmental constraints on agricultural development, related activities and sustainable rural development in general has posed a serious challenge to the regional development. On the other hand, based on existing evidence, already formulated strategies and executive guidelines have so far failed to reduce rural poverty, unemployment, migration, and also have failed to ensure food security and environmental sustainability. Therefore, ecotourism development as a clean and inexpensive industry, can be one of the best alternatives for removing environmental constraints on agriculture in this vulnerable and environmentally fragile area, and will improve the welfare of the local community, environmental protection and ultimately the sustainable development.

Therefore, in order to optimize the management of the environmental resources in the eastern areas of Isfahan province, and to develop tourism in these desert areas, using the various planning techniques in the GIS environment, the present study attempted to investigate and answer these important questions: What are the most important criteria and factors affecting the development of tourism in desert areas of eastern Isfahan? To what extent the desert areas in eastern Isfahan have the essential capacity to develop tourism? What are the most suitable zones or areas for tourism development in desert areas of eastern Isfahan?

The review of the literature on previous studies, and in particular the application of a multi-criteria evaluation method in assessing the suitability and capabilities of the land for the development of desert tourism showed that no similar research has been conducted in this field. Table-1 summarizes

some of the most relevant foreign and domestic studies.

Table 1. literature on previous studies
(Source: Research findings, 2018)

Research findings	Data analysis tools	Authors, the year research was conducted	Title of the research
Areas suitable for development of ecotourism were divided into four suitability classes: 1-highly suitable, 2-moderately suitable, 3- marginally suitable, 4-not suitable. The results showed GIS plays an important role in ecotourism planning and the proposed methods for identifying the suitable locations proved very useful.	GIS, AHP	Bunruamkaew, K. & Murayam, Y. (2011)	Site suitability evaluation for ecotourism using GIS & AHP: A case study of Surat Thani province, Thailand
The result of this study showed that nearly 35.58 % of the total area has high potentials, and 19.80 % has no potentials for ecotourism development.	GIS, AHP, WLC	Dashti et al. (2013)	Application of GIS, AHP, Fuzzy and WLC in island ecotourism development (A case study of Qeshm Island, Iran)
A total of 35 zones with high potentials, 137 zones with average potentials and four zones with weak potentials were identified. It was found that out of the total area of the county, 82,400 hectares have some limitations, about 4,500 hectares have high potentials, 55,000 hectares have moderate potentials and 2600 hectares have weak potentials for ecotourism.	GIS, AHP, WLC	Salman et al. (2009)	Evaluation of ecotourism capacity in Behshahr County based on multi-criteria evaluation method using GIS.
The study results showed that only about 12% of the basin have the capacity to develop tourism in a permissible manner. About 46 % of development capacity is available only conditionally while considering ecological aspects, and in the remaining 42 % tourism development is prohibited under any circumstance.	GIS, AHP	Behniyafar and Mansouri Daneshvar (2010)	Zoning with multi-factor evaluation approach and using the AHP model for tourism development in GIS environment: : A case study of Golmakan Basin
The results showed that about 41.7 % of the entire area, have sufficient environmental capability for development of tourism activities in combination with other development activities and 34.8 % have sufficient environmental and ecotourism capability for tourism development.	GIS & multi-criteria decision analysis method	Mansouri et al (2012)	Evaluation of tourism development potentials based on functional zoning and multivariate method (Case study: Mashhad-Kalat road)
By combining layers, it was found that 31.14 % of the total area of the city had 'very high' and 'high' suitability for ecotourism activities.	GIS & Fuzzy	Sharifi and Bostani (2015)	Ecotourism zoning using fuzzy model: A case study of Shiraz County
The results showed that out of total area of 686.598 km^2, about 52.01 km^2 is highly suitable for development of ecotourism, 98.26 km^2 is suitable, 169.03 km^2 is relatively suitable, 210.65 km^2 not suitable, and 156.08 km^2 was quite unsuitable for development of ecotourism.	GIS & genetic algorithms	Maghsoudi et al. (2015)	Optimal site selection for ecotourism development in Kavir National Park using GIS and Genetic Algorithms
The results showed that areas with a marginal suitability comprised 43.4 % of the total land area; 9.1 percent of the total area of the city was highly suitable, 17.6 % was moderately suitable and 29.9 % of the total area of the city was not suitable for ecotourism development.	GIS Multi-criteria decision-making methods-Delphi	Shakeri Zadeh and Mahdavi (2015)	Ecological potential of Rudan County for ecotourism using multi-criteria decision making method
The results showed the criteria of tourist attractions and the risks, respectively with the weight of 0.4064 and 0.0429 got the highest and lowest scores. Furthermore, based on the final map of the suitable lands, 49,503 hectares are highly suitable for ecotourism development and have received the top priority for building a tourist village.	GIS & AHP	Ranjbar Ferdouei et al. (2017)	Land suitability evaluation in Maranjab area for locating tourism villages
Based on the research findings, three districts in north (Karedeh Dehestan), west (Torghabeh, Shandiz and Chalı Valley) and south (Malek Abad) have been identified as highly suitable areas for development of ecotourism.	AHP & WL	Akbari Ghouchani et al. (2017)	Site suitability analysis for ecotourism using fuzzy multi criteria evaluation in GIS environment: A case study of Mashhad County

2. Research Methodology

2.1 Geographical Scope of the Research

The study area of this research includes 6 counties of Nain, Ardestan, Aran and Bidgol, Khor and Biyabanak, Isfahan and Natanz located in eastern regions of Isfahan province (Fig. 1). According to the statistical data of national census conducted in 2016, this area has a population of 2411095 people living in 802 rural settlements and 31 urban settlements (Statistical Center of Iran, 2016). The counties in the eastern region of Isfahan province have many historical and cultural attractions, special vegetation, animal species diversity, many rural tourist destinations, special tourism areas, animal preserves, non-hunting areas, and most importantly, special desert landscapes such as sandy hills which can become one of the important tourist hubs for desert tourism.
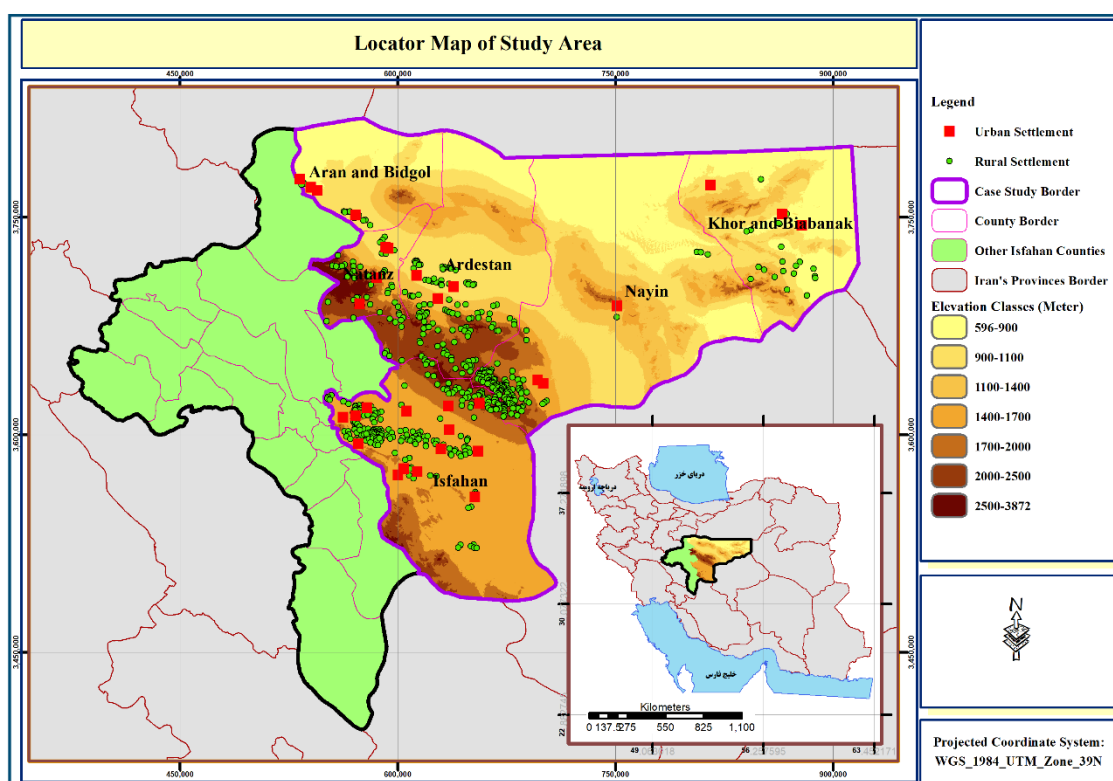
Figure1.Geographical situation of the study area
(Source: Research Findings, 2018)

2.2 Methodology

This research is an applied one conducted in a descriptive-analytical method. To analyze the data, the multi-criteria evaluation method was used in GIS environment. WLC is one of the most important methods for multi-criteria evaluation. It is one of the basic methods used more than other methods for land suitability evaluation (Lafortezza et al., 2008; Malczewski, 2006; Malczewski & Rinner 2005). The WLC-based approach can be operationalized using any GIS system that has overlapping capabilities (Malchovsky, 2013, p. 339). In contrast to the Boolean operation, this method which is easy to implement in raster and vector data, is a compensatory method. That is, low scores in a proportion can be offset by higher scores of the other proportional criterion (Chen et al., 2001; Malczewski, 2004; Sante-Riveira et al., 2008). In order to process the data, after the identification of the criteria, their sub-criteria are standardized according to different methods, and then based on one of the weighing methods, weights of these criteria are determined, and finally after the above-mentioned operations, standardized weight criteria, are overlapped in GIS and the final map can be developed (Malchovsky, 2013).

In this research, the linear fuzzy standardization method has been used to standardize the data. The theory of the fuzzy set introduced by Lotfi Zadeh

is an alternative to the Boolean set. The membership of an object is finite in a Boolean set; a fuzzy set consists of a set of objects with degrees of membership. Such a set is characterized by its membership functions, in which for each object a degree of membership is defined between 0 and 1 (Zadeh, 1965). Based on the WLC method, the evaluation parameters should be compared and weighted. A paired comparison method is used to weigh the criteria. The paired comparison method was developed in 1980 by Saaty in the AHP framework. In this method, to rank the preferences in relation to a pair of criteria, a scale of 1 to 9 is used (Malczewski & Rinner, 2016). To determine the weight of the criteria, 20 experts in relevant organizations as well as researchers at the universities of the province were interviewed. The formal validity of the questionnaire was confirmed by some experts and professors. The

reliability of the questionnaire was also measured using Cronbach's alpha, which was 0.71, indicating an acceptable reliability of the questionnaire.

After determining the weight of the criteria, the weights were attributed to the criteria, and the data preparation process, including their rasterizing in the GIS environment, for the final overlap was performed; in this process, all layers based on a specific pixel size of 30*30 meters, were made from the DEM layer of the region. After completing this process and preparing the data, the land-use suitability model was created in the GIS modeling environment. Eventually, after the implementation of the model and data processing, the final map of the land-use suitability for tourism development was developed and analyzed in following classes: highly suitable, suitable, marginally suitable, not suitable, highly unsuitable (Figure 2).
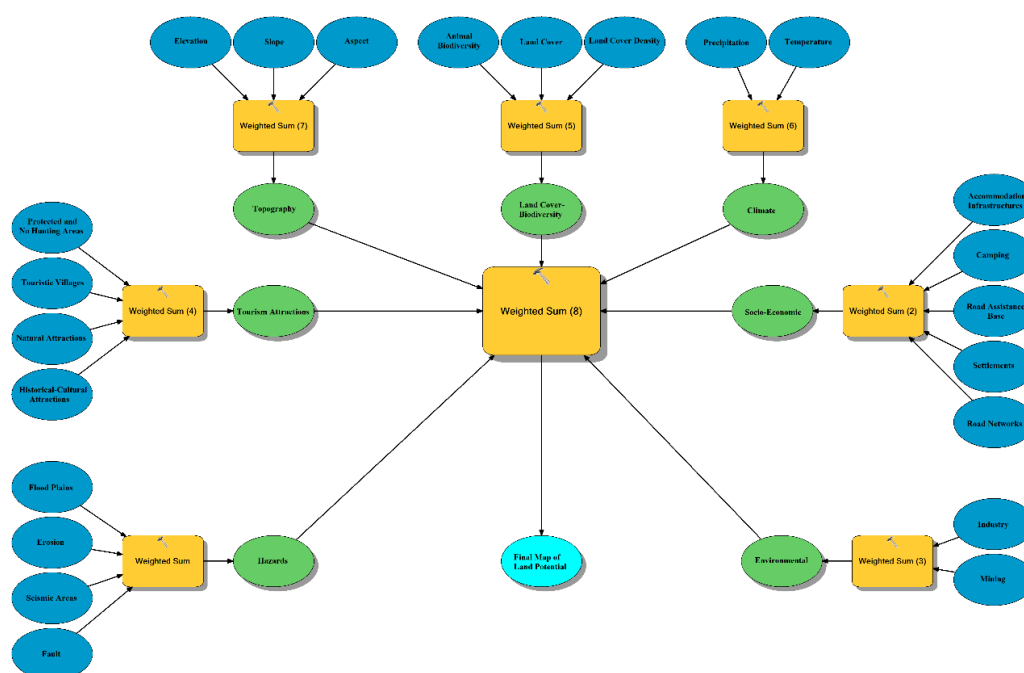
Figure2.Land suitability model for tourism development in desert areas
(Source: Research Findings, 2018)

2.3. Variables and indicators

Based on the initial investigation in the study area and the review of literature, 23 criteria were

defined for the evaluation of ecotourism in the desert regions in Eastern Isfahan; Table-2 summarizes the variables and the criteria.

Table 2. Evaluation criteria and their format
(Source: Research Findings, 2018)

Row	Criteria	data type	Row	Criteria	data type
1	Altitude	Raster	13	Mines	vector
2	Slope	Raster	14	Industries	vector
3	Slope Directions	Raster	15	Road networks	vector
4	Average annual temperature (℃)	Raster	16	Urban and rural settlements	vector
5	Average annual rainfall (ml)	Raster	17	Emergency road services	vector
6	Percentage of crown land cover	vector	18	Camping	vector
7	Land cover	vector	19th	Infrastructure of residence (traditional residences)	vector
8	Animal species diversity	vector	20	Earthquake prone areas	vector
9	Man-made historical-cultural attractions	vector	21	Severity of soil erosion	vector
10	Natural attractions	vector	22	Faults	vector
11	Tourist destination villages, Special tourism areas	vector	23	Flood plains	vector
12	Non-hunting and preserved areas	vector			

3. Research Findings

As discussed in the methodology, one of the steps in the WLC method for overlapping the data in the GIS environment is the standardization of sub-criteria. In this study, linear methods were used for continuous data such as slope, temperature, distance and other continuous data; in other layers that have discrete nature, such as land covers and flood plains, given the importance of descriptive data of these layers, for each terrain a score between 1 to 9 was assigned, and then these scores were normalized by fuzzy standardization method between 0 and 1. Following the standardization of sub-criteria, these criteria were grouped in several categories according to their similarity. The purpose of this grouping, first of all, is to identify land suitability for tourism development in each of these factors, and secondly, to summarize the criteria to facilitate the

final overlap and prepare the final map of land suitability. Next, the results of the maps produced from each of these factors are described and analyzed.

3.1. Topography

In Table-3, topographic criteria, descriptive data, fuzzy membership values and their weights are shown. In each group, weighing the criteria, given their close importance compared to each other, all items were assigned the same weight; for example, in the group of land covers and animal species diversity criteria (Table-7), for land covers, crown cover percentage and animal species diversity have the same weight of 0.333. This is true of most groups of criteria, so this rule is also applicable in the criteria for other groups. The result of overlapping three topographic criteria are illustrated in Fig. 3, and the statistical data of this figure is presented in Table-4.

Table 3: the range of classes/ descriptive data, values of fuzzy membership and weight of topographic criteria
(Source: Research Findings, 2018)

Criteria	Quantitative characteristics/ descriptive data	Scores	Values of fuzzy membership	Final Weight
Altitudes (m)	596-3872	-	0-1	0.333
Slope (percent)	0-361	-	0-1	0.333
Slope Directions	South -South East-South West	3	0	0.333
	East-West	5	0.33	
	North	7	0.66	
	Even-North East-North West	9	1	
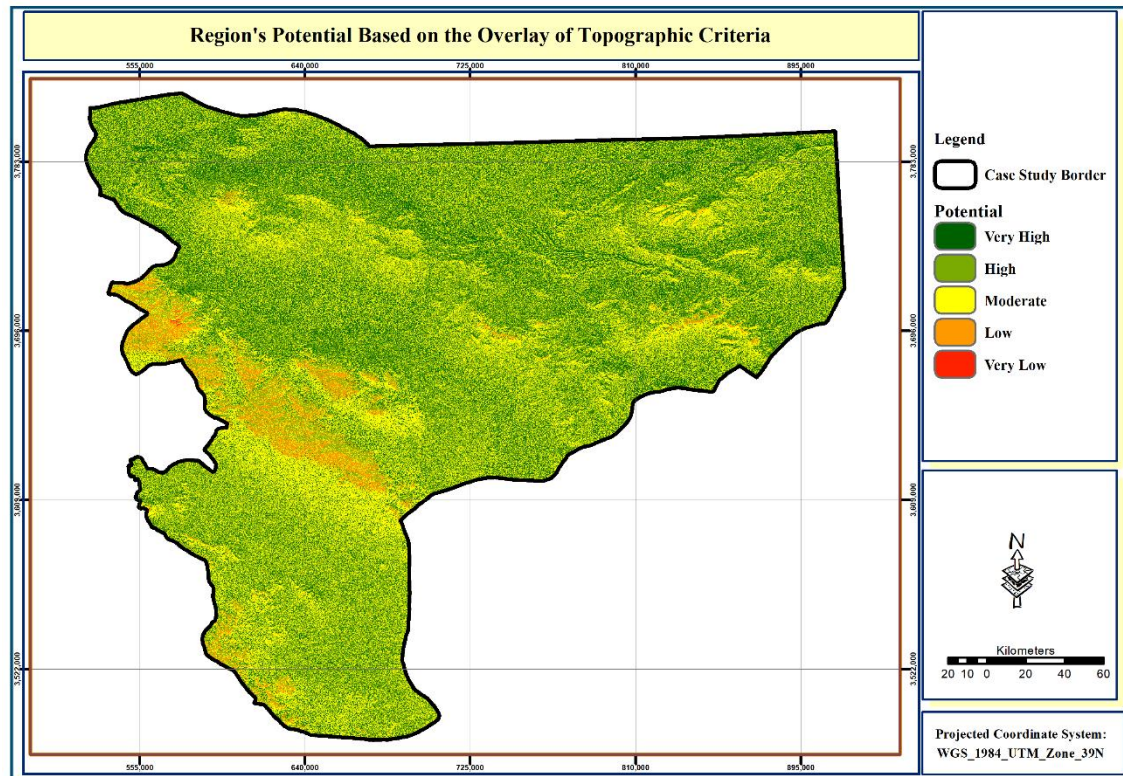
Figure3. overlap of topographic criteria
(Source: Research Findings, 2018)

Table4. Statistical data of the topographic criteria map
(Source: Research Findings, 2018)

Suitability	Area (km2)	Percentage of area
very high	21248.37	29.77
high	19434.17	27.23
medium	28529.26	39.98
low	2142.34	3.00
very low	9.66	0.01

The overlap of topographic layers shows that nearly 57% of the area topographically have very high and high potential for desert tourism development, or encounter minimal restrictions. According to these results, only 3% of the entire area has low capabilities. No land is in the very low level of suitability; therefore, in terms of the topographic properties, the study area is highly suitable for development of desert tourism.

3-2 Climate

The climate criteria include the annual average temperature and precipitation (Table-5). In terms of two climate elements (average temperature and precipitation), 4.5% of the area has very high and high suitability (Table 6), a region which is located in higher altitudes in the west of the study area. Climatically, nearly 75% of the area is in very low and low classes for tourism development; this is due to arid areas and low altitudes, especially in the vast areas of the East; however, in the regional assessment of these two climate elements, this vast region has a very low potential for tourism development; nevertheless, the involvement of other compensatory measures in other areas can moderate climate constraints.
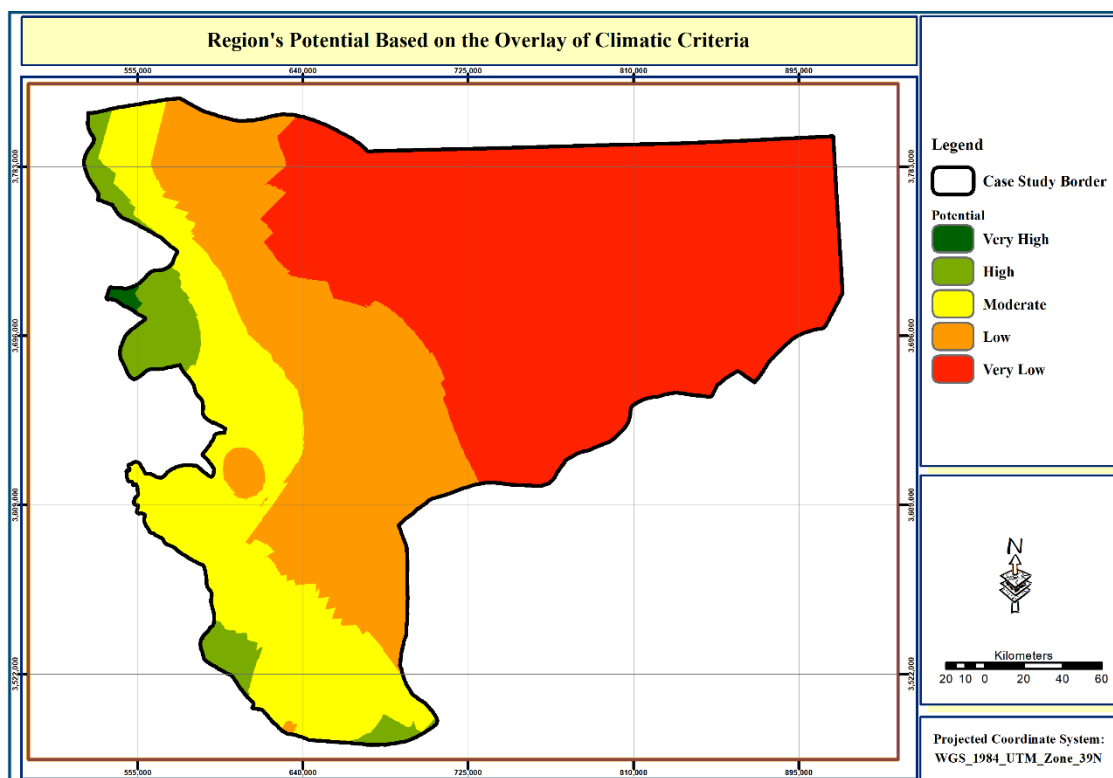
Figure4. Overlap of climate criteria
(Source: Research Findings, 2018)

Table 5. The range of classes/ descriptive data, Scores, values of fuzzy membership and the weight of climate criteria
(Source: Research Findings, 2018)

Criteria	Qualitative characteristics/ descriptive data	Scores	Values of fuzzy membership	Weight
average annual temperature (°C)	6.80-19.80	-	0-1	0.5
Average annual precipitation (mm)	75-542.47	-	0-1	0.5

Table 6. Statistical data of the climate criteria
(Source: Research Findings, 2018)

Land suitability classes	Area (km2)	Percentage of area
very high	144.19	0.20
high	3144.22	4.41
medium	14266.36	20.00
low	18162.55	25.46
very low	35623.37	49.93

3.3. Land covers and animal species diversity
In the context of land covers and animal species diversity, a major part of the study area has moderate suitability (see Table 7). Nearly 2 % of the area has a very high potential for tourism development The rest of the land has very low and low suitability for tourism development. Given the nature of these criteria, adequate land cover and animal species diversity in some parts of the area may be very valuable. As can be seen (Fig. 5), these regions are scattered in different areas.

Table 7. The range of classes/ descriptive data, scores, values of fuzzy membership and the weight of land cover and animal species diversity
(Source: Research Findings, 2018)

parameters	Qualitative characteristics/ descriptive data	Scores	Values	Weight
Percentage of crown land cover	without any cover	1	0	0.333
	10%>	3	0.25	
	10-25%	5	0.5	
	25-50%	7	0.75	
	50-75%	9	1	
Land covers	Uncovered lands, sand, water bodies, swamps, river beds, urban areas	1	0	333/0
	Irrigated agricultural lands, salty lands	3	0.25	
	Rainfed agricultural lands, low-density forests and grasslands	5	0.5	
	dense forest and meadows	7	0.75	
	desert, man-made forests, trees and shrubs, woodlands, sandy areas	9	1	
Animal species diversity(Areas within 5 km buffer)	0- 0.20	-	0-1	0.333
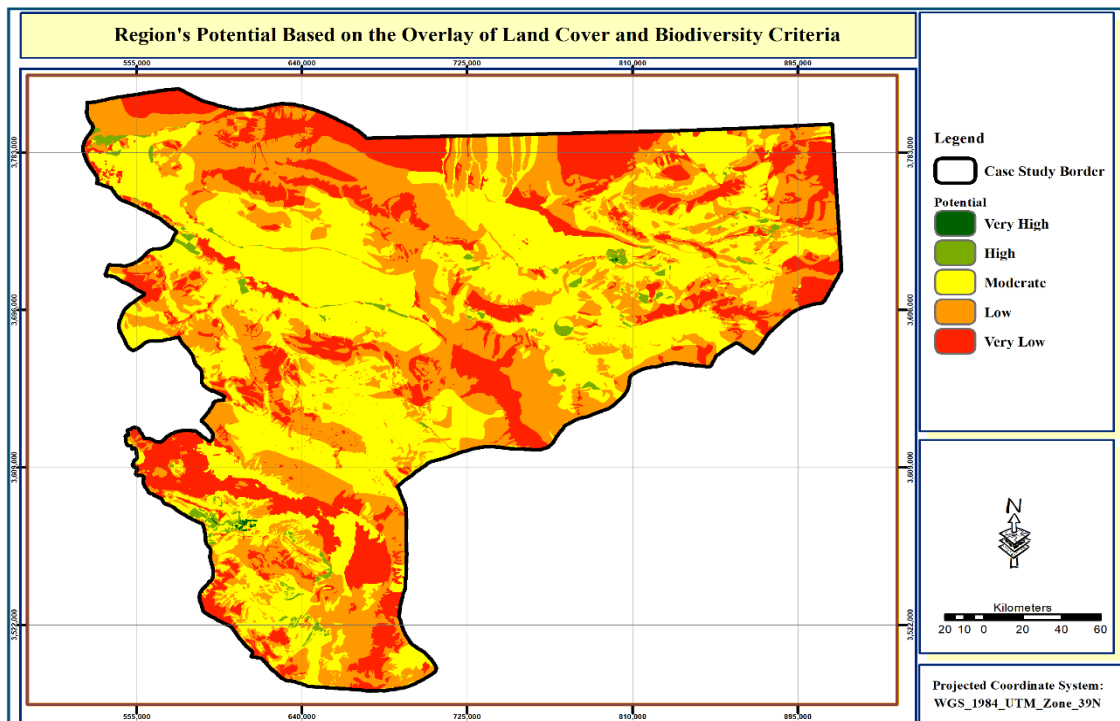
Figure 5. Overlap of the criteria of land covers and animal species diversity
(Source: Research Findings, 2018)

Table 8. Statistical data of criteria map of land covers and animal species diversity
(Source: Research Findings, 2018)

land suitability classes	Area (km2)	Percentage of area
Very high	40.04	0.06
high	940.51	1.32
moderate	29827.88	41.79
low	25343.26	35.51
very low	1526.56	21.32

3.4. Hazards

Hazard criteria include distance from earthquake prone areas, soil erosion rate, distance from faults and flood plains (Table-9). Based on the data extracted from the fig.6 and Table-10, in the study area, with regard to hazardz, there are no significant restrictions on the development of tourism, as nearly 43 percent of the area are in high and very high land suitability classes. Only about 4 % of the study area, due to potential hazards, is in low suitability class (Fig. 6).

Table 9. The range of classes/ descriptive data, scores, values of fuzzy membership and the weight of hazard criteria
(Source: Research Findings, 2018)

Criterion	Qualitative characteristics/ descriptive data	Scores	Values of Membership	Weight
distance from the earthquake prone areas (M)	0-52799	-	0-1	0.25
Severity of soil erosion	Lands with partial soil erosion	9	1	0.25
	Combining lands with partial soil erosion and land with low erosion- lands with low erosion	7	0.75	
	Combining lands with low erosion and moderate erosion-lands with moderate erosion	5	0.5	
	Combining lands with moderate erosion and lands with high erosion	3	0.25	
	Lands with high erosion	1	1	
Distance from the faults (m)	0-62786		1-0	25/0
Flood plains	Flood plain area	1	0	25/0
	Other areas	9	1	
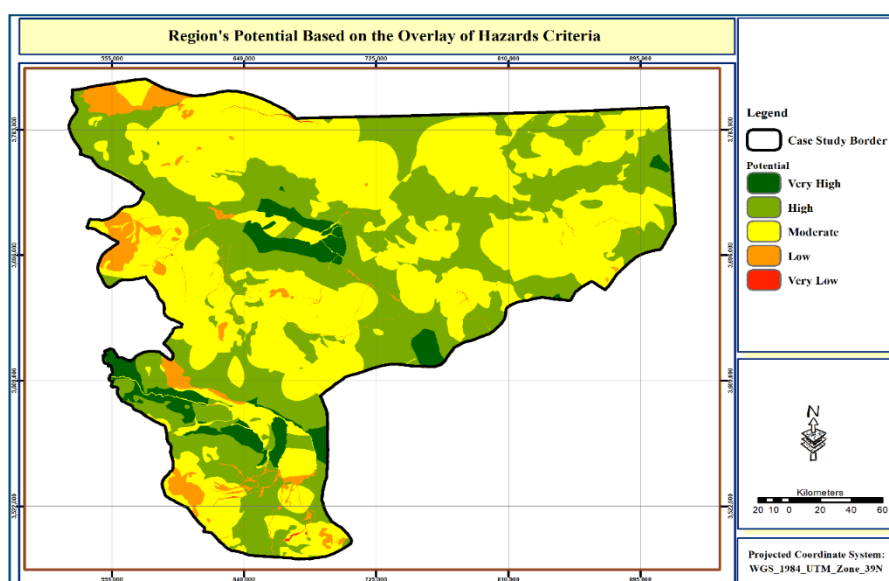
Figure 6. Overlap of hazard criteria
(Source: Research Findings, 2018)

Table 10. Statistical data of the map of hazard criteria
(Source: Research Findings, 2018)

Land suitability classes	Area (km2)	Percentage of area
very high	3649.83	5.31
high	27375.39	38.48
moderate	36893.80	51.85
low	3144.16	4.42
very low	87.18	0.12

3.5. Environmental

In terms of compatibility with the surrounding uses (including industries and mines), 46% of the area is in very high and high suitability classes for tourism development (Table-12). Areas in low and very low suitability classes are in the western region which is highly populated and has many human settlements (Fig .7). These lands comprise nearly 2 percent of the total area; the remaining area is moderately suitable for tourism development.

Table 11: The range of classes/ descriptive data, scores, values of fuzzy membership and the weight of environmental criteria (compatibility with surrounding uses)
(Source: Research Findings, 2018)

Criteria	Qualitative characteristics/ descriptive data	Scores	Values of fuzzy Membership	Weight
Mines	Areas of mine excavation	1	0	0.5
	Other areas	9	1	
Distance from industries (m)	0-91992	-	0-1	0.5
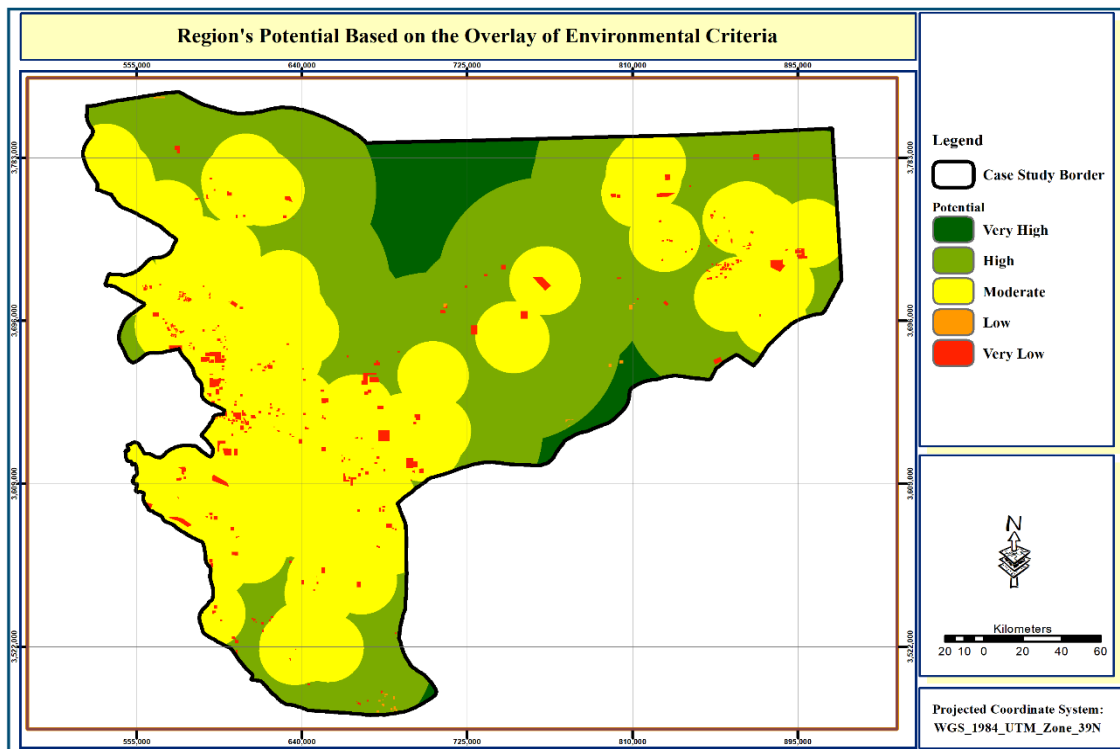
Figure 7. Overlap of environmental criteria (compatibility with surrounding uses)
(Source: Research Findings, 2018)

Table 12. Statistical data of the map of environmental criteria
(Source: Research Findings, 2018)

Land suitability classes	Area (km2)	Percentage of area
Very high	4752.20	6.66
high	28596.56	40.07
moderate	37047.26	51.91
low	38.42	0.05
very low	934.31	1.31

3.6. Socio-economic

Various criteria have been used in assessing the socio-economic characteristics of land suitability (Table-13). Their overlap shows great suitability. As more than 72% of the area is in high and very high land suitability classes. Meanwhile, only less than 9% of the area is in low and very low land suitability classes (Table-14). A look at the map drawn from this overlap (Fig.8) shows there is a wide range of infrastructure for tourism development which make tourism development for in this area economically feasible.

Table 13: The range of classes/ descriptive data, scores, values of fuzzy membership and the weight of environmental criteria and the weight of socio-economic criteria (infrastructure and access to services)
(Source: Research Findings, 2018)

Criteria	Qualitative characteristics/ descriptive data	Scores	Values of fuzzy membership	Weight
Access to the road networks (m)	0-100795	-	0-1	
Proximity to human settlements (cities & village) (m)	0-105907	-	0-1	
Access to road services (m)	0-111915		0-1	
Camping access (m)	0-117590		0-1	
Access to residential infrastructure (traditional residences)	0-155780		0-1	
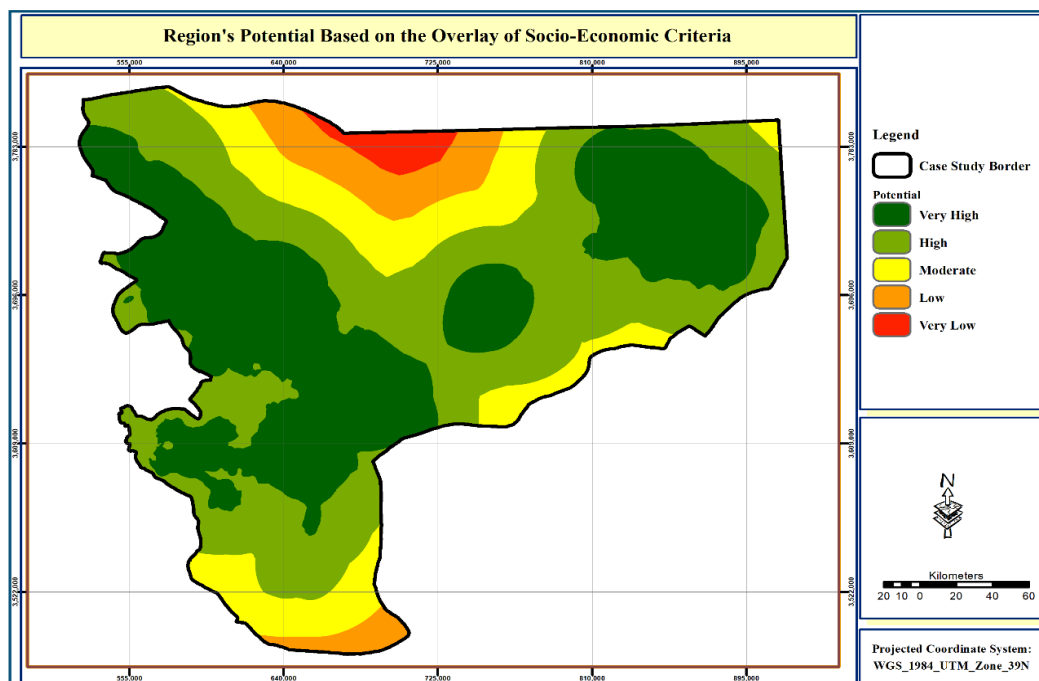
Figure 8. overlap of socio-economic criteria
(Source: Research Findings, 2018)

Table 14. Statistical data of the map of socio-economic criteria
(Source: Research Findings, 2018)

Land suitability classes	Area (km2)	Percentage of area
very high	27702.31	38.82
high	27203.67	38.12
moderate	10544.36	14.77
low	4665.80	6.54
very low	1252.61	1.76

3.7. Tourist attractions

Tourist attractions of the region, together with other conditions and factors can play a determining role in the development of tourism in every region of the study area. In this part, very comprehensive and varied criteria have been used (Table-15). Their overlap (Fig.9) and the results obtained from this overlap (Table-16) show that the study area is in high and very high land suitability classes for tourism development. As nearly 33 percent of the land in the area is in high and very high classes in the field of tourism attractions which compared to the area is a very high figure, such attractions may be an important reason to identify this region as an area highly suitable for tourism development, which is also what the study seeks.

Table 15. The range of classes/ descriptive data, scores, values of fuzzy membership and the weight of tourist attractions criteria
(Source: Research Findings, 2018)

Criteria	Qualitative characteristics/ descriptive data	Scores	Values of fuzzy membership	Weight	Criteria
Distance from man-made historical-cultural attractions (M)	Inns, museums, registered ancient bathrooms, registered mosques and Bazars, pilgrim houses, registered houses and schools, castles, cisterns, archaeological sites, palaces, monasteries and so on.	0-106857	-	0-1	
Distance from natural attractions (m)	A wide variety of natural attractions	0-91844	-	0-1	
Tourist destination villages, Special tourism areas	Tourist destination villages, Special tourism areas	0-99090	-	0-1	
preserved and non-hunting areas	preserved and non-hunting areas	preserved and non-hunting areas — 9	1		
		other areas — 1	0		
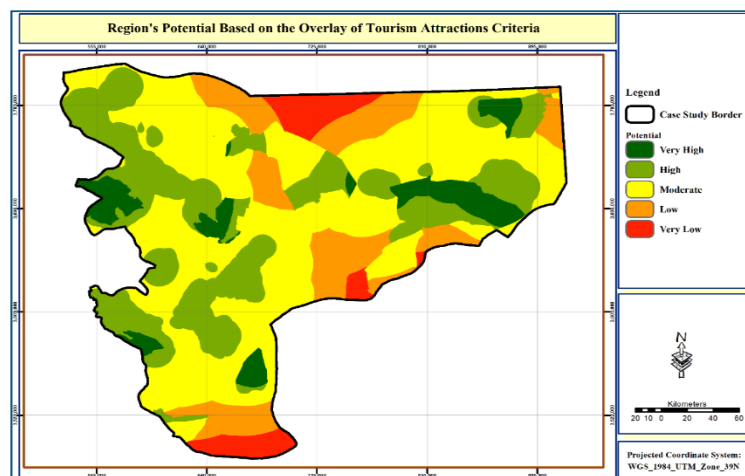
Fig 9. overlap of tourist attractions criteria
(Source: Research Findings, 2018)

Table 16. Statistical data of the tourist attractions criteria map
(Source: Research Findings, 2018)

Land suitability classes	Area (km2)	Percentage of area
very high	5328.05	7.47
high	19028.30	26.66
moderate	32863.07	46.05
low	10332.85	14.48
very low	3816.49	5.35

3.8. The final map of land suitability

In the last part of the study, making use of different maps, we tried to identify and investigate regional suitability classes in the field of natural, human and socio-economic characteristics and tourist attractions. After mapping each group of criteria and factors, and explaining the situation in each of the groups, at this stage, the final outputs of land suitability maps were overlapped with each other to develop the final map of tourism development. In developing this map, maps of the criteria and factors produced in the previous steps together with a questionnaire of factors and criteria were used to interview the experts and scholars. The questionnaire was developed based on paired comparison and experts' assessment of the produced maps, and the final weight of the determinants of tourism development in the eastern province of Isfahan was determined by the AHP method. The results of this questionnaire, summarized in Table 17, show that according to experts, the various tourist attractions with a weight of 0.333 are the most important factor or suitability class to develop tourism in desert areas of Eastern Isfahan. Land covers and animal species diversity with a weight of 0.171 are another important factor from experts' views. The third most important factor from experts' view is the hazard score of 0.128. At the next level, socioeconomic, environmental, topographic and climatic criteria got the highest scores respectively. Based on the WLC method, the scores determined on the main factors in the GIS environment were employed and the final map of land suitability was developed for tourism development (Figure 10).

Table17. Coefficient of importance of the main factors effective on tourism development in desert areas
(Source: Research Findings, 2018)

Main factors	Tourist attractions	Land covers-animal species diversity	Socio-economic	topography	Hazards	Climate	environmental	final weight
tourist attractions	1	3.5	5	4.5	2	2.5	2.5	0.33
Land covers-animal species diversity	0.268	1	1	1	3	2.5	2.5	0.171
Socio-economic	0.2	1	1	2	1	2	1	0.116
topography	0.222	1	5	1	0.5	1	0.5	0.073
Hazards	0.5	0.333	1	2	1	3	1	0.128
Climate	0.4	0.4	0.5	1	0.333	1	0.5	0.068
environmental	0.4	0.4	1	2	1	2	1	0.114
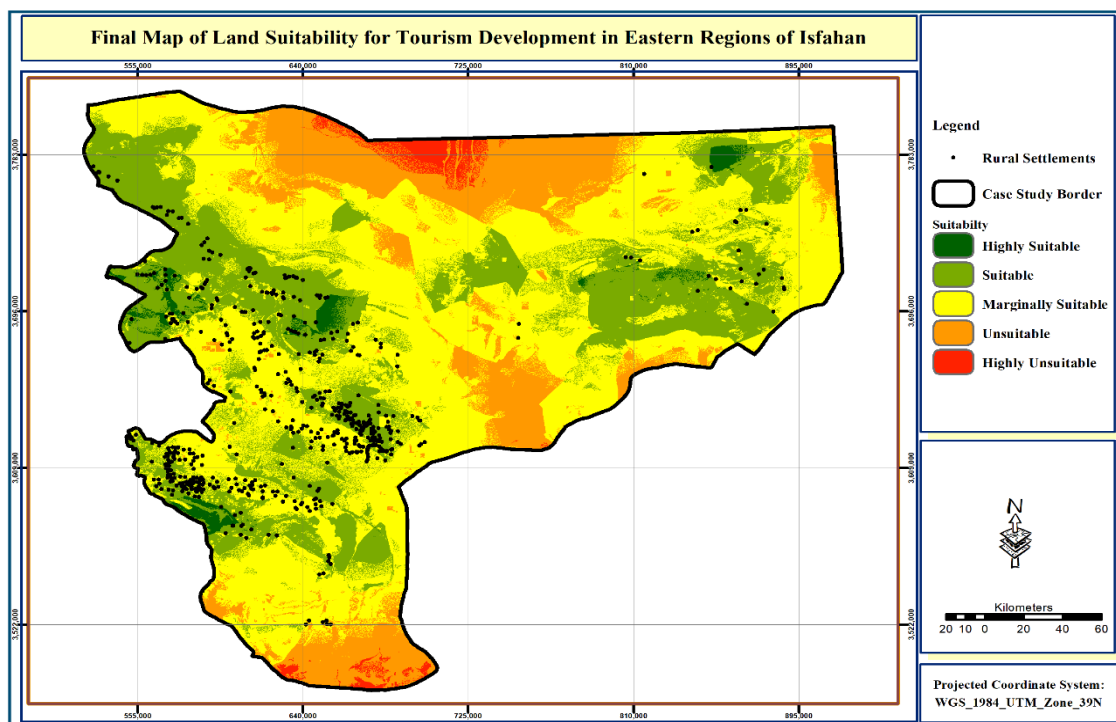
Figure 10. Final map of land suitability analysis for tourism development in the eastern regions of Isfahan
(Source: Research Findings, 2018)

The statistical data acquired from the final map of land suitability (Table-18) show that in 'very high' suitability class 1.6% of the area was explored, and in 'high' suitability class, 27.89% of the study area was explored. In sum, both classes with 21044 square kilometers account for nearly 30 percent of the total area (Fig. 10), which is a very high figure and a sign of the capabilities to develop tourism in the desert areas of the

Eastern Isfahan. Regardless of the land suitability in the moderate class, if the emphasis is placed only on the capabilities of these two areas which have the least restrictions, together with principled planning, the development of tourism in the region would reach the desired objectives, which includes positive socio-economic, and environmental effects.

Table 18. Statistical data of the final map of land suitability for tourism development
(Source: Research Findings, 2018)

Land suitability classes	Pixel count	Area	Percentage of area	Minimum values	Maximum values	Mean
very high	860931.96	1152.06	1.61	0.66	0.76	0.68
high	12935567.72	19892.71	27.89	0.56	0.66	0.59
marginally suitable	20793190.04	36585.95	51.29	0.46	0.56	0.52
not suitable	5770954.06	124844.42	17.50	0.36	0.46	0.42
very unsuitable	458959.41	12200.65	1.71	0.26	0.36	0.34

Geographic distribution of land in the study area shows a special focus on the eastern and northwestern areas. In other areas, the focus of

capabilities in most areas, especially in the central regions of the area is clearly visible. Considering the application of various socioeconomic factors

in the evaluation process and the research findings about available tourism capabilities in this region, it seems that the development of tourism in desert regions of Eastern Isfahan, is feasible as an inexpensive, essential and high priority industry.

In order to understand the dimensions of tourism development impacts on rural settlements in the study area, the layers of rural settlements and their populations were overlapped with the proposed land suitability classes; based on the data extracted from this overlap, through the use of the spatial join tools in the ArcGIS software, there are 388 rural settlements equivalent to nearly 48% of

all settlements and the population in 'very high' and 'high' suitability classes. The results confirm the direct impact of tourism development on nearly 48 percent of the population and rural settlements in this area; on the other hand, in the 'marginally suitable' class, nearly 51 percent of rural settlements and population are located, which are also directly and indirectly affected by development of tourism. Therefore, tourism development has double effects on many settlements in the region and can stimulate their sustainable development.

Table 19. Number of villages and population of rural settlements in the proposed land suitability classes
(Source: Research Findings, 2018)

Land suitability classes	Number of villages	Percent of villages	Population	Percent of population
very high	6	0.75	675	0.29
high	382	47.63	112421	47.60
marginally suitable	410	51.12	123011	52.09
not suitable	3	0.37	39	0.02
very unsuitable	1	0.12	16	0.01
Total	802	100	236162	100

4. Discussion and conclusions

In this study, using a multi-criteria evaluation method in the GIS environment, we tried to identify and analyze the land suitability classes for tourism development in counties located in desert areas of eastern regions of Isfahan province. For this purpose, a comprehensive review of literature and the study of geographic features of the region, effective criteria for evaluation process have been used. Thus, at the outset, by establishing related factors and criteria, the suitability of the region in each of the factors and groups of criteria was examined. The result showed that topographically, nearly 57% of the area, are in 'very high' and 'high' land suitability classes for tourism development. In the area of the climate factors, there are very low and low capabilities. In terms of land covers and animal species diversity, limited but valuable areas have been identified for tourism development. The results of the study showed that the region has no restrictions on the hazards and 43% of the total area are in very high and high suitability classes. In terms of environmental criteria, nearly 47% of the area are in very high

and high suitability classes for tourism development. The overlap of socio-economic parameters also showed that a major part of the study area has very high suitability. In the group of tourist attractions as one of the most important and influential factors in the development of tourism, the results showed there are vast and varied capacities for tourism development, as more than a third of the area is in the 'very high' suitability class for tourism development.

After evaluating each of the factors and groups, the output maps of the criteria are weighted by experts in a paired comparison method. The result of weighing showed that various tourist attractions, land covers, and animal species diversity and hazards respectively weighting 0.333, 0.17, and 0.89, are the most important factors affecting the development of desert tourism in eastern areas of Isfahan province. At the next level, socio-economic, environmental, topographic and climate criteria have the highest scores. The result of overlapping the criteria based on the linear weight composition also showed that a total of 21044 square kilometers, 30 percent of the total area are

in 'high and very high' suitability classes for tourism development.

It is important to know that nearly one-third of the lands in this area are in a very high suitability class or encounter the minimal natural and human constraints. The eastern areas of Isfahan province is a region with special geographic features and diverse tourist attractions; however, many regions in the area, despite many attractions, are still deprived and in poor conditions, and lag behind developed areas of the province, including the urban areas of Isfahan. Therefore, making use of high potentials in desert tourism in these areas can be a significant and decisive factor in reducing the gap between the human communities of this region and developed areas of the province. Compared to other regions of Isfahan province, the eastern region is a very dry one with limited water resources for developing agricultural activities. Given the high levels of water stress in the area and the negative impacts of recent droughts and based on the principles of sustainable development in these areas, it seems that mainstreaming of tourism development strategies is among the best available, inexpensive and effective alternatives in the short term to tackle the current problems, especially in vulnerable rural communities. In contrast to some desert areas of Iran, which are among the most marginal and remote areas far from population centers, the eastern areas of Isfahan province have a very good accessibility to the largest population centers of Iran, namely the urban area of Isfahan; this can be of great importance to the development of tourism in different aspects and provides one of the largest and most basic opportunities for the development of desert tourism in the area, the lack of which if there were other developmental conditions, could have been a serious obstacle to the development of tourism in the area.

The final map of zoning the land suitability classes for the development of desert tourism in the study area shows that geographic distribution of lands has a particular concentration in the east, northwest, and central regions.

In general, we may conclude that almost all conditions for development of desert tourism in the study area are provided; therefore, it is suggested to place development of tourism in this region at the top of future development plans. Further, by applying more detailed criteria, and introducing specific tourism functions for each of these potential areas, the tourism development can ensure the sustainability of human and natural resources. On the other hand, this could moderate some of the environmental constraints on the development of activities such as agriculture, and compensate for the disadvantages caused by recent droughts and climate changes.

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ارزیابی توانمندی‌های زمین برای توسعه گردشگری در مناطق بیابانی
(مطالعه موردی: مناطق شرقی استان اصفهان)

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چکیده مبسوط

۱. مقدمه

صنعت گردشگری به عنوان یک صنعت پرسود و ارزان، یکی از اجزای اساسی توسعه پایدار کشورها برای مناطقی که زمینه‌های توسعه آن را دارند، به شمار می‌رود؛ به طوری که آن را صادرات نامرئی نیز نامیده‌اند. اکوتوریسم یکی از بخش‌های گردشگری است. این شکل از گردشگری سفری مسئولانه به مناطق طبیعی است که از محیط‌زیست حفاظت می‌کند و باعث بهبود رفاه مردم محلی می‌شود. بخش وسیعی از کشور ایران را نواحی بیابانی، نیمه بیابانی و کویری تشکیل داده که در نگاه اول ناحیه‌ای بی‌حاصل جلوه می‌کند و هرگونه سرمایه‌گذاری در آن را در ظاهر، منجر به شکست نشان می‌دهد. به طوری که حتی به لحاظ گردشگری و اکوتوریسم نیز مورد غفلت و بی‌مهری واقع شده است. مطالعه وضعیت جغرافیایی استان اصفهان نشان می‌دهد منطقه شرقی استان نزدیک به ۶۶ درصد کل مساحت استان را به خود اختصاص داده‌اند؛ این منطقه خشک و نیمه‌خشک با حداقل ارتفاع ۵۹۶ متر، شیب بسیار پایین، خصایص خاص اقلیمی همراه با ویژگی‌ها و عوارض منحصربه‌فرد کویری، می‌تواند زمینه توسعه اکوتوریسم و گردشگری کویری را در این بخش از استان فراهم نماید. این در حالی است که در کنار این پتانسیل‌ها، مسئله کمبود آب و محدودیت‌های محیطی موجود برای توسعه کشاورزی و فعالیت‌های مرتبط، توسعه پایدار روستایی و در مجموع برون‌رفت از توسعه‌نیافتگی منطقه‌ای را با چالش‌های جدی مواجه ساخته است. بنابراین، توسعه اکوتوریسم به عنوان یک صنعت ارزان و پاک با ظرفیت‌هایی فراوان، می‌تواند از بهترین گزینه‌های

تعدیل محدودیت‌های محیطی برای کشاورزی و کم آبی در این منطقه آسیب‌پذیر و با شکنندگی بالای اکوسیستمی به شمار آید و موجبات بهبود رفاه جامعه محلی، حفظ محیط‌زیست و نهایتاً توسعه پایدار این مناطق را فراهم سازد.

۲. مبانی نظری تحقیق

اکوتوریسم که اختصار واژه‌Ecological Tourism است به عنوان یکی از بخش‌های گردشگری- برخلاف سایر جنبه‌های توریسم ازجمله توریسم انبوه [۱]که در آن صرفاً به سود ناشی از گردشگری تأکید می‌شود - دارای محتوایی چندبعدی است. این شکل از گردشگری فعالیت‌های فراغتی انسان را عمدتاً در طبیعت امکان‌پذیر می‌سازد و مبتنی بر مسافرت‌های هدفمند توأم با برداشت‌های فرهنگی، معنوی، دیدار و مطالعه از جاذبه‌های طبیعی و بهره‌گیری و لذت‌جویی از پدیده‌های متنوع آن است. تحرک‌بخشی به توسعه اقتصادی در سطح ملی و محلی، تنوع‌بخشی به اقتصاد، کسب سود، ایجاد زیرساخت‌ها، ایجاد سرمایه و بنیه مالی برای مدیریت و حفاظت از مناطق طبیعی، ایجاد عدالت اقتصادی در راستای حفاظت از منابع طبیعی، افزایش آگاهی و بینش افراد جامعه در مورد محیط‌زیست و حفاظت از آن، حفظ فرهنگ‌ها و ... همگی از قابلیت اکوتوریسم به شمار می‌آیند. شاخه نسبتاً جدیدی از اکوتوریسم، گردشگری مناطق بیابانی و کویری است. گردش در بیابان‌ها و نواحی کویری و مشاهده جاذبه‌های کویری، پوشش گیاهی، حیات جانوری، اشکال مورفولوژیک، انجام فعالیت‌های ورزشی و بازدید از سایر جاذبه‌های آن‌ها، نوع خاصی از گردشگری را به وجود آورده که «گردشگری کویر» نامیده می‌شود.

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۳. روش تحقیق

محدوده مطالعه این پژوهش شامل ۶ شهرستان نائین، اردستان، آران و بیدگل، خوروبیابانک، اصفهان و نطنز واقع در شرق استان اصفهان است. این ناحیه با وسعتی نزدیک، ۶۶ درصد کل مساحت استان اصفهان را شامل می‌شود. متوسط ارتفاع این ناحیه ۱۲۷۶ متر است. متوسط شیب این منطقه نیز ۱۰/۹۱ درصد است. بر اساس اطلاعات آماری سال۱۳۹۰، این محدوده با ۵۸۲ سکونتگاه روستایی و ۳۱ سکونتگاه شهری، ۲۴۱۱۰۹۵ نفر جمعیت داشته است. این پژوهش با توجه به هدف، از نوع کاربردی و از نظر روش تحقیق از نوع توصیفی- تحلیلی، است. برای تجزیه و تحلیل داده‌ها، از روش ارزیابی چندمعیاره در محیط سیستم اطلاعات جغرافیایی استفاده شده است. از مهم‌ترین روش‌های ارزیابی چندمعیاره می‌توان به روش ترکیب خطی وزنی اشاره کرد.

۴. یافته‌های تحقیق

نتیجه همپوشانی پارامترهای توپوگرافی نشان می‌دهد که نزدیک به ۵۷ درصد این ناحیه دارای توانمندی بسیار بالا و بالا برای توسعه گردشگری کویری است. به لحاظ دو عنصر اقلیمی میانگین دما و بارش، ۴/۵ درصد محدوده دارای توانمندی بسیار بالا و بالاست. از لحاظ اقلیمی، نزدیک به ۷۵ درصد محدوده توانمندی بسیار پایین و پایینی برای توسعه گردشگری کویری است. در زمینه پوشش زمین و تنوع گونه‌های جانوری، بیشتر مساحت دارای توانمندی متوسط است. در زمینه مخاطرات نیز محدودیت چندانی مشاهده نمی‌شود؛ به طوری که نزدیک به ۴۳ درصد کل مساحت منطقه دارای توانمندی بسیار بالا و بالایی است. به لحاظ سازگاری با کاربری‌های مجاور، ۴۶ درصد مساحت محدوده توانمندی بسیار بالا و بالایی برای توسعه گردشگری کویر دارد. در ارزیابی توانمندی به لحاظ ویژگی‌های اجتماعی – اقتصادی، ۷۲ درصد مساحت این منطقه دارای توانمندی بسیار بالا و بالایی است. نتایج مربوط به جاذبه‌های گردشگری نشان می‌دهد نزدیک به ۳۳ درصد زمین‌های منطقه دارای توانمندی بسیار بالا و بالایی در زمینه برخورداری‌های از جاذبه‌های گردشگری است. نتیجه اعمال نظر کارشناسان و متخصصان در تهیه نقشه نهایی توانمندی زمین نشان می‌دهد که: جاذبه‌های متنوع گردشگری با وزن ۰/۳۳۳، مهم‌ترین عامل یا

توانمندی برای توسعه گردشگری کویر در منطقه است. پوشش زمین و تنوع گونه‌های جانوری با وزن ۰/۱۷۱ عامل مهم دیگری است. سومین عامل مهم نیز معیار مخاطرات با امتیاز ۰/۱۲۸ است. اطلاعات آماری حاصل از نقشه نهایی توانمندی زمین نشان می‌دهد در کلاس بسیار مناسب ۱/۶ درصد و در کلاس مناسب ۲۷/۸۹ درصد زمین‌های محدوده مطالعه قرار گرفته است. در مجموع این دو کلاس نزدیک به ۳۰ درصد کل مساحت محدوده را به خود اختصاص داده‌اند.

۵. بحث و نتیجه‌گیری

در پژوهش حاضر تلاش گردید با به‌کارگیری روش ارزیابی چندمعیاره در محیط سیستم اطلاعات جغرافیایی، توانمندی‌های زمین برای توسعه گردشگری کویر در شهرستان‌های شرقی استان اصفهان شناسایی و تحلیل شود. جهت انجام این کار با مطالعه جامع ادبیات و ویژگی‌های جغرافی منطقه، پارامترهای مؤثر در ارزیابی شناسایی و در روند ارزیابی بکار گرفته شدند. می‌توان گفت تقریباً تمامی شرایط برای توسعه گردشگری کویر در این منطقه فراهم است؛ لذا پیشنهاد می‌شود توسعه گردشگری کویر در این منطقه اساس و در رأس برنامه‌ریزی توسعه آتی این منطقه قرار گیرد و در مناطق پتانسیل دار شناسایی‌شده، با به‌کارگیری پارامترهای جزئی‌تر دیگری و همچنین تعریف کارکردهای خاص گردشگری برای هر کدام از این مناطق مستعد، موتور حرکت توسعه به حرکت درآورده شود و بدین طریق پایداری منابع انسانی و طبیعی در این مناطق تضمین گردد.

کلید واژه‌ها: توانمندی زمین، گردشگری مناطق کویری و بیابانی، ارزیابی چندمعیاره، ترکیب خطی وزنی، سامانه اطلاعات جغرافیایی، مناطق شرقی اصفهان.

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Analysis of Livability of Rural Settlements
(Case Study: Villages of Kashmar County)

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Abstract

Purpose- This study aimed to determine the constructive components of livable rural communities. To this end, it investigates the status of livability from the viewpoint of rural population in villages of Kashmar County.

Design/methodology/approach- This is a descriptive-analytic study. In the first stage, indicators were extracted by reviewing the relevant literature. Then, a questionnaire was developed based on the Likert scale. Using the Cochran formula, 350 samples were selected and were randomly distributed. Finally, the data were analyzed using the SPSS software and employing correlation and Friedman tests.

Finding- The results of the Spearman test showed no significant relationship between individual characteristics (age, sex, education) and livability indicators. On the other hand, the results of the Friedman test revealed that villages have higher livability in terms of the environmental dimension than other dimensions. In terms of the social dimension, recreation and leisure time indicator had the highest rank from respondents' viewpoint (5.50), and other indicators were also effective in varying degrees. Respondents were more satisfied with public space than other indicators.

Originality/value- Due to the novelty of the subject in Iran, and since it has received low attention in the relevant global literature, more time is needed to carry out further studies. The results of this study may be useful for rural officials and planners, rural students and researchers.

Key words: Livability, rural settlement, villagers, Kashmar.

Paper type- Scientific & Research.

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1. Introduction

Nearly, 30% of the population of Iran is rural. Since economic, social, cultural, human and sustainable development is achieved through basic changes in villages, special rural areas should be considered more, notably because these areas are deprived of the economic and social facilities of the urban areas. In addition, the existence of dynamic villages with proper livability conditions will be effective in identifying the problems and factors affecting their unsustainability (Hakim Doost, Moradi, Nazari, & Rostami, 2016).

The increasing importance of livability is due to increased awareness of unsustainable patterns of life and unhealthy and unsustainable consumption that reduces the capacity of environmental resources to support the earth's population in the long term (Wang, 2010). Some of these concerns for each community include satisfying the needs (housing, energy, water and food), waste management, public health and safety, education and entertainment, social interaction, cooperation, economic activities and innovation. Livability deals with these needs and demands from various aspects, such as reducing economic welfare and increasing social dissatisfaction (Ghalibaf, 2009).

The rural livability is highly influenced by time and place. Moreover, the components that make up rural settlements vary according to the time period and geographical location. In this regard, the quality of life of rural people depends on a variety of factors, including the availability of high-paying jobs, access to important services such as education, hygiene, powerful associations, health, natural environment and security. The urban population is also dependent on these needs to some extent, however, their challenges to have a better life, despite being similar, are different from those of the rural population. Some of these challenges are dependent on the mainstream of the economy, however, others are confined to the organizational and institutional framework of rural areas. In other words, small scale and low density of rural settlements, lack of job diversification and proper income in agriculture, distance from other residential centers, and lack of proper roads and inefficient transportation systems postpone the

implementation of the necessary policies to revitalize the quality of rural life (Bullock, 2004). The rural settlements in Kashmar city, like most of the rural areas in Iran, have undergone a significant decline in rural population over the past half century. According to data coming from the number of immigrants arriving in Kashmar over the past 10 years, about 56% of the population has entered the city over the past three years, indicating an intensification of the immigration process in recent years. The social and physical structure of Kashmar can be attractive for the rural immigrants due to a number of factors, including the existence of higher education centers, two main informal contexts, career attractiveness and urban facilities, and high employment rate (Bemanian, Mehrdadian & Rezaei Rad, 2011).

Thus, the present study aims to determine the constructive components of livable rural communities based on previous studies in order to investigate the livability from a rural population's viewpoint in the villages of Kashmar. This study also seeks to answer the following questions:

Is there a significant relationship between individual characteristics and livability indicators in Kashmar villages?

Is the economic dimension of livability compared to other indicators of livability at a lower level?

Are the indicators of social livability, participation and health and education at a lower level compared to other social indicators?

Is the pollution indicator at a higher level compared to environmental livability indicators?

2. Research Theoretical Literature

2.1. Livability

Livability theory was originally developed by Abraham Maslow's work on human needs; he categorized human needs into five levels, including biological needs, security needs, social needs, respect, and self-actualization (Figure 1). The hierarchy pyramid of human needs from Maslow's viewpoint). This theory has been developed in the area of quality of life by Veenhoven. He believes that the general feeling of people leads to a better life for them when they live in better and more livable communities. What is more, social livability is not entirely clear, but people are happier and more satisfied in communities where their needs are satisfied (Radcliff, 2001)
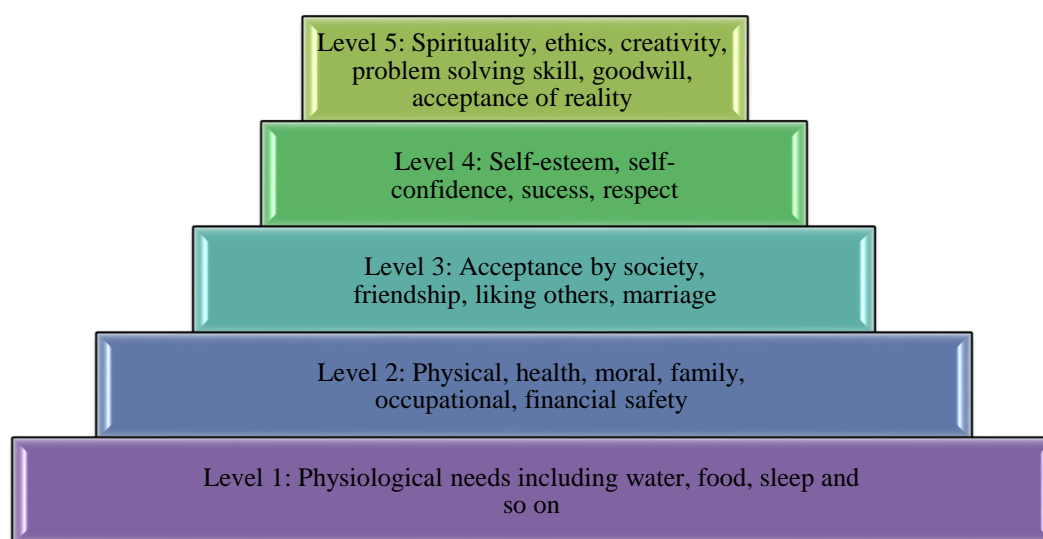
Figure 1. Hierarchy pyramid of human needs from Maslow's viewpoint
(Source: Radcliff, 2001, p. 940)

Livability refers to the aspects that improve the quality of life. Increasing the quality of life will also affect lifestyle and health conditions, and the sustainability of the built environment will increase (Shamsuddin, 2012); therefore, livability consists of a number of interdependent economic, social and environmental concepts and these relationships should always be considered to prevent it to be one-dimensional and mimetic (Khorasani, Mollaei Ghalichi & Rezvani, 2015). There are several definitions of livability; a few are listed in Table 1.

Table 1. Definitions of livability in relevant literature
(Source: Khorasani and Rezvani (2013), Isaloo et al. (2013), Bandar Abaad and Ahmadi Nejad (2014), Sasanpour (2017)

Definition	Year	Definition
American, I. O. A. (AIA)	2005	A local livable community recognizes its unique identity and places great value on planning processes, as these processes contribute to the management of growth, and can be modified to maintain and enhance the character of the local community.
Chicago Metropolitan Agency for Planning	2009	Livable communities are safe, secure and pedestrian-based communities that provide different options for timely access to schools, work centers and urban services, as well as basic needs.
Competition & Efficiency Commission	2008	Livability reflects the welfare of a local community where people tend to live there in the present and future.
United States Department of Transportation US DOT	2010	Investing in transportation, services and housing should be provided with adequate access to them through sustainable mobility options that are environmentally adaptable.
National Recreation and Parks Association	2010	The locally based community provides healthy places for purposeful and productive lifestyles at work, school, playground, a place of worship, and in the neighborhood for residents and visitors.
Mccrea et al.	2012	Livability is a part of the overall quality of life of residents in urban environments.
Miller et al.	2013	Livability is one of the features of a living environment that provides a peaceful, secure, valuable, interactive and sustainable with social and psychological well-being, with respect for nature and the lack of loss of natural resources through the strengthening of social life, community spaces, and the connection between the place of gathering and activity with the various transportation options.
Mahmoudi et al.	2015	Livability improves the quality of urban spaces in modern cities and humanizes them as far as possible.
Merriam-Webster Dcitionary	2016	Livability refers to the right place for human life.

Although the definition of livability varies across societies, social planning aims to provide definitions and criteria for assessing indigenous livability. Livability is often used to define different dimensions of the community and common experiences that shape it and focuses on the human experience of the place and considers it in a given time and place (Khorasani, 2012). In

Livable communities: An evaluation guide, a community is considered to be livable if it provides adequate housing, social services and support, and adequate transport options, education, and cultural diversity that leads to individual autonomy and civil and social participation of the inhabitants (AAPR5, 2005)
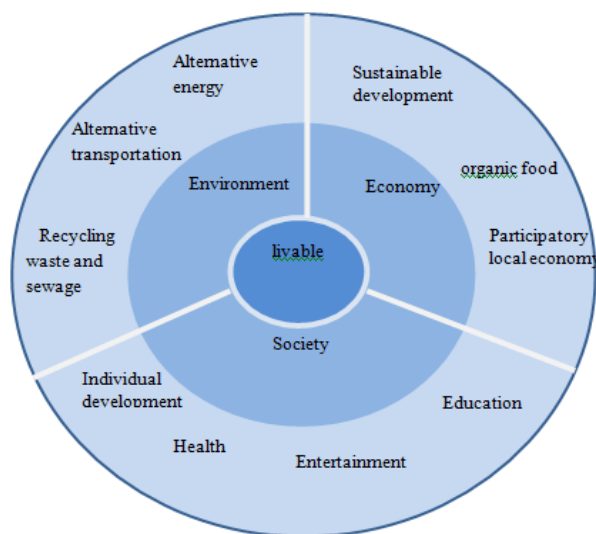
Figure 2. The cycle of the principles of livability
(Adapted from Khorasani, 2012, p. 86)

Thus, the concept of livability has been developed because of the importance of existing factors that threaten the quality of life. Factors such as rapid growth, the lack of farmland and open spaces, housing shortages, the growth of social inequality, the growing weakness of local and spatial identity and social life, are serious threats to livability and community (Khorasani & Rezvani, 2013).

2.2. Rural livability
The term "livability" was officially introduced into the planning-relevant literature since *Livable Villages* was published in 1938
Livability borrows the principles and criteria of planning-relevant theories, such as favorable sustainable development and, in some places, is overlapping with these theories and sometimes contradicts them (South worth, 2011). The idea of livability connects many concepts and refers to special places that interact together and guarantees citizens' satisfaction by meeting the cultural, economic, social needs and improving health and happiness, conservation of natural resources and ecosystem functioning from local to global levels

(Hesari, Mousavi, Movahed & Tavalaei 2016; as cited in Stein, 2002, p. 25).
In fact, the livability approach promotes the concepts of the quality of the living place of people in order to provide them with the best living practices. Therefore, the ultimate goal of the study of the livability of the living environment and its subsequent application is to improve the quality of people's life to enjoy a meaningful life. In real conditions, rural environments suffer from many problems due to various reasons such as low population density, long distance from the urban centers, geographical isolation, economic structure based on agriculture and so on. Moreover, due to the living conditions of urban communities, living conditions and quality of life in rural environments differ from the realities and standards of contemporary human life, and challenge the living conditions and housing in rural environments (Housing Foundation of the Islamic Revolution of Iran, 1982). Hence, currently, rural life is of great importance for creating decent living conditions and preventing rural destruction and migration.

Many planners and theorists has provided different definitions of the livable village, depending on their field of their interest. These definitions are closely related and complement each other, some of which are described below.

"A livable village is attractive and safe for all people, not just for those in a certain age group" (Yuan, 2012).

"A livable village respects its historical past, and on the other hand, it also cares about those who are not born, and this type of village also fights against any waste of resources, so it is also a sustainable village" (NARC, 2010).

"A livable village is suitable for social life, communication and dialogue. It is a place for living, activity and design of the public space that provides the context for the presence of residents in the general realm" (Omar, 2010).

Seymoar (2008) considers the principles and conditions for the realization of the livable villages that are generalizable for each village in each region, so that if one of them is damaged it hurts the whole of the livable villages from a certain aspect; therefore, these principles are a prerequisite for the realization of livable villages, but not enough. These principles and characteristics are discussed in Table 2.

Table 2. Livability conditions of rural areas from the viewpoint of Saymoar and Alberta
(Source: Boozarjomehri et al., 2017, p. 98).

Principles
All principles follow a rule.   The principles restrict each other and are conditioned.   Principles complement each other.   Principles contradict each other.
Conditions under the principles
Sustainable livability: Villages need to be livable, satisfy health and basic human needs.   Safety and security: the village must be safe. In order to protect the village from natural and unexpected events and human and financial losses.   Financial productivity: The village must have a financial economy and increase productivity and efficiency in all areas.   Cooperation: Healthy social communication that involves collaboration.   Access: The village must provide the actual and potential facilities for access to the service and information centers and resources.   Balance: The village must seek to maintain, sustain, and strengthen the balance in its general sense.   Adaptability: The village should bring about adaptation and integration of elements together and with natural conditions.   Dynamics: The village must have dynamism.   Identity: The village must prevent historical cessation and the breakdown of cultural links through their preservation and enhancement, so that the identity of the village can be recognized.   Beauty: The village should be enjoyable in all aspects.   Diversity: The village must seek to maximize diversity in its physical, social and economic structure.   Attachment: The village must strengthen the villagers' attachment and make it to a feeling of responsibility in various ways.

Study of the problem and theoretical roots
- The concept of livability
- Rural livability

Operationalization of the concepts
- Determination of dimensions of livability
- Livability Indicators

Data collection and conclusions
- Preparation of the questionnaire and its validity and reliability
- Data collection
- Data analysis
- Conclusion
- Suggestions
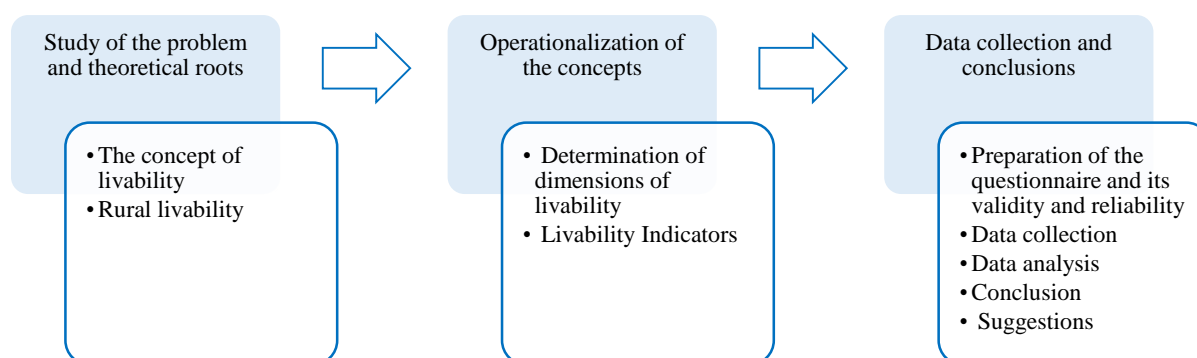
Figure 3. Research Process
(Source: Research Results, 2017)

2.3. Review of literature

Livability is frequently used to define the various dimensions of the community and the common experiences that shape it. It focuses on the human experience of the place and takes it into account in a certain time and place (Afrakhteh, Anvari, Jalalian & Manuchehri, 2016). The issue of livability has been raised since the 1980s due to the rapid development of urban areas around cities (Bandar Abaad & Ahmadi Nejad, 2014). In this regard, the review of literature on rural livability provides us with valuable information as presented in Table 3.

Table 3. Review of literature on rural livability
(Source: Research finding, 2017)

Scholar (s) & Year	Findings
Wang, 2010	The current level of rural livability in Henan province is still at an early stage. In addition, there is a positive correlation between quality of rural population and the qualitative level of economic and demographic characteristics of Henan Province. Regional economy and population quality should be improved in order to develop the level of rural livability.
Lau Leby et al., 2010	This study considered the four dimensions of livability: social, physical, functional and secure. The most important dimension was the security and the least important was the social dimension from the residents' viewpoint
Faiz et al., 2012	This study aimed to explain the livability and sustainability and study the relationship between road sustainability and its impact on rural livability. Results showed that the quality and sustainability of the roads of a settlement had a direct effect on the provision of living conditions and the improvement of livability
Khorasani & Rezvani, 2013	In this study, the livable settlement was defined as a suitable place for living and working. The study area was urban villages located in Varamin and adjacent to the four urban centers. The results showed that there was no significant relationship between the livability score of each village with its service development coefficient. This correlation was measured between each dimension of the livability and service. There was no significant relationship between the dimensions and the services provided.
Jomepour & Tahmasebi Tehrani, 2013	The level of quality of life and livability in the villages was low and the participants evaluated the quality of life in all aspects of social, economic and environmental considerably as low. There was a significant difference in terms of the rate of livability and quality of life in the villages located in the research area.
Khorasani et al., 2015	The results showed that there was a significant relationship between sex variable with recreation and leisure time, and between the jobs of people and public transportation indicators and open and green spaces, and there was no significant relationship between age and education and all livability indicators. Finally, there was a significant relationship between the duration of residence in the village and the indicators of employment and income, the place attachment and landscape.
Isaloo et al., 2015	Economic indicators such as occupation, income level, and savings among other criteria had a significant effect on determination of the rate of livability in rural areas of this district. The results of comparative analysis of settlements showed that although some villages have more population and services and more facilities, in terms of livability, the quality of living conditions was lower than that of the less-populated rural areas.
Sojasi Qeidari et al., 2017	The results showed that out of the 16 indicators examined, based on the significance level of the T test, eight of the livability indicators were significant from respondents' viewpoint, suggesting a significant difference between the livability of the studied samples. Also, the ranking of villages based on the multi-indicator model of the VIKOR showed that Ghourichai and Haji Nabi rural point are ranked with the lowest level of livability indicators. However, the villages of Aghchi Olia and Bahram Sufi are ranked with the highest level.

3. Research Methodology
3.1 Geographical Scope of the Research

Kashmar is one of the cities of Khorasan Razavi. It is connected to Nishabur and Sabzevar from the north, to Torbat-e Heydarieh from the east, to Feiz Abaad from the south and to Khalil Abaad and Bardscan from the west. From the economic point of view, Kashmar is a developed city in an agricultural area. Weaving silk and woolen carpets by local weavers is another area that promotes the economic level of this region. The Kashmar rug is one of the most popular carpets in Iran and is exported abroad. Kashmar consists of two parts, five villages and two towns; it is the capital of the central part, consisting of "Bala Velayat" and "Paein Velayat" villages; the "Kooh-e Sorkh" district, the center of which is Rivash, and includes Bar Rood, Bar Kooh and Takab (Ashrafi, Hooshmand & Karamatzadeh. 2014).

Based on the data obtained on the social stability of Kashmar villages by Entekhabi et al. (2017), these villages are in a relatively desirable situation or in some of the indicators are undesirable. According to the data provided, the number of immigrants arrived in Kashmar over the past 10 years reveals that about 56% of the immigrant population has entered the city in the past three years, indicating the intensification of the city's migration process in recent years (Bemanian et al., 2011).

Table 4. Villages under study in the research
(Source: Statistics Center of Iran, 2016)

Row	Village name	Number of households	Sample size
1	Ashrat Abaad	463	42
2	Mamar Abaad	362	33
3	Mohammadieh	440	40
4	Haji Abaad	202	21
5	Zendeh Jan	518	49
6	Moghan	680	63
7	Kasrineh	639	58
8	Sarhozak	477	44
	Total	3781	350
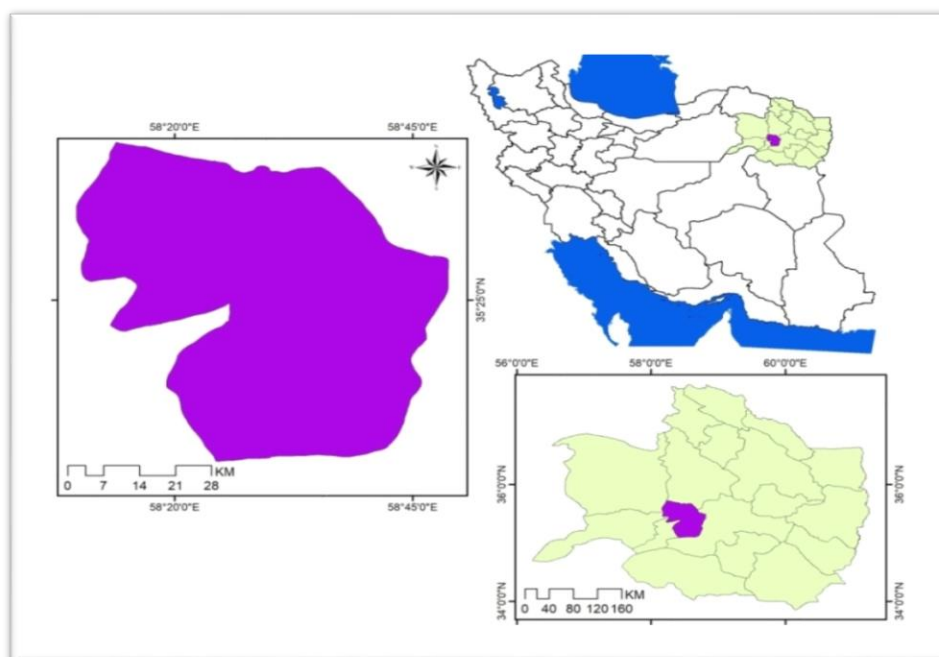
Figure 3. Map of the location of the villages of Kashmar
(Source: Research finding, 2017)

3.2. Methodology

This is a descriptive-analytic study in terms of the nature and objectives of the subject. Due to the novelty of the subject in Iran and also the small literature of this subject in rural studies in the world, indicators of livability in rural settlements were extracted and then, adapted to the conditions of villages in this city.

In the first stage, using the content analysis of previous international studies, the relevant indicators were extracted. In the second stage, using a questionnaire designed for researchers, among all the extracted indices and components, the research indicators were extracted using sources and then, a questionnaire was developed based on the five point Likert scale.

In order to evaluate the validity of the household questionnaire as the main tool for measuring the livability of villages in Kashmar, the geography and rural planning as well as rural development and sociology experts' comments were taken into account. After verifying the validity of the questionnaire by experts, Cronbach's alpha was used to determine the reliability that was 0.831, indicating an acceptable coefficient of reliability.

In this study, Cochran method is used for sampling. Rural households and the level of rural analysis were considered as the analysis unit for this research. The number of households in the villages was 3781 based on the census of 2016, of which, 350 households were selected using the Cochran formula for this study; moreover, the sample distribution was randomly conducted. Also, 20 questionnaires were added to the total number for obtaining more accurate results. Finally, data were analyzed using SPSS software and correlation and Friedman tests were used.

4. Research Findings

The results of field findings in each of the studied domains were calculated in the information tables and were presented in two parts: descriptive findings and analytical findings.

4. 1. Descriptive findings

Table 5 reports descriptive characteristics of respondents, including age, education, and job status; notably, it shows the low level of education of the research population (62.9% diplomas and under-diplomas), which can partly affect the livability indicators.

Table 5. General characteristics of respondents
(Source: Research finding, 2017)

No.	Description: (age status)	Frequency	Percentage	No.	Description: (Educational level)	Frequency	Percentage
1	15-40	224	60.5	1	Reading and writing	101	27.3
2	41-60	114	30.8	2	Diploma	155	41.9
3	Above 60	32	8.6	3	Bachelor	99	26.8
No.	Description: (Job Status o)	Frequency	Percentage	4	Masters	15	4.1
1	Governmental	36	9.7				
2	Self-employed	202	54.6				
3	housewife	73	19.7				
4	Unemployed	5	1.4				
5	Others	54	14.6				

Each of the livability dimensions is dealt with below.

4.2. Analysis of economic dimensions of livability

Table 6 shows that the indicators of available job opportunities, proper income and availability of suitable jobs in the adjacent village or city showed the highest mean with 4.06, 3.95 and 3.94, respectively. Sufficient illumination in housing had the lowest mean with 2.19, the quality of the pipeline gas network with 2.22 and the building strength with 2.23.

Table 6. Frequency, weight mean and standard deviation of economic components
(Source: Research finding, 2017)

Economic dimension	Items	Frequency					Average	Standard deviation
		very low	low	medium	high	very high		
Employment and income	Having a good job	0	16	103	171	80	3.85	0.80
	Access to a suitable job in an adjacent village or city	0	10	83	195	82	3.94	0.74
	A high number of job opportunities	0	35	53	191	91	3.91	0.87
	Proper income	55	11	89	157	108	3.95	0.87
	Available job opportunities	10	10	58	159	133	4.06	0.93
Housing	Building strength	10	26	227	92	21	3.23	0.77
	Suitable and sanitary bathroom	32	164	142	32	0	2.47	0.77
	Suitable heating and cooling system	21	147	144	31	27	2.71	0.96
	Sufficient illumination in housing	55	199	110	0	6	2.19	0.74
	Hygiene wastewater system	24	84	136	76	48	3.09	1.10
	Proper and adequate housing area	42	143	174	5	6	2.43	0.77
	Number of rooms in the house	16	122	207	20	5	2.66	0.70
Facilities and Services Infrastructure	Quality of access to the city	59	124	128	5	54	2.65	1.20
	The quality of access to the surrounding villages	42	99	132	54	43	2.88	1.15
	The quality of passages and squares	6	48	152	120	44	3.40	0.91
	The quality drinking water in the village	66	120	137	37	10	2.47	0.98
	The quality of supplying everyday needs by the grocery store	22	111	133	83	21	2.91	0.99
	The quality of the cooperative in the village or adjacent villages	0	15	117	133	105	3.88	0.86
	The quality of pipeline gas network	74	171	99	21	5	2.22	0.87
Public transportation	The number of public transport hours	10	70	110	115	65	3.41	1.06
	The number of public vehicles	26	69	93	107	75	3.36	1.19
	The number of vehicles for carrying loads	16	56	204	66	28	3.09	0.89
	Appropriate access to public transportation	6	96	92	69	107	3.47	1.20
	The quality of passenger transport by public transport	5	49	119	110	87	3.60	1.02

4.3. Analysis of the dimensions of social livability

The findings in Table 7, which have been prepared to measure the livability rate of social dimension indicators in rural areas of Kashmar, show that the indicators of the quality of services and equipment in the gym, the quality of services for recreation and leisure spaces and the quality of services and the breadth of the library with the average of 4.55, 4.54 and 4.26, respectively, had the highest

averages. The lowest average was also attributed to the riders/drivers' safety indicators at night with 2.01, life in the village with suitable conditions for living and working with 2.03 and a good relationship with relatives and neighbors in the village with 2.

Table 7. Frequency, weight mean and standard deviation of social components
(Source: Research finding, 2017)

Economic dimension	Items	Frequency					Average	Standard deviation
		very low	low	medium	high	very high		
public education	Adequate and suitable educational setting	15	42	139	101	73	3.47	1.05
	The quality of access to schools in adjacent city	31	70	121	119	29	3.12	1.07
	The quality of educational equipment of the school	10	41	131	96	92	3.59	1.06
	The quality of school buildings	11	56	119	120	64	3.86	3.56
	The quality of school teachers	20	132	141	48	29	2.82	0.99
Health	The quality of services of health home in the village	22	119	144	47	38	2.89	1.04
	Health care support	22	89	121	83	55	3.16	1.12
Cooperation and solidarity	Compassion for development of village	77	109	104	51	29	2.58	1.18
	The relationship of members of the Islamic Council and governor of the rural district	48	140	117	48	17	2.58	1.01
	People's cooperation during construction projects in the village	11	80	139	106	34	3.19	0.97
	The presence and sympathy of the village people in rural affairs	10	89	157	90	24	3.07	0.92
	Trusted members of the Islamic Council of the village	74	130	91	47	28	2.52	1.16
	The respect level of the village people	64	129	147	25	5	2.40	0.89
	The spirit of the team work among the villagers	38	76	141	82	33	2.98	1.09
Identity and place attachment	The desire to live in the village	70	105	79	83	33	2.74	1.24
	A sense of nostalgia in the distance away from the village	82	136	82	59	11	2.40	1.08
	Good relationship with relatives and neighbors in the village	105	170	58	31	6	2.08	0.95
	Having hope to improve living conditions in the village	68	130	90	44	38	2.60	1.21
	The desire to work in the village	94	97	76	81	22	2.56	1.24
	The desire to invest in the village	67	92	93	80	38	2.81	1.25
	Living in the village with suitable conditions for living and working	141	123	79	6	21	2.03	1.08
	The desire to spend leisure time in the village	89	128	97	34	22	2.38	1.12
	Believing in the village as a good place to live in the region	100	116	111	32	11	2.29	1.04
Individual and social security	Low crime rates (drug abuse, robbery and so on).	21	98	157	74	20	2.92	0.95

Table 7

Economic dimension	Items	Frequency					Average	Standard deviation
		very low	low	medium	high	very high		
Individual and social security	Low levels of conflict between newcomers and indigenous people	33	91	117	103	26	2.99	1.07
	Security of women's traffic within 24 hours	97	143	77	43	10	2.25	1.05
	The traffic security of the pedestrians at night	95	146	104	15	10	2.18	0.95
	The traffic security of the riders/drivers at night	38	113	94	25	0	2.01	0.94
	Traffic safety in the roads and streets in terms of the speed of cars within 24 hours	64	85	172	22	27	2.62	1.06
	The quality of the performance of police station	26	51	126	89	78	3.38	1.16
Recreation and leisure time	The quality of services and equipment in the gym	0	0	49	65	256	4.55	0.71
	The quality of services and the area of the library	0	10	41	159	160	4.26	0.76
	The quality of services for cultural and religious sites	63	138	106	43	20	2.51	1.07
	The quality of service of cultural and historical places	0	16	63	101	190	4.25	0.89
	The quality of services for recreation and leisure areas	5	0	36	76	253	4.54	0.77

4. 4. Analysis of environmental dimensions of livability

Table 8 shows the frequency, weight average and standard deviation of the environmental components. In this dimension, industrial pollution indicators with 4.36, the location of the children's playground with 4.31, and the area of children's playground with 4.23, had the highest averages. The lowest average was also attributed to the quality of garbage collection with 3.02, calmness and lack of noise pollution with 3.04 and beautiful natural landscape with 3.10

Table 8. Frequency, weight mean and standard deviation of environmental components,
(Source: Research finding, 2017)

Environmental dimension	Items	Frequency					Average	Standard deviation
		very low	low	Medium	High	very high		
Pollution	The quality of garbage collection	10	83	198	47	32	3.02	0.89
	The quality of surface water collection	5	77	132	113	43	3.30	0.97
	The quality of sewage collection	0	36	122	116	96	3.73	0.95
	Relaxation and lack of noise pollution	10	79	190	68	23	3.04	0.86
	Pollution from vehicle transportation	5	61	187	63	54	3.27	0.94
	Pollution from industrial factories	10	6	31	115	208	4.36	0.90
	Pollution from proximity to waste disposal site and construction waste	5	40	77	146	102	3.81	1
Landscape	Beautiful natural landscape	33	61	172	43	61	3.10	1.13

Table 8

Environmental dimension	Items	Frequency					Average	Standard deviation
		very low	low	Medium	High	very high		
	Proper landscape of buildings and architectural monuments	0	25	151	108	86	3.68	0.90
	Proper landscape of roads and streets	0	23	134	145	68	3.69	0.83
	The landscape of the green space of the village	5	25	90	142	108	3.87	0.95
public area	The area of the children's playground or the green space of the village	5	10	60	112	183	4.23	0.91
	The quality of children's playground in terms of security and cleanliness	5	10	57	125	173	4.21	0.89
	The location of the children's playground or the green space of the village	10	83	198	47	32	4.31	0.96

4.5. Final results

The Spearman correlation test was used to examine the relationship between individual characteristics (age, sex, education) and livability indicators. The results of the Spearman correlation test are presented in Table 9. The significance level of 11 obtained in the age variable is 0.07. As a result, there is no significant relationship between the two variables. Also, the level of significance was more than 0.05 for the variables of sex (0.96) and education (0.921). Therefore, there is no significant relationship between the individual characteristics of the respondents and the livability indicators

Table 9. Spearman test results
(Source: Research finding, 2017)

Variable	Value	Age	Sex	education
Individual characteristics	The correlation coefficient	- 0.092	0.02	0.005
	Significance level	0.077 ns	0.963 ns	0.921 ns
Livability indicator	number of samples	370	370	370

Table 10 shows the ranking of various dimensions of the livability of villages (economic, social and environmental). The mean rank of each dimension is reported in the table. The comparison of mean ranks indicates that the environmental dimension of the allocation of medicine had the highest mean rank (2.71), indicating that the villages have higher livability in the environmental dimension than other dimensions. Then, economic and social dimensions are the most important dimensions of the livability of villages, respectively. It should be noted that the mean rank is different from the arithmetic mean and the two means are differently calculated. The value of the obtained chi square is equal to 312.04 which is at the error level less than 0.05 ($p < 0.5$). The significance of the Friedman test means that respondents consider the understudy dimensions to be differently ranked.

Table 10. Friedman test results
(Source: Research finding, 2017)

Dimensions	Mean rank	chi square	Degrees of freedom	Significance level	number of samples
Economical	1.85				
social	1.44	312.049	2	0.000**	370
environmental	2.71				

Table 11 shows the ranking of variables and social indicators. The mean rank of each of the indicators is reported in the table. The comparison of mean ranks indicates that the recreation and leisure time indicators had highest mean rank (5.50) as the best status of social livability from respondents' viewpoints; then, general education, health, cooperation and solidarity, individual and social security, and identity and place attachment

Table 11. Mean rank of social indicators
(Source: Research finding, 2017)

Component	Average rating
public education	4.03
Health	3.38
Cooperation and solidarity	2.84
Identity and place attachment	2.42
Individual and social security	2.82
Recreation and leisure time	5.50

Table 12 is the most important Friedman test table, thus, before interpreting the other tables, the results of this table should be evaluated and, if the Friedman test is significant; then, the results of the descriptive tables and the mean rank should be interpreted. This table shows statistical significance. The chi square is 681.42, which is at a level of error less than 0.005 ($p<0.05$); therefore, the research hypothesis that "indicators of cooperation, health and education compared to other social indicators are in a worse situation" are rejected, and it can be concluded that social indicators (in terms of respondents) are effective in varying degrees.

Table 12. Friedman test results
(Source: Research finding, 2017)

number of samples	370
chi square	681.427
Degree of freedom	5
Significance level	0.000**

Table 13 shows the status of the ranking of variables and environmental dimension indicators. The mean rank of each of the indicators is reported in the table. The comparison of the mean ranks indicates that public space had the highest mean rank (2.61), which means that respondents are more satisfied with the indicator of public space than other environmental indicators. Subsequently, landscape and pollution are the most important environmental indicators. The chi-square obtained is 223.83 at the error level less than 0.05 ($p <0. 5$). The significance of the Friedman test means that respondents have a different ranking between environmental indicators. Thus, the research hypothesis that "the pollution indicator is better than other environmental indicators" is rejected

Table 13. Friedman test results
(Source: Research finding, 2017)

Dimensions	Mean rank	Chi square	Degree of freedom	Significance level	number of samples
Pollution`	1.59				
Landscape	1.80	223.838	2	0.000**	370
public space	2.61				

5. Discussion and Conclusion

People are always looking for a positive and optimal response to satisfy their needs and demands in their outer or peripheral environments. If the existing and objective conditions are adequate to meet their needs, it will lead to mental satisfaction and

ultimately, improvement of the quality of life (enjoyment of life), although by satisfying the old needs, new demands are emerging, and this cycle continues. Thus, successful and livable settlements should always be dynamic and responsive to the needs of their inhabitants (Isaloo & Bahrami, 2015, p. 111). Livability refers to a system in which the social, physical, and psychological health of all its inhabitants is considered. Key principles that reinforce this concept include equality, dignity, and access to infrastructure, food, clean air, relationships, recreation, participation and empowerment; therefore, livability is an approach that provides sustainable development if it is properly addressed (Jafari & Hamzeabadi, 2013, p. 172)

This study, which aimed to identify the indicators of livable rural communities and assess these conditions in the rural settlements of Kashmar, introduced 13 common indicators of the livable villages in four social, economic, physical and environmental dimensions. Results showed that economic indicators such as available job opportunities, proper income and access to suitable jobs in the adjacent village or city, among other criteria, had a significant impact on the rate of livability in rural areas of the city. These findings are consistent with those of Zhang Mao's (2010) study, which indicated that material and economic challenges, such as income levels and rural saving, are the main indicators for measuring living standards.

Among the economic indicators, the available job opportunities had the highest mean (4.26) and sufficient illumination in housing had the lowest mean (2.19). In terms of social dimension, indicator of quality of services and equipment in the gym, and the indicator of the traffic security of the riders/drivers at night had the highest and lowest mean, respectively, at a weight of 4.55 and 2.01. Also, in terms of environmental dimension, the highest and lowest mean of pollution indicators belonged to industrial workshops (4.36) and waste collection quality (3.02).

The Spearman test results show that there is no significant relationship between individual characteristics (age, gender, education) and life indicators, and the first hypothesis of the research was rejected with 99% confidence. Khorasani et al. (2015) in a research entitled "Analysis of the effect of individual variables on the perception of livability of villages around the city (Case study: Varamin city)" concluded that there is a statistically significant relationship between the individual characteristics of sex, occupation and duration of residence in rural areas and livability, however, there is no relationship between age and educational level. The similar results of these two studies show that people in different age groups and different educational levels have identical attitudes on how they can satisfy their living needs.

The results of Friedman's test showed that villages have higher livability levels in the environmental dimension than other dimensions. In terms of the social dimension, the best livability status of respondents is the recreation and leisure time indicator (mean rank is 50/5), and other indicators are also effective in varying degrees. In terms of environmental dimension, respondents are more satisfied with the public space than other indicators. Previous studies on livability show that in each village, different factors affect livability that are different from those factors that affect other villages; for example, Khorasani and Rezvani (2013) conducted a study on the villages around Varamin city and pointed out that in terms of environmental livability, more than 80% of respondents were dissatisfied with the quality of landscape in all cases, including the natural landscape, buildings and architecture of buildings, streets and green space of the village. These results are inconsistent with the results of the present study, indicating that the identical approaches cannot be used in rural planning for rural development. Thus, the differences should be considered.

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تحلیل زیست‌پذیری سکونتگاه‌های روستایی
(مطالعه موردی: روستاهای شهرستان کاشمر)

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چکیده مبسوط

۱. مقدمه

اهمیت فزاینده زیست‌پذیری ناشـی از افزایش آگاهی به الگوهای ناپایدار زندگی و مصـرف ناسـالم و ناپایدار اسـت که در درازمدت موجب کاهش توان منابع محیطی برای حمایت از جمعیت زمین می‌شـود. یکی از این نگرانی‌ها در هر جامعه رفع نیازها و خواسـته‌ها (مسـکن، انرژی، آب و مواد غذایی)، مدیریت ضـایعات، بهداشـت و امنیت عمومی، آموزش‌وپرورش و سـرگرمی و تعامل اجتماعی، مشارکت‌ها، فعالیت‌های اقتصادی و نوآوری است که با دادن خدمات به مردم برطرف می‌شود. با توجه به این دیدگاه، زیست‌پذیری با زیر ذره‌بین قرار دادن این نیازها و خواسته‌ها در بیشتر مناطقی که روبه وخامت هسـتند، مثل کاهش رفاه اقتصـادی و افزایش نارضـایتی اجتماعی، توجه زیادی را معطوف به این مناطق نموده اسـت. سکونتگاه‌های روستایی واقع در شهرستان کاشمر همانند اکثر نقاط روسـتایی کشور طی نیم قرن اخیر با کاهش قابل توجهی از جمعیت روسـتایی مواجه بوده اسـت. به اسـتناد داده‌های ارائه شـده از تعداد مهاجرین وارد شده طی ۱۰ سال گذشته به شهر کاشمر، حدود ۵۶ در صد طی ۳ سال گذشته وارد شهر شده‌اند که این امر حاکی از شدت گرفتن روند مهاجرپذیری شهر در سال‌های اخیر است. ساختار اجتماعی و کالبدی شهرسـتان کاشـمر به چندین دلیل ازجمله وجود مراکز آموزش عالی، وجود دو بافت عمده غیررسـمی، جاذبه‌های شغلی و امکانات شهرو بالا بودن نرخ اشتغال در شهر کاشمر می‌تواند مهاجرت روسـتائیان را در پی داشته باشد. بر این اسـاس تحقیق حاضر با هدف تعیین مؤلفه‌های سازنده جوامع روستایی زیست‌پذیر

و بر پایه مطالعات پیشینه به بررسی زیست‌پذیری از دیدگاه ساکنان نواحی روستایی در روستاهای شهرستان کاشمر خواهد پرداخت.

۲. مبانی نظری تحقیق

در حقیقت رویکرد زیست‌پذیری، ترویج و توسـعه مفاهیم کیفیت محیط زندگی مردم اسـت تا بهترین شـیوه‌های زیسـتی برای آن‌ها فراهم شـود و بنابراین، هدف نهایی مطالعه زیست‌پذیری محیط زندگی و کاربرد متعاقب آن این است که زندگی مردم کیفیت زیادی داشـته و هدفمند و لذت‌بخش باشد. در شـرایط واقعی، محیط‌های روسـتایی به دلایل مختلف مانند جمعیت کم، دوری از مرکز، انزوای جغرافیایی، سـاختار اقتصادی متکی بر کشـاورزی و ... از مشکلات متعددی رنج می‌برند و با توجه به شـرایط زندگی جوامع شـهری، شـرایط و کیفیت زندگی در محیط‌های روسـتایی با واقعیت‌ها و اسـتانداردهای زندگی انسـانی معاصـر تفاوت بسـیاری دارد و این، شـرایط زیسـت و سـکونت را در محیط‌های روستایی با چالش مواجه کرده اسـت. ازاین‌رو، در شـرایط فعلی،‌زیست‌پذیر سازی روسـتاها ازلحاظ ایجاد شـرایط مناسب برای زندگی مطلوب و اسـتاندارد و جلوگیری از تخریب روسـتاها و مهاجرت روسـتایی بسـیار ضـروری اسـت.هر یک از برنامه ریزان و نظریه‌پردازان مختلف بسـته به حیطه عملشـان، تعاریف متفاوتی از روستای زیست‌پذیر ارائه داده‌اند.این تعاریف در مواردی بسیار نزدیک و مکمل یکدیگرند که در ادامه به تعدادی از آن‌ها اشاره می‌شود:

-روستای زیست‌پذیر، روستایی است که برای همه اقشار جذاب، امن و مناسب است؛ نه‌فقط برای آن‌ها که در گروه سنی خاصی باشند.

-روستای زیست‌پذیراز یک سو به گذشته‌های تاریخی و ریشه‌های روستائیان احترام می‌گذارد و از سوی دیگر به آنان که متولد نشده‌اند

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۵. بحث و نتیجه‌گیری

نتایج نشان می دهند که شاخص‌های اقتصــادی مانند شاخص‌های فرصت‌های شغلی موجود، درآمد مناسب و دسترسی به شغل مناسب در روستا یا شهر مجاور و ... در میان سایر معیارها، تأثیر به سزایی در تعیین میزان زیست‌پذیری در نواحی روستایی این شهرستان داشــته اســت. در میان شــاخص‌های موردبررسی در بعد اقتصادی، بالاترین میانگین مربوط به شاخص فرصت‌های شغلی موجود (۴/۰۶) و پایین‌ترین میانگین مربوط به شاخص روشنایی کافی در مسکن (میانگین ۲/۱۹) اســت. در بعد اجتماعی بالاترین و پایین‌ترین میانگین به ترتیب متعلق به شــاخص کیفیت خدمات و تجهیزات سالن ورز شی و شاخص امنیت تردد سواره در شب با وزن ۴/۵۵ و ۲/۰۱ بوده اســت. همچنین در بعد زیســت‌محیطی بالاترین و پایین‌ترین مـیانگین مربوط به شــاخص‌های آلودگی ناشــی از کارگاه‌های صــنعتی (میانگین ۴/۳۶) و شــاخص کیفیت جمع‌آوری زباله (۳/۰۲) ا ست.در ادامه نتایج آزمون ا سپیرمن گویای عدم رابطه معنادار بین ویژگی‌هـای فردی (ســن، جنس، تحصــیلات) و شــاخص‌های زیست‌پذیر است و فرضیه اول تحقیق با ۹۹ درصد اطمینان رد شــد. نتایج آزمون فریدمن نشــان داد روستاها در بعد زیســت‌محیطی از زیســت‌پذیری بالاتری نســبت به ســایر ابعاد برخوردارند. در بعد اجتماعی نیز بهترین وضعیت زیست‌پذیری ازنظر پاســخگویان، شــاخص‌تفریح و اوقات فراغت (میانگین رتبه ۵/۵۰) اســت و شــاخص‌های دیگر نیز با درجات متفاوتی مؤثر هســتند. پاسخگویان در بعد زیست‌محیطی در رابطه با شاخص فضای عمومی از رضایت بیشتری نسبت به سایر شاخص‌های آن برخوردارند.

کلیدواژه‌ها: زیست‌پذیری، سکونتگاه روستایی، روستائیان، کاشمر.

نیز اهمیت می‌دهد و همچنین این نوع روســـتا علیه هرگونه اتلاف منابع مبارزه می‌کند، بنابراین روستای پایدار نیز محسوب می‌شود. روستاهای زیســت‌پذیر مکان‌هایی برای زندگی اجتماعی، ارتباط و گفتگو هســتند. این روستاها محیط سـکونت و فعالیت و طراحی فـ ضای عمومی را به‌گونه‌ای خلق می‌کنند که زمینه حـ ضور ساکنان در قلمرو عمومی را فراهم می‌سازد.

۳. روش‌شناسی تحقیق

روش تحقیق در پژوهش حاضـــر با توجه به ماهیت و ا هداف مو ضوع،تو صیفی- تحلیلی ا ست. با توجه به نو بودن مو ضوع تحقیق در کشـور و نیز سـابقه اندک این موضوع در مطالعات روستایی در سطح جهان، اقدام به استخراج شاخص‌ها و نما گرهای زیست‌پذیری در سکونتگاه‌های رو ستایی و در مرحله بعد، انطباق آن‌ها با شرایط روستاهای این شهرستان گردید. واحد تحلیل این تحقیق خانوارهای روستایی بوده‌اند و سطح تحلیل روستا است. تعداد خانوار روستاهای موردمطالعه بر اساس سرشماری سال ۱۳۹۵، ۳۷۸۱ خانوار است و با فرمول کوکران، تعداد ۳۵۰ نفر حجم نمونه انتخاب و توزیع نمونه به‌صورت تصادفی صورت گرفته است. البته برای دقت بیشتر در ارائه نتایج تعداد ۲۰ پرســـشـــنامه به تعداد کل افزوده گردید. درنهایت داده‌ها با اســـتفاده از نرم‌افزار SPSS و آزمون‌های همبســـتگی و فریدمن تحلیل شد.

۴. یافته های تحقیق

نتایج آزمون اســپیرمن گویای نبود رابطه معنادار بین ویژگی‌های فردی (سن، جنس، تح صیلات) و شاخص‌های زیست‌پذیری ا ست. همچنین نتایج آزمون فر یدمن نشــان داد روســـتا ها در بعد زیست‌محیطی نسبت به سایر ابعاد، زیست‌پذیری بالاتری دارند. در بعد اجتماعی نیز بهترین وضـعیت زیست‌پذیری ازنظر پاســخگویان، شـاخص تفریح و اوقات (میانگین رتبه ۵/۵۰) اسـت و شـاخص‌های دیگر نیز با درجات متفاوتی مؤثر هســـتند. پاســخگویان در بعد زیست‌محیطی در رابطه با شاخص فـ ضای عمومی نـ سبت به سایر شاخص‌های آن رضایت بیشتری دارند.

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Analysis of Factors Affecting the Inefficiency of Spatial Policies in Rural Areas of Iran

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Abstract

Purpose- The inefficiency of rural development policy as a multidimensional phenomenon is due to various factors and causes. It has adverse outcomes in rural areas and in different dimensions of the territorial (spatial), organizational and intersectoral activities. Since the present study has practical purposes, the analysis of the effective factors, and analysis of the effects of each factor in the process of inefficiency of rural spatial policies in rural areas are considered.

Design/Methodology/Approach- The strategic question is: "What are the factors affecting the ineffectiveness of the planning policy for rural development in Iran?" To answer the question, an analytical methodology based on Delphi tool and interpretive structural modeling have been used. In this regard, a library method (research background) and questionnaires and interviews (experts' opinions of the National Planning and Budget Organization, and the Provincial Management and Planning Organization- 20 people) were used to collect information. Factors contributing to the inefficiency of planning policy for rural development in Iran were determined. In the next step, using Interpretative Structural Modeling (ISM), the relationships between the factors affecting the ineffectiveness of the planning policy for rural development in Iran were specified and analyzed in a unified manner. Finally, using the MICMAC analysis, the types of variables are clustered according to the reciprocal influence on other variables.

Findings- The results show that the factors of over-dependence on oil revenues, unstable rural development policy and centralized policy-making system, planning and decision making with the driving power of 16 have had the greatest influence and acts like the base of the model. In order to start and reform the structure of the rural development policy system in the country, it should be emphasized first. The factor of diversity, plurality, dispersion and underdevelopment of rural settlements with the driving power of 1 has the least influence.

Key words: Rural development, spatial planning policy system, interpretive-structural modeling, Iran.

Paper type- Scientific & Research.

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1. Introduction

Rural development is a territorial and (spatial-based) space-based approach and is not necessarily a sectoral approach.

Rural development is one of the main goals of the development policy, however, there does not exist a unified approach on how to define and measure it (Jakub Straka & dufhodx, 2016).[1] In this regard, considering the territorial extent and the spatial-locational domain of rural settlements[2], (Naghsh-e Jahan Pars Consulting Engineers Co., 2016), the diversity and plurality of territorial capabilities of rural areas in various natural and ecological dimensions, as well as social and economic dimensions, and implementation and monitoring and observation of land require adopting a multi-sectoral, intersectoral, regional and inter-regional approach.

In addition, the product of spatial rural development planning is not just the description and application of the overall spatial structure of rural areas, but also includes the reflection and spatial manifestation of environmental, spatial, and cultural characteristics, unique relationships and the diversity of these structures. (Dina Poerwoningsiha, Antariksa, Setyo Leksono,& Abdul Wahid Hasyim, 2016).

In this regard, due to the absence of spatial development and regional economics in spatial-optimal policymaking, this category needs to be considered (Yang, Pu,& Cai Hao, 2015).

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1 -The reason for the lack of a single and unified definition of measuring the category and concept of rural development in the world can be considered these factors: Different territorial (spatial) features of countries, the existence of different definitions and approaches in various issues such as; local development, regional development, marginal development and lack of consensus on the use of the above-mentioned items to describe rural development

2. Some indexes and variables on rural development indicate the spatial extension and the dimensions of this section. In this regard, the population distribution of rural areas in Iran is 20,730,625, which is 26% of the country's population, and there are 96549 villages, with the economic participation rate of 40.1%. Moreover, the share of employment in the agricultural sector is 49%, and the literacy rate is 84.8%.

In this regard, due to the multiplicity, diversity, dispersion and underdevelopment of rural settlements and spatial evolution of rural areas, paving the grounds for spatial changes in rural areas (Saeedi, 2010) is subject to the objectivity of the requirements and suitable spatial planning policy for optimal utilization of territorial potentials. In this regard, what has caused the collapse of rural settlements in the territory of the land is the lack of attention to these settlements in national and regional planning and policy-making (Saeedi, 2010).

Therefore, it should be noted that the product of suitable spatial planning policy requires a collaborative process based on the principles of good regional governance.

This process and product also require the design and implementation of a development model based on the sustainable regional development principles. In this way, the structure and spatial organization of the regions can be influenced so that it can bring about an objective and practical field of development and regional balance. In addition, in this regard, what needs to be addressed is the identification and extent of the impact of the inefficient factors of the rural development policy system in Iran, which can be considered an undesirable event in the geographic distribution of rural areas in Iran.

Meanwhile, this incident can be caused by several factors in various economic, social and physical (spatial) dimensions which has had adverse consequences at different national, regional, territorial and rural levels and scale.

Accordingly, the main purpose of this paper is to model the factors affecting the inefficiency of planning policy for rural development in Iran with the interpretative structural modeling approach. Using a new analytical methodology, interpretative structural modeling, the relationship between the factors affecting the ineffectiveness of the rural development policy system in Iran has been determined and analyzed in a unified manner. The output of this research as a product of research policy will provide the national and regional development policy makers with a clear and quantitative picture on ineffective factors of policies adopted in the rural areas of Iran.

By identifying factors and prioritizing them, based on the existing reality and not on the basis of ideals, they can develop methods to improve the current less developed status of rural areas and

also improve the effectiveness of the policies adopted in these areas. Regarding this, the present research seeks to answer the following questions:

1. What are the factors affecting the ineffectiveness of planning policy for rural development in Iran?

2. How is the clustering of factors affecting the ineffectiveness of the spatial planning policy system of rural development in Iran?

2. Research Theoretical Literature
2.1. Theoretical framework

The theoretical explanation of a problem requires an appropriate theoretical framework. Therefore, choosing the most appropriate theory of regional policy development from sustainable development theories is considered as one of the strategic steps (Ruknedin Eftekhari, 2017).

In this regard, the recognition of developmental concepts such as space, which its objectivity results from the impact and effectiveness of human beings is in place (Saeedi, 2010). Development space is a priority as a source of scarcity and requires policy and planning in line with the optimal allocation and in accordance with the public interest (Sarrafi, 2015).

The spatial policy considered in this article is an approach aimed at providing strategic opportunities at different levels of biological spaces, integrating multiple decisions about locations and strengthening intersectoral integration. Hence, it is a coordinating dimension of sectoral policies based on the land strategy (Ruknedin Eftekhari, 2017).

With this in mind, rural areas as "geographic objectivity" or "spatial reality" is the result of the impact of the reciprocal interactions between the two natural environments and the socio-cultural environment, or, in other words, the result of tension and the adjustment of the relationship of the three main components, namely, man, activity and space. This continuous spatial system is changing, which is not only affected by the forces and processes of the system, but also, in practice, it is affected by a set of external forces and processes that originate from other spatial or non-spatial realities (Saeedi, 2010).

Thus, following this process, rural settlements, rural areas, are subject to innovations which are often formed outside of rural areas (Saeedi, 2010). One of the most important factors influencing the structure and functioning of rural settlements (in

terms of environmental, socio-economic, and especially physical-spatial dimensions) is making decisions and policies under the name of developmental policy in rural areas that will cause spatial changes with its procedures, attitudes and strategies. Each of these changes has both favorable and unfavorable consequences. In this regard, for territorial and sectional organization and effectiveness, various attitudes have been applied in the national, regional and local dimensions (micro or rural). Each of them, on the one hand, has its own specific requirements and, on the other hand, has had various consequences, including the following attitudes: (Jabari, as cited in Kazimian, 2010)

- Sectoral attitude;
- Physical attitude;
- Spatial attitude;
- Socio-economic attitude with special attention to the dimensions of new institutions;
- Momentary and superficial attitudes toward the development of local and regional levels (Table 1).

Moreover, from other dimensions, analyzing the theoretical approaches of regional development shows that from the policy point of view, four main approaches (sectional attitude, physical attitude, spatial attitude, institutional spatial attitude) have been considered and policies have been implemented in these attitudes (Eftekhari, 2017).[1]

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[1]For further reading in this regard you can refer to: Theoretical Foundations in Urban Studies, by Ismail Zadeh, Hassan, p. 589.

Table 1. The five attitudes of local and regional development policy in Iran
(Source: Farajirad & Kazemian, 2013)

Dimensions	Attitudes of local and regional development policies in Iran				
	Sectoral	Physical	Spatial	Socio-economic attitude with special attention to the dimensions of new institutions	Momentary and superficial attitudes
Definition of the region	- Lack a definite definition of the region - In more recent plans, it has focused on provincial and city levels.	- Unknown and involves different levels.	- The share and levels are defined as the region. - In more recent plans, attention has been paid to provincial and city levels	- The region is defined in terms of small spatial units (below the city level) and relatively in terms of all socio-economic and environmental environments.	- It does not exist
Definition of regional development	- Mainly based on development projects, promotion of service indicators and the creation of infrastructure. - In more recent programs, the cultural and social dimensions of development have also been taken into consideration.	- Defined primarily based on determining land use and physical design	- Defined according to the balanced distribution of population and activities in accordance with the facilities and capabilities of the land.	-Regional development is defined in terms of the integrated process of economic and social development along with environmental protection.	- It is generally developmental and aimed at improving service indexes
Approach to development	- Mostly sectional and in more recent plans, attention has been paid to the dimensions of spatial planning.	- There is no definite approach	-Integrated spatial development approach with emphasis on economic, social and environmental dimensions.	- The institutional approach and sustainable development	- There is no definite approach
Policies / Tools	- Allocating financial resources to deprived areas - Establishing industrial and agricultural poles - Developing infrastructure in deprived areas	- Terms and conditions of how to use the land	-Futuristic scenarios - Land use maps at macro level	- Capacity building in the social, economic and productive areas, human capital and resources, infrastructure and support of production and environmental investments	- Civil projects
Decision making for development	- Completely centralized - Centralized and in the recent plans, attention has been paid to the role of provincial factors and institutions	- Centralized	- Centralized	- It is somewhat decentralized and emphasizes the role of local agents	- Completely centralized and top-down
Regional development management	- Centralized and through the National Center. - In the recent plans, attention has been paid to the role of provincial factors and institutions.	- Centralized, but at the same time, local institutions are involved in the implementation of the programs.	- Centralized, though, there are currently no specific national, provincial or local institutions for implementing such plans.	- Somewhat decentralized	- Centralized
Local / regional leadership	- In more recent plans, this has been noted in the form of provincial and city councils	- They don't care.	- They do not care, though, there are issues like social capital and capacity building.	- Emphasizes the role of local-level factors and institutions (such as councils and tenants, local trustees, and section and city level institutions).	- It does not exist.
Institutional elements	- Basically, these elements have not been considered - In more recent plans, more attention has been paid	It does not exist	It is considered very limited.	- Consider social capital, development of human resources and participation.	- It does not matter.

2.2. The research view

General policy; process or set of governmental activities and decisions aimed at solving a general problem (Amiri, 2011; as cited by Kazemian, 2015). In this regard, the purpose of the policy system is to arrange, approve, implement policies and / or programs and monitor them. Regarding regional development policy, rural development is a form of activity that is in the direction of regulating, controlling and managing the forces that shape regional development. (Kazimyan, 2015) and allocates and distributes resources and facilities of the public section at the regional level. With this in mind, principles governing national centralized policy are based on this basic principle that the arrangements and mechanisms of regional development policy must necessarily be defined at national level, although these arrangements can extend to the regional level. Similarly, in the classic spatial planning approach and attitude like centralized national policy, regional policy is less

focused on the specific needs of each region and their different social issues. It mainly focuses on national macroeconomic (and rarely regional) frameworks, and has more potential for inter-regional balances (Sarrafi, 1998). With this view, in this approach, regional policy is mainly aimed at defining and explaining the specific regional development paths and frameworks, and necessarily within the framework of national development. Considering the requirements and conditions of the classic spatial planning approach and attitude like centralized national policy, and its theoretical and operational shortcomings, the new institutional spatial planning approach in the form of new pluralism and regionalism is considered as the dominant view of this research.

This approach seeks to identify a specific region (its scale can range from the national level to the international level) with various purposes (social, cultural, economic, political, and environmental)

to address problems that have been created from a range of local, national and transnational factors. The management system of this region is dominated by all actors (both governmental and non-governmental) and through institutions as both bottom-up and top-down. It is worth noting that this approach can be implemented in a variety of ways in different parts of the world depending on the characteristics of each place and at any given time (Sarrafi & Nejati, 2014).

Institutional spatial / planning approach and attitude focuses on the institutional dimension of development as well as dimension of sustainable development. It also has a unified approach to development, especially to the regional development, and works within the framework of a bottom-up approach. (Rukneddin Eftekhari, 2017).

Table 2. Spatial planning and policy-making framework
(Source: Research finding, 2018)

Sectoral	Intersectional integration	Integration of different public policies over a territory
	Intra-organizational integration	Integration of policy, individual and voluntary activities in a territory
Territorial	Horizontal integration	Integration of spatial planning activities between adjacent areas and with shared areas or interests
	Vertical integration	Integration among various levels of spatial planning and policy-making activities
Organizational	Strategic Integration	Integration of spatial planning with other strategies, plans and activities in the territory
	Operational integrity	Integration of spatial planning with the mechanism of release in all relevant organizations in the territory
	Beneficiary integration	Integration of disciplines, stakeholders or disciplines governing the territory

Considering the dimensions and pathologies of different classical approaches in the field of territorial and sectoral policy of the country, in addition to the new approach of pluralism and new regionalism, the dominant view of this research is based on the principles of territorial

planning and through approaches of partnership, capacity building and empowerment. This approach generates a kind of need for a comprehensive, perspective, strategic, location-based, people-centered, ecocentric approach that focuses on both inter-sectoral relationships,

organizations, regions, and regional-sectoral relationships. This sense of need reflects a kind of transformation in the intellectual coordinates of policy-making, planning and administrative system of the country (Territorial Planning Office, 2005). What distinguishes this kind of policy-making, planning and administrative system from the others is paying attention to the features of being strategic, spatial, holistic, and comprehensive in an integrated approach (Table 2).

3. Research Methodology

The present research is applied in terms of its purpose and is considered as descriptive-analytical research in terms of research methodology. The data collection method is based on library-documentary and survey data and using data gathering tools such as interviewing, taking notes and structured questionnaires, and using the Delphi technique. In addition, according to the requirements of the Delphi technique (expert-based), 20 experts and managers of macro (national) and /or regional (province) levels were selected using a purposive sampling method. A remarkable point in determining the number of experts is to ensure the comprehensiveness of the different views in the research. The number of participating experts in the reviewed interpretive structural modeling (ISM) articles is usually

between 14 and 20. (Faisal, Banwet & Shankar. 2010; Ramesh, Banwet, Shankar, 2010).

After identifying and analyzing the factors affecting the inefficiency of rural development policy, using the Delphi technique and computing consensus indicators, the importance and priority of each factor, (ISM) and Mic Mac software were used to analyze the data. This model was introduced by Warfield in 1974 (Atashsooz, Feizi Kazazi, & Olfat, 2017). It is an interactive process, and while it is structuring a set of different elements which are systematically interacting with each other (Azar, Khosravani, & Jalali, 2013), it helps to investigate the complex relationships between elements (Azar & Bayat, 2008).

In this regard, the process of applying interpretive structural modeling is as follows:

Step One: Identifying the variables related to the problem,

Step Two: Creating the structural self–interaction matrix,

Step Three: Creating the initial reachability matrix

Step Four: Creating the final reachability matrix.

Step Five: Applying Warfield's level partitioning, and

The last step: Analyzing the degree of influence and dependence variables (MICMAC chart).

Table 3. Research methodology

Research Methodology	Statistical population, sampling method	Sampling logic and data analysis	Reasons
Quantitative and qualitative	Statistical population: Thematic experts from national and provincial institutions (Country and Provincial Planning and Budget Organization); Sampling method: Purposive Sample size: 20 people; Sample Type: Expert-centered.	Sampling logic and data analysis; Mastery of thematic and expert-centered; Delphi, micmac, Interpretative Structural Modeling.	One of the reasons for using this tool is its ability to investigate the reciprocal influence of each factor on each other and clustering factors according to the extent and intensity of the effect.

4. Research Findings

4.1. Identifying the factors affecting the ineffectiveness of the planning policy for rural development in Iran

Analyzing background and theoretical foundations of research regarding regional and rural development policy has led to the identification,

exploration and extraction of influencing factors and criteria in rural development policy. In this regard, due to the plurality of different factors, and in order to determine the degree of the consensus of the thematic and local experts regarding each factor and its importance, the reduction of criteria based on its importance has been done. In this regard, the experts were

provided with the Delphi questionnaire. The factors affecting the ineffectiveness of the spatial planning policy system of rural development, after

applying the experts' point of view, are presented in Table (4).

Table 4. Factors affecting the ineffectiveness of the planning policy for rural development in Iran

C1: The lack of unity in terms of policy and lack of plurality in terms of implementation,
C2: Shortcomings in participation and delegation of legal authority to villagers,
C3: Non comprehensive rural development programs,
C4: Reducing rural policy making to issues of deprivation,
C5: Point and sectorial attitude toward development of the rural areas and disregarding it as a territorial, spatial, trans sectional category
C6: The absence of a definite status for rural development policy and plurality and the existence of contradiction in laws,
C7: Imbalance in the development of rural areas,
C8: dependence on oil revenues and lack of stability in rural development policy,
C9: The centralized (imperative) system of policy, planning and decision making in rural development,
C10: Having no perspective on rural development policy,
C11: Attempting to schedule scattered actions and activities as rural development policies,
C12: Neglecting the economic diversification of rural development policy goals,
C13: Paying less attention to the self sufficiency of the rural development process and the emphasizing policy making based on government resources,
C14: Unspecified extent of rural development programs and policies,
C15: Non spatial rural development policy,
C16: Paying no attention to the competitiveness of rural areas,
C17: Inappropriate use of the internal potentials of rural areas (low attention to rural economy capacities),
C18: Paying low attention to the regional network approach and the lack of integration in urban rural policies and adopting a hierarchical approach and a growth pole strategy,
C20: Diversity, plurality, dispersion and underdevelopment of rural settlements

4.2. Structural self–interaction matrix

After exploring the factors affecting the inefficiency of rural development policy in Iran (20 factors in Table 4), the aforementioned factors were entered into a self–interaction matrix. To do so, the factors agreed by the experts were mentioned in the first row and column of the table, and respondents were asked to specify the type of two-way connection between the factors. Therefore, this matrix was constructed using four conceptual relationships and was completed by 20 experts from the field of spatial planning and policy (territorial planning, regional development,

rural development). The obtained data are summarized based on the interpretive structural modeling technique and the final structural self-interaction matrix is made (Table 5). The symbols and modes used in this conceptual relationship are:

- Symbol V: It means that i leads to j.
- Symbol A: It means that j leads to i.
- Symbol X: Two-way connection from i to j and vice versa
- Symbol O: There is no connection between i and j.

Table 5. Structural self-interaction matrix of factors affecting the ineffectiveness of planning policy for rural development in Iran

(Source: Research findings, 2017)

۲۰C	۱۹C	۱۸C	۱۷C	۱۶C	۱۵C	۱۴C	C۱۳	C۱۲	C۱۱	C۱۰	C۹	C۸	C۷	C۶	C۵	C۴	C۳	C۲	C۱	J / I
A	A	v	o	v	v	A	v	o	v	v	v	o	v	v	v	v	v	o		C۱
o	o	o	v	v	o	o	x	v	o	o	x	A	o	x	o	v	o			C۲
o	o	v	v	v	v	o	v	v	v	v	A	o	v	x	A	v				C۳
A	A	x	v	v	v	v	v	v	v	v	o	o	v	A	A					C۴
o	o	x	v	v	o	v	o	v	v	x	x	o	v	A						C۵
o	o	x	v	v	o	o	v	v	v	x	o	o	v							C۶
x	x	A	A	A	A	o	o	A	A	A	A	A								C۷
o	v	o	v	x	o	o	v	v	o	o	v									C۸
o	o	v	o	v	o	o	A	o	o	o										C۹
o	o	o	o	v	o	x	x	v	A											C۱۰
o	A	A	v	v	v	v	o	v												C۱۱
o	x	v	v	O	O	O	X													C۱۲
O	O	V	V	V	O	V														C۱۳
O	O	O	O	O	O															C۱۴
O	X	X	X	X																C۱۵
O	A	O	A																	C۱۶
X	X	X																		C۱۷
X	X																			C۱۸
A																				C۱۹
																				C۲۰

4.3. Initial reachability matrix

The structural self-interaction matrix is converted to zero and one matrices, which is called the initial reachability matrix (Firoozjayan, Firoozjayan, Hashmi, Gholamreazadeh, 2013).

In this matrix, 1 replaces V; X and also 0 replaces A; O. After converting all rows, result is called the initial reachability matrix. By converting the SSIM matrix relationships to 0 and 1, the matrix can be matched according to the following rules. These rules are as follows:

1. If the block (i, j) in the SSIM matrix has the V symbol, the corresponding block in the reachability matrix is 1, and its symmetric block, i.e., (j, i), is 0.

2. If the block (i, j) in the SSIM matrix has the symbol A, the corresponding block in the reachability matrix is 0 and its symmetric block, i.e., (j, i), is 1.

3. If the block (i, j) in the SSIM matrix has the symbol X, the corresponding block in the reachability matrix is 1 and its symmetric block, i (j, i), is 1.

4. If the house (i, j) in the SSIM matrix has the symbol O, the corresponding block in the reachability matrix is 0 and its symmetric block, i.e., (j, i), is 0.

According to the rules of the ISM technique, the initial reachability matrix is shown in Table 6.

Table 6. Initial reachability matrix
(Source: Research findings, 2017)

C۲۰	C۱۹	C۱۸	C۱۷	C۱۶	C۱۵	C۱۴	C۱۳	C۱۲	C۱۱	C۱۰	C۹	C۸	C۷	C۶	C۵	C۴	C۳	C۲	C۱	J\I
.	.	۱	۱	۱	۱	.	۱	۱	۱	۱	.	.	۱	۱	۱	۱	۱	۱	■	C۱
.	.	.	۱	.	.	.	۱	۱	.	.	.	.	.	.	۱	.	.	■	0	C۲
.	.	۱	۱	۱	۱	.	۱	۱	.	.	.	.	.	۱	.	.	۱	■	0	0	C۳
۱	.	۱	۱	۱	۱	.	۱	۱	۱	.	.	.	.	۱	.	.	■	0	0	0	C۴
۱	.	۱	۱	۱	۱	۱	۱	۱	۱	۱	.	.	.	۱	۱	■	1	1	0	0	C۵
۱	۱	۱	۱	.	۱	۱	۱	۱	۱	۱	.	.	۱	■	1	1	1	0	0	C۶
.	.	.	.	.	.	.	.	.	.	.	.	.	■	0	0	0	0	0	0	C۷
۱	۱	۱	۱	۱	۱	.	۱	۱	۱	۱	۱	■	1	0	1	1	1	1	1	C۸
۱	۱	۱	۱	۱	۱	۱	۱	۱	۱	۱	■	0	1	1	1	1	1	0	1	C۹
.	.	.	.	۱	.	.	.	۱	.	■	0	0	1	1	1	1	1	1	1	C۱۰
۱	.	.	۱	.	.	.	.	۱	■	0	0	0	1	0	0	1	0	0	0	C۱۱
.	.	.	۱	.	.	.	۱	■	0	0	0	0	1	0	0	1	1	0	0	C۱۲
۱	۱	۱	۱	.	.	.	■	0	0	0	0	0	1	0	0	0	0	1	0	C۱۳
۱	.	.	۱	۱	.	■	0	0	0	0	0	0	1	0	0	0	0	0	0	C۱۴
۱	.	.	۱	۱	■	0	0	0	0	0	0	0	1	0	0	0	0	0	0	C۱۵
۱	.	.	1	■	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	C۱۶
۱	.	۱	■	1	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	C۱۷
۱	.	■	۱	1	1	0	0	1	0	0	0	0	1	0	0	1	1	0	0	C۱۸
۱	■	۱	۱	1	1	1	0	1	1	1	0	0	1	0	1	1	1	1	0	C۱۹
■	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	C۲۰

4.4. Final reachability matrix

The final reachability matrix indicates the reciprocal influences of factors affecting the inefficiency of planning policy for rural development and their pairwise comparison.

In addition, in the final reachability matrix, the driving power is the final number of variables (including itself) that can be involved in their creation, and the dependence power that represents the final number of variables, which create the mentioned variables.

In this regard, due to the fact that a plenty of experts participated in the study and they responded differently to the factors, the mean of "driving power" and "dependence power" of all factors was selected as the basis for the final driving power and dependence power.

Table 7. Final reachability matrix
(Source: Research findings, 2017)

influence	C۲۰	C۱۹	C۱۸	C۱۷	C۱۶	C۱۵	C۱۴	C۱۳	C۱۲	C۱۱	C۱۰	C۹	C۸	C۷	C۶	C۵	C۴	C۳	C۲	C۱	J\I
۱۴	.	.	۱	۱	۱	۱	.	۱	۱	۱	۱	.	.	۱	۱	۱	۱	۱	۱	■	C۱
۴	.	.	.	۱	.	.	.	۱	۱	.	.	.	.	.	.	۱	.	.	■	0	C۲
۸	.	.	۱	۱	۱	۱	.	۱	۱	.	.	.	.	.	۱	.	.	۱	■	0	0	C۳
۹	۱	.	۱	۱	۱	۱	.	۱	۱	۱	.	.	.	.	۱	.	.	■	0	0	0	C۴
۱۴	۱	.	۱	۱	۱	۱	۱	۱	۱	۱	۱	.	.	.	۱	۱	■	1	1	0	0	C۵
۱۴	۱	۱	۱	۱	۱	۱	.	۱	۱	۱	۱	.	.	۱	■	1	1	1	0	0	C۶
.	.	.	.	.	.	.	.	.	.	.	.	.	.	■	0	0	0	0	0	0	C۷
۱۷	۱	۱	۱	۱	۱	۱	.	۱	۱	۱	۱	۱	■	1	0	1	1	1	1	1	C۸
۱۷	۱	۱	۱	۱	۱	۱	۱	۱	۱	۱	۱	■	0	1	1	1	1	1	0	1	C۹
۹	.	.	.	.	۱	.	.	.	۱	.	■	0	0	1	1	1	1	1	1	1	C۱۰
۵	۱	.	.	۱	.	.	.	.	۱	■	0	0	0	1	0	0	1	0	0	0	C۱۱
۵	.	.	.	۱	.	.	.	۱	■	0	0	0	0	1	0	0	1	1	0	0	C۱۲
۸	۱	۱	۱	۱	.	۱	.	■	0	0	0	0	0	1	0	0	0	0	1	0	C۱۳
۴	۱	.	.	۱	۱	0	■	0	0	0	0	0	0	1	0	0	0	0	0	0	C۱۴
۵	۱	.	۱	۱	۱	■	0	0	0	0	0	0	0	1	0	0	0	0	0	0	C۱۵
۳	۱	.	.	1	■	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	C۱۶
۶	۱	.	۱	■	1	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	C۱۷
۸	۱	.	■	۱	1	1	0	0	1	0	0	0	0	1	0	0	1	1	0	0	C۱۸
۱۴	۱	■	۱	۱	1	1	1	0	1	1	1	0	0	1	0	1	1	1	1	0	C۱۹
۱	■	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	C۲۰
Dependency	13	4	11	16	13	10	4	9	13	7	6	1	0	17	4	7	11	9	7	3	

In table (7), the driving power (the effect of each factor on other factors) of the factors affecting the inefficiency of planning policy for rural development in Iran is shown. The results indicate that the "centralized (imperative) policy-making, planning and decision making system in rural development", "dependence on oil revenues and lack of stability of rural development policy" and "lack of unity in terms of policy and plurality in terms of implementation (sectional)" have the greatest influence on other factors each, with a driving power of (16), (16), (14), respectively. In other words, these factors are considered to be the most effective factors on the ineffectiveness of planning policy for rural development and it can be noted that these factors have the least degree of dependency on the other factors. In other words, these factors are considered to be the most effective factors on the ineffectiveness of planning

policy for rural development and it can be noted that these factors with the least dependence power on the other factors have little effectiveness (dependency). Moreover, the factors of "diversity, plurality, dispersion and underdevelopment of rural settlements" and "inability to develop in rural areas" have the least influence on other factors, respectively, with the driving power of (4.3) and (6.3). In other words, these factors are strongly influenced by other factors.

4.5. Leveling and clustering of factors influencing the ineffectiveness of planning policy for rural development in Iran

At this stage of the research process, for the leveling and clustering of effective factors in the ineffectiveness of rural development planning policy, the following steps were identified:

Table 8. Leveling factors affecting the ineffectiveness of rural development planning policy in Iran
(Source: Research findings, 2017)

FACTOR	Output Collection	Entrance Collection	Common collection
C1	2-3-4-5-6-7-10-11-12-13-15-16-17-18	8-9-10	10
C2	5-12-13-17	1-8-110-13-16-17-19	13-17
C3	4-7-12-13-15-16-17-18	1-5-6-8-9-10-12-18-19	12-18
C4	7-11-12-13-15-16-17-18-20	1-3-5-6-8-9-10-11-12-13-18-19	11-12-13-18
C5	3-4-6-7-10-11-12-13-14-15-16-17-18-20	1-2-6-8-9-10-19	6-10
C6	3-4-5-7-10-11-12-13-14-15-17-18-19-20	1-5-19-10	5-10
C7		1-3-4-5-6-8-9-10-11-12-13-14-15-17-18-19-20	
C8	1-2-3-4-5-6-7-8-9-10-11-12-13-15-16-17-18-19-20		
C9	1-3-4-5-6-7-10-11-12-13-14-15-17-18-19-20	8	
C10	1-2-3-4-5-6-7-12-16	1-5-6-8-9-19	1-5
C11	4-7-12-17-20	1-4-5-6-8-9-19	4
C12	3-4-7-13-17	1-2-3-4-5-6-8-9-10-11-17-18-19	3-4-17
C13	2-7-15-16-17-18-19-20	1-2-3-4-5-6-8-9-12	2
C14	7-16-17-20	5-6-9-19	
C15	7-16-17-18-20	1-3-4-5-8-9-13-18-19	18
C16	2-17-20	1-3-4-5-8-9-10-13-14-15-17-18-19	17
C17	2-7-12-16-18-20	1-2-3-4-5-6-8-9-11-12-13-14-15-16-17-18	2-12-16-18
C18	3-4-7-12-15-16-17-20	1-2-3-4-5-6-8-9-13-15-17-18	3-4-15-17
C19	2-3-4-5-6-7-10-11-12-14-15-16-17-18-20	6-8-9-13	
C20	7	4-5-6-8-9-11-13-14-15-16-17-18-19	

a) Identification and extraction of input/ antecedent set and output / succedent set: At this stage of the research process, it has been attempted to identify the input / antecedent set and output / succedent set of each of the mentioned factors. In this way, the input or antecedent set of each criterion includes criteria that lead to that criterion or which affects it (the criteria that in the column related to their counterpart, there is 1). The output / succedent set shows a collection of criteria that is affected by a single criterion or component of the system. In other words, for each variable in the final model, there are three output, input and shared sets. (Table 8)

b) Identification and extraction of a shared set: At this stage, after identifying and extracting the input and output set of each of the factors, the factors that are shared between the input set and the output set are considered as a common set. Obviously, there are as many common sets as the number of factors (n=20), in other words, according to the existence of 20 factors, there are 20 shared sets (Table 8)

c) Leveling: At this stage, after extracting the shared set, to determine the level of each variable in the final model, the variables whose input and output sets are the same, in the hierarchy process, are considered as the shared set, and are located at the highest level of the hierarchy. In this regard, after identifying the highest level, those variables are removed from the list of other variables. These repetitions are continued until the levels of all variables are determined. In other words, after determining the level, the criterion for which the level has been determined is removed from the entire set, and the set of inputs and outputs is formed again and the next variable level is obtained. In the current study, the six levels of variables were obtained in 20 tables, and the final result of is represented in Table (8).

d) Clustering factors using the MICMAC software At this stage of the research process, after determining the extent of the reciprocal influence of each factors, or, in other words, determining the driving power and dependence power of the factors affecting the ineffectiveness of planning policy for rural development in Iran, each of these factors using soft MicMac is categorized in one of the four below clusters. (Table 9)

Table 9. Clustering factors affecting the ineffectiveness of planning policy for rural development
(Source: Research findings, 2017)

Code	Cluster type	Cluster feature	List of factors related to the cluster
1	Dependent variables	Weak driving power and dependence power	C13, C14, C11, C2
2	Independent variables	Weak driving power but high dependence power	C7, C17, C20, C16.C12, C15, C18, C4, C3
3	Effective variables	High driving power and dependence power	Does not have
4	Strategic variables (Autonomous variables)	High driving power and high dependence power	C9.C8, C1, C6, C19, C5, C10

Table 10. Affecting and affected factors of quadruple clusters of planning policy for rural development
(Source: Research findings, 2017)

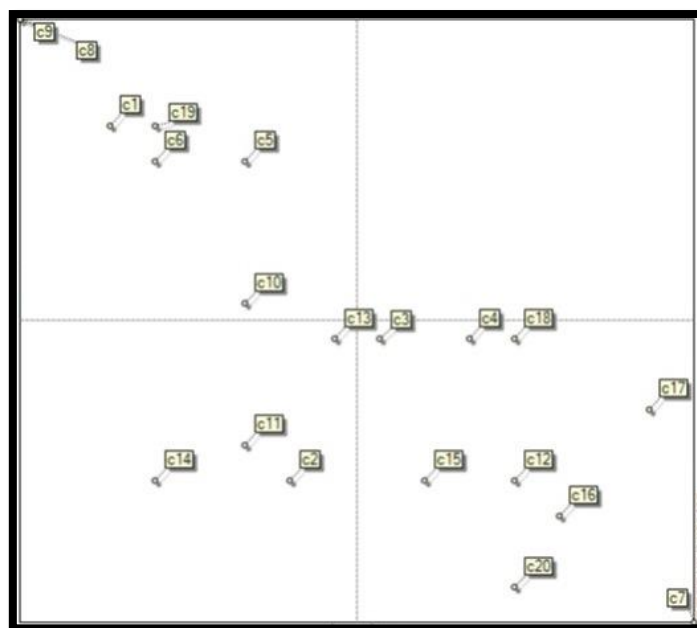| Code	Cluster type	The most affecting cluster factor	The most affected cluster factor
1	Dependent variables	C11	C14
2	Independent variables	C18	C3
3	Effective variables	-	-
4	Strategic variables (Autonomous variables)	C9	C9

Figure 1. Clustering factors affecting the ineffectiveness of planning policy for rural development in Iran
(Source: Research findings, 2017)

As shown in figure (1), the independent variables include: unbalanced variables in the development of rural areas, neglecting the competitiveness of rural areas, the inappropriate use of the internal potentials of rural areas (low attention to rural economy capacities), diversity, plurality, dispersion and underdevelopment of rural settlements, neglecting the economic diversification of rural development policy goals, non-spatial rural development policy, paying low attention to the regional network approach and the lack of integration in urban-rural policies, non-comprehensive rural development programs, and reducing rural policy-making to issues of deprivation. The main characteristic of these variables is the low degree of reciprocal influence with other variables.

The variables of dependency on oil revenues and the lack of stability in rural development policy, centralized (imperative) policy-making, planning and decision making system for rural development, lack of unity in terms of policy and plurality in terms of implementation, point and sectorial attitude toward development of the rural areas and disregarding it as a territorial, spatial, intersectional category, the absence of a definite status for rural development policy and plurality and the existence of contradiction in laws, and inconsistency of policy making based on policy

research are autonomous and strategic variables for regional development. These variables have a huge influence on the ineffectiveness of the regional development policy system in Iran, and have high driving power and high dependence power.

Variables of shortcomings in participation and delegation of legal authority to villagers, attempting to schedule scattered actions and activities as rural development policies, and unspecified extent of rural development programs and policies are in the group of dependent variables, which have low driving power and high dependence power. The main characteristic of these variables is the lower affecting than other variables and the high degree of being affected from the variables of other clusters.

5. Discussion and Conclusion
Improving the status and role of rural settlements in spatial development planning policy system and considering it as a trans-sectional, intersectoral, regional and sectoral-regional issue requires adopting and implementing a planning approach. This approach generates a kind of need for a comprehensive approach which can analyze the factors and combine them into an integrated whole. In this regard, identifying the factors affecting the ineffectiveness of this approach for rural development with using territorial planning

approach and understanding the extent of reciprocal influence of each of the factors are the objectives of the present study. According to the mentioned objectives, identifying 20 factors and determining the consensus of experts about each inefficient factor for rural development policy is one of the results of the qualitative section of this research. In this regard, the consensus of experts on the above-mentioned factors is higher than 70%. On the other hand, the most important results of the quantitative part of the research are determining the level of driving power and dependence power of the above-mentioned factors. In this regard, from the factors mentioned above, the factors "dependence on oil revenues and lack of stability of rural development policy" and "The centralized (imperative) system of policy, planning and decision making in rural development" are considered the most affecting factors in the inefficiency of planning policy system for rural development. In addition, from the factors mentioned above, the factors of "inappropriate use of the internal potentials of rural areas (low attention to rural economy capacities)" and "imbalance in the development of rural areas" have higher dependence power than the other factors.

Moreover, according to clustering of 20 factors, there are 9 factors in the cluster of independent factors which have low driving power and dependence power. In addition, there are 4 factors in the cluster of dependent factors which have relatively low driving power and high dependence power. On the other hand, 7 factors are considered as strategic or autonomous factors which have high driving power and high dependence power. However, in the cluster of affecting variables that have a low dependence power and a relatively higher driving power, the results indicates this fact that there is no factor in this cluster.

In addition, analyzing the investigations carried out in the field of policy making and its comparison with the results of current research indicate that considering the use of the interpretive structural modeling and the MICMAC software, the obtained results have been as a result of comparing the inefficiency of rural development policy. This kind of comparing factors results in clustering of several factors in each of the above-mentioned clusters. Moreover, this type of clustering factors enables integrated and combined decision making on rural development policy. However, in other studies, each factor has been analyzed separately.

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تحلیل عوامل اثرگذار بر ناکارآمدی نظام سیاستگذاری آمایشی در مناطق روستایی ایران

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چکیده مبسوط

۱. مقدمه

توسعه روستایی به عنوان یک مقوله سرزمینی و فضا مبنا می باشد و الزاما یک مقوله بخشی نمی باشد. دراین راستا با توجه بـه قلمـرو مکـانی- فضایی متفـاوت سـکونتگاههای روسـتایی، تنـوع و تکثـر قابلیت‌های سرزمینی عرصه‌های روستایی در ابعاد مختلف طبیعی - اکولوژیک و اجتماعی، اقتصادی، توجه به این عرصه‌های فضایی در ابعاد مختلف نظیر، سیاستگذاری، برنامه ریزی، اجرا و پایش و رصد سرزمینی نیازمند اتخاذ رویکردی چند بخشی، بین‌بخشی، منطقه‌ای و بین منطقه‌ای، در قالب رویکرد یکپارچه سیاستگذاری آمایش می باشد. لـذا شناسـایی و میـزان اثرگـذاری عوامـل ناکارامـدی نظـام سیاست‌گذاری توسعه روستایی در ایران بایستی مشخص گـردد. بـا توجه به این مهم، پژوهش حاضر به دنبال پاسخگویی به سوالات زیر می‌باشد:

۱- عوامل موثر بر ناکارامدی نظام سیاسـت‌گذاری آمایشـی توسـعه روستایی در ایران کدامند؟

۲- خوشه‌بندی عوامـل مـوثر بـر ناکارامـدی نظـام سیاسـت‌گذاری آمایشی توسعه روستایی در ایران چگونه است؟

۲. مبانی نظری تحقیق

تبیین تئوریک مساله، نیازمند دستیابی بـه یـک چهـارچوب نظـری مناسب است. سیاستگذاری فضایی، رهیافتی است به منظـور فـراهم

کردن فرصت های راهبردی در سـطوح مختلـف فضـاهای زیسـتی، یکپارچه کردن تصمیم های چندگانه در مـورد مکـان هـا و تقویـت یکپارچگی میان بخش‌ها است از این رو هماهنـگ کننـده ابعـاد سیاست‌های بخشی بر مبنای راهبرد سرزمین است. تحلیل و واکاوی رویکردهای نظری توسعه منطقه‌ای نشان مـی دهد کـه ازجنبـه سیاستگذاری، چهار نگرش اصلی(نگرش بخشی، نگرش فیزیکی و کالبدی، نگرش آمایشی- فضایی و نگرش آمایشی- فضایی نهادگرا مطرح بوده و سیاستگذاری‌های صورت گرفته هم درقالب این نگرش ها انجام پذیرفته است. در این راستا، رهیافت جدید آمایشی-فضایی نهادگرا در قالب تکثر گرایی و منطقه گرایی جدید دربرگیرنـدۀ تمامی بازیگران (اعم از دولتی و غیردولتی) و از طریق نهادهـا بـه صورت توامان پایین به بالا و بالا به پایین، شکل می گیرد.

۳. روش تحقیق

پژوهش حاضر از لحاظ هـدف‌گذاری کـاربردی و از نظـر ماهیـت، توصیفی-تحلیلی است.

شیوه گردآوری داده ها، مبتنی بر داده های کتابخانه ای- اسنادی و پیمایشی و بهره‌گیری از ابزار گردآوری داده‌ها نظیر؛ فیش برداری و پرسشنامه ساخت یافته و بهره‌گیری از تکنیک دلفی است. افزون بر این، با توجه به الزامات بکارگیری روش دلفی(خبره محوری) تعـداد ۲۰ نفـر از کارشناسـان و مـدیران سـطوح کـلان (ملـی)، منطقـه ای(استان) با استفاده از روش نمونه گیری هدفمند، انتخاب گردیـد.

*. نویسندۀ مسئول:

هدایت درویشی

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جهت تجزیه و تحلیل داده ها از مدل تفسـیری- سـاختاری ISM و نرم افزار MicMac بهره گرفته شده است.

۴. یافته های تحقیق

به منظور تحلیل عوامل اثرگذار بر ناکارآمـدی نظـام سیاسـتگذاری آمایشـی در منـاطق روسـتایی ایـران، مراحلـی نظیـر؛ شناسـایی متغیّرهای مربوط به مسئله، تشکیل ماتریس خودتعاملی سـاختاری، ایجاد ماتریس دسترسی اولیه، ایجاد ماتریس دسترسی نهایی، تجزیه و تحلیل قدرت نفوذ، میزان وابستگی و خوشهبندی عوامل اثرگذار در ناکارامدی سیاستگذاری آمایشی توسعه روستایی انجام شده است که این عوامل در خوشههای نظیر؛ متغیرهـای وابسـته، متغیرهـای مستقل، متغیرهای اثرگذار و متغیرهای استراتژیک(کلیدی) مشخص شده است.

۵. بحث و نتیجه گیری

بهبود جایگاه و نقش سکونتگاههای روستایی در نظام سیاستگذاری توسعه فضایی، نیازمند اتخـاذ و بکـارگیری رویکـرد آمایشـی اسـت؛ نتایج پژوهش نشان میدهد که در بخش کیفی پـژوهش ۲۰ عامـل واکاوی شده است و در بخش کمی پژوهش از بـین عوامـل واکـاوی شـده، عوامـل «وابسـتگی بـه درآمـدهای نفتـی و نداشـتن ثبـات سیاسـتگذاری توسـعه روسـتایی»و«نظـام متمرکـز (دستوری)سیاستگذاری،برنامه ریزی وتصمیم گیـری در توسـعه روسـتایی» اثرگـذارترین عوامـل در ناکارامـدی نظـام سیاستگذاری آمایشی توسعه روستایی قلمداد شده است.

کلمات کلیدی: توسعه روستایی، سیاستگذاری آمایشی، مدلسازی تفسیری- ساختاری، ایران.

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Evaluation of Rural Governance for Achievement of a Sustainable Local Government
(Case Study: Rural Area Surrounding Karaj Metropolis)

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Abstract

Purpose- This study tries to evaluate rural governance and identify its effective factors in a rural area, around Karaj Metropolis, for the achievement of local governance in central Iran.

Design/Methodology/Approach- In terms of goal and nature, it is practical, while with regards to its methodology, it serves as a survey. The statistical populations of this research include 53 rural managers of rural settlements as rural governors (Dehyar), 105 rural councils, and 366 heads of village households, selected based on classification sampling within a multi-stage process. Both techniques of PROMETHEE and Analytic Network Process (ANP) have been employed for analysis, level evaluation, and classification of governance in the studied rural area.

Findings- Based on the parametric method, results show that out of 53 studied local government, 53% had good governance; 25%, average governance; and 22%, weak governance. Furthermore, based on ANP Technique, the rural district (Dehestan) of Adran had the highest governance rank, while the rural district of Kamal Abad had the lowest. In general, the findings show that governance level in the studied local governments were quite desirable.

Research limitations/Implications- Governance is a multidimensional issue with various definitions and theories thereof the villagers' attitude towards rural governance and its indicators is restricted.

Practical implications- In the study area, rural governance is in a good position, but some of the rural governance components and indicators are in an unsatisfactory and critical situation and require serious attention for improvement.

Originality/Value- So far, there has been little attention paid to rural governance in the cities, especially in the peripheral regions of metropolitan areas. Accordingly, the present study is of considerable importance.

Key words: Sustainable local government, rural governance, local pattern of rural municipality governance, rural governance evaluation, spatial distribution governance, Karaj Metropolis.

Paper type- Scientific & Research.

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1. Introduction

T he modern development view focuses on the return to distinct historical features of each society, on one hand, and on prevention of inducing prescribed versions of top-to-down development, on the other (Van Assche & Hornidge, 2015). There has been growing in understanding of the fact that governments are not the only decision makers and practitioners of decisions through their governmental power. On the contrary, they spend much time negotiating with other governmental or non-governmental organizations to reach an agreement concerning specific measures and decisions (Colebatch, 2002). Accordingly, the establishment of local governments as a suitable pattern to generate a moderate relationship and balance among humans, society, and nature, with particular emphasis on participatory solutions as well as bottom-up and bilateral movements, will increase the power of rural societies in terms of responsibility and accountability to their needs along with people's participation within development flow (Azimi & Eftekhari, 2014). To realize such a process, nowadays, rural governance solution has gone into the spotlight of rural sustainable development, being known as one of the essential necessities of regional and local sustainable development, which cultivates two concepts of enabling and participation in it (Ward, 2009). The main reason why researchers and developmental policy-makers pay much attention to the issue of rural governance

chiefly originates from several factors and challenges, encountered by rural societies' development (Stark, 2010)(Fig 1).Governance is the quality of the relationship between the government and its citizens (Sheng, 2010). It is given to those processes that lead into interaction and decision making among the actors, involved in common problems and challenges, in turn resulting in the establishment, reinforcement, or creation of relevant social norms and institutions (Hufty, 2011). Governance is given to all dominant processes, whether by the government, market, or social and commercial networks, and through groups or official or non-official organizations within a territory by means of laws, norms, power, or language (Bevir, 2013). That is why, some believe rural governance is a prerequisite for sustainable rural development (Stenseke, 2009).

Rural government is a set of organizations and village-administration official institutions, whereas rural governance is a kind of process and relationship between rural government and citizens. On the other hand, the new rural paradigm requires important changes, regarding how to understand and implement the policies. Thus in this way, the governance approach will be regarded multilevel and common. It seems that usual administrative hierarchical structures are effectively unsuitable to implement such policies, with their administration requiring three-fold key dimensions horizontally in both central and local levels and vertically in all levels of the government in terms of governance (OECD, 2006).
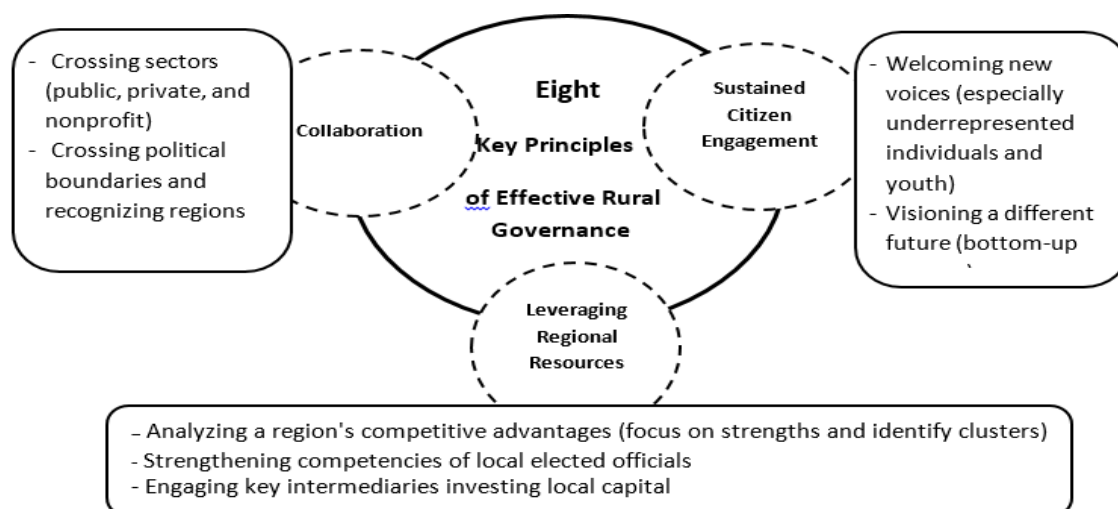

Figure.1. Principles of effective rural governance
(Adapted from Stark, 2010)

Formation of rural councils and passing the law of autonomous rural municipalities in Iranian villages can be regarded a critical point in the evolution of local government's structure; therefore, expansion and development of these two institutions throughout the realm will pave the way for creation of the civil society as well as realization of development indicators (Badri & Mousavi, 2009). Based on the study by Andack and Kennedy, the interaction between rural municipality and rural council and vice versa, for the sake of administrating village affairs, brings with itself limited financial and credit resources, leading to insufficient continuous training, weaker trust of people in organization, and legalization of village affairs on one hand, along with occasions and capabilities such as new viewpoint and attention to rural administration, the ascending trend in development of Iran which is in line with villagers' empowerment and participation, villagers' motivation and satisfaction from rural administration's actions (however insignificant), rich ethnic science for appropriate use of the village's resources, good governance training, and international recommendations for its realization in national, regional, and local levels in Iran, etc., on the other (Badri & Mousavi, 2009). Supervising the performance and guidance of activities and measures, turns the rural management institution, itself in line with principles of rural governance, into a necessity and vital matter; therefore, the present research has been conducted with the purpose of evaluation and assessment of rural governance in local governments (rural municipalities and rural council) in the rural area around Karaj Metropolis, while it offers practical solutions to achieve sustainable local government and analyzes their strengths and weaknesses.

2. Research Theoretical Literature

In recent years, it has been researchers' and planners' intention to analyze both the compliance of rules and regulations and the manner of implementing local management with governance principles. This, in turn, has been able to prepare and develop various methods of rural governance evaluation. Based on the number of information source types in use, the conducted studies can be divided into three groups of "comprehensive approach", "citizen-based approach", and the approach based on the viewpoint of governmental and administrative institutions.

The Comprehensive Approach of Local Governance Evaluation is based on opinions and views of groups and numerous information sources, including the citizens, managers, employees at local government along with governmental organization, and if needed unions and organizations of civil society. Several studies can be identified within the framework of this approach, among which one can mention Urban Governance Index (UN Environment, 2006), Local Governance Barometer in the Philippines, Good Governance for Local Development (GOFORGOLD) in Afghanistan, Local Democracy Assessment Guide (Gabor, 2006), Indicators of Local Democratic Governance in Eastern Europe (Gabor, 2001:11-19), Methodological Guidelines for Local Governance Analysis in Latin America, Urban Governance Study in Punjab (Gupta & Ramanjit Kapoor, 2007), Good Governance and Contrast of Evolution in Sri Lanka (Bigdon, 2006), Paradigm Change of Rural Governance for Sustainable Development (Position and Role of GIS), Evaluation of Good Governance by Means of Common Assessment Framework (CAF), Urban Governance and System of City Administration in Iran (Barakpour, 2008), Models of Urban (Local) Governance in Iran (Savestani, Imani Jajarmi, & Firozabadi, 2008), and Evaluation and Analysis of Influential Factors of Rural Governance in Local Governments of Qazvin, Iran (Darban Astane, 2010).

The Citizen-Based Approach is based on the assumption that the quality of local governance should be determined by the beneficiaries. Therefore, local governance is evaluated in accordance with opinions, expectations, experience, and viewpoints of citizens and beneficiaries of local governance, by means of different methodologies such as surveys, participatory evaluations, discussion groups, or associations. Some of the conducted studies within this approach's framework include Citizen Report Cards in India, Social Audit of Local Governance in Bosnia and Herzegovina, Social Audit of Governance and Delivery of Public Services in Pakistan, Local Governance Self-Assessment in Bangladesh (CARE, 2006), Evaluation of Rural Councils' Performance in Central Part of Qom, Iran, and Plan of Assessment and Evaluation of Rural Municipalities' Performance in Iran (Badri, 2012).

The Approach Based on the Analysis of Governmental and Administrative Institutions is based on emphasis and focus on outputs or results from local government in presentation of services, incomes, and costs. In fact, this group's methods evaluate the performance of municipalities and rural municipalities in presenting services and goods to the citizens.

Performance criteria chiefly include the volume, quality, efficiency, and outputs of the organization in presenting the goods and services. Within this approach's framework, there have been numerous studies too, some of which include the methods of Governance for Local Development Index in Philippines, Index of Responsibility, Transparency, and Accountability in Madagascar, Standards of Municipal Transparency in Chile, Liaison Entre les Actions de Development de Economic Rural (LEADER) in Poland (Falkowski, 2013), Leadership and Governance of Rural Societies (Andrew, 2014), Evaluation of the Efficiency of Islamic Councils of Iranian Cities (Azkia & Imani Jajarmi, 2005), Evaluation of Rural Municipalities' Performance in Gilan Province (Chobchiyan, kalantari & fami 2007), and Evaluation and Assessment of the Performance of Modern Rural Management in Bushehr Province (Haydari, 2015).

The present research emphasized the above-mentioned approaches to assess the level of the local governance within the studied area on influential actors and units of the research, along with the type of internal or external evaluation of local governance, methodology, and used dimensions and indicators as the foundations of the proper assessment pattern. Ultimately, based on the nature and conditions of local governments and its actors in Iran, the suitable methodology and indicators of the assessment were extracted. Accordingly, the dimensions, components, and initial indicators of local governance assessment were extracted and then the level and governance rank of the studied local governments were determined.

3. Research Methodology

The credibility of research achievements is intensely under the influence of a methodology employed in that science and one cannot achieve the research goals unless epistemological search or methodology happens correctly. Since the results from this research can lead to adoption of executive decisions as well as undertaking of a series of reforms in rural management development programs, it is a practical research in terms of its purpose and nature and a survey in terms of its methodology, which tries by means of sampling techniques to expand the results from this research to local governments in rural areas of Karaj.

Accordingly, in order to obtain important indicators in relation to rural governance, the research has firstly documented them based on theoretical studies. Given the background and theoretical foundations of global studies and research as well as the presented area, the current research has considered the frequency of extracted indicators from nine common indicators, namely consensus-oriented, equity, responsibility, transparency, accountability, rule of law, legitimacy, and effectiveness and efficiency, employed in most conducted research studies.

3.1 Geographical Scope of the Research

Once the effective indicators of good rural governance were identified and determined, to know the importance of each along with their rank among other components, the Delphi Technique was used to provide their related indicators by sending the electronic form of the questionnaires (Google form) to 47 specialists and experts of Iran's rural development issue in random, including university professors, specialists, and experts of relevant organizations. At the end, 35 individuals answered the questionnaires.

The research's statistical population includes all rural municipalities and rural councils of Karaj as well as the heads of rural households. Based on the existing statistics of 2016-2017, there were 96 qualified rural municipalities, of which a sum of 53 got selected via multilevel classification sampling, in accordance with Cochran Statistic. Furthermore, from 166 the rural councils 105 individuals were chosen[1]. In addition, the size of the statistical

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1 Out of 166 rural councils in total for rural municipalities with three councils (2 people), the council chairman and the vice president of the council and for rural municipalities with 5 councils (3 people),

the council chairman, vice president of the council, and one of the members got selected. In sum, the studied sample comprised 105 rural councils.

population was determined as 366 people, by Cochran Statistic. The considered data was collected separately by means of questionnaires from rural governors, chairmen of rural councils, and household heads of the selected villages along with the data related to district governors[1]for each village.The present research employed Cronbach Alpha to assess the validity of the measurement tool. Cronbach Alpha coefficient was 0.918 for rural governors' questionnaire, 0.912 for rural councils, 0.938 for household heads, and 0.954 for district governors, all being in a favorable and acceptable level.

3.2. Methodology

In order to evaluate and analyze the level of rural governance, both PROMETHEE and ANP Techniques were employed. The former belongs to Multiple-Objective Decision-Making (MODM) and Multiple-Attribute Decision-Making (MADM) Models, having six functions. Given the fact that this research aimed at governance rating as well as the selection of the best alternative to the considered mode, Functions 1 and 2 of this technique[2]were used. The basis of PROMETHEE method has paired comparisons, where the numerical difference among the alternatives is taken into consideration in each of the criteria. As a result, the present research initially determined the weights of nine good rural governance indicators via direct rating, ranked sum, ranked power, and ranked reversibility. Afterwards, along with the weights of each component (local governments), they were evaluated and assessed in a software, called Visual PROMETHEE.

ANP a comprehensive and powerful method for precise decision-making, was also used in this study. Based on the aforementioned method, the present research first established the subject model and structure, then attempted to form dual comparison matrices of priority vector. Afterwards, for the final priority of the components (local governments), the super-matrix was generated and eventually, according to the abovementioned stages, local governments were rated and the best alternative, selected. In order to use, process, and analyze the model, a software called Super Decision was utilized which for the achievement of the intended goal, applied the information of 9 effective indicators as 53 local governments of Karaj.

4. Research findings

In order to assess and evaluate the rural governance level in local governments of the studied area by means of PROMETHEE and ANP Techniques, the local governments in the rural area got rated.

Once the indicators' weights were determined and all averages were standardized, as mentioned above, initially the PROMETHEE method was used to rate the villages. Based on this method, which is based on weighing the indicators and giving preference to the best ones, the villages were rated.

Given the fact that the PROMETHEE method calculates the flows between -1 and +1 (i.e. (+1) …. (0) …. (-1)), the villages of the studied boundary were divided into three categories, based on the calculated specific flow. Villages with good governance were categorized between (+1) and (0); those with average governance were between -0.1 and -0.2; and the ones with weak governance fell below -0.2 up to -1. Based on this ranking, 53% of the villages had good governance; 25%, average; and 22%, weak governance (Table 1)

Table 1. Status of rural governance in the research area based on the PROMETHEE method
(Source: Research finding, 2018)

Governance status	Value (based on net flow)	Number	Percentage
Villages with Good Governance	(0 to +1)	28	53
Villages with Average Governance	(-0.1 to -0.2)	13	25
Villages with Weak Governance	(-0.2 to -1)	12	22
Sum	------	53	100

1bakhshdar

2PROMETHEE (I) ranks the options in a detailed way, while PROMETHEE (II) ranks the discrete options completely.

Another purpose of the present research was to rate the studied local governments based on 9 good governance indicators. Accordingly, the local governments with the highest governance level in each of the indicators were Darvan (participation), Jourab (consensus-oriented), Atashgah (equity), Gosil (responsibility), Ali Abad Gooneh (transparency), Nesa (accountability), Varian (rule of law), Igan (legitimacy), and Adran (effectiveness and efficiency). In contrast, the villages with lowest governance level, based on the 9 indicators, included Kalha (participation),

Moroud (consensus-oriented), Tekye Sepahsalar (equity), Sarvdar (responsibility), Kalvan (transparency), Gosil (accountability), Dardeh (rule of law), Koushkak (legitimacy), and Siah Kalan (effectiveness and efficiency).

In order to arrive at a more tangible result in the research for rating and categorization of good governance in villages, apart from the PROMETHEE method that rated the villages inside the studied area, the ANP method was employed too(Table 2).

Table 2. Status of rural governance assessment of the studied area, divided into small administrative areas based on ANP and PROMETHEE methods

(Source: Research finding, 2018)

| District Governing[1]	Rural District[2]	Village	ANP Standard Weight	Rank	Net Flow (Phi)	Rank	District Governing	Rural District	Village	ANP Standard Weight	Rank	Net Flow (Phi)	Rank
Asara	Aderan	Abharak	0,017	15	-0,03	33	Asara	Asara	Kiasar	0,017	18	0,16	10
		Aderan	0,016	14	0,22	7			Laniz	0,022	45	-0,33	50
		Arange	0,023	46	-0,17	40			Moroud	0,018	23	0,0005	28
		Avizar	0,02	34	0,07	20			Hameja	0,022	40	-0,27	45
		Igan	0,02	33	0,05	23		Nesa	Azadbar	0,018	21	-0,02	32
		Pourkan	0,015	9	0,06	21			Asiabedarga	0,018	24	-0,001	29
		Jourab	0,016	11	0,16	11			Emamcheshme	0,019	29	-0,08	38
		Jey	0,014	5	0,20	8			Hassankadar	0,014	6	0,13	13
		Charan	0,021	36	-0,04	35			Sorkhedare	0,018	20	-0,012	30
		Khour	0,018	26	0,10	18			Koushkak	0,019	30	0,008	27
		Khozankola	0,016	10	0,23	6			Kohnedeh	0,02	35	0,11	16
		Sarziarat	0,017	53	-0,39	53			Gachsar	0,018	19	0,01	26
		Sarvedar	0,022	41	-0,30	47			Garmab	0,018	27	0,11	17
		Sijan	0,018	28	-0,03	34			Gosayl	0,022	43	-0,05	36
		Kalvan	0,02	31	0,04	24			Malekfaliz	0,02	32	0,06	22
		Kolha	0,022	38	0,04	25			Nesa	0,016	12	0,12	14
		Kandar	0,016	13	0,27	4			Varangeroud	0,021	37	-0,21	42
		Kooshkak bala	0,026	52	-0,33	49			Velayatroud	0,012	1	0,54	1
		Leylestan	0,024	50	-0,35	51			Vele	0,018	22	-0,10	39
		Nojan	0,015	8	0,19	9			Vine	0,022	42	-0,28	46
		Varyan	0,025	51	-0,30	48	Markazi	Kamalabad	Atashga	0,015	7	0,14	12
		Varzan	0,017	17	0,12	15			Darvan	0,023	49	-0,22	43
		Hrin	0,022	44	-0,17	41			Siakolan	0,018	25	-0,02	31
	Asara	Sepah salar	0,022	39	-0,05	37		Mohamad abad	Mahmoudabad	0,017	16	0,10	19
		Darde	0,023	48	-0,27	52			Aliabadgoune	0,013	2	0,41	3
		Sarak	0,023	47	-0,27	44			Golestanak	0,013	3	0,50	2
		Shahrestanak	0,014	4	0,25	5							

1 Bakhshdari
2 Dehestan
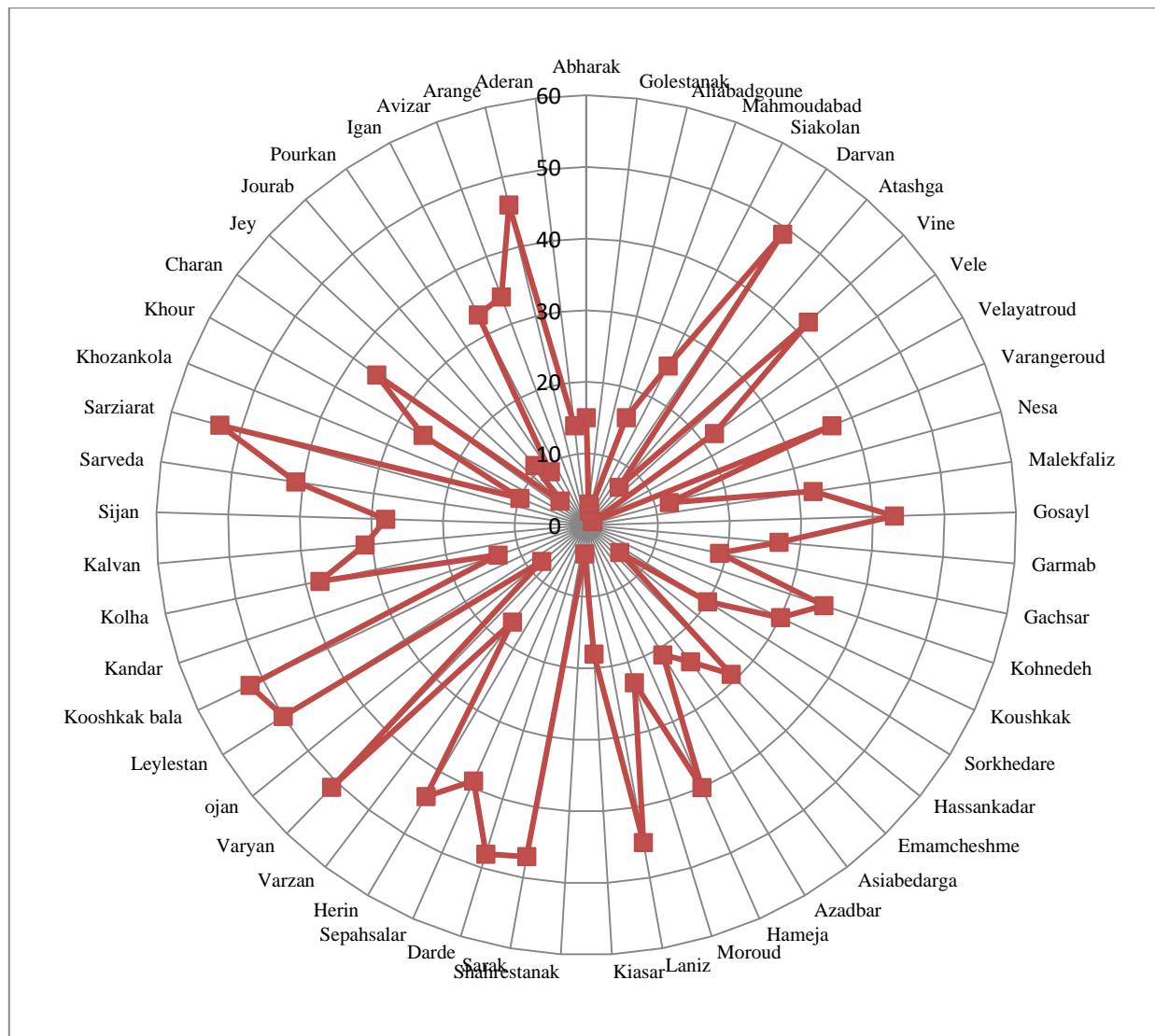
Fig 2. Rural governance radar, based on ANP method around Karaj Metropolis.
(Source: Research finding, 2018)

Results from ANP show that inside the studied area Adran rural district has the highest governance rate, and Kamal Abad, the lowest. What is more, rural districts of Asara, Mohammad Abad, and Nesa were ranked second to fourth in this ranking, respectively (Fig 2)

Therefore, considering the results from PROMETHEE and ANP for rating the studied villages in terms of good governance status, it can be said that there is a meaningful difference among the studied villages with regards to rural governance status. In addition, results from the above-mentioned tests indicate that the status of good governance indicators in the sample villages is appropriate and favorable in some villages according to the responders' viewpoint, while for others, it is not so.

In general, such findings show that considering PROMETHEE and ANP methods in sample villages, local governance is at an appropriate level (Fig 3)
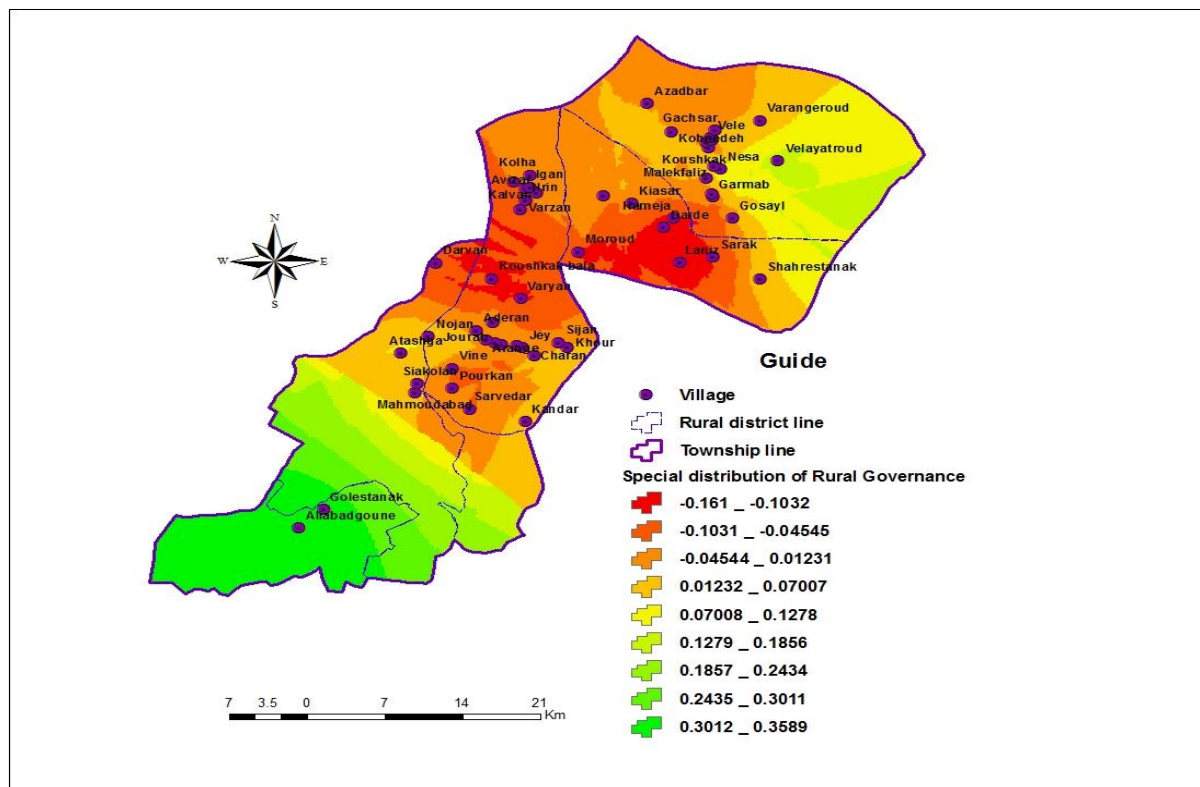
Fig 3. Pattern recognition and governance level in the rural area surrounding Karaj Metropolis
(Source: Research finding, 2018)

Furthermore, considering the conducted analysis of the present research, in accordance with field interpretations such as analysis of questionnaires, interviews, and structured observation of the connection between influential factors and variants on rural governance, on one hand and good rural governance indicators of the studied local governments, on the other, were analyzed and assessed (Table 3).

The relation between influential variants on rural governance and good governance indicators showed that having or not having effective variants plays a significant role in rural governance level of the studied area. As such, concerning dominant spatial and temporal factors, the village size, its centrality in terms of communication, its distance from the center of the district, its skeletal development and development level, and the frequency of infrastructures with good governance

indicators cultivated a positive and meaningful relationship. However, the share and effectiveness of each of the mentioned variants differed for good governance indicators. For instance, the bigger the village, the lower the indicators of participation, consensus-oriented, and equity and the higher the indicators of accountability, rule of law, legitimacy, and effectiveness and efficiency.

That is why in small societies, thanks to familiarity and entanglement of the races and daily encounters of the people with each other, cooperation and synergy levels increased. Infrastructural development as well as the skeletal development of the village, like having local development document (rural guidance plan), played an effective role in satisfaction and, consequently, participation and consensus-oriented indicators of the villagers.

Table 3. Assessment of the relation between influential factors and variants on rural governance and good rural governance indicators in the research area.

(Source: Research finding, 2018)

Most important factors and influential variants on rural governance	Good rural governance indicators								
	Participation	Consensusoriented	Equity	Responsibility	Transparency	Accountability	Rule of Law	Legitimacy	Effectiveness & Efficiency
External factors									
Spatial-temporal position									
Village area size	Low	Low	Low	High	Average	High	High	High	High
Village's high communicative centrality	High	High	Average	Low	High	Low	High	Average	High
Great distance from district and town center	High	High	Low	Low	High	Average	Low	Low	Low
Village's skeletal development (having a village-guidance plan)	High	High	Low	Low	High	Average	High	High	High
Development level and frequency of infrastructures	High	High	Low	Low	Average	Average	Low	Average	High
Economic environment									
High population of the village	Low	Low	Low	Average	High	High	High	High	High
High employment of the village	High	High	Low	High	High	High	High	High	High
Low costs	High	Average	High	High	High	High	Average	Average	High
High income of rural households	High	Average	High	High	High	High	High	High	High
Tourist attraction ability of the village	High	High	High	Average	High	Low	High	High	High
Industrial nature of the village	Low	Average	Low	Low	High	Low	Average	Average	High
Socio-cultural environment									
Lingual variety (greater variety)	Low	Low	Low	Average	High	High	Average	Low	High
Knowledge of rural municipalities and councils' tasks	High	High	High	High	High	High	High	High	High
Citizens' age (being young)	Low	Low	Low	Low	Average	High	High	Average	High
Citizens' education level	High	High	Average	High	High	High	High	Average	High
Sense of belonging to the village	High	High	High	High	High	High	High	Low	High
Scarcity of social challenges	High	High	High	High	High	Average	High	Low	Average
Internal factors									
Organizational characteristics									
Degree of rural municipality (high degree)	Low	Low	Low	High	High	High	High	Low	High
High income of the rural municipality	High	High	Average	Average	High	High	High	High	High
High equipment and machinery of the rural municipality	High	High	Average	Average	High	High	High	Average	High
Great number of rural municipality personnel	High	High	High	High	High	High	Average	Low	Average
More interaction with relevant organizations and departments	High	High	High	High	Average	Average	High	Low	High
Interaction with nearby villages	High	High	Low	High	High	High	Average	Low	High
Having a five-year rural municipality program	Average	High	High	High	High	High	High	High	High
Human force characteristics									
Rural governor's job satisfaction	High	High	High	High	Average	High	High	Average	High
Participation in training courses	High	High	High	High	High	High	Average	High	High
High education level of the rural governor	High	High	Average	Average	High	High	High	Low	High
Council members' age (higher age)	High	High	High	Average	High	High	Average	Low	High
Rural governor's age (higher age)	High	High	High	High	High	High	Average	Low	High
High experience of the rural governor	High	High	Low	Average	High	High	High	Low	High
High experience of the council	High	High	High	High	High	High	Average	Low	High

☝ High governance level ✋ Average governance level ✌ Low governance level.

As for the variants of the economic environment, high population of the village caused the indicators of participation, consensus-oriented, and equity to drop, having a significant positive role in increasing transparency, accountability, rule of law, legitimacy, and effectiveness and efficiency. In the research area, increased number of employees and high household income significantly promoted many indicators of good governance, mainly due to villagers' satisfaction, itself a consequence of desirable economic status. Social-cultural variants also had an effective and significant role in levels of good rural governance. As such in rural settlements with villagers, well-informed of the laws, regulations, and job description of the rural municipality and rural council, the indicators are at high levels, more often than not. As for lingual and ethnic variety, the indicators of participation levels, consensus-oriented, and equity were low, clearly due to ethnic and racial conflicts as well as the election of the rural governor and especially the rural council which in most cases is done based on biases arising from such conflicts. This naturally decreased the level of utilizing the affairs and satisfaction of the majority to a large extent.

In addition to influential external factors on good governance indicators, the internal ones were analyzed in the research, too. The higher rate of rural municipality degree[1] showed high levels of most governance indicators. What can be deduced from both interaction with relevant organizations and adjacent villages connection was the significant role and effectiveness of these two variants on most good governance indicators.

Rural governor's job satisfaction as well as the participation of the rural governor and the council in training courses, increased the levels of good governance indicators, so did high education level of the rural governor. The advanced age of rural council members along with the rural governor had a positive influence on all indicators with the exception of legitimacy, for which it had a negative role. The old age of rural governors, as well as the rural councils' members, can be regarded as a reason behind lower legitimacy. High experience of the rural governor and rural council had a similar influence on good governance indicators.

Considering the analysis of research questionnaires and surveying studies, this was not so about the rural councils. In general, taking the conducted analyses into consideration, each of the influential factors and variants on governance had a significant role on good governance indicators. Here, participation was the most important and legitimacy, the weakest influential indicator on the studied local governments.

5. Discussion and conclusion

The present study was conducted with the aim of evaluation and assessment of rural governance level in local governments (rural municipalities and rural councils) in the rural area surrounding Karaj Metropolis at the center of Iran. In response to the research question, the results indicated that rural governance level in the studied local governments had an appropriate status with an average of 52.8%. Furthermore, results analysis from the rank of rural governance indicators in local governments indicated that participation, transparency, accountability, and consensus-oriented were the most important influential indicators, while equity, effectiveness and efficiency, rule of law, responsibility, and legitimacy were the weakest influential indicators on the studied local governments. Based on research results, even though rural governance level had an appropriate status, some components and indicators of rural governance were inappropriate and in a critical situation, needing serious attention to get improved. Thus, based on research results, rural governance level, and its identified influential factors, the following points are recommended to promote rural governance level of the studied local governments:

- Based on research results, participation was identified as the most important and influential index among other indicators of the studied local governments. Filling up the gap between autonomy and collective participation in rural environments is an opportunity with widespread potential achievements in sustainable economic growth, social stability, and human development. Accordingly, the significant share of participation in the studied local governments indicates that there is an important, potential, and effective factor in that

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1 Rural municipalities are rated from one to six by Iranian Ministry of Interior based on population indicators of population, area, and income level.

area which can become a stimulus of development and achievement of rural sustainable development.

- Based on research results, responsibility has an inappropriate situation among the studied local governments, indicating that the studied local governments were not diligent and able to offer services to the beneficiaries and supply their needs. Accordingly, based on the foundation of good rural governance, the people in charge, as well as the decision makers, should be sensitive to and responsible for the demands, expectations, and needs of rural people and groups. They should also be responsive to the villagers, being responsible for issues and problems.

- Moreover, legitimacy is the second index without any appropriate status. Based on the research results, this weakness originates from factors such as no efficiency of the local government manager (rural governors and rural councils), lack of mental and financial support of the villagers, no social acceptability of the village manager, racism and favoritism in the village, no legal and regulated relation between village managers and people, etc. Obviously, institutions in charge of rural affairs can be successful when they have the necessary legal and political background.

- Results from the present research show that the appearance of rural municipalities and rural councils can be considered a turning point in the manner of rural settlements administration in Iran. A new experience in local governments and the fact that these two institutions of rural management in Iran are newly-formed requires the precise study on the new scientific framework in the transition from a local government to local good governance. Hence, considering the resources and facilities at these two institutions' disposal, they can play an important role in the promotion of good rural governance indicators for local affairs administration.

- Sustainable development is a multi-faceted process, involving various ecological, political, economic, and socio-cultural dimensions along with their mutual interconnections. In general, good governance and sustainable rural development have mutual connections. On one hand, development and movement towards it result in strengthened foundations of good governance and improved life quality; on the other hand, establishing and strengthening good rural governance provide suitable contexts for villages' sustainability in three dimensions (i.e. ecological, social, and economic). Accordingly, the prerequisite for removing the instability of development in rural areas is eliminating it from the body of administrative institutions, regional programming, efficiency, effectiveness, and more responsibility when dealing with the affairs as well as assigning tasks, qualifications, and power to the people and other local beneficiaries, all of which are indicative of a new method of management, called governance.

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سنجش نظام حکمروایی روستایی در دستیابی به حکومت محلی پایدار
(مطالعه موردی: ناحیه روستایی پیرامون کلان‌شهر کرج)

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چکیده مبسوط

۱. مقدمه

در سطح بین المللی توافق جمعی رو به رشدی وجود دارد که الگوی حکمروایی خوب برای دستیابی به توسعه انسانی پایدار و حکومت محلی مردم محور ضروری است. اغلب کشورها واجد حکمروایی خوب روستایی را بر تقویت مشارکت و کاهش فاصله حکومت با مردم، کاهش منابع و کمک های دولتی، تغییر از حکمروایی دولت محور به حکمروایی جامعه محور دانسته و آن را به عنوان مبنای سنجش و ارزیابی حکومت های محلی مورد توجه قرار می دهند.

در ایران با توجه به گسترش و پراکندگی مدیریت های محلی روستایی و عهده داری وظایف قابل توجه در سطح روستاهای کشور نظارت بر عملکرد و هدایت فعالیت ها و اقدامات نهاد مدیریت روستایی را هم سو با اصول حکمروایی روستایی، امری ضروری و حیاتی می سازد. این به گونه ای است که بتوان ضمن ارتقای کارایی و اثربخشی، مسئولیت پذیری، شفافیت مالی و برنامه ای نهاد مدیریت روستایی، و از طرفی توانمندسازی، ظرفیت سازی و تقویت مشارکت مردم روستایی، از پتانسیل و ظرفیت فراوان ایجاد شده در جهت بهبود عمران و بهسازی روستایی استفاده کرد

لذا تحقیق حاضر نیز با هدف ارزیابی و سنجش حکمروایی روستایی در حکومت های محلی (دهیاری ها و شوراهای اسلامی روستایی) در ناحیه روستایی پیرامون کلان شهر کرج و ارائه راهکارهای عملی در دستیابی به حکومت محلی پایدار تحلیل تقویت نقاط قوت و ضعف آنها به اجرا در آمده است.

۲. مبانی نظری تحقیق

در سالهای اخیر تمایل پژوهشگران و برنامه ریزان برای تحلیل میزان انطباق قوانین و مقررات و چگونگی اعمال مدیریت محلی با اصول حکمروایی، منجر به تکوین و توسعه روش های متعدد ارزیابی حکمروایی روستایی شده است، براساس تعداد و نوع منابع اطلاعاتی مورد استفاد ، می توان مطالعات انجام شده را به سه گروه "رویکرد جامع" " رویکرد مبتنی بر شهروندان" و "رویکرد مبتنی بر نظر نهادهای حکومتی و دولتی" طبقه بندی کرد. در پژوهش اخیر رویکردهای فوق برای سنجش سطح حکمروایی محلی محدوده مورد مطالعه بر کنشگران و واحدهای اثر گذار تحقیق، نوع ارزیابی از داخل یا خارج حکومت محلی، روش شناسی، ابعاد و شاخص های مورد استفاده به عنوان ارکان الگوی سنجش منا سب تأکید شد تا در نهایت برا ساس ماهیت و شرایط حکومت های محلی و کنشگران آن در ایران، روش شناسی و شاخص های مناسب سنجش استخراج شود.

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بر همین اساس نیز ابعاد، مؤلفهها و شاخصهای اولیه سنجش حکمروایی محلی استخراج و سپس سطح و رتبه حکمروایی حکومت های محلی مورد مطالعه شخص گردید.

۳. روش تحقیق

مطالعه حاضر از لحاظ هدف و ماهیت کاربردی و از لحاظ روش پیمایشی ا ست. جامعه آماری مورد پژوهش شامل ۲ بخشدار، ۵۳ مدیر روستایی محلی (دهیار)، ۱۰۵ شورای اسلامی روستایی و ۳۶۶ سرپرست خانوار روستایی است که بر اساس نمونه گیری طبقه بندی در طی فرایند چند مرحله ای انتخاب شده اند. تحلیل و سنجش سطح و رتبه بندی حکمروایی در ناحیه روستایی مورد مطالعه از تکنیک های PROMETHEE[1] و ANP[2] استفاده شد.

به طور کلی این پژوهش با هدف ارزیابی و سنجش سطح حکمروایی روستایی در حکومت های محلی(دهیاری ها و شوراهای اسلامی روستایی) درناحیه روستایی پیرامون کلان شهر کرج در مرکز ایران به اجرا درآمد.

۴. یافتههای تحقیق

نتایج مطالعه طبق روش پرامتی نشان داد از ۵۳ حکومت محلی مورد مطالعه ۵۳ درصد دارای حکمروایی خوب، ۲۵ درصد دارای حکمروایی متوسط و ۲۲ درصد دارای حکمروایی ضعیف می باشند. همچنین بر اساس تکنیک ANP دهستان آدران بالاترین رتبه حکمروایی و دهستان کمالآباد پایینترین رتبه حکمروایی را دارا میباشند. به طور کلی یافتههای تحقیق نشان داد سطح حکمروایی در حکومتهای محلی مورد مطالعه در حد مطلوبی میباشد.

همچنین بررسی نتایج حاصل از رتبه شاخصها در حکمروایی روستایی در حکومتهای محلی نشانگر آن است که مشارکت، شفافیت، پاسخگویی، اجماع محوری به عنوان مهمترین شاخص تاثیر گذار و عدالت محوری، کارایی و اثر بخشی، قانونمندی م سئولیتپذیری و م شروعیت به عنوان ضعیفترین شاخص تاثیر گذار بر حکومتهای محلی مورد مطالعه بوده است. همچنین رتبه دهستان آدران بالاترین سطح حکمروایی خوب روستایی و کمالآباد

پایینترین سطح حکمروایی خوب روستایی در حکومتهای محلی مورد مطالعه را دارا می باشند.

۵. بحث و نتیجهگیری

آنچه که در این تحقیق مورد بررسی و تحلیل قرار گرفت سنجش سطح حکمروایی روستاهای پیرامون کلانشهر کرج با توجه به توسعه پایدار محلی بود. توسعه پایدار محلی فرایند همه جانبهای است که ابعاد گوناگون اکولوژیکی، سیاسی، اقتصادی و اجتماعی - فرهنگی و ارتباطات متقابل آنها را در برمیگیرد، به طور کلی حکمروایی خوب و توسعه پایدار روستایی دارای ارتباطات متقابل می باشند، از یکسو توسعه و حرکت به سوی آن به تقویت مبانی حکمروایی خوب و در نتیجه افزایش کیفیت زندگی می انجامد و از سوی دیگر ایجاد و تقویت حکمروایی خوب روستایی، بسترهای مناسب جهت پایداری روستاها در ابعاد سه گانه (اکولوژیکی، اجتماعی و اقتصادی) را فراهم می کند، افزون بر این، حکمروایی خوب روستایی فرایند یکپارچه سازی کو شش های مردم رو ستایی و دولت برای بهبود اوضاع محیطی، اقتصادی و اجتماعی- فرهنگی نواحی روستایی ا ست تا آنها را قادر به مشارکت در پیشرفت محلی، منطقه ای و ملی سازد. بر همین اساس لازمۀ رفع ناپایداری توسعه در نواحی روستایی پیرامون کلانشهرها رفع ناپایداریها از بدنۀ نهادهای مدیریتی و برنامهریزی منطقهای و کارآمدسازی، اثر پذیری و مسئولیتپذیری بیشتر در ادارۀ امور و تفویض وظایف، صلاحیتها و قدرت به مردم و سایر ذینفعان محلی است که تمام اینها به شیوۀ جدیدی از مدیریت به نام حکمروایی دلالت دارد.

کلید واژه ها: حکومت محلی پایدار، حکمروایی روستایی، الگوی محلی حکمروایی ده یاری، ارز یابی حکمروایی روستایی، توزیع فضایی حکمروایی، کلان شهر کرج.

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2 Analytic Network Process

1 Preference Ranking Organization METHod for Enrichment Evaluation

The Effect of Good Governance on Increasing the Quality of the Physical Environment of Rural Settlements

(Case Study: Central District of Neyshabur County)

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Abstract

Purpose- In a good governance pattern with a broad participation of people, increasing self-reliance, pluralism, cooperation between actors, and the transfer of power to local levels can be key to solving the problem of rural development, increasing the quality of settlements and the quality of life of villagers; hence creating sustainable villages. Accordingly, the main purpose of this paper was to investigate the effect of good governance on the increase of the physical quality of rural settlements.

Design/methodology/approach- The present study is descriptive-analytic. Questionnaires were used to collect data. After applying the Cochran formula, 192 questionnaires were prepared. The population of this study is 13 villages with local managers in Neyshbur. In order to measure the purpose and analyze data, one-sample T-test, Pearson correlation and structural equation modeling using smart PLS software were used.

Finding- The results of the research showed that, based on the T-test, there was not a favorable situation in both good rural governance and physical quality of rural settlements. Based on Pearson's test, it was found that in the seven villages of Khanlogh, Sarachah, Bashnij, Mobarakeh, Bahrodi, Hoseinabad and Mirabad the relationship between good governance and physical quality of rural settlements was significant. The results of the PLS model also indicated that a good rural governance of 62% affects the improvement of the physical quality of rural settlements.

Practical implications- Proposals that can be effective in improving good governance practice in order to improve the physical quality of rural settlements include: informing and educating people about the principle of construction in villages, effort-making of local managers to attract the cooperation of relevant organizations to improve the physical quality of rural settlements, creating a suitable field for attracting people's conscious participation in improving their physical condition, creating coordination and interaction between local managers to solve physical problems in the village.

Originality/value- This study was innovative because it focused on the impact of good rural governance on the increase of the physical quality of rural settlements. In fact, in this research for each of these two variables, separate indices have been considered and the relationship between them has been evaluated.

Key words: Good governance, physical quality, rural settlement, Central District of Neyshabur County, PLS model.

Paper type- Scientific & Research. .

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1. Introduction

Over the past two decades, in developing countries, the physical growth and development of rural settlements, the development of structural processes and land used for the construction and reconstruction of rural settlements have been part of the agenda of the government (Australia's Ministry of Infrastructure and Rural Planning, 2011). On the other hand, the linkage of sustainability dimensions, especially social, institutional, economic and environmental sustainability, is a very important issue in the planning of sustainable development of rural areas. Thus, physical transformation is the first step in improving the performance of settlements. What in this regard is the need to pay attention to the physical aspect, is the disturbance of the physical condition of the rural areas and the damage to it. This is due to poor attention to good governance and inconsideration of local communities and institutions as the most important stakeholders in the preparation and implementation of various development plans in rural areas (Purtaheri, Eftekhari & Abbasi, 2013). Unfortunately, in most developing countries, this issue has been neglected due to the centralized government system, the severe weakness of local management and civil institutions, and so on. Iran is not far from this situation and this has also affected our planning and management system. Local communities do not actively participate in many development activities about their living environment, especially the rural environment, in various dimentions economic, social, environmental, physical, and so on. (Eftekhari, Badri, Pourtaheri, 2012). Hence, good governance, new management style and governance of a democratic society is one of the forms of management in today's societies that strives for governance, participation, accountability, responsibility and transparency, and can realize the physical development of settlements. Good governance, by involving people in the planning process, has turned passive people to active ones. A good governance pattern means involving people in their own issues and their fate, reaching collective agreement and considering the interests of all individuals and groups, and seeking to build local community-based organizations as a platform for facilitating active participation of local people. According to the literature on governance, it can be concluded that the concept of good governance can solve the riddle of physical development in rural areas, increase the quality of settlements and life of the villagers, make rural development, increase the resistance and safety of buildings and elimination their basic needs, particularly access to services and facilities (Hataminezhad, Bazrafkan & Arwin, 2017). In fact, this approach is an attempt to find new solutions to the weaknesses and failures resulting from the high-down approach in rural development process and emphasizes the empowerment of local communities and the direct role they should play in the development of their community with the governmental and nongovernmental sectors (Chilima, Nkhoma & Charul Mulwafu, 2002). In other words, local people have the competence to run and manage rural development projects under the guidance and capacity building of governmental and nongovernmental institutions (Berkes, 2002). In this regard, the process of good rural governance is one of the effective factors to increase the physical quality of rural settlements. The nature of good governance activities in the sector of physical planning in rural areas requires both human resources and managers, in addition to knowledge, insight and technical skill. To have the knowledge, insight and communicative, social and participatory skills, to be able to formulate groups of intellectual and cooperative work and believe in the power of people and popular institutions of the rural areas as a strategic element, as well as to facilitate participation in the implementation of physical development plans and to establish a proper relationship between the real needs of local residents and designers and planners' are all required (Gani & Duncan, 2007). Thus, it can be said that a good governance with the broad participation of the people, increasing self-reliance, pluralism, cooperation between actors, the transfer of power to local levels, and the establishment of effective and efficient institutions in the environment will realize physical rural development (Hataminezhad, et al., 2017). According to the presentations about the importance of good rural governance in providing rural participation, respect for justice and equality, efficiency and effectiveness in developing various physical aspects of rural settlements and, on the other hand, inappropriate physical status of rural settlements in rural areas Neyshabour County, it is

necessary to study to investigate the relationship between good governance and improving the quality of rural settlements. Therefore, the present research seeks to answer this question: How does the application of the good governance process in villages of the Central District of Neyshabur County affect the quality of the physical environment of rural settlements?

2. Research Theoretical Literature

Good governance - Governance in rural areas is the borderline between the government and the civil society and also implies the participation of governments, private companies, citizens and local communities for the design and implementation of economic policies and social and physical reforms (Cheshire, Higgins & Lawrence, 2006). One of the regional dimensions of governance is a local government that refers to the quality of local affairs in urban and rural areas (Margre & Bertrana, 2004). What determines the locality of the governorate is the extent to which local residents and actors participate effectively in defining local aspirations and common efforts to realize the goals and aspirations of the local community (Kempen & Dekker, 2004). In this regard, in order to prevent wasting of resources and engage people in the development and communication of rulers and people, governance become more important day to day (Mafunisa, 2004). Indeed, in every society when looking for a sustainable development solution, good governance is always introduced as a vital tool for promoting sustainable development (Kardos, 2012). In sum, sustainable rural development is a comprehensive and multidimensional process, which one of its dimensions is rural settlement. The goal of rural management in a good governance is to move in order to reach the desired status using the potential of the village, which is in line with the improvement of the rural community (Taleb, 1997). The physical dimension of the village can also be considered as the most important structural elements of rural development in order to improve the physical quality of rural settlements (Badri, Akbarianronizi & Ghasabi, 2014). Generally, good governance is based on complex networks of interdependent actors, which belong to the general, pseudo-public, private, voluntary, and social sectors (Bovaird, 2005). In general, good rural governance can be considered the tipping point of rural management, since this approach, with an emphasis on local identity and local governance, will become a widespread field of action for villagers and local institutions and increased their power of action (Carlsson & Berkes, 2005). Indeed, good rural governance with features such as decentralization, self-regulation, local participation, local legitimacy, local development and local self-governance can play an effective role in finding new solutions to the weaknesses and failures of the up-and-down rural development process (Morrison, 2014). Hence, good rural governance is a prerequisite for sustainable rural development. In sum, good governance with its specific indicators and components, such as participation, justice, etc., represents the ability to undertake fundamental reforms in rural areas, and in particular, to improve the physical quality of rural areas (Rahmani Fazli, Sadeghi & Alipourian, 2014). Good rural governance strives to adopt a democratic approach to governance, partnership, accountability, responsibility and transparency, and can realize the physical development of rural settlements (Sojasi, Asfaram & Rahbari, 2016). In fact, good governance, with involving people in the planning process has turned passive people to active people and, considering the interests of all individuals and groups, it seeks to create a platform to facilitate the active participation of local people (Elmenofi, El Bilali & Berjan, 2014).

Physical quality of rural settlements- The natural habitat of a settlement and the changes made to it, such as buildings, streets, facilities and major structures, are considered as physical elements occupying space (Motie Langroudi, 2003). Providing proper physical elements and providing the necessary facilities for living in accordance with the conditions of time is one of the main factors in the survival of biological complexes, especially in rural areas (Hesamian Etemad & Haeri, 1984). The growth and physical expansion of rural settlements is a process that, in spite of the impact of existing structures, affects all systems and structures of the society directly or indirectly. For this reason, if this process does not flow properly, it leaves many adverse effects on the various components of the settlement. It is possible to grow and develop without control and without planning and increase the size of the village to several times, lack of public and recreational spaces, land and housing problems and environmental pollution such as air pollution, soil and water (Meshkini, Molai Gilichi & Khavarian

Garmsir, 2016). Physical quality is one of the principles of rural planning, which its purpose is to increase the desirability of physical spaces for work, life, recreation and social, economic and cultural functions (Saeydnia, 1999). In fact, the quality of residential settlements emphasizes the improvement of the quality and rural infrastructure, aesthetic and environmental of the village. In other words, physical development, in addition to an attempt to stimulate the evolution of the human environment, reflects the evolution of social life. Physical development attempts to direct social processes through the physical program (Taleshi & Bidkhory, 2012). In recent years, the planning and management of rural settlements have been considered in the agenda of rural development organizations and institutions in order to find the most favorable situation of compatibility between space and society. Based on this, all coherent and systematic activities that have been undertaken to organize and improve the physical environment of rural settlements which have been of interest to planners and managers (Alal-Hassabi & Abdumajiri, 2012). In fact, the planners are trying to provide a suitable platform to increase the physical quality of rural settlements and to try to find an appropriate approach to rural development, identifying opportunities, challenges, strengths and weaknesses, and the possibilities for comprehensive and sustainable physical development in rural areas in their program. Achieving the physical quality of rural settlements requires a new management and a new approach to physical development management. A good governance pattern as an appropriate approach that provides the context for people's involvement in the planning process from decision-making to implementation, and the ultimate goal of sustainable development is a good model for managing physical development in rural areas (Badri, et al., 2014). Therefore, the use of participatory and interactive methods and healthy competition in a good rural governance is a fundamental principle for achieving the goals of rural development in all aspects, especially the physical dimension, which has four dimensions in terms of management: Interact Rural Islamic Council and Rural Administration with each other; The interaction of Rural Islamic Council and Rural Administration with the governmental and civil institutions, especially in the physical dimension with the Islamic Revolution Housing Foundation,

consulting engineers and indigenous architects; Interact Rural Islamic Council and Rural Administration with people; and the engagement of the council with nongovernmental organization and the market or business environment (Eftekhari, Badri & Pourtaheri, 2012).

In sum, according to the presented materials, in recent years, due to the increasing growth in challenges and problems in rural areas the role of local managers in better management of villages and reducing physical problems in rural areas has been addressed through attracting people's participation. In fact, local managers, in the form of a good rural governance model, through raising the awareness of villagers in the field of building regulations, considering villagers' views on physical plans, efforts to get involved with the institutions, providing villagers with the necessary training and familiarization with the weaknesses and the strengths of the physical condition of their village, can have an impact on improving the quality of life and increasing the physical quality of rural settlements.

According to the literature, several studies have been carried out on good governance and the evaluation of good rural governance. Also, most of the research related to the physical quality of rural settlements was limited to the study of the effects of rural conductor projects and rural housing projects. Therefore, it can be said that effect of good governance on increasing the physical quality of rural settlements is a topic that has been neglected. Therefore, in this research, we tried to investigate the relationship between the two variables of good rural governance and the physical quality of rural settlements.

Güney (2017) explores the relationship between governance and sustainable development. The results of the study indicate that governance is affected by variables such as political stability, lack of violence, efficiency and effectiveness, quality in monitoring, and control of corruption on achieving sustainable development. Also, governance can be effective through participation, accountability, transparency, and criticism in achieving all dimensions of sustainable development (social, economic, environmental and physical).

Yousaf,Ihsan, and Ellahi (2016) studied the impact of good governance on the trust of residents in Pakistan. They concluded that there is a positive causal relationship between good governance and the trust of residents. In fact, good governance has

gained people's trust by modifying sovereignty and being accountable to the people.

Sebudubudu (2010) examined the impact of good governance on development and poverty in Africa. The results of the research revealed that good governance has a significant impact on the achievement of societies in the development and reduction of poverty. In fact, local managers can play an effective role in boosting development and reducing poverty in these areas, through taking into account the needs of the majority of residents and their involvement in the decision-making process. Hataminezhad, et al. (2017) and Sojasi, et al. (2016) examined the good governance role of reducing the vulnerability of housing. The results of their research showed that good governance is the most effective, lowest cost and the most stable management methodology that focuses on management based on democratic development and responsiveness to the needs of all stakeholders. The existence of sustainable environments in the three dimensions requires a strong and efficient management that seems good rural governance to be able to play such a role. Good governance can with people's empowerment lead to sustainable development and be followed by buildings that are resistant to potential dangers. Rahmani Fazli, et al. (2015) and Ghadermarzi and Jemini (2018) concluded that rural governance is a new process that, by having different principles and criteria from the approaches proposed in its pre-rural rural management system empowers rural residents in different fields. Generally, a good rural governance approach is based on the belief in democracy, pluralism, and civil society. Badri, et al. (2014)

demonstrated that due to the proper interactions and communication between local management and a set of authorities and institutions, they are able to play an effective role in the physical development process of rural settlements. The adoption of participatory approach and the involvement of local administrators in the preparation and implementation of rural physical plans are indisputable imperatives for the success of more physical interventions in rural areas.

In general, several studies have been conducted in the field of good governance, and in some studies, the relationship between good governance and the reduction of housing vulnerabilities has been considered. But in these studies, the relationship between good governance and the increase in the physical quality of rural settlements has not been taken into account. Therefore, in the present study, we try to investigate the relationship between good rural governance and the improvement of the physical quality of rural settlements.

3. Research Methodology

3.1 Geographical Scope of the Research

The research operational area is the villages in the Central District of Neyshabur County located in Khorasan Razavi province. The Central District in 1395 has been 239 rural settlements. These rural settlements have 341182 rural inhabitants and 107345 rural households. The Central District of Neyshabur County also has 5 villages. In this District 113 villages have Rural Islamic Council and Rural Administration. In Figure 1, the location of the Neyshabur County and the Central District is shown.
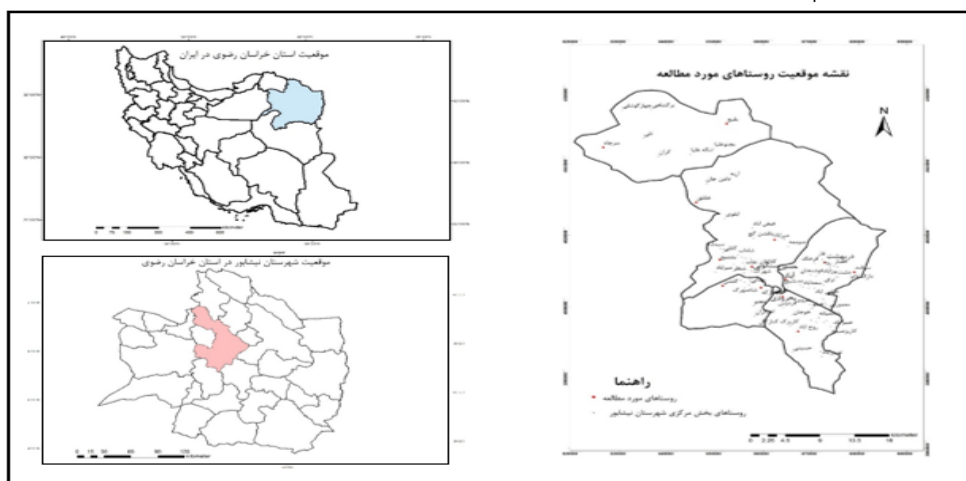
Figure 1. Location of the case study

2.3. *Methodology*

The present research based on the nature is from type of applied research and in terms of its purpose, has been from type of field-based analytical-descriptive research and completed a questionnaire. The criteria presented in Tables 1 and 2 are used to measure the research indices, including good rural governance and physical quality of rural settlements. Also, the Cronbach Alpha of each of the indicators is presented in the table.

Table 1. Good rural governance indicators
(Source: Research findings using: Rahmanifazli, et al., 2015; Hataminezhad, et al., 2017; Sojasi, et al., 2017)

Cronbach Alpha	Criteria	Indicator
0.769	Participation	Consultation with villagers, the amount of people's opinions on decision making, the extent of the impact of people's participation, the impact of villagers' assistance and the polling of villagers
0.713	Responsiveness	Responsibility of Authorities for their duties, Implementation of projects and projects without explanation of authorities, The extent of the effect of the people's protest and the extent of the description of the activities in the village
0.878	Accountability	The sense of accountability of local managers, The amount to acquaint people about village issues, Impact of managers' accountability, The amount of control and supervision appropriate for the construction of the village
0.700	Efficiency and effectiveness	The actions of village executives, The effort for cooperation with the Housing institute, The amount of investment and increase the skill to increase the quality of the physical environment of the village
0.777	Justice	Observance of justice and equality for all villagers, The fair distribution of resources and facilities, and the preference of collective interests on personal interests
0.740	Transparency	Empowering to villagers, Right to comment and access to information, Necessary training to villagers, Drafting clear and unambiguous rules and acquainting villagers from the provisions relating to rural construction
0.831	Socialism	The connection between different governmental and private sectors, Attention to the interests of the majority of groups and cooperation and alignment of managers with rural people
0.893	Legitimacy	The existence of a legitimate relationship between local decision makers and villagers, Existence of interaction and cooperation between local managers and villagers and the level of trust and confidence of villagers
0.834	Strategic insights	Provide short-term and long-term plans, Trying to solve the physical problems of villages, Efforts to improve the physical quality of the village and acquaintance with the strengths and weaknesses of the village

Table 2. Indices of physical quality of rural settlements
(Source: Research findings using: Danaei et al., 2018; Poortaheri et al., 2012; Anabestani and Javanshiri, 2018; Nazemi and Daroodi, 2013)

Cronbach Alpha	Criteria	Indicator
0.831	The quality of the residential environment	The existence of new homes, Durable and high quality, Existence proper heating and cooling system in residential units, The use of resistant materials in the construction of residential units, the status of space proportional to the number of family members, The quality of lighting of the house, the proper location of housing and the safety and convenience of access to the facilities of the village
0.745	The quality of the infrastructure	The status of the way of communication, the observance of road safety standards, access to appropriate means of transport, Quality of the existing pedestrian in villages, Access to credit and financial services, drinking water status, Access to public services (bakery, grocery stores) and the status of energy infrastructure (electricity and gas and telephone)
0.727	Quality of environment	The existence of trash exclusion location, Use of health methods of trash exclusion, Avoiding construction of houses in sloping lands, Avoid waste and contamination of water resources; prevent soil degradation and erosion; manage floods and exclusion of surface water;
0.820	Visual quality of the physical environment	The beauty of the environment and the physical texture of the village; the attraction of natural landscapes, Coordination of rural construction; Rural environment lighting, amiability of place; the beauty of the green space of the village, Crowded villages; legibility of the tissue and different paths of the village and the safety of the village passages.

To analyze the data, a single sample t test was used to determine the condition of good governance and physical quality of the study area and Pearson correlation was used to examine the significance of the relationship between good governance and physical quality in villages. Also, the structural equation model with partial least squares approach using Smart PLS software has been used to study the conceptual model of the research.

In this research, the level of analysis is the village. Its analysis unit includes households living in villages with local managers (Rural Islamic Council and Rural Administration). Considering the fact that in the Central District of Neyshabur County there are 113 villages with Rural Islamic Council and Rural Administration. Therefore, using the Cochran formula with a coefficient of error of 0.25, the number of villages required for field study was determined 13 villages. Then, considering the situation of the villages in each sub-district (Figure 2), sample villages have been selected from all sub-districts. Also, due to the dispersion of villages at the district level, sample villages are selected in such a way that the whole surface of the district is scattered. Thus, according to the population of these 13 villages, using the Cochran formula and the coefficient of error of 0.07, 192 questionnaires were determined. And at least 9 questionnaires have been considered for each village, and then other questionnaires have been added based on the population of each village to the minimum number of questionnaires Considered. The number of questionnaires for each village is given in the table below:

Table 3. Introducing the statistical society and estimating the sample size in the studied villages
(Source: Statistics Center of Iran, 2017)

Sub-district	Rural	Population	Number of households	Sample size
Darbghazi	Bahrodi	574	175	13
Darbghazi	Rohabad	374	129	12
Reyvand	Golshan	350	111	12
Reyvand	Mobarakeh	1335	380	19
Fazl	Hoseynabad	546	161	13
Fazl	Darbehesht	196	64	10
Fazl	Soghand	199	84	11
Mazol	Khanlogh	379	124	12
Mazol	Mirabad	2646	848	29
Mazol	Sangoni	274	97	11
Mazol	Bashnij	782	245	15
Binalod	Sarchah	1951	596	24
Binalod	Baghie	321	91	11
Total		9927	3105	192

4. Research findings

The descriptive information extracted from the questionnaire shows that 53.9% of respondents aged 20-30 years old, 34.7% had a diploma education and 38.3% of respondents had an agricultural occupation.

4.1. Status of good rural governance indicators in the region

According to the findings (Table 5), it can be said that since the significance level of all indices is below 0.05 and also the average of all indicators is less than 3, it should be acknowledged that the good governance situation in the Central District of Neyshabur County is not favorable. In fact, the results of this test indicate that the villagers are not satisfied from the performance of local managers (Rural Islamic Council and Rural Administration) in the studied villages, and good rural governance in the study area is far from its criteria and indicators.

Table 5. Results of one-sample T test for good rural governance indicators
(Source: Research findings, 2018)

Indicator	t	Average	Degrees of freedom	Significance level
Participation	-15.133	2.1917	191	.000
Responsiveness	-20.995	2.0469	191	.000

Table 5

Indicator	t	Average	Degrees of freedom	Significance level
Accountability	-7.535	2.4833	191	.000
Efficiency and effectiveness	-16.726	1.8932	191	.000
Justice	-18.664	1.7951	191	.000
Transparency	-16.757	1.9917	191	.000
Socialism	-14.053	2.0556	191	.000
Legitimacy	-14.212	1.9583	191	.000
Strategic insights	-8.343	2.2448	191	.000
Good governance	-18.515	2.0734	191	.000

4. 2. Survey of the quality of the physical environment of the villages of the region

According to the results of Table 6, it can be said that since the significance level of all indices is below 0.05 and also the average of all indices is less than 3, it should be noted that the physical quality condition of the studied area is inappropriate. Reasons that can be made for inappropriate physical quality in the study area include: unfamiliarity of the villagers with building regulations, lack of education of villagers in the field of constructive housing construction, inadequate attention of local managers on the physical condition of rural areas, Also, the lack of attention of relevant government agencies (Housing Foundation) and the lack of attention of planners and policymakers to the physical condition of rural settlements in rural development programs. The results also indicate that among the indicators, the visual quality of physical environment index is more inappropriate to other indicators. From the reasons for this case can be pointed to the lack of necessary specialization of local managers in the field of beautification and improvement of the visual quality of the villages, unfamiliarity of the villagers with the visual quality of the village, as well as their lack of priority in rural development programs. In this case can be said that the indicators studied in terms of physical quality of rural settlements are far from the standards.

Table 6. The results of one-sample t test for physical quality of rural environment indicators
(Source: Research findings, 2018)

Indicator	t	Average	Degrees of freedom	Significance level
The quality of the residential environment	-3.326	2.7708	191	.001
The quality of the infrastructure	-6.279	2.6224	191	.000
Quality of environment	-7.774	2.4635	191	.000
Visual quality of the physical environment	-10.732	2.2917	191	.000
The physical quality of rural settlements	-9.153	2.5371	191	.000

4. 3. Spatial analysis of the relationship between governance and the physical quality of environment of villages

According to the results of the Pearson test in Table 7, since the significance level of 7 villages, including Khanlogh, Sarachah, Bashnij, Mobarakeh, Bahrodi, Hoseynabad and Mirabad villages, is below 0.05. Therefore, it can be said that in these villages there is a significant relationship between good rural governance and physical quality of settlements. This means that the improvement of good governance in these villages leads to increased physical quality. In fact, it can be said that local managers, through the Participation of villagers, apply people's views on physical

programs, efforts to cooperate with the Housing Foundation, increasing the skills of the villagers in order to improve the physical quality level of rural through education and knowing the points of weaknesses and strengths of the village can help to improve the physical quality of rural settlements in the form of good rural governance. The results of the table also indicate that in more than 50% of the studied villages, there is a relationship between good rural governance and the physical quality of settlements. Considering that the total significance level in the study area is below 0.05, we can say that the research hypothesis is accepted. This means that good rural governance affects the physical quality of rural settlements. The results of

the table also indicate that physical quality changes to 55% can be affected by good rural governance. In addition, it seems that in villages where the relationship between good governance and the physical quality of rural settlements is not significance due to the very poor performance of local managers in the field of physical condition of rural settlements and the unfamiliarity of villagers with the duties of local managers.

Table 7. The results of the correlation between good governance and the quality of the physical environment of the villages
(Source: Research findings, 2018)

Rural	Pearson Correlation	Significance level	Test result
Golshan	0.299	0.345	Not Significant
Sangoni	0.411	0.209	Not Significant
Baghie	0.451	0.164	Not Significant
Khanlogh	0.624	0.30	Significant
Sarchah	0.589	0.12	Significant
Bashnij	0.509	0.32	Significant
Mobarakeh	0.567	0.11	Significant
Bahrodi	0.615	0.25	Significant
Darbehesht	0.399	0.254	Not Significant
Soghand	0.215	0.526	Not Significant
Hoseynabad	0.783	0.002	Significant
Mirabad	0.624	0.000	Significant
Rohabad	0.398	0.201	Not Significant
Total	0.551	0.000	Significant

4. 4. Analysis of the Effect of Rural Governance on the Quality of the Physical Environment of Villages Using Structural Equation Model

Reliability - The PLS model is measured by three criteria: 1) Cronbach's alpha, 2) composite reliability, 3) coefficients of factor load (Davari and Rezazadeh, 2017: 79). The value of the composite reliability index and Cronbach's alpha should be more than 0.7. As shown in Table 8, the composite reliability and Cronbach's alpha coefficient for all indices are higher than 0.7. Since the higher the Cronbach's alpha and the composite reliability of 0.7, it means fitting the model. Therefore, based on these two criteria can be said that proper fit and internal consistency of the model is confirmed.

Table 8. Model reliability, research indicators
(Source: Research findings, 2018)

Good governance indicators	composite reliability	Cronbach's alpha
Accountability	0.783	0.656
Efficiency and effectiveness	0.825	0.719
Strategic insights	0.892	0.840
Justice	0.863	0.689
Legitimacy	0.825	0.676
Participation	0.682	0.334
Responsiveness	0.713	0.227
Socialism	0.764	0.532
Transparency	0.829	0.742
Physical quality indicators	**composite reliability**	**Cronbach's alpha**
Quality of environment	0.796	0.728
The quality of the residential environment	0.871	0.832
Visual quality of the physical environment	0.872	0.830
The quality of the infrastructure	0.849	0.803

Convergent validity- In the next step, we measure the reliability of the model based on the coefficients of factor load. If the hidden variables have factor load less than 0.5, they do not have the importance to measure. Therefore, they should be eliminated from analysis process. And then the remaining hidden variables are used in model analysis. Thus, in the first stage of the implementation of the model, the questions (5) and

(6) of the quality of the infrastructure, (7) the visual quality of the physical environment index, (3) the Justice index, (1) and (2) the responsiveness index, (5) and (4) The participation index was less than 0.5, therefore, from the model was deleted and again coefficients of factor load for other questions was calculated and the output of the modified model is shown in Fig. 2.
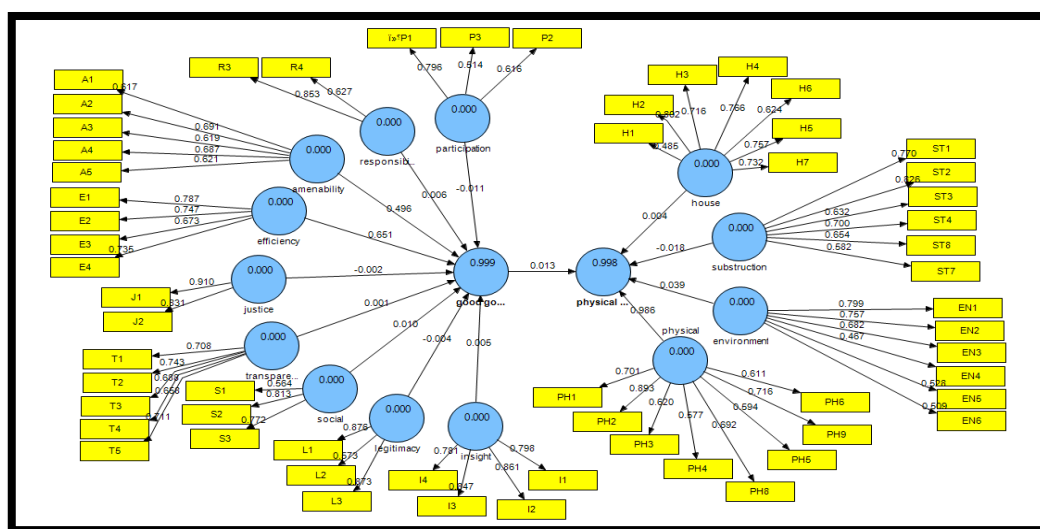
Figure 2. Modified research mode
(Source: Research findings, 2018)

The AVE[1] criterion is used to measure the convergent validity in the PLS model. For this criterion, the critical value is set to 0.4; this means that the AVE value above 0.4 is an acceptable

convergent validity. As shown in Table 9, all of the AVE values for research indicators are greater than 0.4 and this suggests that the convergent validity of the questionnaire is acceptable.

Table 9. Average Variance Extracted indices
(Source: Research findings, 2018)

Good governance indicators	AVE
Accountability	0.419953
Efficiency and effectiveness	0.542641
Strategic insights	0.676088
Justice	0.759433
Legitimacy	0.619531
Participation	0.425916
Responsiveness	0.560347
Socialism	0.525280
Transparency	0.492911
Physical quality indicators	**AVE**
Quality of environment	0.405133
The quality of the residential environment	0.496765
Visual quality of the physical environment	0.465352
The quality of the infrastructure	0.488304

1 Average Variance Extracted

The Fornell and Larker method- an important criterion used to measure divergent validity, An important criterion used to measure divergent validity is the Fornell and Larker method, in which relationship rate of a structure to its indices is comparable to relationship that structure with other structures; so that a divergent validity of acceptable of a model indicates that a structure in a model interacts more with its indexes than with other structures. In fact, when divergent validity is at an acceptable level that the AVE rotational value for each structure is greater than the communal variance of between the structure and other structures in the model (Davari and Rezazadeh, 2017: 84). As shown in Table 10, in the table diameter, the AVE value for all indices is calculated, and all the numbers inserted in the original table diameter are greater than the its lower values, therefore, it can be said that the model has an acceptable divergent validity.

Table 10. Divergent Validity Matrix by Fornel and Larker
(Source: Research findings, 2018)

	Accountability	Efficiency and effectiveness	Quality of environment	The quality of the residential environment	Strategic insights	Justice	Legitimacy	Participation	Visual quality of the physical	Responsiveness	Socialism	The quality of the infrastructure	Transparency
Accountability	0.647												
Efficiency and effectiveness	0.498	0.850											
Quality of environment	0.111	0.349	0.646										
The quality of the residential environment	0.139	0.423	0.640	0.704									
Strategic insights	0.503	0.756	0.160	0.322	0.822								
Justice	0.432	0.782	0.296	0.384	0.663	0.871							
Legitimacy	0.468	0.804	0.503	0.489	0.739	0.737	0.787						
Participation	0.588	0.442	0.160	0.106	0.270	0.303	0.470	0.653					
Visual quality of the physical	0.214	0.492	0.385	0.357	0.504	0.452	0.528	0.087	0.682				
Responsiveness	0.514	0.571	0.201	0.374	0.511	0.382	0.584	0.460	0.275	0.749			
Socialism	0.358	0.744	0.375	0.466	0.679	0.632	0.835	0.269	0.575	0.528	0.725		
The quality of the infrastructure	0.345	0.434	0.303	0.508	0.598	0.307	0.446	0.084	0.550	0.453	0.519	0.670	
Transparency	0.398	0.726	0.311	0.380	0.755	0.645	0.755	0.361	0.454	0.482	0.687	0.518	0.702

The fitting of the structural model using the t Value is such that these values should be greater than 1.96 to be confirmed at 95% confidence level. According to Fig. 3, since the T Value for all indices is higher than 1.96, it indicates that the path is significant and the structural model is appropriate.
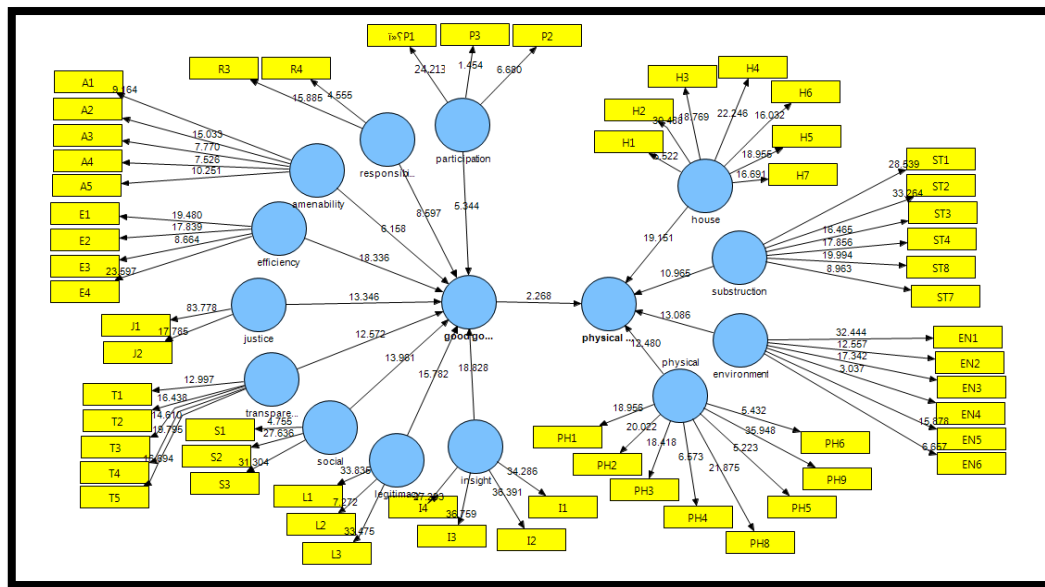
Figure 3. Significance coefficient of research indices
(Source: Research findings, 2018)

GOF Criterion- The only criterion for assessing the general fit of the model in Partial Least Squares is the GOF criterion. The values of 0.01, 0.25 and 0.36 are presented as weak, moderate and strong values for this criterion. (Davari, Rezazadeh, 2017: 153). This criterion is calculated by the following formula:

$$GOF = \sqrt{\overline{Communalities} * \overline{R^2}}$$
$$= \sqrt{0.503 * 0.601} = 0.564$$

The gain of 0.56 for the GOF criterion is indicative of a strong overall model fit.

Table 11. Results of Structural Model Research
(Source: Research findings, 2018)

Dimensions	Indicators	Path coefficient	T value	Test result
Good rural governance	Accountability	0.629	6.158	Significant
	Efficiency and effectiveness	0.912	18.336	Significant
	Strategic insights	0.882	18.828	Significant
	Justice	0.802	13.346	Significant
	Legitimacy	0.915	15.782	Significant
	Participation	0.544	5.344	Significant
	Responsiveness	0.661	8.597	Significant
	Socialism	0.836	13.782	Significant
	Transparency	0.867	12.572	Significant
Physical quality of settlement	Quality of environment	0.715	13.086	Significant
	The quality of the residential environment	0.851	19.151	Significant
	Visual quality of the physical environment	0.755	12.480	Significant
	The quality of the infrastructure	0.751	10.965	Significant

According to the results presented in Table 11, it can be said since the calculated value of the T value for the participation index is higher than 1.96, it is effective in good rural governance, but since the path coefficient of this index is 0.554, this value compared with to other indicators is less, so it

should be said that it has the least impact on good rural governance. Similarly, responsiveness and accountability indicators with a path coefficient of 0.661 and 0.629 after the participation is in the next category influence on good rural governance. Generally, the accountability of local managers to the people and the full description of the plans and activities that are implemented in the villages can in some way affect the trust between people and local executives and consequently government organizations. As well as the accountability of local managers for their duties and responsibilities and informing people about the problems that are in the physical sector of rural, is an important factor in bringing villagers into the process of participation and decision making, which together all of these will have a direct impact on performance improvement of good rural governance. In the study of the effect of the justice index with the path coefficient of 0.802 and the T value of 13.346, it was determined that the justice index has a significant and positive effect on good rural governance. Local administrators can have a great influence on the activation of deprived villages and creating the field for the participation of this group in planning and decision making, through fairness and equality in the implementation of laws, the establishment of justice in the distribution of resources and the preference of collective interests on their personal interests. Socialism with the path coefficient of 0.836 and T value of 13.782 is among the indicators that has a great influence on good rural governance. In fact, local administrators share people in planning and implementation of rural projects through communication between the various government, private sectors and villagers, as well as Contemplation with rural people in the physical plans, which prevents the loss of resources and facilities. In sum, not only the improvement of improvement good governance, but also increases the physical quality of rural settlements. The path coefficient of 0.867 and the T value of 12.572 t, in examining the effect of the transparency index, indicate that transparency index has a significant effect on good governance. Providing background for peoples' right to comment and access to information necessary for physical development of rural as well as education to villagers, drafting clear rules and informing villagers about the existing rural construction legislation, closely related have with the participation of villagers and creating a

trust and confidence ratio government organizations. This kind of informed participation makes the villagers involved with more interest and attachment in these plans, which brings sustainable rural development in the long time. Strategic insights index has a positive and significant effect on good rural governance with a path coefficient of 0.882 and a T value of 18.828. In fact, local managers can have a great influence on increasing the physical quality of their village settlements by familiarizing with the strengths and weaknesses points of the physical condition of the village and providing short-term and long-term plans for solving physical problems using local forces in the village. Legitimacy index with path coefficient 0.915 and T value 15.782, also the efficiency and effectiveness index with path coefficient 0.912 and T value 18.336 have the most impact on good rural governance. Local managers, through the creation of a legal interaction between authorities, local decision makers and villagers, trying to create trust and confidence in villagers in the field of physical development plans(legitimacy), efforts to receive Cooperation with relevant organizations (Housing Foundation), attracting capital to improve physical quality and Also, increasing the skills of villagers through diverse training (efficiency and effectiveness) can have a significant effect on improving the physical quality of rural settlements and improving the good rural governance. . The calculated path coefficient for physical quality of rural settlements Indicators indicates that all indicators including environmental quality with path coefficient of 0.715, residential environment quality with path coefficient of 0.851, visual quality of the physical environment with path coefficient of 0.755 and the quality of infrastructure with path coefficient of 0.751 have impact significant and positive. In general can be said that increasing the quality of all these indices has a significant effect on the improvement of the physical quality of rural settlements. Finally, according to the results of Table 12, it can be said since T value is higher than 1.96, good rural governance has a significant and positive effect on the increase of the physical quality of rural settlements. Based on the path coefficient obtained, it should be acknowledged that good rural governance to 62 percent affects the physical quality of rural settlements.

Table 12. The result of the research hypothesis test
(Source: Research findings, 2018)

Hypothesis	Path coefficient	T value	Test result
Good rural governance led to increase in the physical quality of rural settlements.	0.619	2.268	significant

According to the content said, it can be concluded that good rural governance through informing the villagers, creating trust and confidence in government organizations and physical development projects and projects in villages, accountability for their duties, responsibility to the people, efforts to attract the cooperation of other organizations and creating the background for investment in the field of physical development in rural settlements and the necessary education for villagers can turn villagers from passive people to active ones and provide field for informed participation of villagers. This partnership not only misses resources and facilities, but also makes the villagers obliged to participate in planning, deciding and implementing physical development plans. Additionally, people who are selected as local managers should have enough education, and if possible, they have rural planning related education. Otherwise, the necessary training in rural management should be considered for them. Also, people who are elected as local managers have a great incentive to reduce the various problems in rural areas. All of these affect the improvement of the quality of the environment, residential environment, visual quality of the physical environment and the quality of the infrastructure, which eventually leads to an increase in the physical quality of rural settlements.

5. Discussion and conclusion

Due to the lack of attention to the principled construction of rural dwellings, the inappropriateness of the status of communication roads, the lack of coordination in rural constructions and the inappropriateness of existing pedestrian in the rural, all of these can be the result of the selection of inappropriate individuals as local managers, the unfamiliarity of local managers with the relevant laws and regulations, the lack of knowledge of the weaknesses and strengths points of rural areas, the neglect of people's opinions and protests, and the lack of priority of villagers' participation in planning and the implementation of plans and inadequate efforts to solve problems in villages, which has led to reduction in the physical

quality of rural settlements. Therefore, it is necessary to pay special attention to physical planning in order to improve the physical quality condition of rural settlements. One of the most important factors that can be effective in improving the physical quality of settlements is good rural governance. In fact, local managers, in the form of a good rural governance, can, with the participation of local people, increase the physical quality of rural settlements. In this research, the attempt was to study the relationship between good rural governance and increasing the physical quality of settlements. Findings of the research show that, on the basis of one-sample t test, both good rural governance and the physical of rural settlements of the study area are inappropriate. Also, spatial analysis through Pearson correlation measurements revealed relationship significant relationship between governance and the physical quality of the rural environments of the studied villages in 7 villages of Khanlogh, Sarachah, Bashnij, Mobarakeh, Bahrodi, Hoseynabad and Mirabad This means that with the improvement of good rural governance, the physical quality of rural settlements will also be improved. It seems that among the reasons that this connection is significant in the seven villages is the awareness of people about the duties and accountability of local managers, the participation of people in rural affairs, as well as the better performance of local managers in these villages than other villages. In villages where this relationship is not significant, is due to lack of awareness of the villagers about the duties of local managers and the very weak performance of local managers in solving problems. In fact, according to the results of the Pearson test, the correlation coefficient between good governance and physical quality of rural settlements is 0.55. This means that the physical quality of rural settlements in the Central District can be affected by 55% via good rural governance. The final results of the structural equation model with partial least squares approach also indicate that good rural governance has a significant and positive effect on the improvement of the physical

quality of rural settlements in the studied area. In fact, good rural governance has a 62% effect on improving the physical quality of rural settlements. In general, according to the results, it can be said that the research hypothesis that good rural governance would affect the improvement of the physical quality condition of rural settlements was accepted. The findings obtained in this study are consistent with those of Sojasi, et al. (2017), Hataminezhad, et al. (2017). Based on the results, the following suggestions can be presented to improve good governance in order to improve the physical quality of rural settlements:

- Choosing suitable people as local managers with sufficient education and if possible specialized in rural management.
- Local managers should as far as possible be local people in the village and have the necessary motivation to solve the physical problems of their village.
- Familiarity of local managers with rules and regulations.

- Full awareness of local managers about their duties and accountability.
- Local managers' efforts to identify the strengths and weaknesses of the physical condition of the villages.
- Informing and educating people about the principles of constructing in the villages.
- Local managers' efforts to attract the cooperation of relevant organizations (the Housing Foundation) to improve the physical quality condition of rural settlements.
- Creating a suitable field for attracting local people's conscious participation in improving the physical condition.
- Establishing coordination and interaction between the Rural Islamic Council and the Rural Administration to solve physical problems in the village.
- Creating interaction between the government, private sectors and rural areas to help resolve rural issues.

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تاثیر حکمروایی خوب بر افزایش کیفیت محیط کالبدی سکونتگاه‌های روستایی

(مطالعۀ موردی: بخش مرکزی شهرستان نیشابور)

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چکیده مبسوط

۱. مقدمه

طی دو دهه اخیر در کشـورهای درحال توسـعه، توجه به رشـد و بهبود کالبدی سـکونتگاه‌های روستایی و توسعه فرآیندهای آن در دسـتور کار دولت قرار گرفت. پیوند ابعاد پایداری به‌ویژه پایداری اجتماعی، نهادی، اقتصادی و محیطی، مسئله‌ای بسیار مهم در برنامه ریزی توسـعه پایدار مناطق روسـتایی اسـت و اصـولا کالبد سکونتگاه‌های روستایی بـستری برای عملکرد اقتصادی و اجتماعی آنها محسوب می شود بنابراین تحول و سـاماندهی کالبدی نخستین گام به‌منظور ارتقای عملکرد سکونتگاه‌ها است. آنچه که در این میان ضـرورت توجه به بعد کالبدی را محرز می‌سـازد، نابسـامانی وضـع کالبدی مناطق روستایی و آسیب‌های وارده به آن است که به‌واسطه توجه ضـعیف به حکمروایی مطلوب به عنوان مهمترین ذینفعان در تهیه و اجرای طرح‌های مختلف توسـعه‌ای در مناطق روسـتایی می‌با شد. ک شور ما نیز از این و ضعیت به دور نبوده و این ضعف در حکمروایی مطلوب و نابسامانی وضعیت کالبدی، روستاهای کشور را نیز تحت تاثیر قرار داده ا ست. به گونه‌ای که جوامع محلی و نهادهای برخواسـته از آن در بسـیاری از فعالیت‌های توسـعه‌ای درخصوص محیط زندگی خود به ویژه اداره محیط روسـتا در ابعاد مختلف اقتصادی، اجتماعی، محیطی، کالبدی و غیره چندان م شارکت فعال نداشته و برانگیخته نمی‌شوند. در این ارتباط فرایند حکمروایی خوب روسـتایی یکی از عوامل موثر در افزایش کیفیت کالبدی سـکونتگاه های روسـتایی اسـت. بنابراین می‌توان گفت که حکمروایی خوب با

م شارکت و سیع مردم، افزایش خوداتکایی، تکثرگرایی، همکاری بین کنش‌گران، واگذاری قدرت به سطوح محلی و ایجاد نهادهای موثر و کارا در محیط، توسـعه کالبدی روستایی را تحقق می‌بخشد. از این رو پژوهش حاضر به دنبال پاسـخگویی به این سـوال می باشـد که: بکارگیری فرایند حکمروایی خوب در قالب دو نهاد دهیاری و شورای اسلامی در روستاهای بخش مرکزی شهرستان نیشابور چه تاثیری بر کیفیت محیط کالبدی سکونتگاه های روستایی می گذارد؟

۲. مبانی نظری

به‌طورکلی حکمروایی خوب روسـتایی را می‌توان نقطه اوج مدیریت روسـتایی دانسـت زیرا این رویکرد با تاکید بر هویت محلی و مدیریت محلی، منجربه وسـیع شـدن میدان عمل روسـتاییان و نهادهای محلی و افزایش قدرت عمل آن‌ها می‌شـود. در واقع در هر جامعه‌ای هنگام جسـت‌وجو برای راه‌حل توسـعه پایدار، همواره حکمروایی خوب به عنوان یک ابزار حیاتی برای پیشـبرد توسـعه پایدار معرفی می‌گردد. توسـعه پایدار روسـتایی فرایندی جامع و چندبعدی است که از این ابعاد می‌توان به بعد کالبدی سکونتگاه‌های روستایی اشـاره کرد. می‌توان بعد کالبدی روسـتا را نیز از عناصـر ساختاری بسیار مهم توسعه روسـتاها در جهـت ارتقای کیفیت کالبدی سکونتگاه‌های مناطق روستایی به‌شمار آورد. کیفیت کالبدی یکی از اصـول برنامه‌ریزی روسـتایی اسـت که هدف آن، افزایش مطلوبیت فضـاهای کالبدی برای کار، زندگی، تفریح و عملکردهای اجتماعی، اقتصادی و فرهنگی ا ست. در واقع مدیران محلی در قالب الگوی حکمروایی خوب روسـتایی از طریق بالا بردن میزان آگاهی

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روستاییان در زمینه مقررات ســاختوســاز، اســتفاده از نظرات روستاییان در زمینه برنامههای کالبدی، ارائه آموزشهای لازم به روستاییان و آشنایی با نقاط ضعف و قوت وضعیت کالبدی روستای خود میتوانند در افزایش کیفیت زندگی و افزایش کیفیت کالبدی سکونتگاههای روستایی تاثیر بسزایی داشته باشند.

۳. روش تحقیق

در این پژوهش ســطح تحلیل روســتا و واحد تحلیل آن مشــتمل بر خانوارهای ســـــاکن در روستاهای دارای مدیران محلی (دهیار و شـــوراهای اســلامی) میباشـــد. با توجه به اینکه در بخش مرکزی شهرستان نیشابور ۱۱۳ روستا با جمعیت بالای ۱۵۰ نفر وجود دارد که دارای دهیار و شـــورای اســلامی اســت، ازاینرو از طریق فرمول کوکران با ضـریب خطای ۰٬۲۵ تعداد روســـتاهایی که برای مطالعه میدانی مورد نیاز است ۱۳ روستا تعیین شد. بهاین ترتیب با توجه به جمعیت این ۱۳ روستا و با اســتفاده از فرمول کوکران و ضــریب خطای ۰٬۰۷ تعداد ۱۹۲پر سـ شنامه تعیین شد. به منظور سنجش متغیر حکمروایی خوب از شـــاخص های مشـــارکت، بینش راهبری، مسولیت پذیری، پاسخگویی، مشروعیت، مارایی و اثربخشی، اجتماع محوری، شـــفافیت و عدالت محوری اســتفاده شـــده و شـــاخص های کیفیت محیط مسکونی، کیفیت زیر ساختها، کیفیت محیط زیست و کیفیت بصــری محیط کالبدی برای ســنجش کیفیت کالبدی سکونتگاه های انسانی مورد استفاده قرار گرفته است.

۴. یافته ها تحقیق

نتایج تحقیق نشــان میدهد که براســاس آزمون تی تک نمونه ای ســطح معناداری تمام شـــاخصهای حکمروایی خوب روستایی زیر ۰٬۰۵ میباشد و همچنین میانگین تمامی شاخصها از ۳ کمتر است باید اذعان نمود که وضـــعیت حکمروایی خوب در بخش مرکزی نیشابور از وضعیت مطلوبی برخوردار نمیباشد. همچنین از آنجاییکه ســطح معناداری تمام شـــاخصهای کیفیت کالبدی سکونتگاه ها در آزمون تی تک نمونه ای زیر ۰٬۰۵ می باشـــد و میانگین تمامی شاخصها از ۳ کمتر است باید اشاره کرد که وضـعیت کیفیت کالبدی منطقه مورد مطالعه نامناسب است. با توجه به نتایج ارائه شــده از آزمون پیرسـون از آنجاییکه ســطح معناداری ۷ روستا که شامل رو ستاهای خانلق، سرچاه، بشنیج، مبارکه، بحرودی، حسین

آباد و میرآباد می شود، زیر ۰٬۰۵ ا ست از اینرو میتوان گفت که در این روســـتاها بین دو متغیر حکمروایی خوب روستایی و کیفیت کالبدی ســکونتگاهها ارتباط معناداری وجود دارد. به این معنی که بهبود عملکرد حکمروایی خوب در این روســـتاها منجر به افزایش کیفیت کالبدی می شود و نتایج مدل PLS نیز بیانگر این میبا شد که حکمروایی خوب روستایی به میزان ۶۲ درصـد بر بهبود کیفیت کالبدی سکونتگاههای روستایی تاثیر دارد.

۵. بحث و نتیجه گیری

به دلیل عدم توجه به ســاخت اصـولی مساکن روستایی، نامنا سب بودن وضعیت راههای ارتباطی و عدم هماهنگی در ساختو سازهای روستایی که همه این موارد میتواند نتیجه انتخاب افراد نامناسب به عنوان مدیران محلی، ناآ شنا بودن مدیران محلی نـ سبت به قوانین و مقررات مربوطه، بی اطلاعی از نقاط ضـعف و قوت نواحی روستایی با شد که منجربه کاهش کیفیت کالبدی در سکونتگاههای رو ستایی شدهاست. لذا ضروری است به منظور بهبود وضعیت کیفیت کالبدی سـکونتگاههای روستایی توجه ویژهای به برنامهریزی کالبدی شـود. یکی از مهمترین عواملی که میتواند در ارتقای کیفیت کالبدی سکونتگاهها موثر باشد حکمروایی خوب روستایی میباشد. در پایان، آگاهسـازی و آموزش مردم در زمینه نحوه اصـولی ســاختوسـاز در رو ستاها، تلاش مدیران محلی به منظور جذب همکاری سازمانهای مربوطه برای بهبود وضعیت کیفیت کالبدی سکونتگاههای روستایی، ایجاد زمینه مناسـب برای جذب مشـارکت آگاهانه مردم در بهبود وضعیت کالبدی، ایجاد هماهنگی و تعامل بین ا شوراهای ا سلامی و دهیار برای رفع مشکلات کالبدی در روستا از جمله پیشنهاداتی می باشـد که میتواند در بهبود عملکرد حکمروایی خوب در راسـتای دسـتیابی به افزایش کیفیت کالبدی سکونتگاههای روستایی موثر باشد.

کلیدواژه ها: حکمروایی خوب، کیفیت کالبدی، سـکونتگاه های روستایی، بخش مرکزی شهرستان نیشابور، مدل PLS.

تشکر و قدرانی

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۹. ۳. انواع نقل قول‌ها (مستقیم و غیر مستقیم)، نقل به مضمون و مطالب به دست آمده از منابع و مآخذ، با حروف نازک و استفاده از نشانه‌گذاری‌های مرسوم، مشخص شود و نام صاحبان آثار، تاریخ و شماره صفحات منابع و مآخذ، بلافاصله در میان پرانتز نوشته شود.

۱۰. مقالات برگرفته از رساله و پایان‌نامه دانشجویان با نام استاد راهنما، مشاوران و دانشجو به صورت توأمان و با مسؤولیت استاد راهنما منتشر می‌شود.

۱۱ . چنانچه مخارج تحقیق یا تهیه مقاله توسط مؤسسه‌ای تأمین مالی شده باشد، باید در بخش تشکر و قدردانی مشخص گردد.

۱۲ . شیوه ارزیابی مقالات: مقالات ارسالی که شرایط پذیرش را احراز کنند، برای داوران خبره در آن موضوع ارسال می‌شوند. داوران محترم، جـدای از ارزشـیابی کیفـی مقالات، راهبردهای سازنده‌ای پیشنهاد می‌کنند. پیشنهادهای داوران محترم به طور کامل، اما بدون نام و نشان داور، برای نویسنده مقاله ارسال خواهد شد.

۱۳ . مجله حق رد یا قبول و نیز ویراستاری مقالات را برای خود محفوظ می‌دارد و مقالات مسترد نمی‌گردد. اصل مقالات رد یـا انصـراف داده شـده پـس از سـه مـاه از مجموعه آرشیو مجله خارج خواهد شد و مجله پژوهش و برنامه‌ریزی روستایی هیچ مسئولیتی در این ارتباط نخواهد داشت.

۱۴ . مسؤولیت ارائه صحیح مطالب مقاله بر عهده‌ی نویسندگان مقاله است. از این‌رو، نسخه‌ای از مقاله آماده چاپ برای انجـام آخـرین تصـحیحات احتمـالی بـه نشـانی الکترونیکی نویسنده ارسال خواهد شد. چنانچه ظرف مدت یک هفته پاسخی از سوی نویسندگان واصل نگردید به معنای موافقت آنها با اصلاحات انجـام شـده تلقـی و نسبت به چاپ آن اقدام می‌شود.

۱۵. دریافت مقاله صرفاً از طریق سامانه مجله (http://jrrp.um.ac.ir) خواهد بود و مجله از پذیرش مقالات دستی یا پستی معذور خواهد بود.

۱۶. نویسندگان گرامی، مقالاتی که مطابق فرمت مجله تهیه نشده باشند به نویسنده بازگردانده شده و در فرآیند ارزیابی قرار نخواهد گرفت.

۱۷. فایل های ضروری برای ارسال از طریق سامانه عبارتند از:

الف) فایل مشخصات نویسندگان: در محیط word شامل اسامی و مشخصات نویسندگان به فارسی و انگلیسی.

ب) فایل اصلی مقاله بدون مشخصات: در محیط word شامل متن اصلی مقاله بدون اسامی و مشخصات نویسندگان.

ج) فایل چکیده مبسوط (مکمل) مقاله: شامل چکیده مبسوط فارسی در قالب یک فایل در محیط Word.

۱۸. شرایط جزئی تر و دقیق تر نیز در فایل راهنمای نگارش و ارسال مقاله توسط نویسندگان ارائه شده است.

۱۹. مقاله پس از ارزیابی علمی به زبان انگلیسی برگردانده شده و نویسنده(گان) موظف به ترجمه آن در مراکز ویراستاری معتبر خواهند بود و تا قبـل از انجـام ترجمـه، امکان ارسال گواهی پذیرش مقدور نمی‌باشد. لذا پیشنهاد می‌شود فارسی زبانان مقاله خود را به زبان فارسی تهیه و ارسال نموده و پس از طی فراینـد ارزیـابی علمـی و پذیرش نسبت به ترجمه آن اقدام شود.

فرم اشتراک (یک ساله/ دوشماره) **مجلۀ پژوهش و برنامه‌ریزی روستایی**

این جانب .... شغل .... با ارسال فیش بانکی به مبلغ .... ریال به حساب جاری شماره ۴۲۵۲۹۹۶۳۸ بانک تجارت شعبه دانشگاه مشهد کد ۴۲۵۰ به نام عواید اختصاصی دانشکده ادبیات و علوم انسانی، متقاضی اشتراک فصلنامه از شماره .... هستم. چنانچه صاحبان مقالات منتشر شده متقاضی دریافت مجلّه و تیراژه‌ی آن از طریق پست پیشتاز باشند، باید هزینه‌ی آن را به شماره حساب مذکور واریز و اصل فیش پرداختی را به نشانی دفتر مجلّه ارسال کنند.

نشانی: ....   کدپستی: ....

شرایط پذیرش مقاله

برای سرعت بخشیدن به امر داوری و چاپ مقالات، از همهٔ پژوهشگرانی که مایل به چاپ مقالات علمی خود در این نشریه هستند، درخواست می‌شود به نکات زیر توجه کافی داشته باشند:

۱. مقالهٔ ارسال شده نباید قبلاً در هیچ نشریهٔ داخلی یا خارجی چاپ شده باشد. هیئت تحریریه انتظار دارد نویسندگان محترم تا هنگامی‌که جواب پـذیرش از نشـریه نرسیده است، مقالهٔ خود را به مجلهٔ دیگری برای چاپ ارسال نفرمایند.

۲. مقالات انگلیسی با قلم نازک Times New Roman11 با نرم‌افزار Word تهیه شود. مقالات، روی کاغذ A4 (با حاشیه از بـالا ۳ و پـایین ۲ و راسـت ۲ و چـپ ۲ سانتی‌متر) تایپ شود. متن به صورت دو ستونی با رعایت فاصله ۱ سانتی‌متر بین دو ستون و فواصل بین خطوط به صورت single باشد. ۳. حجم مقاله نبایـد از حـدود ۹۵۰۰ کلمه و یا حداکثر ۱۵ صفحهٔ چاپی به قطع نشریه بیشتر باشد (با در نظر گرفتن محل جداول، اشکال، خلاصه فارسی و فهرست منابع).

۴. عنوان مقاله با در نظر گرفتن فواصل بین کلمات نباید از ۶۰ حرف تجاوز کند و با قلم Times New Roman14 سیاه تایپ شود.

۵. نام نویسندهٔ مقاله با قلم سیاه Times New Roman10 عنوان علمی یا شغلی او با قلم Times New Roman10 در زیـر عنـوان مقالـه ذکـر شـود. ضـمناً آدرس الکترونیکی و شماره تلفن نویسندهٔ مسؤول در پاورقی آورده شود.

۶. چکیدهٔ مقاله ساختاریافته با قلم نازک Times New Roman 11 به صورت تک ستونی باشد.

۷. شکل‌ها و نمودارهای مقاله حتماً اصل و دارای کیفیت مطلوب باشد. فایل اصلی اشکال (تحت PDF، Word،Excel) و با دقت dpi ۳۰۰ ارائه شـود. انـدازهٔ قلم‌هـا خصوصاً در مورد منحنی‌ها (legend) به گونه‌ای انتخاب شوند که پس از کوچک‌شدن مقیاس شکل برای چاپ نیز خوانا باشند.

۸. ساختار مقاله شامل عناصر زیر است:

۸ ۱ صفحهٔ عنوان: در صفحهٔ شناسنامه باید عنوان مقاله، نام و نام خانوادگی نویسنده (نویسندگان)، درجهٔ علمـی، نشـانی دقیـق (کـد پسـتی، تلفـن، دورنگـار و پسـت الکترونیکی)، محل انجام پژوهش، مسؤول مقاله و تاریخ ارسال) درج شود. عهده‌دار مکاتبات باید با علامت ستاره مشخص شود.

۸ ۲ چکیده: شامل چکیده‌های فارسی ساختار یافته (شامل هدف؛ روش؛ یافته‌ها؛ محدودیت‌ها؛ راهکارهای عملی؛ اصالت و ارزش و واژگان کلیدی (۳ تا ۶ کلمه)) است. تا حد امکان چکیدهٔ مقاله از ۳۰۰ کلمه تجاوز نکند. علاوه بر چکیده ساختار یافته، لازم است چکیدهٔ مبسوط فارسی بین ۷۵۰ تا ۱۰۰۰ کلمه نیز حـاوی مقدمـه، مبـانی نظری، روش، نتایج و بحث، نتیجه‌گیری و کلیدواژه‌های مقاله تهیه شود، به طوری که حاوی اطلاعاتی از کل مقاله باشد و بتوان جداگانه آن را چاپ کرد. با توجه به این که مقاله بعداً به صورت کامل به انگلیسی برگردانده خواهد شد، نیازی به ترجمه چکیده مبسوط به انگلیسی نیست.

۸ ۳ مقدمه: شامل ۱-طرح مسئله؛ ۲-اهمیت و ضرورت؛ ۳-اهداف و سوالات اصلی تحقیق.

۸ ۴ ادبیات نظری تحقیق: شامل ۱- تعاریف و مفاهیم؛ ۲- دیدگاه‌ها و مبانی نظری؛ ۳- پیشینه نظری تحقیق و ... .

۸ ۵ روش‌شناسی تحقیق: در برگیرندهٔ ۱-محدوده و قلمرو پژوهش؛ ۲- روش تحقیق و مراحل آن (روش تحقیق، جامعهٔ آماری، روش نمونه‌گیری، حجم نمونه و روش تعیین آن، ابزار گردآوری داده‌ها و اعتبارسنجی آن‌ها)؛ ۳- سؤال‌ها و فرضیه‌ها؛ ۴-معرفی متغیرها و شاخص‌ها؛ ۵- کاربرد روش‌ها و فنون.

۸ ۶ یافته‌های تحقیق: ارائهٔ نتایج دقیق یافته‌های مهم با رعایت اصول علمی و با استفاده از جداول و نمودارهای لازم.

۸ ۷ بحث و نتیجه‌گیری: شامل آثار و اهمیت یافته‌های پژوهش و یافته‌های پژوهش‌های مشابه دیگر با تأکید بر مغایرت‌ها و علل آن، توضیح قابلیت تعمیم‌پذیری و کاربرد علمی یافته‌ها و ارائهٔ رهنمودهای لازم برای ادامهٔ پژوهش در ارتباط با موضوع، نتیجه‌گیری و توصیه‌ها و پیشنهادهای احتمالی.

۸ ۸ تشکر و قدردانی: قبل از منابع مورد استفاده ارائه شود و از ذکر عناوین دکتر و مهندس خودداری شود.

۹. نحوهٔ ارجاعات: منابع و مآخذ باید به صورت درون‌متنی و همچنین در پایان مقاله ذکر شود.

۹ ۱. ارجاعات در متن مقاله باید به شیوهٔ داخل پرانتز (APA) نسخه ۶ باشد؛ به گونه‌ای که ابتدا نام مؤلف یا مؤلفان، سال انتشار و صفحه ذکر شود. شایان ذکر است کـه ارجاع به کارهای چاپ شده فقط به زبان فارسی بوده و در اسامی لاتین معادل آن در زیر نویس همان صفحه ارائه شود. به عنـوان نمونـه: (شکوئی، ۱۳۸۷، ص. ۵۰) یـا (وودز، ۲۰۰۵، ص. ۲۷).

۹ ۲. در پایان مقاله، منابع مورد استفاده در متن مقاله، به ترتیب الفبایی نام خانوادگیِ نویسنده بر اساس الگوی فهرست نویسی APA تنظیم گردد.

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