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Research Article

The Collaboration of Tourism in Rural Sustainability (Case Study: Gelan Rural Region, Amol County)

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Abstract

Purpose- Rural areas experience various economic and social tensions such as population instability and limited job opportunities, which place villages at risk. Rural tourism can improve the economic activities that increase the population and improve the economy because tourism transforms a fragile economy with dynamic activities that enable the establishment of service enterprises and bring about entrepreneurship opportunities. This study aimed to model the multilateral effects of tourism on rural sustainability.

Design/methodology/approach- This research applied the theoretical-pragmatic approach. Data were collected using library and field studies. Field studies are a prominent element in the analysis of results. In this course, the systematic questionnaire was used for the extraction of the field database. Using the Cochran formula, the sample size was estimated 214 people. Furthermore, the interrelationship Structural Equation Model (SEM) was applied to analyze the networks of variations. Also, path analysis and partial least squares regression model was adopted to model the interrelationship between the variables observing the systematic nature of the sustainability approach.

Findings- Tourism is an accelerating tool in rural permanency. It stimulates the stability of the population, cultural similarities, and promotion of rural culture, which subsequently establish rural sustainability. On the other hand, as land use change is acknowledged as one of the unfavorable consequences of tourism, support for the environmental aspect is mentioned as a necessary factor for sustainability. Tourists should also recognize the eminent function of the environment in rural settlements to ensure that promoting the entire aspect of sustainability results in rural stabilization.

Practical implications- Specifically, tourism develops social solidarity through the formation of micro-businesses and particular rural entrepreneurship that directly and indirectly contribute to the expansion of job creation in rural settlements. Also, these mechanisms are involved in producing local capital that strengthens sustainable rural income and livelihood. On the other hand, tourism highlights the significance of the environment, and its protection is essential to the rural sustainability.

Key words- Rural tourism, Rural sustainability, Economic diversification, Entrepreneurship, Environmental protection, Land use change.

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1. Introduction

Rural tourism is extensively advocated as an antecedent of rural sustainability (RS) (Bjärstig & Sandstrom, 2017). Similarly, tourism stimulants can widely motivate economic functions to enrich rural economy and enhance new employments. Tourism also enhances rural life satisfaction and increases social improvements necessary for sustainability (Truong, Hall, & Garry, 2014; Huang et al., 2016). Many studies have stipulated that rural tourism can empower rural residents and act as a catalyst for sustainable development (SD) (Sharpley & Telfer, 2015; Hashemi & Ghaffary, 2017; Shahipour & Mojtabazadeh, 2016). Until recently, rural settlements have faced many challenges such as limited job opportunities and lack of income, which caused extensive migration. These issues also have created an imbalance in the regional and consequently national levels. Thus, sustaining villages by tourism-based implementations is widely justified as an enhancing policy to overcome rural problems.

The concept of sustainability has received growing attention in the literature on tourism because of growing evidence proving that RS can be a positive effect of tourism. Therefore, the importance of RS can be considered from several aspects. First, RS stimulates the social and economic development of villages and protectes the environment (Toumi, Le Gallo & Ben Rejeb, 2017; Kim, Uysal, & Sirgy, 2013; Torres-Delgado & Palomeque, 2014; Gursoy & Rutherford, 2004). Second, tourism contributed to a new scheme of development in which fundamental changes in rural regions can contribute to the sustainability process. Third, rural sustainability and urban sustainable development are directly related as the root of major problems in large cities can be traced back to rural migration. Hence, reducing these migrations can establish a balance between urban and rural areas (Chi, Cai, & Li, 2017). In this regards, Environmental conservation,energy saving and consideration to ecosystem are effective factors for sustainability of a landscape (Hoseini, Tavakoli, Pourtaheri & Eftekhari, 2019).

The most important goal of sustainable tourism is to support local economies by supporting direct and supplementary revenues, which have multiple impacts on rural economies. Traditionally, studies have generally examined the economic effects of tourism and sustainable rural development (Andreeski, 2000; Dwyer, Forsyth & Spurr, 2004; Ohlan, 2017; Hashemi & Ghaffary, 2017). However, previous studies have failed to investigate the role of rural tourism in RS based on the principles of sustainable development theory. Considering this literature gap, the present study explores the role of tourism in solving rural problems, and described a high level of sustainability in rural settlements.

This study also makes three main contributions to the literature on tourism and RS. First, the work advances rural tourism studies by measuring sustainability considering the mediating roles of social, economic, and environmental facets. Based on sustainable development theory, the present research examines the benefits and expenses of social, environmental, and economic dimensions of tourism growth on RS. Second, the effective role of each sustainability dimension is accurately emphasized. Most studies have discussed sustainable development as a single concept, therbey neglecting the role of effective constituents that negate it (Almeida-Garcia, 2016; Rasoolimanesh, Jaafar, Kock & Ahmad, 2017). This study is one of the few that investigates diverse tourism impacts.

Third, this research evaluates the impact of rural tourism from the perspective of rural residents. The benefits of rural tourism to local residents is a function of sustained achievement, and the researcher aims to evaluate these variables from the perspective of residents.

This study is motivated by sustainable development theory and tourism impacts. Thus, this study aims to assess the effect of economic reinvigoration on rural sustainability and to evaluate social improvement in stabilizing rural settlements. Furthermore, this review focuses on how tourism conserves environmental quality in rural settlements relative to the importance of environmental attitude.

The literature review highlights the strength of each aspect of sustainability as an activator of development. Some social, economic, and environmental variations are performed to estimate the logical relationships. Whether or not sustainability of the rural community is still considered a noteworthy issue has yet to be fully discussed. In this regard, the aim of this study is evaluating the positive and negative impacts of tourism on rural sustainability in accordance with the main question of the research: how does tourism collaborate in rural sustainability?

And the minor questions are the following:

- How is the strengthening of the rural economy via tourism effective in shaping rural sustainability?

- How has the reconstruction of social solidarity and rural population stabilization through rural tourism been effective in institutionalizing rural sustainability?
- Has tourism been able to play a role in rural sustainability in terms of environmental protection?

2. Research Theoretical Literature

Sustainaning the rural settlements in economic shock situations is propounded a substantial affair in planning process. In this regard, rural tourism is acknowledged as a catalyst in rural restructuring and partnership in sustainable making (Gao & Cheng, 2020; Pilving, Kull, Suskevis & Viira, 2019). As worldwide recession of rural areas influences the national and global economies and causes negative population mobility to cities (Anthopoulou, Kaberis & Petrou, 2017; Liu & Xu, 2016; Gray & Mueller, 2012). Rural tourism can promote the diversification of the rural economy that nurtures rural enterprises that have essential role in sustainability (Gao & Wu, 2017; Steiner & Atterton, 2015). In this case, the concept of sustainability examines the relationship among economic development, environmental quality, and social impartiality. Hence, sustainability is the term used to fill the gap between development and environment, and its goal is to exert all aspects of development simultaneously (Rogers, Jalal, & Boyd, 2008). In addition, Strong (1995) stated that the shift to sustainability denotes extensive and profound changes in social, economic, institutional, and technological environments. So, sustainability leads to the growth of the economy, society, and environment. Also, incorporating rurality into tourism is a relatively efficient global development path. Therefore, sustainability as a multi-faceted concept is considered the most important target of rural planning. In this regard, the planners proved that rural tourism entails economic income and jobs by minimizing the population loss in rural regions (Flisher & Felsenstein, 2000; Palmisano et al., 2016). There are some approaches to sustainability are as follows. Integrative approach: Pierre Bourdieu, Neil Fligstein, Paul Dimaggio and Louis Wazquant have suggested a new analytical frame work for sustainability from integrating knowledge across the interactions of environment and social elements (Olsson & Jerneck, 2018).

Multifunctionality approach: It is a holistic framing to realize the linkages between socio-environmental and economic benefits from framing operations and the demands of local societies (Marsden & Sonnio, 2008). This approach considers the whole functions of elements with network attitute.

Literature review on rural sustainability clarifies that following dimensions play crucial functions in the efficacy of tourism in rural sustainability:

1. Economic dimension: Rural income is low in poor countries, and thus, economic growth is an essential aspect of rural development. As rural tourism leads to market-led growth, economic benefits trickle down to villages (Shepherd, 1998). In their survey in Hongdong, Kim and Jamal (2015) found that tourism through small-scale enterprises contributed to RS. Carneiro, Lima and Silva (2015) also affirmed that two Portuguese villages produced a local economy based on tourist services that were expanded to adjust with nature. This process helped achieve SD and generated major economic leakages through transnational involvement (Pratt, 2015). Similarly, the most important aspect of sustainability is an economic dimension (ECD), which is vital in sustainable livelihood and job creation (Jaafar, Rasoolimanesh, & Tuan Lonik, 2017).

In this course, the use of local and indigenous capabilities can play a significant role in strengthening the rural economy (Fatemi, Rezaei, Motiee Langrodi, Faraji Sabokbar & Darban Astaneh, 2019). The third generation of tourism can operationalize sustainable rural development by laying the foundation for a local creative economy such as products, processes, creative people, and spatial branding (Einalli, Mohammadi Yeganeh & Ghasemlou, 2019). On the other hand, according to Ghorbanzadeh and Niloufar (2019) tourism can contribute to the development of the rural economy by expanding trans-regional relations between the city and rural centers by transferring added value and capital from urban centers to rural areas.

2. Social dimension: Tourism brings social benefits and supports rural social stability (Altinay, Sigala & Waligo, 2016; Zhou, Chan & Song, 2017). In this case, tourism produces social infrastructures that promote population stability in terms of cultural similarities and social solidarity. However, tourism also has negative social-cultural effects such as social deviations, crimes, and social anomalies. Additionally, cultural mixing threatens local traditional culture (Howell, 2017). Kim et al. (2013) also found that the positive cultural impact of tourism influences rural well-being and social improvement. Social dimension (SOD) is calculated based on life satisfaction, place attachment, and rural

culture promotion. Thus, populatin stability is the most effective aspects of social sustainability because of job opportunities of tourism.

3. Environmental dimension: Although tourism has economic and social benefits for host societies along with a modified quality of life, it also unavoidably varies rural natural prospects (Oliver & Jenkins, 2003). Tourism noticeably destroys local ecosystems, which is one of the most important conflicts in the tourism industry. According to Rebollo and Baidal (2009), the vernacular tourist order in the Torrevieja region in Spain inverts faint sustainability, wherein a kind of economic progress that allows the decline and utilization of natural resources is asserted. However, tourism development negatively affects the environment (Zhang, 2016; Alipour & Kilic, 2005), which emphasizes the demand for environmental conservation to limit environmental devastation (Mc Kercher, 1993; Coria & Calfucura, 2012). The amount of waste, vegetation demolition, water resource pollution, and agricultural land conversion to residential areas and second homes are variables for environmental dimension (ED) evaluation. Although many studies have been conducted on the effects of tourism, few research has been done on the role of tourism in realizing the dimensions of sustainability in all aspects. This study focuses on the sustainability of rural settlements and examines the role of tourism. Therefore, in the research background, indicators effective on the subject are derived are presented from other studies (Table 1.).

Table 1. Previous Research on the role of tourism in rural sustainability

Researchers	Findings
Kim and Jamal(2015)	Tourism can shape small and local enterprises that promotes the economic value of rural settlements.
Saberi & Ghedamini (2018)	Tourism is considered effective element in reducing migration, increasing employment, market prosperity and the development of handicrafts and workshops.
Safari Alamoti & Shams (2020)	Tourism has proved effective in increasing income, reducing migration, increasing economic activities, and diversifying the rural economy in the village of Ovan in Qazvin. As a result, the villagers have started to earn money from tourism by creating small shops, handicrafts, and accommodation facilities.
Dehghani & Adeli Sardoei(2018)	Studying the target rural settlements for tourism in Jiroft city revealed that tourism has played an effective role in increasing social solidarity and contribution.
Karami Benmaran, Khosravipour, Ghanian & Baradaran, (2014)	In their study of the villages of Kan county of Tehran city, found that the establishment of small local tourism-related enterprises is effective in strengthening sustainable rural development.
Guaita Martinez, Martin Martin & Salinas Fernandez (2019)	Among the advantages of tourism in rural areas of Spain include, the expansion of jobs and job markets in rural areas that attracts the workforce and provides rural job opportunities on a seasonal basis.
Park, lee, K., Choi & Yoon (2012)	The strengh of cultural similarities in rural settlements influences the capability of local residents to direct the tourism results and shape extents of growth in villages of south Korea.
Randelli & Martellozo (2019)	Rural tourism in villages of Tuscany converts the agricultutal lands to new built area that affects the land conservation.

3. Research Methodology

3.1. Geographical Scope of the Research

The review was conducted in one of the rural regions of Amol in the Gelan rural region, which is famous for its serene landscapes and natural capabilities. Four important tourist rural settlements were chosen, including Gelan, Vilisdeh, and Kokedeh situated in the Paieen Khiaban Litkoh district in the central sector of Amol county, and Noabad located in the Daboy district of the Dabodasht sector (Figure 1). Amol is located in north of Iran, one of the most attractive marine regions in tourism. This area is located in the southern part of the Caspian Sea, where most people travel from around the country. Geographically, the weather in this region and its special marine climate is distinct from those of other regions in the country and is known as the mild Caspian climate. This climate is comparable to that of the Mediterranean climate because of the Mediterranean clouds pass and constant rain (Alijani, 2013). Tourism has increased in this region because of pleasant weather conditions and unique green places (Asgari, 2016). Various plant species formed diverse forest ecosystems (Iran Forests Organization, 2000). The region has various tourism services that locals has created and used to develop tourism. A wide range of activities is offered, including natural adventures involving rivers, jungles, and mountains. Moreover,

various ethnicities, tribes, and cultures exist in this region, which led to the creation of local rituals, foods, and ceremonies in the rural areas that attract tourists. Therefore, tourist attractions are naturally, culturally, and economically diverse. Having various villages with natural and economic capabilities, this region provides the ground for different agricultural activities (Jafari, 2013) which are unique for the tourist attraction industry. Some of the residents of Tehran have bought second homes in this region because of its proximity to the city. The advantage of this region over other areas is its proximity to the capital, Tehran, and the ease for its citizens to go there at the end of the week. Air pollution in large cities endangered people's lives, and this rural area is an alternative residence for citizens of big cities. The possibilities of rural tourism in rural stabilization were reviewed in this study.

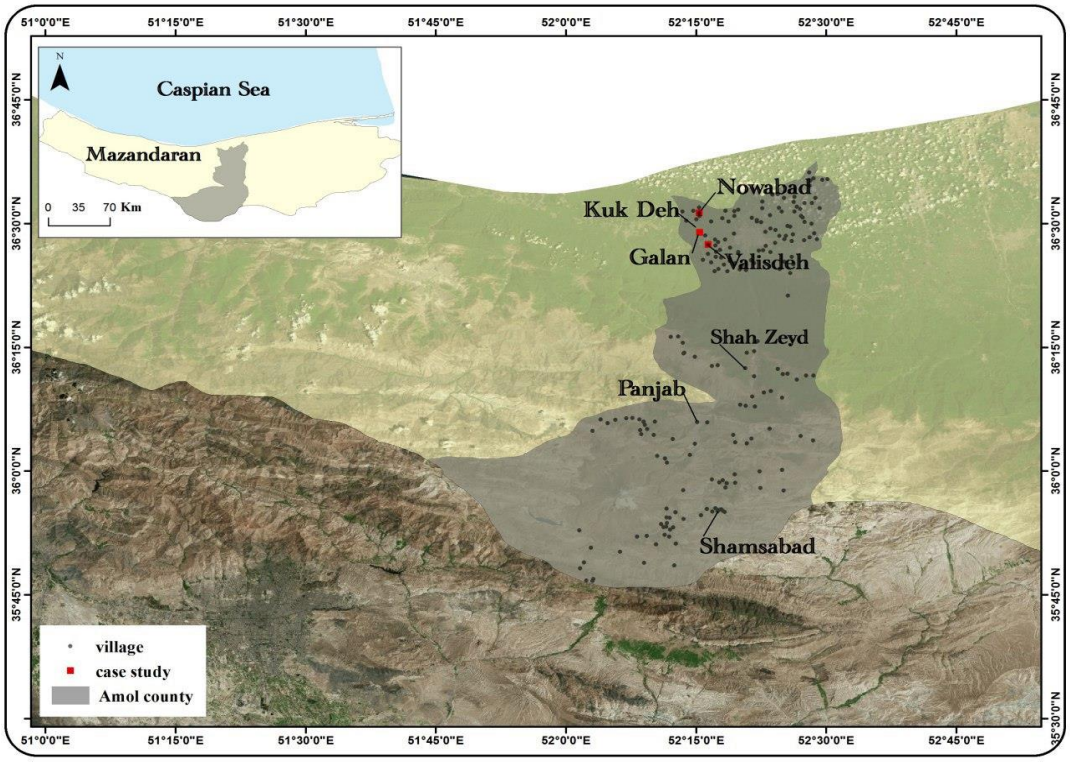

Figure 1. Geographical position of Gelan rural region.

3.2. Indicators and Dimensions

Although most studies consider tourism as a form of economic incentive, tourism also stimulates various aspects of SD and sustainability. Thus, the US National Academy of Sciences identified three major categories of SD that should be developed to realize sustainability such as environment, economy, and society. Therefore, sustainability is based on the evident discrepancies among economic, social, and environmental conditions in different regions worldwide (Rabie, 2016; Bell & Morse, 2003; Ko, 2005), since one of the major goals of SD is to prioritize people's needs. The Brundtland Commission also described SD as a model with environmental and developmental dimensions. This model is defined as a Triple Bottom Line model because SD consists of and incorporates environmental, economic, and social dimensions (Klopp, 2017). In addition, SD addresses a pivotal topic in rural regions given the intricate interplays among natural resources, agricultural generations, and native communities (Paˇsakarnis et al., 2013). Policymakers planned and elevated these ideas within the European Union's (EU) rural development policies. Specifically, the EU Rural Development Policy aids EU rural areas (European Commission, 2013). According to a literature review (table 1), the pillars of RS are ecomic, social, and environmental dimensions.

3.3. Data Collection

The present study was conducted by considering the different dimensions of RS. The reviewed data were gathered according to the research goals through library and field studies. To employ a holistic approach, the integration among dimensions was also

considered. Several questions were raised to measure the research variables on a Likert scale to evaluate them based on local and geographical aspects and sustainability dimensions. The field studies were conducted in four villages with different specialities in terms of the benefits of tourism. The questionnaire elicited the benefits of rural tourism and the effective role of tourism in rural development. The population of the sample villages was 2,047 individuals, which based on the modified Cochran's formula, the sufficient sample size for the survey was estimated at 214 participants. One theoretical sampling strategy was performed. Various groups from different ages (young, old, men, and women) were selected; income level, job, and education level data were collected, and purposive sampling was employed. The composite reliability (CR) of each index was estimated by Cronbach's alpha model to evaluate the internal consistency of the variations. Results showed that all indexes were within the acceptable range (Table 1). The reliability for each construct invades the recommended level of 0.7. In this test, economic dimension, environmental dimension, social dimension, positive impacts, negative impacts, and rural sustainability was estimated at 0.93, 0.74, 0.81, 0.86, 0.76, and 0.82 (Table 2).

3.4. Data Analysis

Data gathered from the questionnaire were analyzed based on the structural equation model with Partial Least Squares Regression Model (PLS-SEM) to diagnose the interrelationships of variables. This model enables researchers to simultaneously examine a series of interrelated dependence relationships between a set of constructs represented by several variables (e.g., scales), while accounting for measurement error. SEM's ability to simultaneously test relationships incorporated into an integrated model contributed to its widespread application. Furthermore, PLS-SEM is advantageous when used on small sample sizes. Compared with regression, SEM model can calculate all existing relationships. Thus, data were coded and organized according to dimensions of social, economic, and environmental effects on RS compatible with the literature review. The literature has clarified that tourism opportunities could lead to efficient development, such as entrepreneurship.

4. Research Findings

4.1. Sample Profile

The number of participants was determined by the percentage of males and females. According to the descriptive analysis, 60% of respondents are male and 52% are female. Respondents were classified into five age categories: 20–30 (16%), 30–40 (33%), 40–50 (29%), 50–60 (17%), and 60 years (5%). Nearly half of the participants earn average income. Half of the participants have diploma and most of the respondents are farmers (57%).

4.2. Measurement Model

The consistency and reliability, as well as convergent and discriminant validity of construct items were evaluated. In Table 2, all cross loading items are above the standard level of 0.7 to their relative constructs. The lowest loading value is 0.786 for a segment measuring SOD (the data confirmed the consistency and reliability of all measurement items). The average variance extracted (AVE) values for each construct are above the recommended level of 0.5 (Hair et al., 2011). The lowest AVE value is 0.680 for positive impact. Therefore, the convergent validity of the measures was considered. To evaluate discriminant validity, the extent to which the construct and measure was observationally discrete from those of other constructs was examined. So, cross loadings and square roots of the AVE is presented in Table 2. All item loadings on their respective construct were greater than their loadings on other constructs, and the square roots of the AVEs exceeded the correlations between every pair of latent variables. Thus, discriminant validity is confirmed.On the other hand, the composite reliability of convergent validity, which should be higher than the AVE for each factor (CR>AVE). The comparison presented in Table 2 affirms that the CR for all latent variables is higher than the AVE, and the convergent validity is in place.

Table 2. Assessment results of the measurement model
(Source: Research finding, 2020)

Index	Variations	Economic Dimension	Environmental Dimension	Social Dimension	Positive Impacts	Negative Impacts	Rural Sustainability
	CR	.93	.74	.81	.86	.76	.82
	AVE	.770	.737	.706	.681	.718	.804
Economic Dimension (ECD)	Job opportunity	**.874**	-.734	.753	.735	-.719	.520
	Construction jobs	**.878**	-.652	.653	.693	-.711	.762
	Service jobs	**.877**	-.738	.700	.714	-.768	.785
	Entrepreneurship	**.891**	-.744	.755	.675	-.755	.529
Environmental Dimension (ED)	Vegetation protection	-.714	**.846**	-.713	-.648	.663	-.735
	Soil protection	-.738	**.819**	-.677	-.687	.670	.730
	Water resources protection	-.728	**.890**	-.738	-.734	.722	-.715
	Protection of agricultural lands	-.717	**.866**	-.709	-.647	.721	-.746
Social Dimension (SOD)	Youth migration	-.722	**.869**	-.720	-.687	.746	-.678
	Social solidarity	.606	-.688	**.786**	.559	-.574	.695
	Cultural similarities	.686	-.735	**.892**	.726	-.690	.763
	Promotion of rural culture	.692	-.689	**.877**	.680	-.653	.751
Positive Impacts (PI)	Income increase	.693	-.674	**.801**	.688	-.705	.612
	Entrepreneurship	.694	-.641	.719	**.826**	-.666	.651
	Land price increase	.538	-.604	.586	**.821**	-.622	.578
Negative Impacts (NI)	Nature destruction	.656	-.709	.647	**.829**	-.656	.661
	Agricultural production reduction	-.737	.668	-.631	-.754	**.873**	-.703
	Social anomalies increase	-.750	.735	-.722	-.709	**.893**	-.781
Rural Sustainability (RS)	Population stability	-.769	.793	-.741	-.766	**.914**	-.814
	Economic improvement	.779	-.766	.608	.773	-.721	**.893**
	Rural environmental conservation	.635	-.790	.404	.407	-.788	**.898**
	Physical improvement	.641	-.756	.728	.717	-.402	**.899**

Also, according to the statistical analysis in Table 3, the impact of ECD on RS at 0.792 is positive. In Vilisdeh village, numerous shops and restaurants that create jobs for rural residents can improve the income levels of residents. These shops offer local fruits, vegetables, and simple food for tourists, which help locals diversify their activities and increase value added through tourist demands. Furthermore, the increase of land price enables residents to gain money from selling land to urban residents. Gelan and Kokedeh have the most second homes in the region and offer high land prices. Residents of Tehran go to these villages on holidays to enjoy natural landscapes and escape their hometown's air pollution and congestion. Thus, the economic situation in tourist villages became more favorable than that of other villages that do not encompass many tourist attractions.

Another effective aspect of sustainability is ED, which encompasses the prevailing feature of sustainability and SD. Environmentally, tourism has a negative effect on the regional sustainability. The effect of ED on RS is −0.751, which shows that tourism harms the rural environment. Some tourists do not observe environmental protection rules and pollute the rural environment. Tourists do not throw their garbage properly, which causes natural demolition. In addition, various natural landscapes and rice cultivation lands were also transformed into second homes.

Table 3. Discriminant validity
(Source: Research finding, 2020)

constructs	Economic Dimension	Environmental Dimension	Social Dimension	Positive Impacts	Negative Impacts	Rural Sustainability
Economic Dimension	.826					
Environmental Dimension	-.771	.869				
Social Dimension	.695	-.723	.848			
Positive Impacts	.601	-.626	.622	.824		
Negative Impacts	-.698	.634	-.621	-.677	.891	
Rural Sustainability	.792	-.751	.749	.671	-.690	.892

Based on a theoretical review, SOD includes another debate on sustainability. In the Gelan region, tourism boosts social variables such as population stabilization and social solidarity. The population of the Gelan region remained unchanged for 10 years, whereas other villages experienced intense depopulation. The effect of SOD on sustainability is 0.749. The data show that tourism can increase the sense of place attachment in Gelan villages, because the economic advantages of tourism facilitate the effectiveness of SOD. The effect of ECD on SOD is 0.690, which shows that economic elements can positively influence social affairs. The analysis also suggests that the square root of a structure should be higher than its correlation with other structures. This finding indicates that the related structure is better than other structures, thereby confirming the results of this review.

Finally, the theoretical basis suggests the need for sustainable villages to become an important target. However, absolute and complete sustainability is actually a relative concept. Thus, some sustainability aspects are realized, whereas others are unsustained.

4.3. Structural Model

The result of the structural model is demonstrated in Table 4, which shows that all path coefficients are significant. The R2 values for positive impacts, negative impacts, and sustainability were 72%, 76%, and 90%, respectively. Findings show that the economic advantages of tourism positively affected RS (**β**=0.377, p<0.001). The ED negatively affect on RS (**β**=-1.38, p< 0.01). In addition, the SOD positively influenced RS (**β**=-0.210, p<0.01). Thus, the positive influence of rural tourism on RS was confirmed (**β**= 0.169, p<0.01). Therefore, tourism can efficiently create rural sustainability.

Table 4. Results of tourism impacts testing
(Source: Research finding, 2020)

Index	Positive impacts (R2=.723)		negative impacts (R2=.758)		sustainability (R2=.900)	
	β	t	β	t	β	t
Economic Dimension	.371	3.011	-.467	4.471	.389	5.688
Environmental Dimension	-.285	2.647	.346	3.274	-.138	2.364
Social Dimension	.284	2.546	-.125	1.417	.210	2.674
Positive impacts	-	-	-	-	.169	2.916
Negative impacts	-	-	-	-	-.092	1.707

5. Discussion and Conclusion

This study evaluated the effects of tourism on RS. Based on the literature review, the dimensions of RS are linked to survey indices. Sustainable development theory was adopted for analyzing RS which included social, economic, and environmental aspects and were utilized to synthesize the indicators in the PLS. The findings empirically examined the factors influencing three different sustainability dimensions in villages that practice tourism. The results indicated that the ECD of RS positively affect RS. This finding was in line with several previous studies that reported a remarkable effect of rural tourism (Dogru & Bulut, 2018). So, villages with increased activities and tourist satisfaction aspired increased involvement in sustainability, indicating a focus on the importance of residents' participation in the rural economy. Liu, Nijkamp, and Lin (2017) also examined tourism as an alternative channel of sales and marketing which facilitates the development of agricultural commodities in the destination area, diversifies agricultural products, and helps develop a much more diversified product pattern with a high value added in rural areas. Thus, the impact of the ECD on sustainability proved that a tourism-driven rural economy system is more efficient and may link tourism development and economic growth. This finding is in line with that of Prat (2015) for Jamaica. Hence, in many tourism villages, constructing second homes increases land value for residents to gain profit and economic diversification to invigorate the economic structure. The result also emphasizes the need for more reliable tourism development strategies to be executed by the government to maximize the potential of tourism for promoting economic growth (Ohlan, 2017). Moreover, the SOD findings revealed that tourism has an efficient role in the social improvement of villages, leading to RS. Accordingly, the encouraging function of tourism on population stability is a social benefit for rural regions. This finding is in line with the results of Deery, Jago, and Fredline (2017), indicating that tourism results in effective social influences such as life satisfaction (Wang, 2017), place attachment development, and rural culture (Strzelecka, Boley, & Woosnam, 2017). Although the environment was considered as an important basis for this debate, the results showed conflicting effects for this RS dimension. Environmental consequences of tourism negatively affected RS. Natural land use as residential areas posed a challenge. This finding is in line with former studies (e.g., Farstad & Rye, 2013; Jeong et al., 2014). The devastation of natural tourism attractions also threatened the environment and tourism sectors. Tourists are unaware of the importance of the natural landscape and significantly harm the environment. Therefore, the results highlight that tourism destinations require economic value creation, constitution of specific local market, and improvement of tourist attractions. Authorities should also inform rural residents of tourist demands by conducting extension classes and raising local values to improve RS.

Accordingly, the accomplishment of RS is consistent with the reciprocal participation of rural residents and tourists through resident-tourist value co-creation (Lin et al., 2017), especially to focus rural environmental conservation on SD process. Hence, the government should highly advertise environmental protection for tourists and residents to achieve a pure rural environment. Therefore, the research questions were evaluated and analyzed using a structural model, which showed that tourism

in the social and economic fields has established a suitable foundation for sustainability in rural settlements. Regarding the environment, there are positive and negative effects on the rural system based on related field research, which appropriate measures should be taken with regard to environmental protection.Then, some suggestions is recommended:

- It is vital to attract urban investment in the economic-productive sectors such as: agricultural, industrial and service activities in order to strengthen the rural economy;
- To expand rural social solidarity, mechanisms must be put in place for villagers to benefit from tourism output, such as: constitution of cooperatives and the prosperity of micro-businesses;
- In order to protect the environment, legal restrictions must be imposed to prevent the conversion of natural and agricultural lands into second houses;
- To attract rural youth for engaging in rural tourism activities, the necessary incentives should be provided, including: loans, appreciation and rural branding.

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نقش آفرینی گردشگری در پایداری روستایی
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چکیده مبسوط

۱. مقدمه

سکونتگاههای روستایی در کشاکش با تنگناهای اجتماعی - اقتصادی نیازمند فرصت های جدیدی جهت نقش آفرینی در توسعه پایدار هستند. زیرا عدم تعادل در سکونتگاههای روستایی موازنه ناحیه ای را برهم می زند و تناقضات جدیدی را فرآروی سکونتگاههای شهری قرار می دهد. در این ارتباط سازوکارهایی نیاز است که بتواند توسعه پایدار روستایی را گسترش دهد. گردشگری یکی از مهمترین سازوکارهای محلی است که با گسترش ساختارها و کارکردهای نوین ، توان دستیابی به پایداری را تقویت می کند . به صورتی که رشد بنیان های اقتصادی در چارچوب کسب و کارهای خرد و کارآفرینی در تشریک مساعی با محیط زیست پایدار در رویکرد پایداری اهمیت دارد. از سوی دیگر اثرات گردشگری در همبستگی اجتماعی و رشد مشارکت روستایی دخالت دارد. پژوهش حاضر در چارچوب نظریه پایداری؛ ابعاد مختلف اثرات گردشگری مانند : اجتماعی، اقتصادی و زیست محیطی را با محوریت پیآمدهای مثبت و منفی آن مدلسازی می کند . به صورتی که هدف اصلی پژوهش بررسی میزان مشارکت گردشگری در هر یک از ابعاد پایداری است.

۲. مبانی نظری تحقیق

رکود جهانی در سکونتگاههای روستایی بر روندهای اقتصادی ملی و بین المللی تأثیر می گذارد و باعث رشد بی رویه جمعیت شهرها می شود. در این ارتباط گردشگری روستایی با تنوع بخشی اقتصاد روستایی و گسترش بنگاههای کوچک اقتصادی محلی باعث افزایش درآمدهای محلی و شکل گیری انباشت سرمایه محلی می شود که در ماندگاری جمعیت روستایی نقش انکارناپذیری دارد. مفهوم پایداری ، توسعه اقتصادی ، کیفیت محیط زیست و همبستگی اجتماعی را شامل می شود. همچنین پایداری مفهومی است که شکاف بین توسعه و محیط زیست را از بین برده و هدف آن اعمال ابعاد توسعه در رویکردی نظاموار است.

۳. روش تحقیق

مطالعه موردی در ناحیه روستایی گلان در شهرستان آمل انجام شده است. روش تحقیق مبتنی بر روش توصیفی- تحلیلی است و برای جمع آوری اطلاعات از دو روش کتابخانه ای و میدانی استفاده شده است .چهار روستای گردشگری در این ناحیه به صورت موردی انتخاب شده است که از مجموع ۲۰۴۷ نفر جمعیت روستاهای نمونه ، ۲۱۴ نفر از ساکنان به عنوان نمونه انتخاب شدند . نمونه گیری به صورت هدفمند براساس طبقات مختلف جمعیتی و اقتصادی انتخاب شده است. داده ها براساس پرسشنامه میدانی مبنی بر مدل معادلات ساختاری تحلیل شدند . همچنین روابط متقابل گویه ها برمبنای رویکرد پایداری در ابعاد اجتماعی،اقتصادی و زیست محیطی مدلسازی شد.

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۴. یافته های تحقیق

براساس یافته های میدانی ، تأثیر بعد اقتصادی بر پایداری روستایی بر مبنای نتایج مدل ساختاری برابر با ۰/۷ است . به طوری که تنوع بخشی کسب و کارهای خرد نقش مثبتی در افزایش درآمد داشته است. زیرا تأمین نیازهای گردشگران توانسته است در گسترش مازاد سرمایه نقش داشته باشد. علاوه بر این افزایش قیمت زمین در گسترش توان مالی روستاییان تأثیرگذار بوده است.به صورتی که این روند باعث افزایش خانه های دوم شهری و گسترش تعداد گردشگران در این ناحیه شده است و نیازهای اقتصادی جدیدی را ایجاد کرده که نتیجه آن تقویت کارآفرینی روستایی در این ناحیه بوده است. بیشترین میزان گردشگران از کلانشهر تهران به این ناحیه می آیند و بیشترین تعداد خانه های دوم مربوط به روستای گلان و کوکده است. همچنین در بعد اجتماعی ، گردشگری در ناحیه روستایی گلان سبب تقویت تثبیت جمعیت و همبستگی اجتماعی شده است. در بعد زیست محیطی ، گردشگری آثار مخربی بر محیط زیست دارد . به طوری که باعث قطعه قطعه شدن اراضی روستایی و افزایش فرسایش خاک و کاهش منابع آب می شود و تغییر کاربری اراضی کشت برنج بر کشاورزی و رونق تولید نیز اثر گذار است.بنابراین باید برنامه ریزی منسجمی در راستای کاهش آسیب پذیری گردشگری بر محیط زیست صورت گیرد.

۵. بحث و نتیجه گیری

نظریه توسعه پایدار با رویکرد پایداری در این پژوهش به منظور تحلیل مؤلفه های پایداری از قبیل : اجتماعی،اقتصادی و زیست محیطی توسعه یافته است. در این راستا مدلهای اندازه گیری و ساختاری برای ترکیب شاخص ها در مدل پی.ال.اس به عنوان مزیت دیگر این مدل به کار گرفته شده است. یافته ها نتایج متفاوتی از اثرگذاری گردشگری بر ابعاد پایداری نشان می دهد. به صورتی که همگام با پیشینه تحقیق، اثرات اقتصادی گردشگری از سایر ابعاد برجسته تر است و توانسته اقتصاد روستایی را متحول نماید. در بعد اجتماعی نیز با عنایت به تأثیرات اقتصادی، ماندگاری جمعیت روستایی مشهود است که در پایداری جایگاه ویژه ای دارد.برخلاف سایر ابعاد در بعد زیست محیطی اثرات گردشگری متناقض بوده است که لازم است به منظور نهادینه کردن پایداری زیست محیطی، سازوکارهای لازم برای جلوگیری از تخریب محیط زیست روستایی و حفاظت از آن عملیاتی شود.

کلید واژه‌ها: گردشگری روستایی، پایداری روستایی ، تنوع بخشی اقتصادی، کارآفرینی ، حفاظت زیست محیطی، تغییر کاربری زمین.

تشکر و قدردانی

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Research Article

The Analysis of Key Factors Influencing the Expansion of Rural Migration with Eemphasis on the Issue of Informal Settlement (Case Study: Shirabad Neighborhood in Zahedan)

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Abstract

Purpose- Informal settlement is largely rooted in migration, particularly influenced by parameters such as poverty, lack of expertise and specialization, type of occupation, cultural conflict, illiteracy, ethnic and cultural identity. Most of the residents of these areas are forced to live in ghettos and slums due to factors such as lack of access to jobs in the city coupled with poverty and lack of specialization. Heterogeneous and dispersed constructions without observance of technical principles and urban planning with narrow, meandering alleys, running sewage in the alleys and unsavory sanitary condition are among the adverse consequences of informal settlement. Therefore, the main purpose of this study is to investigate the key factors affecting rural migration with emphasis on the issue of informal settlement in Shirabad neighborhood of Zahedan.

Design/methodology/approach- The research method is descriptive-analytical and data collection was conducted by a survey. In the first step of the research, a list of primary factors involved in the spread of migration to informal settlements was identified as research variables using existing documents and previous researches. The variables were analyzed based on two local communities (all heads of households in Shirabad neighborhood) and expert questionnaires. Descriptive statistics and exploratory factor analysis in SPSS software as well as cross-impact analysis model in MicMac software were used for the analysis of data.

Findings- The results suggested that four key factors of drought and lack of water resources, reduced productivity and devaluation of the agricultural sector, inappropriate infrastructure in rural areas and wage gap between rural and urban areas play a key role in shaping rural migration and intensifying informal settlement.

Key words- Migration, Rural Migration, Informal Settlement, Shirabad neighborhood of Zahedan.
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1. Introduction

The growth of urbanization and globalization, as the dominant phenomena in the 21st century, is linked to adverse consequences such as poverty, informal settlement, violence and insecurity, environmental crisis, homelessness, improper housing, spatial injustice, dysfunctional and inefficient structures, which obscure the stability of current trends and the future of the city. On the other hand, the implementation of policies and development plans and measures inspired by the unbridled capitalist development model and the emphasis on social policies stemming from a competitive economy that disregards diverse capabilities of individuals have consequences that would lead to the unequal distribution of opportunities of basic living facilities, increasing rural depletion and informal settlement (Sarvar & Rousta, 2014). Thus, informal settlement is one of the phenomena resulting from the rapid urbanization that appears in an unplanned manner within or in the outskirt cities (Sarvar & Rousta, 2014).

According to the United Nations, informal settlement has been identified as a major challenge in the third millennium. Hence, one in six people in the world live in slums, and without the joint action of the government and the participation of residents, the number of people living in slums (urban poor) may double by 2030 (Rousta, 2009; Peykani & Bavar, 2018). However, the rate of informal settlement expansion in low-income countries is accelerating due to the rising number of residents living in areas without standard conditions (Chowdhury & Amin, 2006). Informal settlement is a common form of urban development in most developing countries, which are often informally occupied (Zeilhofer & Toponoti, 2008; Ballantyne & Oelofse, 1999). There are many factors tied to informal settlement, some of which are sometimes difficult to identify (Alizadeh Aghdam & Mohammad Amini, 2012). In this regard, Paul Meadows introduces migration as the root cause of informal settlement, believing that in large cities in the developing world, there are vast areas filled with informal settlement. These cities, as the main destination of migration, face the huge torrent of rural migrants. Some lucky immigrants can pass through the golden gates of the city and adapt to the urban life style, but some fail to do so and end up in informal settlements behind the city gates. The rural-urban migration saturates cities after a while, with city organizations and officials falling short of accommodating this massive flow of migrants. As a result, some villagers cannot acclimate to the environment and are drawn to marginal settlements (Hosseinzadeh, Nawah & Ismaili, 2008). As long as there is an income gap between urban and rural areas, between different regions of a country, and between the social groups of a society, the informal settlement will keep expanding (Mumtaz, 2001).

Urban studies on Iran shows that the migration movements urban development began approximately from 1941 to 1953, as before this period, the urban and rural economies were relatively balanced. The suppression of large landlords, the formation of the army, the establishment of national security, the construction of roads and railways, etc., were among factors that facilitated travel and transportation, followed by elevated migration of villagers to cities so that the rate of rural displacement rose from 0.08% in 1921 to 14% in 1941. Migration to cities increased after the 1950s due to the industrialization of cities and the possibility of enhanced production efficiency, productivity and finally higher incomes. Meanwhile, rural migration also increased one percent. At this time, wars were the major cause of migration in troubled areas.

In this era, the migration of people in other parts of the country was driven by factors such as worn-out and low-yielding agricultural method, and the government's neglect or preoccupation with more important issues like war crisis. At the same time, rising land prices, building materials, high-interest loans, and high rents deterred low-income groups who were the second generation of rural immigrants, from settling in cities and pushed them towards margins. Obviously, such migrations had a significant impact on the deterioration of informal settlement and, of course, the proliferation of crime in these areas.

Although the situation of informal settlement in Iran is brighter than most developing countries, it does not diminish its importance at all (Gholami, Seifi Kafshgari & Shahbazi, 2013). These self-organized hubs are considered an integral part of life in Iranian cities (Rezaei & Kamandari, 2014). Some scholars argue that the emergence of informal settlement in Iran in 1960s and 1970s were driven by factors such as capitalism, land reform, rising land prices and migration (Salehi Amiri & Khodaei, 2011). However, migration from different rural areas to poor urban neighborhoods is the major reason for the expansion of informal settlements (Qaderzadeh, 2014).

According to the existing statistics, about eight million people in Iran live in these areas, and since 1990s onwards, with the excessive growth of its dimensions, their impact has extended from informal settlements to other areas (Rostamzadeh, 2014).

Due to its proximity to Afghanistan and Pakistan, Zahedan shares ethnic, racial and religious backgrounds with many Baluch tribes inhabiting in these countries. Moreover, the service-commercial features and geographical location of this city, as the gateway to Khorasan, Kerman and other cities of the province, have provided necessary attractions for different groups, including Sistanis, Baluchis, Kermanis, Khorasanis, and surrounding villages. Together, the above factors have made this city one of the main destinations of rural-urban immigrants in Iran (Ebrahimzadeh, Varesi & Akbari, 2004). As a result of this rapid growth of migration, the villages in the vicinity of Zahedan, which are part of the official territory of Zahedan with the most worn-out physical texture and inadequate civil services, continue to survive in deplorable conditions (Sargazai Javan & Hadiani, 2016). Shirabad neighborhood is located in the northeast of Zahedan. In 1976, this area only had a population of 261 people, but it saw a dramatic rise in 1986 with its populating exceeding 2619 people (Statistics Center of Iran, 1976-1986). The demographic analysis of this neighborhood from 1976 until now reveals that this neighborhood is a destination of immigrants. Undesirable health conditions, improper infrastructure, lack of urban services, high population density, low-income groups, informal jobs and most importantly rampant crimes and social harms are a set of factors that Shirabad residents face (Shibak, 2004). Besides, this neighborhood has vast open spaces compared to other neighborhoods of Zahedan city, which could be used for physical expansion and spread of informal settlement, thereby further complicating this problem (Shibak, 2004). Therefore, in this study, we are looking for key factors affecting migration so that by controlling these factors, rural migration and ultimately informal settlement can be alleviated. Therefore, in line with the purpose of the research, the following question is posed: What key factors are involved in the spread of rural migration to areas with informal settlements?

2. Research Theoretical Literature

The village serves as a biological complex and external manifestation of human social life. In other words, the emergence of the village coincides with the formation of humans' settlements and the subsequent formation of biological complexes (Raheb, 2005). Villages as the oldest form of human and rural settlements embody an ancient form of human life. Villages have long played an essential role in the formation and flourishing of societies and civilizations as basic communities (Jomehpour, 2012). The development of the industrial sector and the expansion of urbanization along with the introduction of new technology have gradually undermined the role and importance of villages and today many villages deal with adverse consequences of population growth, population evacuation, and migration (Firooznia, 2006).

Migration is a form of geographical mobility or spatial mobility that takes place between two geographical units. This geographical movement manifests as the change of residence from the origin or place of residence to the new destination (Zanjani, 2001). Migration is one of the important population phenomena that have drawn growing attention especially in third world countries (Shabnama, 2016). In the developing countries of the world, the migration of villagers to cities is primarily geared towards the capital cities in search of a better life and employment (Ghasemi Siani, 2007). After capital cities, major cities and centers of other provinces are the main destination of immigrants. In fact, the most important type of voluntary domestic migration is rural-urban migration, which is a response to economic stimuli (Behfrooz, 1995). With the movement of villagers to cities in pursuit of better jobs and greater facilities, cities are progressively saturated with these rural immigrants and city officials and institutions fail to accommodate these migrants. As a result, large number of villagers, due to high land prices and inability to adapt to the new situations, are drawn to areas in the outskirts of cities. In other words, the imbalance and inequality of living standards in the village and the city leads to the creation of informal settlements (Alizadeh Aghdam & Mohammad Amini, 2012).

Informal settlement has been defined with terms such as spontaneous settlements, marginalization and the like (Ajza Shokoohi et al., 2013). In the Persian dictionaries, informal settlement and marginalization have been described with several terms such as slums, shantytowns, ghetto and so forth (Irandoost, 2009; Sheikhi, 2002; Guillermo, Adrian & Santos, 2011). This term was first used by Robert E. Park1 (Heidari

1. See Park, R. E. (1937).

Nowshahr & Nazarian, 2011). He argues that informal settlement is the result of political and economic measures (Park, 1928) According to him, individuals living in informal settlement are those with hybrid culture that inhabit in the cultural life of two distinct populations in a communal manner. Such individuals are reluctant to discuss their past and have not yet embraced all the dimensions of the host society (Zangiabadi & Mubaraki, 2012). Informal settlement refers to the housing used by a part of urban population in the third world, which has been built by the residents of such places outside the official land and housing market in accordance with their own rules, and regulations (Riahi & Azizi, 2009). Peter Lloyd calls this type of housing the slums of hope (Heydari Nowshahri & Nazarian, 2011), contending that in exploring people's lives in slums, it is more befitting to look at the world through the eye of immigrants (Kikha & Moradi Siyasar, 2015). Davis, Ernest Bergs, Loiuse Wirth, Kleinard and Manuel Castells are other researchers that have also defined the term informal settlement. According to them, unofficial settlements are lands bereft of facilities and services, unequal access to pure running water, illegal usurpation of land, dilapidated housing units, high population density, social deviations, social isolation, and the dominance of a culture of poverty (Jafari, Heidari Nowshahr & Parsa, 2018; Hekmatnia & Afshani, 2010; Alizadeh Aghdam & Mohammad Amini, 2012; Rabbani, Arizi, Varesi & Hosseini, 2016; Davis, 2004; Bellush, 1967; Kirschner, Mill, Schach, Schmekel & Seligman, 2005).

Informal and unconventional urban living areas, which are pathological reflection of poor economy and spatial planning, are the outcome of socio-economic injustices at the national, provincial and local levels. In fact, unofficial and deplorable urban settlements represent the unregulated form of spatial aggregation of low-income groups, mostly immigrants, in the vulnerable urban areas, which develop spontaneously in the absence of official supervision by city's officials.

Due to rapid expansion and lack of supervision by executive bodies, these areas are deprived of biological standards and lack a well-established and desirable housing system to satisfy the basic needs of a shelter (Series of reports by the Ministry of Housing and Urban Development, 2004). Since its inception, the phenomenon of informal settlements, depending on the attitudes towards these settlements and the prevailing conditions of the society, have been approached from different perspectives, with each approach presenting various criteria from these settlements (Irandoost, Azami, M & Tulayi, 2014). In Table 1, different perspectives on factors related to informal settlement are listed:

Table 1. Factors affecting the formation of informal settlement as discussed in different schools of thought
(Source: Irandoost et al., 2014, p. 46)

Views	Factors that shape informal settlement
Ecological view	- Change in land use - Improper maintenance and repair of housing and its shortage - The migration of rural workers to the city in search of a better job
basic needs view	- Failure to fulfill social needs - Migration of villagers to cities - Impossibility of providing housing by urban poor - Inefficiency of official land and housing markets
Liberal view	- Large household population - Lack of motivation, coercion, instant gratification and social disorder among the urban poor - Newly-arrived immigrants in search of job - Expansion of the poverty gap and economic factors Lack of supervision and working conditions in the industrial community
Radical view	- The huge gap between the rich and the poor in the city due to the weakness of the unbalanced capitalist system. - Low workers' wages - The objective of capitalism to deal with the growing tendency for reducing the level of consumption in the capitalist economy - Reduction of investment in infrastructure and facilities
Dependency view	- Dependence of the center on the surrounding areas - Increasing urbanization and growth of cities

Views	Factors that shape informal settlement
Economic-political and spatial view	- Relations between social classes or the exploitation of the lower classes - Accumulation of wealth and power in a city or a certain part of the city - Massive population movements and migration of villagers to the city
Liberal views	- Colonial attitude towards cities and expropriation - The issue of laws and regulations that marginalize the economy and consequently workers. - High costs of formalization

Most informal settlements theorists have focused on the process and reasons behind the formation of settlements. It can be contended that informal settlement largely stems from migration, under the influence of parameters such as economic poverty, lack of specialization, type of occupation, cultural conflict, illiteracy, ethnic and cultural identity. Most of the residents in these areas are forced to live in ghettos and slums due to issues such as lack of access to employment in the city along with poverty and lack of expertise. Poverty not only forces these people to engage in improper jobs, but also provides a fertile ground for all kinds of crimess. In addition, all sorts of physical and psychological malaises, moral deviations, unemployment, crime, and illiteracy in these settlements are significantly higher than other urban areas (Mansoori Kia, 2014).

As for the factors that stimulate migration, especially rural-urban migration and informal settlement, many studies have explored the effects and consequences of these two issues some of which are summarized below.

Tian, Zhou, Chen, Liu & Lu (2013) explored rural-urban migration with changing endogenous policies. This study aimed to answer the questions related to the migration of labor from Chinese rural areas to cities and the impact of discrimination in the provision of urban services. The results showed that indigenous policies and inequality of service delivery had a bearing on the process of migration from rural to urban areas. Forbes (2019) discussed immigration and informal settlement. In Myanmar, the 2008 constitution stipulates that citizens have the right to settle wherever they desire. In 2010, when political and economic reforms picked up pace, people decided to migrate to other cities to exercise this right. In this study, the researcher studied the vital role of immigration in the economy using a survey of households.

Naqdi (2009) explored migration and marginalization in the city of Hamedan by examining the extent to which marginalized residents have access to facilities and services. The results revealed that high population density, informal economy prosperity, cultural and social duality of citizens, low sense of belonging, and dissatisfaction are relatively high among the marginalized. Abbaszadeh and Shambabadi (2010) studied the causes of migration and its consequences with an emphasis on marginalization. In this study, researchers focused on Nodeh town, which is a suburban area around Mashhad. The results exhibited that the main drivers of immigration include earning income, employment and inspiration of relatives. The main reasons for movement to this settlement were the inexpensive land and housing, contact with relatives, and job and service facilities. Arzumandan Mofrad (2012) investigated rural migration and its socio-economic effects on marginalization in Birjand. The results revealed that economic matters were major factors for rural-urban migration. Cheap land and limited financial capacity are also among the reasons behind the migration of families to these neighborhoods. Vatankhah (2016) studied the role of rural migration in the emergence of informal settlements in Pakdasht. According to his findings, most of immigrants moved to Tehran in search for better jobs and higher income, but since they did not have the necessary expertise and level of education to enter the labor market and as the cost of living in Tehran is significantly higher, they had to settle in Pakdasht. Finally, based on the relationship between migration and marginalization and the results of t-test, he concluded that a higher level of migration was associated with a greater marginal index and vice versa.

What distinguishes the present study is that unlike other studies, which have studied migration, informal settlement and consequences and effects of this phenomenon based on the views of residents and the local community, the present study focuses on the role of rural migration and key factors involved in the formation of these settlements in a specialized way. Using future research methods (cross-impact analysis method) and factor analysis method, the views of the local community (residents of Shirabad neighborhood in Zahedan) are studied along with the insights of experts in this field.

3. Research Methodology

3.1 Geographical Scope of the Research

Shirabad neighborhood is located in the northeast of Zahedan. It sits on the catchment area of Zahedan plain, i.e., the outlet of the plain drainage and sewage of the city. In terms of accessibility, it is the closest settlement to the borders of Afghanistan and Pakistan. In the west of this residential area, there are northern uplands of the city, and part of residential buildings of Shirabad is at the foot of the mountain or even on these uplands. In the east of this area, there is the famous Zahedan fault. There are enormous mounds of quicksand in the north and unofficial structures have extended to the vicinity of these areas. This urban area is connected to the city center and other parts of the city through Azadi and Keshavarz boulevards. It is the closest point to the capitals of Pakistan and Afghanistan. Although there is no major road across the border, there is a path that runs from the end of Azadi Street to the Kambuzia plateau through the Lar Valley, which is used by the residents of Shirabad along with Mir Java road to cross the border (Shibak, 2004).

According to the latest population and housing census released by the Statistics Center of Iran in 2016, Shirabad had a population of 74,407 people. The archived data shows that this neighborhood had a population of about 261 people in 1976, which suddenly increased to 2619 in 1986. It has also experienced growth rates of 25.94 and 65.25 during 1986-1996 statistical period. A demographic study of this neighborhood from 1976 until the present manifests that this neighborhood is a major destination for immigrants (Table 2).

Table 2. Population of Shirabad neighborhood between 1976 and 2016 as well as 2021 estimate
(Encyclopedia of national villages, Zahedan city, 1976, detailed results of 1986-2011 censuses)

Year	1976	1986	1996	2006	2011	2016[1]	2021
population	261	2619	26952	53275	61452	74407	90093
Number of households	57	414	4293	9713	10562	12789	15485
Family size	4.58	6.33	6.28	5.48	5.63	5.8	5.8
Growth rate	-	25.94	26.25	7.89	3.9	3.9	3.9

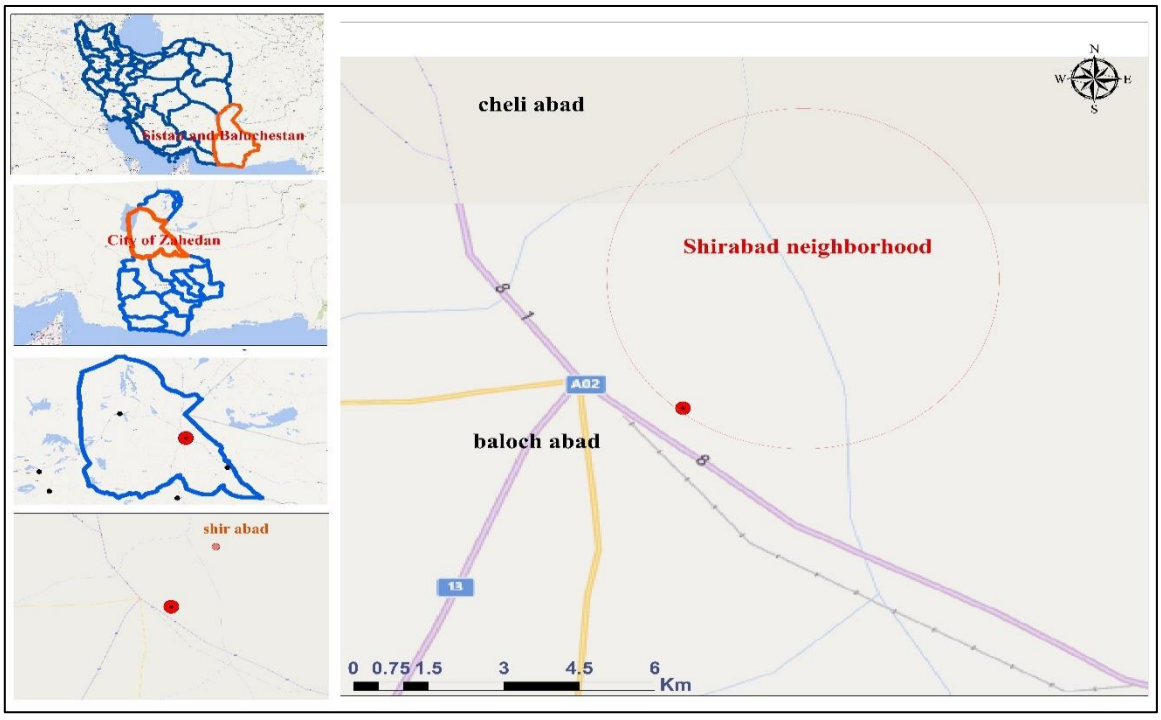

Figure 1. Location of Shirabad neighborhood in Zahedan city based on national divisions
(Adapted from Zahedan Municipality Portal, 2019)

1. Due to the fact that information on the population of Shirabad neighborhood in 2016 was not available, the population, household and household size in 2016 and 1400 have been estimated.

3.2. Methodology

The primary goal of this study was to investigate the key factors affecting rural migration with emphasis on the issue of informal settlement in Shirabad neighborhood of Zahedan. Therefore, a descriptive-analytical and survey research method was adopted. In the first step of the research, a list of primary factors involved in the expansion of migration to informal settlements were identified as research variables using existing documents and previous researches (Table 2)**.** Then, research variables were analyzed based on people and expert questionnaires. In the first one, the importance of each factor was assessed in the view of the local community using a Likert scale. In this section, the population of the study consisted of all heads of households in Shirabad neighborhood. According to the Cochran's table, the sample size was estimated 384 people, but 400 questionnaires were distributed to account for incomplete responses. Finally, 229 complete questionnaires were submitted. The sample size was determined using simple random sampling method. The validity of the research tools in this study was evaluated by university professors and necessary modifications were made according to their feedbacks. Cronbach's alpha test was used to measure consistency. The result of reliability assessment (0.781) indicated desirable status of the questionnaire. The data collected from the local community questionnaire were analyzed using factor analysis in the SPSS software and the main factors were identified. In the second step of the research process, using the cross-impact analysis method and MicMac software, the effect of the primary factors on each other was evaluated through expert questionnaire. In fact, the respondents were asked to assess the effect of factors on each other in the range of 0 to 3. In this process, six City Hall experts, eight university professors and faculty members, as well as three PhD students of geography and rural planning participated.

Table 3. Variables used in the study
(Source: Research finding, 2019)

Lack of job opportunities in the rural areas	Hope to earn more in the city
Low income in the village	Poverty and deprivation in the village
Lack of job security in the village	The presence of relatives in the city
Lack of facilities provide to rural residents	Low social security in the village
Lack of infrastructure	Natural disasters such as floods and earthquakes
Lack of educational services	Misleading advertisements of cities in the media
Lack of health services	Observing the success of others in the city
Lack of welfare services	Preference for industrial and commercial occupations
Lack of government investment in rural areas	Traditional rural life and its limitations
Drought and water scarcity	Reduced productivity and value the agricultural sector
Need for progress in various domains	Wage difference between urban and rural areas
Difficulty of progress in the village	Concentration of various services in the city
Gaining new experiences in the city	The political importance of cities

4. Research Findings

In this study, to identify the key factors from the perspective of the local community, a questionnaire was distributed among the households of Shirabad neighborhood in Zahedan. Table 4 shows the demographic information of the respondents. According to this table, 124 respondents (54.1%) were female and 105 (45.9%) were male. Most respondents were aged 30 to 45 (53.3%) years. People holding bachelor's degree or lower make up 81.2% of the sample. Most of respondents (32.3%) were unemployed**.**

Table 4. Descriptive statistics of respondents
(Source: Research finding, 2019)

Respondents' variable	Status						
Gender	Female	Frequency	124	Employment	Unemployed	Frequency	74
		Relative Frequency	54.1			Relative Frequency	32.3
	Male	Frequency	105		Worker	Frequency	59
		Relative Frequency	45.9			Relative Frequency	25.8
					Self-employed	Frequency	41
						Relative Frequency	17.9
					Housewife	Frequency	43
						Relative Frequency	18.8
					High school or university student	Frequency	12
						Relative Frequency	5.2
Age	Less than 20	Frequency	25	Education	Diploma or lover	Frequency	186
		Relative Frequency	10.9			Relative Frequency	81.2
	20-30	Frequency	52		Bachelor's degree	Frequency	36
		Relative Frequency	22.7			Relative Frequency	15.7
	30-45	Frequency	122		Master's degree and higher	Frequency	7
		Frequency	53.3			Relative Frequency	3.1
	More than 45	Relative Frequency	30				
		Frequency	13.1				

The descriptive findings of the study also provided information on the previous place of residence of the respondents. This question actually confirms the hypothesis that the majority of marginalized residents of Shirabad neighborhood in Zahedan are rural immigrants. The results showed that of a total of 220 people who completed the questionnaires, 146 heads of households stated that their previous place of residence was the villages on the outskirts of Zahedan. Other answers had a significantly smaller share.

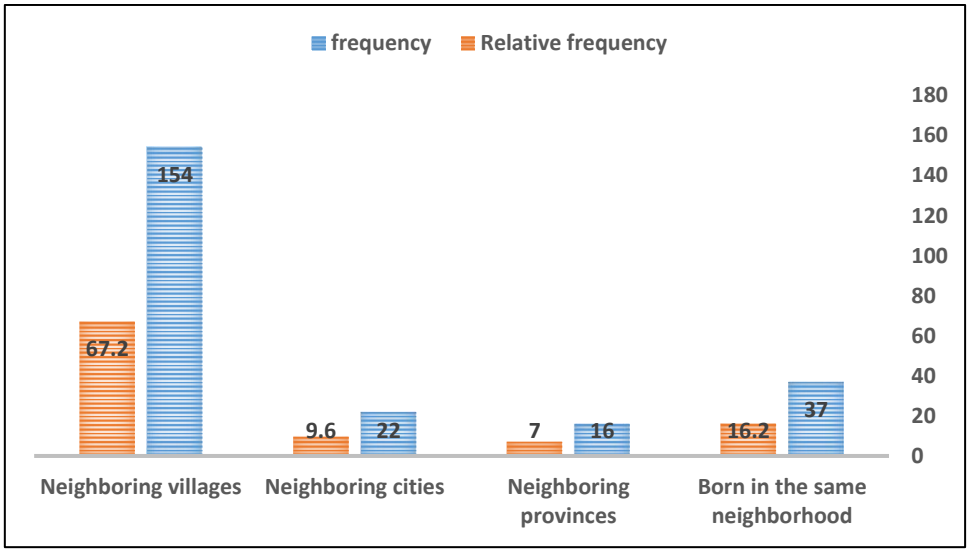

Figure 2. Previous residence of participants in the statistical sample
(Source: Research finding, 2019)

In the analysis data, a statistical model (exploratory factor analysis) and a systemic model (cross-impact analysis method) were used to identify the key factors involved in the spread of rural migration. In the following, we will elaborate on the results.

4.1.Exploratory Factor Analysis

Using factor analysis, the main factors affecting the expansion of rural migration to informal settlements were determined. Exploratory factor analysis is one of the data clustering methods used in the field of data mining. Many studies use this technique to identify the underlying factors related to a set of questions. In this study, this method was used to identify key factors**.**

To perform this analysis, you must first analyze the feasibility of factor analysis for variables. To do so, the KMO statistic and Bartlett test were used. Statistical analysis showed that the KMO statistic is 0.729 and a significant level of less than 0.05 was considered for Bartlett test. The results suggest the possibility of factor analysis of variables. Based on the results of factor analysis in SPSS software, a set of 26 studied variables can be summarized in three factors. Table 5 shows the explained variance of all factors. In fact, this model shows categories of 26 factors. However, given the specific value index, only factors with a specific value of above 1 were selected. Therefore, three main factors were extracted.

According to Table 5, the first factor with a specific value of 4.69 and a variance of 41.95% contained 9 variables. Therefore, they can be considered as the main variables related to rural migration. These variables include the lack of job opportunities in the village, low income in the village, reduced productivity and depreciation of the agricultural sector, lack of health services, wage gap between rural and urban areas, poverty and deprivation in the village, preference for industrial jobs, the concentration of various services in the city, and drought and scarcity of water resources.

The second factor with a specific value of 2.16 and a variance of 19.17% embraced six variables of job insecurity in the village, lack of educational services, lack of government investment in villages, the need for progress in various fields, misleading advertising of cities in the media and traditional rural life and its limitations as the main factors involved in the expansion of rural migration**.**

Finally, the third factor with a specific value of 1.141 and a variance of 10.22 contained five variables, including lack of infrastructure, lack of welfare services, difficulty of progress in the village, lack of facilities for villagers, and hope to earn more in the city. In total, the three main factors explain 71.34% of the total variances, which manifest their strong influence on the studied subject**.**

In this section, the main goal was not to summarize the factors, but a heuristic factor analysis was performed to identify key variables. Therefore, no factors were labelled and only nine variables related to the first factor, which had a greater percentage of explained variance compared to the other two factors, were introduced as key factors**.**

Table 5. Summary of Factor Analysis Results

(Source: Research finding, 2019)

	Variables related to each factor	**Cumulative variance percentage**	**Explained variance**	**Specific value**	**Extracted variables**
0.759	Lack of job opportunities in the rural areas	41.95	41.95	4.69	First factor
0.741	Low income in the village				
0.711	Reduced productivity and value the agricultural sector				
0.653	Lack of health services				
0.621	Wage difference between urban and rural areas				
0.608	Poverty and deprivation in the village				
0.569	Preference for industrial and commercial occupations				
0.553	Concentration of various services in the city				
0.511	Drought and water scarcity				
0.691	Lack of job security in the village	61.12	19.17	2.16	Second factor
0.629	Lack of educational services				
0.527	Lack of government investment in rural areas				

	Variables related to each factor	Cumulative variance percentage	Explained variance	Specific value	Extracted variables
0.511	Need for progress in various domains				
0.489	Misleading advertisements of cities in the media				
0.471	Traditional rural life and its limitations				
0.621	Lack of infrastructure	71.34	10.22	1.141	Third factor
0.603	Lack of welfare services				
0.542	Difficulty of progress in the village				
0.511	Lack of facilities provide to rural residents				
0.502	Hope to earn more in the city				

4.2.Cross-impact Analysis

Another model used to identify key factors is cross-impact analysis method, which is performed using MicMac software. The software is designed to perform complicated calculations in the matrix of cross-impact effects. To do so, first important variables and components in the desired field are identified. They are then entered into a matrix like the cross-impact matrix, and the relationship between these variables and relevant domains is determined by experts. Variables in rows have a bearing on variables in columns. Hence, the row variables are affected by column variables. MicMac software shows the degree of such an effect in the form of a conceptual diagram that consists of two axes. In this diagram there are five zones (Figure 3).

The first zone represents key factors. This is actually the most important area that contains main factors. The second zone shows the two-sided factors. What is meant by "two-sided" is that these factors exert a great impact and are at the same time hugely influenced, and hence they can be called intermediate factors. The third zone represents the output variables or the result. This area contains factors that have a low impact but are significantly affected. The zone area represents variables that can be ignored. This is because these factors have a low impact and are not significantly affected. Accordingly, they can be called independent variables. The fifth zone contains the variables that are located in the center of the other four zones and the system is unable to make a clear decision about them because it is likely that these factors join each other in the future.

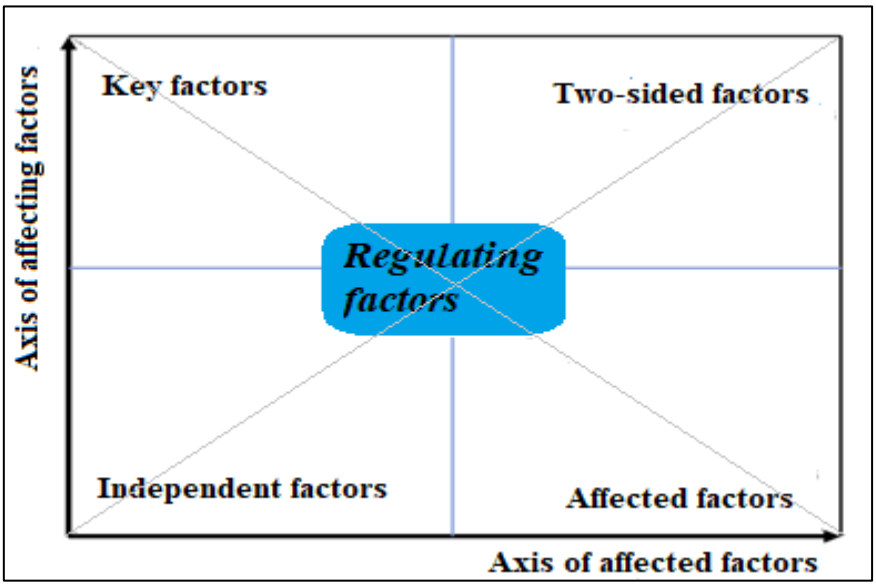

Figure 3. Schematic diagram of factor categories based on their impact
(Authors' Studies, 2019)

Based on the results of the cross-impact analysis of variables, Table 6 shows the extent of direct and indirect impact of factors on the expansion of rural migration in informal settlements. According to the table and Figure 4, which is designed by MicMac software, the variables of lack of infrastructure, lack of educational services, lack of government investment in villages, drought and lack of water resources, reduced productivity and depreciation of the agricultural sector, and wage gap between rural and urban areas had the greatest direct impact on the proliferation of rural migration. With regard to the indirect impact, factors such as lack of infrastructure in the village, low income in the village, reduced productivity and devaluation of agriculture, drought and lack of water resources, lack of facilities for villagers, and wage gap between city and village gained the highest points**.**

Table 6. Impact of factors contributing to the expansion of migration
(Source: Research finding, 2019)

Factors	Extent of direct effect	Extent of indirect effect
(A1) Lack of job opportunities in the rural areas	69	711
(A2) Low income in the village	71	1152
(A3) Lack of job security in the village	56	985
(A4) Lack of facilities provide to rural residents	70	1214
(A5) Lack of infrastructure	66	1066
(A6) Lack of educational services	51	651
(A7) Lack of health services	68	741
(A8) Lack of welfare services	50	57
(A9) Lack of government investment in rural areas	73	742
(A10) Drought and water scarcity	55	1029
(A11) Need for progress in various domains	34	541
(A12) Difficulty of progress in the village	26	784
(A13) Hope to earn more in the city	46	961
(A14) Poverty and deprivation in the village	28	656
(A15) The presence of relatives in the city	39	325
(A16) Low social security in the village	45	647
(A17) Natural disasters such as floods and earthquakes	36	354
(A18) Misleading advertisements of cities in the media	32	499
(A19) Observing the success of others in the city	30	258
(A20) Preference for industrial and commercial occupations	29	654
(A21) Traditional rural life and its limitations	13	358
(A22) Reduced productivity and value the agricultural sector	59	1311
(A23) Wage difference between urban and rural areas	67	1211
(A24) Concentration of various services in the city	70	411
(A25) Gaining new experiences in the city	17	547
(A26) Gaining new experiences in the city	18	211

The results of analysis in the two-dimensional diagram of affecting and effected variables show that 26 variables can be classified into 5 groups (Figure 4). The first zone represents the influential factors. This zone actually displays factors that have the highest impact but are leased affected by other variables. The variables of lack of infrastructure, lack of educational services, lack of government investment in rural areas, drought and lack of water resources, lack of facilities for villagers and desire to earn more in the city fall in this zone. The second area represents the two-sided variables, meaning that they can significantly affect and be significantly affected by other factors. Hence, they can be called intermediate factors. This zone includes nine variables such as lack of job opportunities in rural areas, low income in rural areas, job insecurity in rural areas, reduced productivity and devaluation of agricultural sector, lack of health services, lack of welfare services, wage gap between urban and rural areas, low social security in rural areas, and

concentration of various services in the city. The third zone represents the output variables or the result, The third zone represents the output variables, which have a low impact on the rural migration and informal settlement. Two variables, the difficulty of progress in the village and poverty and deprivation in the village, fall in this region. The fourth zone shows the variables that can be disregarded. This is because these factors have low impact and are slightly impacted by other variables. Hence, they can be called independent variables. The three variables of traditional rural life and its limitations, gaining new experiences in the city and the political importance of cities belong to this region. The fifth zone contains central variables that are the intersection of other four zones and the system cannot make a clear decision about them. It is because these factors may join each of the other four areas is the future. In this zone, there are six variables of the need for progress in various fields, the presence of relatives in the city, natural disasters such as floods and earthquakes, misleading advertisements of cities in the media, observing the success of other people in the city and preference for industrial and commercial jobs.

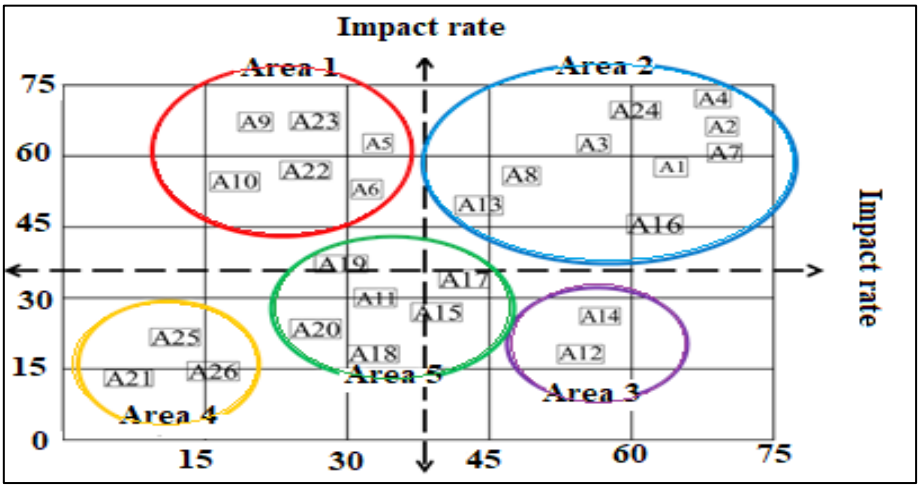

Figure 4. The position of the factors affecting rural migration in the chart of affecting-affected variables
(Source: Research finding, 2019)

Table 7. Classification of factors based on two-dimensional graph of affected and affecting variables
(Source: Research finding, 2019)

	Classification	Variables	Count
1	Affecting factors	Lack of infrastructure, Lack of educational services, Lack of government investment in rural areas, Drought and water scarcity, Reduced productivity and value the agricultural sector, Wage difference between urban and rural areas.	6
2	Two-sided factors	Lack of job opportunities in the rural areas, Low income in the village, Lack of job security in the village, Lack of facilities provide to rural residents, Lack of health services, Lack of welfare services, Hope to earn more in the city, Low social security in the village, Concentration of various services in the city	9
3	Affected factors	Difficulty of progress in the village, Poverty and deprivation in the village	2
4	Independent factors	Traditional rural life and its limitations, Gaining new experiences in the city, Gaining new experiences in the city.	3
5	Regulating factors	Need for progress in various domains, The presence of relatives in the city, Natural disasters such as floods and earthquakes, Misleading advertisements of cities in the media, Observing the success of others in the city, Preference for industrial and commercial occupations.	6

5. Discussion and Conclusion

The development of the industrial sector and the expansion of urbanization along with new technology have undermined the role and importance of villages so that many villages deal with adverse consequences such as population growth, population depletion and

migration. Migration is one of the most important demographic phenomena in the world today, especially in the developing countries. In the developing world, capital cities are often the destination of rural-urban migration, where immigrants look for a better life and employment. With the movement of villagers to cities in search for better jobs and more facilities, the cities would be overflowed with rural migrations so that city organizations and officials fail to accommodate these migrants. Therefore, some villagers, due to high land prices and inability to adapt to the new situation, are drawn to informal settlements on the outskirts of the city. In fact, the imbalance and inequality of living standards in the village and town lead to the expansion of informal settlement. Informal settlement describes a type of housing used by a part of the urban population in the developing countries, which are built outside the official land and housing market by people based on their arbitrary rules and agreements.

Informal settlement is largely rooted in migration, particularly influenced by parameters such as poverty, lack of expertise, type of occupation, cultural conflict, illiteracy, and ethnic and cultural identity. Most of the residents of these areas are forced to live in ghettos and slums due to variables such as lack of access to jobs in the city along with poverty and lack of skills. Heterogeneous buildings without observing the technical and construction principles along with narrow and meandering alleys, running sewage in the alleys, unsuitable sanitary condition, etc. are among the adverse side effects of informal settlement. These settlements create an unsavory and unpleasant landscape for the urban society. The imposition of heavy traffic on the city transportation system, the overcrowding of the city, the proliferation of unsanitary street vendors and peddlers and the escalation of insecurity for residents are other consequences of these communities. In many cases, these areas are replete with land grab and bribery. Real estate agencies sell lands with bogus and illegal documents, which further interferes with urban development policies and plans.

The movement of these people from the villages has also diminished the labor force, leading to reduced productivity of the villages and agricultural lands. Informal settlement also begets a plethora of deleterious consequences, such as the destruction of agricultural land and gardens around cities, disrupting urban development programs, compromising the urban heritage, and imposing high costs for organizing, improving or clearing unsuitable environments. Therefore, the main purpose of this study was to investigate the key factors affecting rural migration with emphasis on the issue of informal settlement in Shirabad neighborhood of Zahedan. In order to achieve this goal, 26 primary variables were selected and studied using exploratory factor analysis and cross-impact analysis method. According to the results of factor analysis, nine variables including lack of infrastructure in rural areas, lack of health services and poverty and deprivation in rural areas were the key factors involved in the acceleration of rural migration to informal settlements. The results covered cross-impact analysis in both direct and indirect dimensions. Factors such as lack of educational services and wage age between urban and rural areas had direct effects and variables such as drought and lack of water resources, lack of facilities for villagers, and low income in rural areas exerted an indirect effect. The analysis of overlapping in the models applied in the study exhibited that four key factors are involved in rural-urban migration and the intensification of informal settlement issue. As shown in Figure 5, these four factors include drought and water scarcity, declining productivity and depreciation of the agricultural sector, lack of infrastructure in rural areas, and wage gap between rural and urban areas.

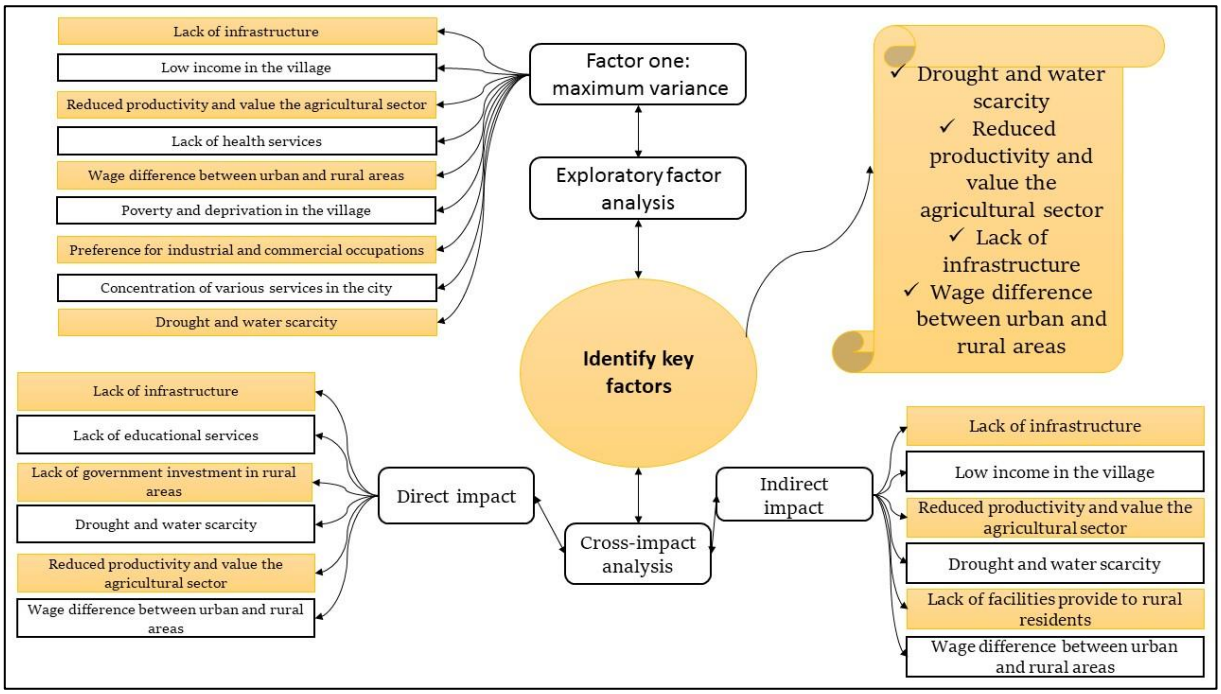

Figure 5. Factors influencing the expansion of rural migration to areas with informal settlement
(Source: Research finding, 2019)

According to the descriptive findings of the study, the majority of people residing in Shirabad neighborhood in Zahedan are rural immigrants. Therefore, the four identified factors can be justified in that the lack infrastructure and rural development indices in rural areas around Zahedan, such as electricity, telephone lines, health network, educational centers, asphalt roads, clean drinking water, gas supply, and failure to improve the economic situation by raising the income of social security insurance, and in general socio-economic and cultural issues have rendered villages particularly vulnerable to population decline and eventually complete evacuation. The second key factor was declining productivity and the value of the agricultural sector. Agriculture, as the main source of income and employment in the village, has a fundamental role in rural life and development. So due to the diminished productivity and value of the agricultural sector in the villages around Zahedan, villagers are forced to migrate to the city in search of employment and higher income. Moreover, since the main occupation of the people in the villages around Zahedan is agriculture, a significant number of the population of these villages have migrated in recent years due to drought and lack of water resources.

What has deteriorated the underdevelopment of the villages of Zahedan is lack of job opportunities. The villagers in Sistan and Baluchestan have moved to Zahedan in the hope of finding jobs, but they have ended up wasting their potentials in improper line of works. In addition, there are more job opportunities in cities than in rural areas. Therefore, the migration is always from the rural areas to the cities. The young generation and people in pursuit of education or employment, usually prefer to live in the cities as villages are deprived of basic facilities. These four factors have fueled rural migration and aggravated informal settlement.

The results of this study are consistent with those reported by Ebrahimzadeh et al. (2010), who investigated the role of rural migration in the informal settlement of Ahvaz metropolis. The findings demonstrated that looking for a job is the main reason for rural-urban migration and the rise of informal settlement in the city of Ahvaz. It is also aligned with the results of Darvish (2018) who explored the role of rural migration in the emergence of informal settlements in the Mir Ashraf neighborhood of Ardabil. The results exhibited that economic factors such as lack of employment and welfare facilities, desire to find high-paying jobs, and urban attractions are primary factors that have contributed to the expansion of informal residential areas of Mirashraf. On the other hand, the findings are at odds with those reported by Ghanbari et al. (2014), who explored the causes of informal settlement formation using the path

analysis model in Shadgholi Khan neighborhood of Qom. They showed that two types of variables are involved in the creation of Shadgholi Khan neighborhood: pre-migration variables such as land ownership at the original residence, emigration reasons, and the previous job, and post-immigration variables, including current job, title deed, reasons for residence, building permit, annual income and the year of immigration.

In this regard, the following suggestions can be made:

- Activating the rural labor force by empowering the natural environment of the villages around the city of Zahedan;
- Supporting and developing agriculture in the villages around Zahedan;
- Establishing strict rules for settlers in informal settlements;
- Fair distribution of facilities without concentration of resources in a place to discourage immigrants who move to the city of Zahedan in order to access more facilities.

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Research Article

تحلیلی بر عوامل کلیدی مؤثر بر گسترش مهاجرت‌های روستایی با تأکید بر مسئله اسکان غیررسمی (مطالعه موردی: محله شیرآباد زاهدان)

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چکیده مبسوط

۱. مقدمه

اسکان غیررسمی تا حد زیادی ریشه در مهاجرت دارد. این مناطق دارای ساختمان‌های ناهمگون، بدون رعایت اصول شهرسازی و فنی، کوچه‌های پرپیچ و هم و باریک، فاضلاب روان در کوچه‌ها می‌باشد. تحمیل ترافیک سنگین به بافت شهر، تراکم و ازدحام جمعیت در سطح شهر، رواج دست فروشی و دوره گردی و اغذیه فروشی غیربهداشتی و ایجاد ناامنی برای ساکنان نیز از دیگر نتایج وجود این اجتماعات است. همچین اسکان غیررسمی پیامدها و نتایج زیانبار بسیاری نیز مانند تخریب اراضی کشاورزی و باغ‌های پیرامون شهرها، مختل کردن برنامه‌های توسعه شهری، ایجاد مشکل در میراث شهری، تحمیل هزینه‌های بسیار بالا برای سازمان دهی، بهسازی یا پاکسازی محیط‌های نامناسب ایجاد شده را نیز به دنبال خواهد داشت. ازاین‌رو هدف اصلی از انجام این پژوهش بررسی عوامل کلیدی مؤثر بر مهاجرت‌های روستایی با تأکید بر مسئله اسکان غیررسمی در محله شیرآباد زاهدان بود.

۲. مبانی نظری تحقیق

بیشتر نظریه پردازان در حوزه سکونتگاه های غیررسمی پیرامون روند و چرایی تشکیل این سکونتگاه ها متمرکز شده اند. بنابراین می توان گفت اسکان غیررسمی تا حد زیای ریشه در مهاجرت دارد، تحت تأثیر پارامترهایی همچون فقر اقتصادی، عدم تخصص، نوع شغل، تعارض فرهنگی، بی‌سوادی، هویت قومی و فرهنگی کنترل نشدنی می‌شود. اکثر ساکنین این مناطق تحت تأثیر متغیرهایی مانند عدم دسترسی به مشاغل اقتصادی شهر همراه با فقر اقتصادی و عدم تخصص مجبور به زندگی در آلونک‌ها و زاغه‌ها می‌شوند. فقر نه‌تنها موجب می‌شود که به مشاغل کاذب روی‌آورند، بلکه محیطی برای بروز انواع جرائم نیز فراهم می‌کند. علاوه بر آن، انواع بیماری‌های جسمی و روانی، انحرافات اخلاقی، بیکاری، جنایت، بی‌سوادی و ... با نسبتی بسیار شدیدتر از سایر نقاط شهری در آنجا دیده می‌شود.

۳. روش تحقیق

روش این پژوهش توصیفی- تحلیلی و پیمایشی است. در گام اول از پژوهش متغیرهای تحقیق با بهره‌گیری از منابع اسنادی شناسایی شدند. در ادامه متغیرهای پژوهش از دو بعد و براساس دو پرسشنامه مردمی و کارشناسان تحلیل شدند. در این بخش جامعه‌ی آماری تحقیق، کلیه سرپرستان خانوار در محله شیرآباد بود. بر اساس جدول کوکران اندازه نمونه برابر با ۳۸۴ نفر برآورد شد، که به خاطر اطمینان از نتایج، تعداد ۴۰۰ پرسشنامه توزیع گردید. درنهایت تعداد ۲۲۹ پرسشنامه کامل و بدون خطا تکمیل شد. روایی ابزار تحقیق در این پژوهش توسط اساتید دانشگاه موردبررسی قرار گرفت و پس از رفع اشکالات و نواقص مورد تائید قرار گرفت. برای تعیین سازگاری نیز از آزمون آلفای کرونباخ استفاده‌شده است.

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نتیجه پایایی انجام‌گرفته برای سنجش پرسشنامه برابر ۰.۷۸۱در سطح عالی می‌باشد. اطلاعات گردآوری شده در پرسشنامه با استفاده از روش تحلیل عاملی بررسی و عوامل اصلی شناسایی شدند. با استفاده از روش تحلیل اثرات متقابل، میزان تأثیرگذاری عوامل اولیه بر روی یکدیگر در قالب پرسشنامه کارشناسان ارزیابی شد.

۴. یافته‌های تحقیق

در این پژوهش، برای تحلیل عاملی و شناسایی عوامل کلیدی از دیدگاه جامعه محلی، اقدام به تکمیل پرسشنامه در بین خانوارهای محله شیرآباد زاهدان شد. محل سکونت قبلی افراد پاسخ‌دهنده بررسی و نتایج نشان داد که از مجموع ۲۲۰ نفری که در تکمیل پرسشنامه‌ها همکاری کردند، ۱۴۶ نفر از سرپرستان خانوار، محل سکونت قبلی خویش را، روستاهای حومه زاهدان اظهار کردند در نتیجه عمده حاشیه‌نشینان محله شیرآباد در شهر زاهدان، مهاجران روستایی هستند. به منظور شناسایی عوامل موثر بر مهاجرت‌های روستایی در محله شیرآباد ابتدا ۲۶ عامل اولیه انتخاب و با استفاده از روش تحلیل عاملی اکتشافی و تحلیل اثرات متقابل مورد مطالعه قرار گرفت. براساس یافته‌های پژوهش در بخش تحلیل عاملی، ۹ متغیر ، کمبود امکانات زیربنایی در روستاها، کمبود خدمات بهداشتی ـ درمانی ، فقر و محرومیت در روستاها از عوامل اصلی در مهاجرت‌های روستایی به سمت سکونتگاه‌های غیر رسمی بودند. تحلیل اثرات متقابل در دو بعد اثرگذاری مستقیم و غیر مستقیم مطالعه شد. عواملی مانند کمبود خدمات آموزشی و تفاوت دستمزد بین شهر و روستا تأثیرات مستقیم و عوامل دیگری همچون خشکسالی و کمبود منابع آب، عدم ارائه تسهیلات و درآمد پایین در روستا، اثرات غیر مستقیم در مسئله پژوهش داشتند. نتایج همپوشانی مدل‌های کاربردی در پژوهش نشان داد که چهار عامل ،خشکسالی و کمبود منابع آب، کاهش بهره‌وری و بی‌ارزش شدن بخش کشاورزی، کمبود امکانات زیربنایی در روستاها و تفاوت دستمزد بین شهر و روستا در شکل‌گیری مهاجرت‌های روستایی و تشدید اسکان غیررسمی نقش دارند.

۵. نتیجه‌گیری

با توجه به اینکه، عمده ساکنان محله شیرآباد در شهر زاهدان، مهاجران روستایی هستند. در تشریح چهار عامل شناسایی شده اینگونه می‌توان بیان داشت که کمبود و نبود شاخص‌های مرتبط با امکانات زیربنایی و عمران روستایی در روستاهای اطراف زاهدان از قبیل برق، تلفن، شبکه خانه‌های بهداشت، فضای آموزشی، راه‌های آسفالته، شبکه آب آشامیدنی بهداشتی، گازرسانی و لیکن در خصوص بهبود وضعیت حوزه اقتصادی از قبیل افزایش درآمد بیمه‌های تامین اجتماعی در یک کلام مسایل اقتصادی اجتماعی و فرهنگی توفیق لازم حاصل نگردیده و به همین دلیل روستاها به شدت در معرض کاهش جمعیت و در نهایت تخلیه کامل می‌باشند. دومین عامل، کاهش بهره‌وری و بی ارزش شدن بخش کشاورزی است. کشاورزی به عنوان منبع اصلی تامین درآمد و ایجاد اشتغال در روستا، اهمیت اساسی در حیات و توسعه روستایی دارد لذا با کاهش بهره وری و بی‌ارزش شدن بخش کشاورزی در روستاهای اطراف زاهدان روستاییان در جست و جوی درآمد بیشتر به شهر مهاجرت می‌کنند. آنچه که به عنوان دلیل توسعه نیافتگی روستاهای شهر زاهدان شده کمبود فرصت‌های شغلی است. روستانشینان سیستان و بلوچستان به امید کسب‌وکار راهی شهر زاهدان شده‌اند و ظرفیت آن‌ها در مشاغل کاذب به کار گرفته شده است. علاوه بر این، فرصت‌های شغلی که در شهرها وجود دارد، بهتر از روستاها است. بنابراین همواره مهاجرت از سمت روستاها به شهرها بوده است، نسل جوان و افرادی که به دنبال تحصیل یا اشتغال هستند، همواره زندگی کردن در شهرها را به دلیل داشتن امکانات بهتر، به روستاها ترجیح می‌دهند. عوامل ذکر شده باعث افزایش مهاجرت‌های روستایی و تشدید اسکان غیررسمی می‌شود.

کلیدواژه‌ها: مهاجرت، مهاجرت‌های روستایی، اسکان غیررسمی، محله شیرآباد شهر زاهدان.

تشکر و قدردانی

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Research Article

Process Model of Rural Planning Based on the Experiences of Community-based Development Projects (The 2020s Projects in the Critical Centers of Sistan, Rigan and Jazmourian)

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Abstract

Purpose- The implementation of participatory projects aiming socio-economic empowerment and environmental sustainability is one of the sustainable management strategies in arid rural areas across the world in the recent decades. This study was conducted to answer two questions: What have been the characteristics and achievements of participatory development and community-based projects in rural areas located within the critical centers of Sistan, Jazmourian, and Rigan? How is a process model for rural development planning consistent with the geography of aforementioned areas?

Design/methodology/approach- The present study is descriptive-analytical and the research process includes the analysis of the goals and final achievements of participatory plans in Rigan (RFLDL), the progress and development Plan in Ghaleh-Ganj, the Carbon Sequestration plan in Jazmourian and Lashar, the Menarid Project in Sistan, "Village without unemployed" project, SAHAB community-based projects, and ASEMAN project from Barekat Foundation in Sistan region. The required data consisted of the performance statistics of the above-mentioned projects, and the required analysis was conducted on the dat.

Finding- Each of these projects has positive achievements in accordance with its short-term goals. Although it is quantitatively desirable, they failed to continue to operate in a regular and stable planning process in rural areas. Execution of a process model for rural development planning requires institutional transformations and the establishment of an integrated facility direction system for the economic infrastructure of rural areas (with a focus on the value chain) and a series of previous and subsequent jobs in each chain.

Research limitations/implications- Among the main limitations of reformation in the programs and continuous learning from past experiences are the effort of conductors in charge of implementing rural development projects to indicate the expected achievements by relying on seemingly favorable statistics with false documentation, and the weakness or lack of a public oversight system on the actual achievements of projects. Real decentralization in the country's rural planning system, the establishment of a public oversight system, and a process planning are the best strategies for sustaining local communities.

Key words- Community-based planning, Process planning, Sustainable rural economy, Critical centners of Sistan, Jazmourian, Rigan.

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1. Introduction

Participation in sustainable rural development has an important role. Experts believe that the accomplishment of sustainable and integrated development requires the participation of the people. They emphasize that presence of local institutions and organizations is necessary to prepare and support the condition for participation (Barghi, Ghanbari & Saeedi, 2013), as it is being taken seriously in the design and implementation of rural poverty reduction programs around the world. In fact, the commitment of having people participate in development programs by the institutions in charge is one of the main features of development-oriented governments (Du Toit & Pollard, 2008). The participatory management model based on mobilization of local communities is designed in such a way that people can control their ability of working together towards the improvement of their socio-economic situation and sustainable management (The Bureau of Carbon Sequestration Project, 2006). Using participatory projects with the aim of empowering residents and environmental sustainability in rural areas has bee one of the management global strategies in arid and semi-arid regions in the late decades. These projects are divided in two groups: 1. projects with the association of international organizations; 2. local projects. In order to apply these policies, international institutions have selected pilot areas in different parts of the world. The reason is to actually pursue these policies through national, regional, and local institutions. Among the international projects for rural development in Iran, we can mention the Menarid project, the Carbon Sequestration Project (CSP) and the RFLDL project. Studying the various international participation-based projects, we can see that the main approach of these projects is to pay special attention to the fragile essence of natural resources due to human behavior in order to reduce poverty and improve livelihoods and social welfare as the basis for participatory development of the community. The implementation of these projects is accompanied by a lot of investment, which can have positive effects. Therefore, their evaluation is of great importance for officials, decision makers, and the public. Hence, their analysis and pathology can be effective for the scientific community and executive officials, which would result in preparing and applying more efficient programs. We can also point out to progress and development plan for Ghaleh-Ganj as local models of rural development programs, resistance economics model, integrated watershed management plans, community-based employment projects of SAHAB, and ASEMAN" from Barekat Foundation, and the "Village without unemployed" project.

Implementing indigenous and non-indigenous rural development projects in the arid regions of Iran and their achievements has provided experiences for the academic community. Evaluating the effectiveness of such projects along with comparing the implementation process of these projects are urgent need of rural community. Due to the geographical and local-spatial aspect of rural development, rural planning experts are expected to undertake such researches. Critical desert centers such as the Sistan, Rigan and Jazmourian plains are considered to be the indicating spaces of the arid regions in the southeastern of the country. Sistan region is located in the north of Sistan and Baluchestan province. Rural areas situated on this region are facing demographic and economic instability due to some reasons such as dependence on external water resources from Afghanistan, 120-day storms, heavy clay soil, and geographical isolation from consumer markets. The area has been experiencing a variety of community-based pilot projects in recent decades. Also, the Rigan and eastern and western Jazmurian plains, spread around the Jazmorian swamp in the southeast of the country, are the bedrock of villages that face instability. This is because of the problems such as lack of rainfall, water shortage damage, rural economy instability, and sand movement. Rural areas in these critical centers, particularly in the last three decades, have faced a wide range of livelihood, social, and environmental issues. Governmental responsible agencies haven't been able to reduce or eliminate these issues. Therefore, it has been accepted to involve international, national, and especially local community in preparation and implementation of new rural development programs with a participatory approach. As a result, over the last two decades, international, national, and regional organizations have prepared and implemented participatory programs under the title of empowerment projects, community-based employment, and desertification with a participatory approach. The aim has been to preserve and revitalize environmental resources, as well as economic and social empowerment of villagers in the aforementioned geographical areas.

The current research questions are: What have been the characteristics and achievements of such projects in rural areas located within the critical centers of Sistan, Jazmourian, and Rigan? What is the process of an efficient and effective rural development program compatible with the geography of these areas?

2. Research Theoretical Literature

Development programs for underprivileged people are effective when it is possible to provide capacity for them. Through implementing development programs in all aspects, these people will be able to interact with government agencies. Thus, this will change the decision-making process (Appadurai, 2004). The latest view on poverty has been described it as the limitation of opportunities, which occurs due to instability and insecurity, lack of attention from those in charge, lack of investment and etc. (Mohammadi Yeganeh, Cheraghi & Yazdani 2014). In the new approaches to development, emphasis is placed on discovering and preparing appropriate capacities to improve the role of different groups of people instead of focusing solely on economic growth indicators, (Yaghoubi Farani, Vahdat & Latifi 2013). In recent decades, various programs with a community-oriented approach have been prepared for the empowerment of the villagers, rural development, and sustainable employment in Iran and other countries as well. As the title of this research suggests, in the section on the basics of research ideas, the nature and goals of the studied programs and plans are briefly discussed.

The project of progress and development for Ghaleh-Ganj, initially known as carbon sequestration (empowerment for local communities) was implemented in the area of 30152 KM in 2013 by the Alavi Foundation and the Forests, Range and Watershed Management Organization. Although after a year and half it got out of this organization's supervision. It carried on with the Alavi Foundation on behalf of the Mostazafan Foundation and was located in the villages of Ghaleh-Ganj County. The empowerment project is similar to the carbon sequestration project. The only difference is that the carbon sequestration emphasizes environmental and desertification issues, while the empowerment project emphasizes social, economic and social capital as well as participation.

Operational Objectives of Local Community Empowerment Project in Ghaleh-Ganj:

- Carrying out participatory evaluation and mobilization process of local communities in villages (recognizing the social and natural environment of the village);
- Launching cooperatives and development funds of the village in order to mobilize financial capital (each fund is a social and economic organization);
- Holding monthly meetings of the village fund to collect savings and to give loans to the people in the villages;
- Managing and supervising the membership of the people covered by Abadani Fund in the member villages of the National Comprehensive Cooperative for the relevant rural District.

The implementation of empowerment projects has improved the quantitative and qualitative indicators of employment, income generation, satisfaction of the quality of life, and livelihood of the residents of the pilot villages in Ghaleh-Ganj.

The carbon sequestration project is also one of efforts to reduce greenhouse gas emissions and improve environmental sustainability in Iran. The project is the result of a collaboration between the Ministry of Agriculture Jihad and Forests, Range and Watershed Management Organization as a relevant specialized agency. In addition, the supports of the United Nations Development Program (UNDP) and the financial support of Global Environment Facility (GEF) made it possible to provide a model, as a bottom-up approach, for participatory restoration of degraded pastures and to play a role in carbon sequestration in the atmosphere. Considering the relation between the destruction of natural resources and poverty, this project creates a better life, and develops non-water-and-soil related job opportunities (Bahadori, 2015). The most important strategies and techniques used in this project are: Capacity building for local communities, empowerment for men and women economically and culturally, formation and development of small microcredit funds by the people and handing over its management to themselves, use of new energy, and participation of local communities in managing and reviving natural resources. It was through holding educational classes and printing of educational and promotional publications and pamphlets. The International Carbon Sequestration Project Document was exchanged in 2003 with the agreement of the Islamic Republic of Iran and the United Nations Development Program and the financial support of the Environmental Facility. In 2005, the executive operation began in Hosseinabad Ghinab area of Sarbisheh County in Southern

Khorasan Province (Haderbadi & Pouyafar, 2006). However, it was implemented in the western and eastern Jazmorian region, in the form of "Tamim" plan between 2013 and 2014. The objectives of this project included increasing the land use efficiency in arid areas, desert greening by rehabilitating degraded pastures, and achieving a method for participatory resource management at the local level. The people's participation in land development would result in improving the economic and social situation of local communities and reducing poverty and improving Human Development Index (Burea of Crbon Sequestration Project, 2005). In summary, the objectives of the project are as follows:

Local aim: Improving the human development index (empowerment and improving socio-economic conditions);

National aim: rehabilitating degraded pastures in arid and semi-arid regions with participation of people;

Global aim: Presenting an economic model for carbon sequestration and reduction of greenhouse gases (Haderbadi & Pouyafar, 2006). According to this model, it is argued that delegating regional responsibility for planning to the levels of local communities will result in empowering communities. They are supposed to be accountable for their livelihoods, which in turn will lead to better resource management and sustainable productivity (Nouri, 2001).

Rehabilitation and Restoration of Degraded Forests Project with special emphasis on saline and sensitive to wind erosion (RFLDL project in Rigan) is a common action among Forests, Range and Watershed Management Organization of the country, Global Environment Facility, and FAO. The main objectives and actions of this project are capacity building and group institutionalization among local stakeholders in the four areas. One of the main actions to mobilize the local community is establishing micro-development (Kargar, Noosh Afarin, Yousefi, Habili & Sardari, 2015). In such a way, in the first phase, the RFLDL project focused on mobilizing, empowering, and involving local communities in the sustainable restoration and management of natural resources. In the second phase, the main focus of the project activities was on capacity building for experts and members of rural committees, increasing inter-organizational cooperation, promoting and launching alternative and sustainable livelihoods, and creating appropriate strategies for data collection, monitoring and reporting in order to document and disseminate the knowledge. The third phase, which is village level planning (VLP), these are considered: creating alternative and sustainable jobs by considering the potential of each region, strengthening rural savings funds and launching a cooperative company for sustainable development of target villages. In the fourth phase, in addition to continuing the previous actions, the completion of rural development projects and strengthening of savings funds and cooperatives for the sustainable development of the target villages are considered (Darini, 2017). The main focus of the project is on improving the capacity in local and provincial institutions, preparing drafts for rural and watershed development projects, promoting and cultivating alternative crops, organizing empowerment activities especially training in technical and vocational skills, and creating as well as supporting alternative and sustainable livelihoods. All of these are supposed to improve the livelihood and environmental conditions of local communities, strength coordination and develop cooperation with the project managers to create unity in doing common actions and basic project studies (Ghorbani, Bouzarjomehri, Evazpour & Mansouri, 2017). Briefly, the goals of the Reagan RFLDL project include: Control of wind erosion, restoration of destroyed pastures for the people and with the people, reduction of desertification and effects of drought, improvement of social and economic conditions, participation and working group, participation and empowerment of local communities, deprivation in the region to reduce poverty and reduce migration of villagers particularly the youth (Bahadori, 2017).

The rural Job Creation and Empowerment projects of Barekat Foundation have also been implemented under various headings since 2018: 1. SAHAB project, which stands for Barakat Employment Support Investment, is one of the members of the employment development model in underprivileged and rural areas, whose main mission is to create jobs and support their sustainability over time. To this end, SAHAB project seeks to fulfill its mission with supporting employment in rural and underprivileged areas, in the form of economic empowerment. Executives and facilitators make this possible through technical and educational support and providing micro-credits as well as full supervision over the establishment and sustainability of employment. 2. ASEMAN project, which stands for People's Investment Regulations and Human Resources Employment, is one of the plans that regulates the relationship between the main variables affecting

poverty in the city and promises to improve the living standards on a large scale.

So far, few studies have been conducted on the international and domestic programs for rural empowerment and participatory development in Iran, the results of which are as follows:

Rezaei (2008) and Hassannejad et al. (2011) indicated that the women of Hosseinabad village have gone through a kind of empowerment process using a credit microfinance fund and access to financial services (creating savings and receiving loans) and non-financial funds (education, participation, decision making, responsibility and management). Also, appropriate and effective incentive policies are to empower local communities with the aim of sustainable development, which is more acceptable to members of society. This can be identified and easily used in long-term planning to implement development projects.

Fawaidi, Chahar Sooghi Amin & Alipour (2011), Falsolaiman & Hajipour (2011), Hassannejad, Kohansal & Ghorbani (2011), Falsolaiman & Chakoshi (2011), Saberifar, Falsolaiman & Gheisari (2012), and Nejadi, Abbasi & Choobchian (2016) showed that the rate of goals was favorable and satisfactory. Also, the condition has led to changes in economic, social, and environmental indicators in the region. The variables "the rate of applying communication means", "the rate of Satisfaction with the fund," and "frequency of training sessions held in relation with the fund" have the largest role in changes of the dependent variable of "Success of Rural Development Funds".

Seyed Alipour, Paidar & Sadeqi (2015), Bazrafshan and Paidar (2017), Bahadori (2017), Darini (2017), and Taheri, Farzi & Fathi (2016), showed that the achievement of participatory development projects in socio-economic and environmental objectives is to some extent appropriate. However, at the same time, there are shortcomings in terms of implementation methods and continuity of activities. The effects of Ghaleh-Ganj empowerment project are more in the socio-economic status. On the other hand, the effects of the Carbon Sequestration Plan (CSP) are more environmental. The application of CSP in the Jazmorian region has been able to help improve the rate of recreating environmental culture.

Ghorbani, Awadpour & Sirmi Rad (2018) indicated that the achievements of the project in increasing the level of trust, participation, and social capital were desirable and as a result it provided the social context required for realization of the desired sustainable rural development.

Mahni (2018) in his research concluded that progress and development plan for Ghaleh-Ganj can be used as a model in other underprivileged areas of the country. In every project, doing things related to empowering people, entrepreneurship and achievement of a resilient economy can be done with the participation of the people and reliance on them.

The international background of the research subject can also be examined. Pakistan has two important rural empowerment programs. One was the Aga Khan Foundation, which was established worldwide in 1967, and started in 1982 the empowerment of local people through active local participation and the creation of microcredit funds. In this project, people pay money and with a sense of responsibility, they have been able to lend 100,000 loans to each other annually. The second program is the National Rural Support Program (NRSP), which provides poverty alleviation by mobilizing local communities. In this plan, the people were able to form local organizations by themselves and today this program covers two-thirds of Pakistan. In another study, a comprehensive rural development program in Pakistan and its results were examined. It was concluded that the most important basic requirement for the implementation of this program is the existence of an organization. To this end, in order to implement it in the region, called Dadzai, the police station supervision area (one of the country divisions of Pakistan) was identified suitable for the management of this program. They were used as a base for the center of services. After this, better conditions were provided for the implementation of various programs in the fields of health, youth, and rural women (Khan, 1981).

The Public Participation Program (1982-1986) was implemented in the Pujehun district of Sierra Leone. The aim of the program was to help form small and homogeneous groups of men and women to develop their community. To achieve this goal, emphasis was on informing group members about possible economic and social opportunities (FAO, 1994). Another project has been carried out by the World Food Organization in Thailand as part of a "program to improve the situation of small farmers". The program aimed to help small farmers, small fishermen, tenants and rural workers to rely more on themselves through the development of the system in the form of associations and small groups covered by existing organizations. Other goals of the program included creating a high management capacity to

redirect services to farmers' participation in rural development. Evaluation shows that the program has been successful in creating rural groups, training employees, and increasing the ability of employers to vitalize rural participation, but has failed to cover all rural groups (FAO, 2006).

Bangladesh is perhaps the most successful example of a rural empowerment program. In 2006, Muhammad Yunus became the first Muslim to receive the Nobel Peace Prize for his contribution to the development of public participation. Grameen Bank was first established in 1976 in the village of Jubra, starting with rural women and was recognized in 1983. Muhammad Yunus believes that he has merely succeeded with doing the opposite whatever the other banks have done (Haderbadi, 2008). In Japan, Dr. Hiramatsu in 1979, as the governor of Oita in Japan, started the project of "One Village One Project "(ovop), with the goal of reviving advantageous jobs in each village, with the help of people's savings, government assistance, wen along with training and creating local markets (Darini, 2017).

Palmar et al. (2009) evaluated the balance between the carbon sequestration project and the income of Mozambican farmers related to land use and showed that there is a balance between increasing farmers' incomes to reduce poverty in line with carbon sequestration. Carbon depletion potentially reduces poverty and it is an incentive of rural development and this project is likely to be used as a model for similar projects in Mozambique, and it is possible to be employed in other countries.

Summarizing the research background showed that international and domestic studies focused on studying the implementation mechanism or the results of a particular development plan. However, the present study aims to compare the process and results of various rural community development projects that were implemented in underprivileged and desert areas in the southeast of the country.

3. Research Methodology

3.1 Geographical Scope of the Research

Given that community-based rural development projects have been applied in different geographical areas, the present study is conducted in three nearby and similar areas, including critical center of Rigan in the southeast of Kerman Province, center of Jazmourian in the common area between Kerman and Sistan and Baluchestan provinces and Sistan region in the north of Sistan and Baluchestan Province. Natural Resources Rehabilitation and Empowerment of Villagers projects on the critical center of Jazmourian include progress and development plan for Ghaleh-Ganj over Western Jazmourian, the project of Jazmourian CSP across Roodbar County in Kerman-Western Jazmorian, the project of Nikshahr-Lashar CSP over Eastern Jazmorian. The RFLDL project over the Rigan Critical Center, and the Menarid Project, the "Village without unemployed" project, community-based projects of SAHAB, and "ASEMAN" from Barekat Foundation correspond to the Sistan and Rigan critical center.

Jazmourian critical center is divided into western and eastern parts. The site of the "carbon sequestration" project, which was implemented in the first half of the 2020s, is located in Western Jazmourian with an area of 56574 hectares. The rural population of the project area is 15077 people in the form of 21 villages and 3358 households. Also, the site of progress and development plan for Ghaleh-Ganj in Western Jazmourian with an area of 1044000 corresponds to Qala-e-Ganj city, which was implemented in 200 villages in the first half of the 2020s. The site of Rigan project RFLDL is 300,000 hectares, which was implemented in 12 villages in the form of 6778 households in the first half of the 2020s in Rigan County. The carbon sequestration project for Lashar, which corresponds to the eastern Jazmourian in Sistan and Baluchestan province, has been implemented in Nikshahr (northern and southern districts of Lashar) in more than 50,000 hectares in 35 villages. The "village without unemployed" project, in Sistan and Baluchestan province is being implemented in three villages of Shahrak Mir (Sistan), Azamkhani Klink (Iranshahr-Jazmourian), and Manzel Ab in Zahedan city in the second half of 2020s. SAHAB and ASEMAN projects from Barakat Foundation are being implemented in Sistan cities except Zahak and in Baluchestan cities except for Qasr Ghand, Konarak and Chabahar in the second half of the 2020s, and its first and second phases of villages were completed in 2016 and 2017.

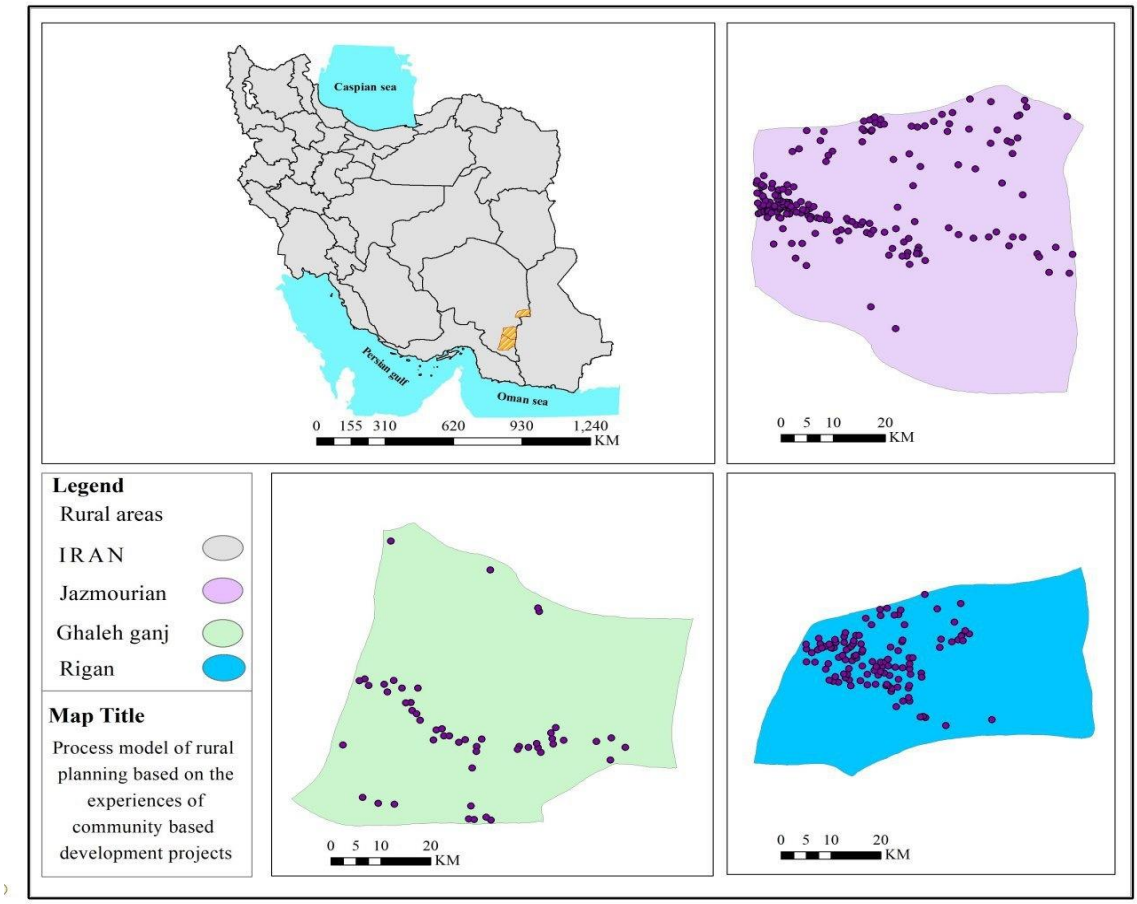

Figure 1. Map of the study are
(Source: Authors, 2017)

3.2. Methodology

This study is considered as descriptive-analytical and data collection was performed through library (organizational data and documentation of project achievements). The required data has been obtained by referring to the meetings of the project initiative committee, in addition to the final and official report on the performance of the mentioned projects and also, the interview with the chairman of "Omid" Entrepreneurship Fund at the office of rural affairs in Provincial Government. Furthermore, the participation of authors in the studied projects as advisor's executors of the projects or their membership in the Employment and Investment Working Group of the Provincial Government has contributed to the data collection. In the next step; The collected data was summarized and analyzed. The process model of rural development planning for rural areas of the studied critical centers was finally presented according to the comparative analyses performed on the executed projects in the 2020s.

4. Research Findings

In fact, the research findings answer these questions: What have been the characteristics and achievements of participatory development and community-based projects in rural areas located within the critical centers of Sistan, Jazmourian, and Rigan? After analyzing these plans and projects, they can be divided into two groups and common features of each group can be listed as follows:

The first group - community-based development projects with the participation of international organizations such as RFLDL project in Rigan, carbon sequestration (CSP) in Jazmourian and Lashar-Nikshahr, and the Menarid project in Sistan. Containing features such as:

1. Allocation of funds from the resources of international organizations for instance FAO

(FAO), UNDP, and (GEF) along with the domestic financial resources of the Forest Organization and the National Development Fund;
2. Participatory planning of the projects (with the participation of experts and representatives of international organizations, government experts, and socio-economic facilitators and representatives of the people and local stakeholders);
3. Playing the role of global and national-regional officials in financial and technical support along with socio-economic facilitators and local stakeholders and their representatives;
4. Mid-term plans (5 years) and implementation in 5 annual phases;
5. Hierarchical management system of projects, National Office of Projects in Tehran, Regional Office in Natural Resources Organization and local organizations (development groups and cooperatives in the villages of the executive site);
6. Multidimensional essence and comprehensive approach to development (attention to the promotion of human and livelihood indicators along with the restoration and protection of natural resources) using a community-oriented approach;
7. The emphasis of the projects on supporting and facilitating as the foundation for the development of local communities along with infrastructural, supportive and job creation actions with a focus on alternative and non-water-related activities.

The second group - community-based empowerment and job creation projects using the participation of governmental and non-governmental organizations with local community (local projects such as empowerment project in Ghaleh-Ganj or progress and development plan for Ghaleh-Ganj, community-based job creation projects of SAHAB and ASEMAN by Barekat Foundation in Sistan and "Village without unemployed" project in Sistan and Baluchestan Province, Containing features such as:

1. Allocation of credit from domestic financial resources (from the financial resources of Barakat Foundation, Mostazafan Foundation and National Development Fund);
2. Participatory planning of the projects (with the participation of experts and executives of the projects appointed by the organizations in charge of the project, specialized consultants, socio-economic executors and facilitators and representatives of the people and local stakeholders);
3. Playing the role of national-regional officials in financial and technical support along with socio-economic facilitators and local stakeholders and their representatives;
4. Being short-term and medium-term plans (mostly 2 years to 5 years). SAHAB project was initially supposed to be four years old, but after a while, it was reduced to two years. Empowering Project for Ghaleh-Ganj is five years long and "Village without unemployed" project is defined fo four years long;
5. Hierarchical management system of projects (National Office of Projects in Tehran, Regional or Provincial Office in Tehran's Provincial Government and local organizations (development groups and cooperatives in the villages of the executive site). Management of projects in a step-by-step manner (National Office of Projects in Tehran, Regional or Provincial Management by the Governorate or the Executive Headquarters of Imam's Directive and in local level by local organizations (development groups in the target villages);
6. Socio-economic nature and more focus on the economic aspect (focus on the issue of job creation) with a community-oriented approach;
7. Emphasis of the projects on supporting and facilitating as the foundation for the development of local communities along with infrastructural, support and job creation activities with a focus on profitable economic activities and with an emphasis on micro-businesses and value chains.

Table 1. Implemented participatory projects in order to achieve sustainable rural development in the critical centers of Sistan, Rigan and Jazmourian

(Source: Research finding, 2019)

The name of the project	International Rehabilitation of Forest Landscapes and Degraded Land Project of with special emphasis on wind erosion and saline soils (RFLDL)	Menarid Project (Organizational Strengthening and Integration for Integrated Natural Resource Management)
Execution area and site	Desert area between Rigan and Fahraj counties in Kerman province (Rigan site)	Sistan Plain - Hamoon Wetland Area (Hamoon County Site with an area of 20,000 hectares, including one city and 20 villages)
period	5 years	5 years
Executive mechanism	Participatory Program (Forests, Range and Watershed Management Organization (RFWO), Global Environment Facility (GEF) and the Food and Agriculture Organization (FAO)	Participation of the Global Environment Facility (GEF), UNDP and National Forests, Range and Watershed Management Organization
Budget amount	Approved: 96 thousand dollars from GEf with 59% allocation - 361 million Tomans from Iranian government with 86% allocation	6 million dollars from GEF And 14 million dollars Iran' s contribution (with less than 50 percent allocation)
Ultimate goal (long-term)	Achieving environmental and socio-economic sustainability of the villages in the area by emphasizing the promotion of public awareness, building trust, improving interpersonal and organizational cooperation and capacity building at local, provincial and national levels.	Eliminate existing legal barriers to integrated resource management, improve public understanding, empower stakeholders, and develop local communities.
Short-and-medium-term goals	- Mobilization of the residents and organization - Institutionalization and establishment of a comprehensive rural development cooperative - Mobilization of microfinance resources Restoration of biodiversity, increase the capacity of lands and degraded forest landscapes, and in conclusion sustainable livelihoods, food security and confronting desertification	- Mobilization of the residents and organization - Institutionalization and establishment of a comprehensive rural development cooperative - Mobilizing microfinance and global support, creating sustainable livelihoods, food security and confronting desertification
Special socio-economic achievement	- Formation of Development Groups (Social Organization) Fund (Economic Organization) Savings, loans and micro job creation, implementation of tree planting and medical herbal projects, income generation of residents from applying natural resource projects	- Formation of development group, fund and cooperative - Micro-savings, micro-loans and home and workshop-based job creation
Environmental achievement	Preparation and implementation plan for integrated and participatory land and forest management (SLFM)	Execution of Tamarix tree planting projects in Hamoon wetland basin, water resources management by creating Geodecamond ponds and drip irrigation

Project of Barakat Employment Support Investment (SAHAB)	Carbon Sequestration Project (CSP)	progress and development plan for Ghaleh-Ganj Villagers empowermnet project	**The name of the project**
S&B Province except for Qasr-e-Qand, Konarak, Chabahar and Zahak Kerman Province Fahnooj and Rigan county	Western Jazmourian (south of Kerman) and eastern (Lashar Nikshahr - south of S&B province	Ghaleh-Ganj County (Ghaleh-Ganj City and 5 cooperatives in 5 Rural Districts with 3600 members)	**Execution area and site**
2 years	5 years	5 years	**period**
Barekat Foundation Institution	Participation of UNDP and Forests, Range and Watershed Management Organization	Mostazafan Foundation of the Islamic Revolution (Alavi Foundation) and (Forest Organization - and then the University of Tehran)	**Executive mechanism**
Five thousand job opportunities per year (each job creates employment facilities of 10 to 40 million Tomans)	Two billion tomans for Western Jazmourian project (20% of the first year by UNDP) and in the following years only national credits), and Lashar project one billion tomans	Tens of billions Tomans Budget in various spheres of infrastructure, social and job creation	**Budget amount**
- People's comprehensive participation, -Sustainable rural economy, - make way for Rural Sustainable Development -Reverse migration and demarcation	Carbon Sequestration and reduction of greenhouse gases - Restoration of degraded pastures - improving Human Development Index	Social and economic empowerment of the local community, promoting human capital and accomplishment of sustainable livelihood with an emphasis on the value chain of products and micro-businesses	**Ultimate goal (long-term)**
- Facilitating and supporting socio-economic development - Mobilizing job creation facilities to needy enterprises (spatial, technical and credit competence) - Creating sustainable livelihoods and continuing jobs	- Mobilization of the residents and organization -nstitutionalization and establishment of a comprehensive rural development cooperative Organize microcredit Restoration of biodiversity, increase the capacity of lands and degraded forest landscapes, and in conclusion sustainable livelihoods, food security and confronting desertification	- Mobilization of the residents and organization - nstitutionalization and establishment of a comprehensive rural development cooperative - Mobilizing microfinance and non-governmental support, creating sustainable livelihoods, food security and confronting desertification	**Short-and-medium-term goals**
- Creating a chain of economic activities such as integrated sewing, textile design and leech breeding plan. supporting coverage for jobs	- Formation of Development Groups (Social Organization) Fund (Economic Organization) - Micro savings, micro loans and small and medium job creation, tree planting and watershed management projects and rangeland management	Establishment and continuation of 5 comprehensive national cooperatives, value chain of Murcia dairy goat, ecotourism Construction of juice factory, paste and oil (value chain sesame and tomato), and greenhouses	**Special socio-economic achievement**
Reducing the basic consumption of resources in the result of alternative and non-water-and-soil-related jobs	Seedling production, biological wall implementation, watershed management and rangeland sowing projects	Planting by development groups, use of biologic and non-biological wall against sand movement	**Environmental achievement**

The name of the project	Execution area and site	period	Executive mechanism	Budget amount	Ultimate goal (long-term)	Short-and-medium-term goals	Special socio-economic achievement	Environmental achievement
Project of Barekat Foundation Job Creation Public Investment (ASEMA)	Zabol County, Hamoon and Nimrooz in Sistan Region	4 years	Barekat Foundation Institution	Gratuitous support from development funds, a thousand jobs opportunities per year (each job creates employment facilities of 10 to 40 million Tomans)	- People's comprehensive participatio, - Organizing local communitie, - Make Rural Sustainable Development Possible -Reverse migration and demarcation	- Socio-economic facilitation and creation of local organizations - Establishment of employment development funds Mobilization of microfinance resources and directing job creation facilities to qualified businesses - sustainable livelihoods and continuing jobs	- Establishment and continuation of development funds, creating a chain of economic activities such as the fattening calf project,	Reducing the basic consumption of resources in the result of alternative and non-water-and-soil-related jobs
"Village without unemployed" project,	3 Manzel-ab in Zahedan, Kelink Azam Khani in Iranshahr, and Mir Hamoon town	4 years	Omid Entrepreneurship Fund	10 million (micro businesse) up to 250 million Tomans (scorpion breeding plan in Mir town)	Full employment in the target villages	- Establishment of local funds and financial recharge of funds - Establismnet of new jobs	Support for cooperative of handicrafts in Manzel-ab and scorpion breeding in Mir Hamoon town	-

In short, according to the findings, the researchers' assessment of projects is as follows:

- The criterion of "monetary injection" is the setback for the success of rural development project. In some cases, like the Rigan RFLDL and Sistan Menarid project, people didn't continue them due to their dependence on GEF and UNDP financial supports or the national and provincial budgets. So they shut down the projects after five years. Jazmourian and Lashar's carbon sequestration projects haven't been depending on the international and national financial supports (except for small amounts in the first year of the project). They have merely depended on local microcredit credits or the income of rural development groups from the implementation of participatory projects with affiliated agencies, and are now actively cooperating.
- Project management mechanism is another determining factor in the success of the projects. For example, one of the management weaknesses of Menarid project is the hierarchical management system of the project (National Office of Projects in Tehran, regional or provincial management by the Provincial Government and then the sub-departments), which ultimately failed to achieve organizational coordination, while in Nikshahr and Lashar sequestration projects, as well as Barakat Foundation's Sahab project, the botton-up approach of the Execution of Imam Khomeini's Order and the management of the project at the local level by local organizations (development groups in the target villages) hasn't caused any problems for the projects.

Creation of economic chains and the formation of pragmatic cooperatives based on the real capacities of the region are desirable to be ultimate goals of community-based development projects; for instance, the calf fattening project in the form of Barakat Foundation's SAHAB project.

5. Discussion and Conclusion

According to the presented research findings for answering to the first question, it can be said that the characteristics and achievements of rural community-based development projects in critical centers of Sistan, Jazmourian and Rigan are different and in the most projects, the achievements are relevant to short-term goals and partially to medium-term goals, but they are not relevant to claimed long-term goals. The results of previous researchs about the achievements (e.g., Rezaei 2009; Hassannejad et al., 2011; Fal Soleiman & Hojipour 2011; Saberifar et al., 2012; Fal Suleiman et al., 2012; Bazrafshan & Paydar 2017; Ghorbani et al., 2018; Taheri et al., 2018) are acceptable only about achievements of short-term goals in the projects. The projects had not continued after their implantation period except for a few. From among the results of Darini (2018) are more in line with the results of the present study and it has been paid attention to the long-term goals and the effectiveness of the projects in the medium and long-term. Therefore, progress and development plan for Ghaleh-Ganj, SAHAB and ASEMAN from Barakat Foundation can be considered effective in terms of the influence and sustainability of rural development groups as well as the sustainability of rural employment activities that have been created in each project. The best process has been passed byprogress and development plan for Ghaleh-Ganj. The project first and and more importantly created the infrastructure (factories and complexes related to the value chain of tomatoes, citrus, goat's milk, and sesame as the dominant products of the region), which are the main part of the chain value, and then pursued other social and economic activities in connection with them. In contrast, Sistan's Menarid projects, Rigan's RFLDL project, and Lashar's carbon sequestration have not had long-term and lasting results. The termination of top-down management led to the group breakdown and closure of the activities. They couldn't continue their activities because they have not created the necessary infrastructure, which could have been a reason to continue the project. While the establishment of milk, paste and sesame factories in Ghaleh-Ganj has caused a variety of activities in the front and back of the chain, and in the meantime, created added value. The past and present service occupations have experienced the stability in the activities. "Village without unemployed" project is in a different situation. That is, the type of job creation projects in this plan is different. Thus, the achievements of the project are not qualitatively significant due to the emphasis on micro and service occupations, and the weakness of the innovation and continuity of jobs especially in the village of Klink Azamkhani. While in the village of Shahrak Mir the situation of the projects is favorable. For example, the new scorpion breeding project has been successful. The weakness of "Village without unemployed" project is also evident in terms of social achievements. Because the social organization has not been created, the local microcredits have not been mobilized, the local people are incapable of providing bank bails, and in the new projects the poor have not been prioritized.

Therefore, to answer to the second research question, “what is the process of an efficient and effective rural development program compatible with the geography of these areas?”, from the experiences of implemented rural development projects and to conclude based on the achieved results it can be reckoned that to achieve sustainable rural development in underprivileged areas in the country it is required to create a stable and regular planning process. In other words, if we divide planning into two main types of process-based and project-based, process planning is an essential need for the sustainability of rural development in disadvantaged areas, because the domination of the project-based approach in rural development in Iran has led to the formation of inappropriate planning procedures with the following setbacks:

1. In the project-oriented approach, the objectives are short-term; 2. Resources are used to achieve functional quantity to the possible extent of project managers and executors’ responsibilities; 3. Analyses are mainly cost-benefit and qualitative evaluation has no placed along with the impact assessment and continuity of activities and results; 4. Activities and actions lose their relevance and each project is allocated to a separated section and its scope includes only a part of an activity, not as a system and a chain. For instance, some departments teach people but their technical certifications do not result in job and production. Banks provide employment facilities, but still diversion from the activity, bankruptcy and the closure of the project increase. Organizations are not coordinated in giving permissions to local activists. Other inconsistent and separated actions of each institution eventually lead to diversion in development actions for local people; 7. The project-

based approach is prone to organizational incoherence and sectoral bias.

Therefore, the process planning requires basically two things:

1. Practical deployment of process planning with a focus on organizational cohesion, and consistency of in charge institutions in preparation of integrated programs for the local community development in a single and specific process;
2. Supplying a value chain for products. Because, for example, more than 35 government agencies and 27 non-governmental organizations are currently implementing their own programs to develop local communities in Sistan and deprivation alleviation projects have their own programs but in practice are observing not effective practices and results, and the continued activities are not influential. People are satisfied as long as they are directly under the support coverage, and their activities are under the trustees' supervision of the relevant program, but as soon as the project ends, the manifests and results of that project also vanish. While in Ghaleh-Ganj, due to the establishment of factories and the completion of the value chain of four regional dominant products and the Murcia dairy goat project, the continuation and stability of all previous and subsequent activities related to that factory and product could be seen. Of course, the Barakat Foundation's fattening calf project has also been able to accomplish a process such as Ghaleh-Ganj; Coherence provided by relevant organizations (government agencies such as Ministry of Agriculture Jihad, Veterinary Organization, Insurance, Industry and Mining, Governorate, District Administrative, Rural municipality and Non-Governmental Institutions such as Barakat Foundation and even scientific institutions such as Social and Veterinary Advisors from Zabol and Zahedan Universities) and chains of activities including breeding calves, supply animals feed and medicine, insurance services, expertise counseling services, construction and spraying of stables, fattening and meat production, slaughterhouses (as intermediate and important links in the chain), packaging and marketing and supply. Therefore, to achieve sustainable development by active governmental and non-governmental organizations in charge for the development in deprived local communities, they must provide integrated programs for the value chain of products. It is in this context that the implementation of infrastructure and physical programs also makes sense and becomes effective. For example, a village that is in a fattening calf chain project needs suitable facilities (proper road, Internet and appropiate telephone services for training employees and marketing, livestock maintenance structures, slaughterhouses, and suitable housing for villagers, livestock and human drinking water network, etc.). Otherwise, if we provide all the physical programs and structures in a village, but the product and economic activities are not included in the planning, we will experience the waste of national resources and program actions, and as a result, the evacuation and instability of local communities.

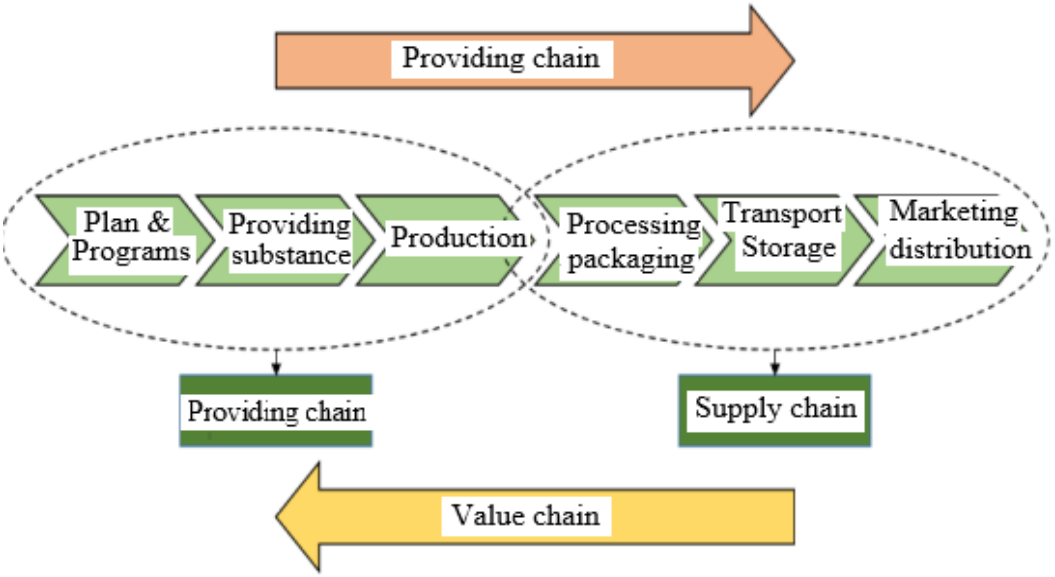

Figure 2. Product value chain as one of the main aspects in process planning
(Source: Research finding, 2019)

Practical solutions and a process model for participatory development plans:

1. Preparing executive plans and projects based on the actuality of local communities in each area;
2. Feasibility research of executive projects by experts and with the practical participation of local actors;
3. Doing a pilot plan of upcoming projects and to review of executive plans and projects based on the lessons learned (if needed)
4. Implementing plans and projects within the specified area along with regular monitoring of achievements and control of events;
5. Fulfilling financial needs of the executive projects with a combination of exogenous and endogenous resources and organizing local microcredit;
6. Emphasis on the preparation and implementation of economic chains in the projects' execution area and avoidance of scattered work in implementing employment projects;
7. Formation of pragmatic cooperatives (comprehensive and specialized in each of economic and environmental fields) and partnership with private sector supporters in supplying the value chain of regional products
8. Organizational integration and serious avoidance of sectoral bias diminishing hierarchical management system and prioritizing local cooperatives and development groups;
9. Turning the officials and public sector employees' point of view into a facilitator to solve the problems of the rural community and use all the facilitation capacities, especially the trustees, councils and educated people and the compassionate local actors.

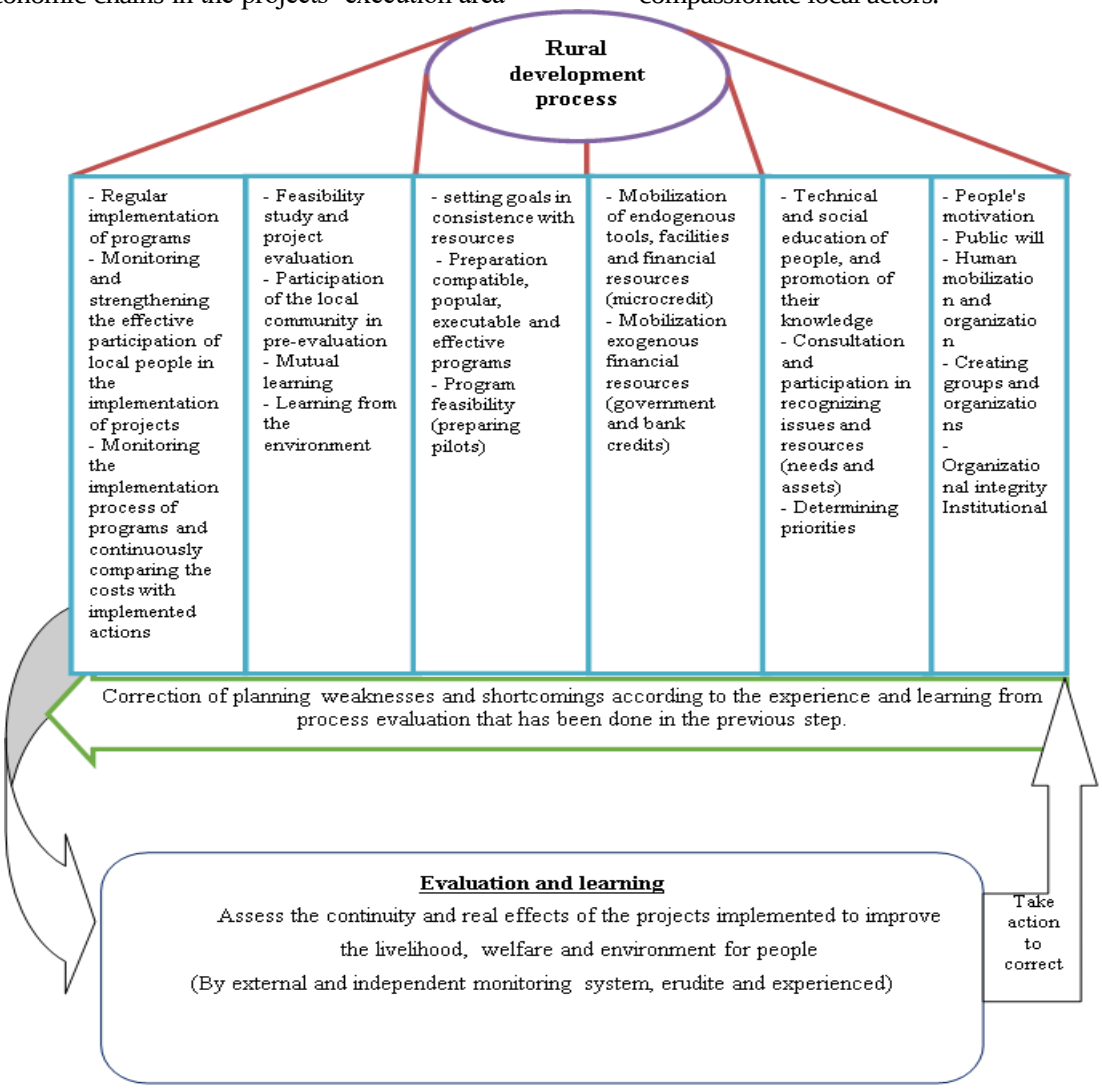

Figure 3. Process model of rural development in places located in the critical centers of southeastern Iran
(Source: Research finding, 2019)

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Research Article

الگوی فرآیندی برنامه‌ریزی روستایی بر مبنای تجربیات طرح‌های توسعه اجتماع‌محور (طرح‌های دهه ۱۳۹۰ در کانون‌های بحرانی سیستان، ریگان و جازموریان)

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چکیده مبسوط

۱. مقدمه

مشارکت در توسعه پایدار روستایی از جایگاه خاصی برخوردار است و صاحب‌نظران تحقق توسعه پایدار و یکپارچه را مستلزم مشارکت مردم می‌دانند و حضور نهادها و سازمان‌های محلی را برای به کارگیری راهبردها و سیاست‌هایی که زمینه مشارکت را فراهم و تقویت نماید ضروری می‌دانند. اجرای طرحهای مشارکتی با هدف توانمندسازی اقتصادی- اجتماعی و پایداری محیطی یکی از راهکارهای مدیریت پایدار نواحی روستایی مناطق خشک جهان در دهه‌های اخیر به شمار می‌آید. این پژوهش با هدف پاسخ به دو سوال انجام شده است: ویژگی‌ها و دستاوردهای اجرایی طرح‌های مشارکتی برنامه‌ریزی توسعه روستایی و برنامه‌ریزی اجتماع‌محور اشتغالزا در نواحی روستایی واقع در محدوده کانون‌های بحران سیستان، جازموریان و ریگان چه بوده است؟ و یک مدل فرآیندی برنامه‌ریزی توسعه روستایی سازگار با جغرافیای مناطق مذکور چگونه است؟

۲. روش تحقیق

نوع پژوهش؛ توصیفی- تحلیلی بوده و روش گردآوری داده ها روش کتابخانه‌ای (داده های سازمانی و مستندات دستاوردهای طرح ها) بوده است. بدین صورت که داده‌های موردنیاز از طریق مراجعه به صورت جلسات کمیته راهبری طرح‌ها، گزارش نهایی و رسمی عملکرد طرح‌های فوق و مصاحبه با ریاست محترم صندوق کارآفرینی امید استان در محل دفتر امور روستایی استانداری کسب شده است. همچنین فعالیت نویسندگان به عنوان مشاور و مجری طرح‌های مورد مطالعه و یا عضویت آنها در کارگروه اشتغال و سرمایه‌گذاری استانداری، و نهادهای حمایتی در کسب داده‌ها کمک نموده است. در گام بعد؛ مطالب گردآوری شده جمع بندی و تحلیل شد و در نهایت برحسب تحلیل‌های تطبیقی صورت گرفته روی طرح‌های اجرا شده در دهه ۱۳۹۰؛ الگوی فرآیندی برنامه‌ریزی توسعه روستایی برای نواحی روستایی در کانون‌های بحرانی مورد مطالعه ارائه شد.

۳. یافته‌های تحقیق

هر کدام از این طرح‌ها؛ دستاوردهای مثبت خاص خود را متناسب با اهداف‌کوتاه مدت آن برنامه داشته و به لحاظ کمی مطلوب است اما عمدتا نتوانسته‌اند استمرار فعالیت در یک فرآیند منظم و باثبات برنامه‌ریزی را در نواحی روستایی محقق کند. به لحاظ تاثیربخشی و پایداری فعالیت گروه‌های توسعه روستایی و همچنین پایداری فعالیت‌های اشتغال روستایی که در هر طرح ایجاد شده است می‌توان طرح پیشرفت و آبادانی قلعه گنج، و طرح‌های سحاب و آسمان بنیاد برکت و تا حدی طرح ترسیب کربن جازموریان غربی را کارآمد دانست. بهترین فرآیند را طرح پیشرفت و آبادنی قلعه گنج طی نموده است و مهمتر اینکه ابتدا زیرساخت‌ها (کارخانه‌جات و مجتمع‌های مرتبط با زنجیره ارزش گوجه، مرکبات، شیر بز، و کنجد به عنوان محصولات غالب منطقه) که حلقه اصلی زنجیره ارزش هستند را ایجاد نموده و سپس سایر فعالیت‌های اجتماعی و اقتصادی را در ارتباط با این‌ها دنبال نموده است. بالعکس طرح‌های منارید سیستان، پروژه RFLDL ریگان، و ترسیب کربن لاشار دستاوردهای بلندمدت و ماندگاری نداشته و به محض رها شدن مدیریت بالادستی با فروپاشی گروه‌ها و صندوق‌ها و تعطیلی فعالیت‌ها مواجه بوده‌اند و در تداوم فعالیت‌ها ناتوان هستند زیرا زیرساخت و زیربنای لازم را که بهانه‌ای برای تداوم فعالیت‌ها باشد ایجاد نکرده‌اند در حالیکه استقرار

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کارخانه شیر، رب و کنجد در قلعه‌گنج باعث شده است انواعی از فعالیت‌ها در حلقه های پیشین و پسین زنجیره چنین محصولاتی ایجاد شوند و در در سایه ارزش افزوده ایجاد شده و مشاغل خدماتی پیشین و پسین شاهد ثبات و استقرار فعالیت‌ها باشیم. همچنین طرح روستای بدون بیکار وضعیت متفاوتی دارد. نوع پروژه‌های اشتغالزایی در این طرح متفاوت است؛ بگونه‌ای که تاکید طرح بر مشاغل خرد و خدماتی خصوصا در روستای کلینک اعظم‌خانی و ضعف جنبه نوآوری و استمرار مشاغل سبب شده دستاوردهای طرح به لحاظ کیفی چشمگیر نباشد در حالیکه در روستای شهرک میر وضعیت طرح‌ها مطلوب است و به عنوان نمونه طرح پرورش عقرب نو و در عین حال موفق بوده است. ضعف طرح روستای بدون بیکار از نظر دستاوردهای اجتماعی نیز مشهود می‌باشد زیرا تشکل اجتماعی ایجاد نشده، اعتبارات خرد محلی بسیج نشده، مردم محلی در تامین وثیقه ناتوان هستند و در طرح‌های نو اولویت طرح‌ها فقرا نبوده اند.

۴. بحث و نتیجه گیری

در حال حاضر غلبه رویکرد پروژه‌محور در توسعه روستایی ایران منجر به شکل گیری روال نامناسب برنامه‌ریزی با آفت‌های زیر شده است:

۱- در رویکرد پروژه‌محور؛ اهداف کوتاه‌مدت هستند، ۲- منابع در راستای رسیدن به ارقام عملکردی در حد پاسخگویی متولیان و مجریان پروژه‌ها به کار گرفته می‌شود، ۳- تحلیل‌ها عمدتا از نوع تحلیل هزینه- فایده است و ارزشیابی کیفی همراه با تاثیرسنجی و استمرار فعالیت‌ها و نتایج آن جایگاهی ندارد. ۴- فعالیت‌ها و اقدامات ارتباط خود را از دست می‌دهند و هر پروژه به بخش مجزایی اختصاص یافته و گستره آن تنها شامل بخشی از یک فعالیت می‌شود نه هر فعالیت به صورت یک سیستم و زنجیره. ۵- ارزیابی‌ها از نوع ارزیابی سریع بوده و ارزیابی ادواری با هدف پیامدسنجی و پایداری فعالیت‌ها انجام نمی‌شود، ۶- در رویکرد پروژه‌های هدف واقعی طی کردن مراحل طرح در حد انجام یک وظیفه انجام می‌شود و هدف واقعی مردم نیستند. ۷- در رویکرد پروژه‌ای؛ زمینه عدم انسجام سازمانی و بخشی‌نگری فراهم می‌شود.

تلاش هوشمندانه متولیان اجرای طرح‌های توسعه روستایی برای ارائه دستاوردهای مورد انتظار با تکیه بر آمار و مستندات ظاهرپسند، و ضعف یا فقدان سیستم نظارت مردمی بر دستاوردهای واقعی طرح‌ها به عنوان محدودیت اصلی اصلاح برنامه‌ها و یادگیری مستمر از تجربیات گذشته می‌باشد. تمرکززدایی واقعی در نظام برنامه‌ریزی روستایی کشور، برقراری سیستم نظارت مردمی و نهادینه‌کردن برنامه‌ریزی فرآیندی بهترین راهبرد پایداری اجتماعات محلی می‌باشد.

کلیدواژه‌ها: برنامه‌ریزی اجتماع‌محور، برنامه‌ریزی فرآیندی، اقتصاد پایدار روستایی، کانون‌های بحرانی سیستان، جازموریان و ریگان.

تشکر و قدردانی

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Research Article

Factors Affecting Rural Tourism Cluster Development (Case Study: Ashtaran Village, Touyserkan County)

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Abstract

Purpose- Villages are full of new and undiscovered opportunities that can be explored in a timely manner to create opportunities and new businesses for the villagers. In this regard, those approaches are sustainable that, due to changes in technology and the market, constantly assess market and technological needs and provide a more appropriate employment model. To this end, development through business clusters has recently been considered by economic and industrial policies.

Design/methodology/approach- The main purpose of the study was to investigate factors affecting rural tourism cluster development via a quantitative approach. The statistical population consisted of two groups of experts in Hamadan province with 21 individuals and 360 rural households. A total of 185 rural households were randomly selected using the Krejcie and Morgan table. This research was an applied research that investigated the contribution of each independent variable in explaining the dependent variable (rural tourism cluster development) using structural equation modeling through Smart PLS6 software.

Findings- The results showed that in the structural model of research, the highest effect (β=0.420) belonged to institutions on rural tourism development and the relationship was positive and significant. In total, 56 percent of the dependent variable of tourism development in Ashtaran village is explained by four factors: institutions, tourism infrastructure, economic capacities and tourism services.

Key words- Tourism cluster, Rural tourism, Rural employment, Rural development, Touyserkan County.
Paper type- Scientific & Research.

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1. Introduction

One of the major goals of development in most countries is to reduce unemployment and create new employment opportunities. Today, the issue of employment is not just an economic issue or a country-specific one, but almost all societies are dealing with the problem of unemployment and this issue in some way is affecting all aspects of life including social, cultural, economic and even political and security aspects (Rezvani, 2009). Scientists and development experts argue that job problems and unemployment in rural areas are more complex and widespread because they have resulted in widespread poverty, increase in inequality, unemployment, migration, urban displacement, and so on (Hezarjeribi, 2006). Some scholars have even considered rural development to be a priority for urban development; they believe that the ultimate solution to the problem of unemployment in cities is to improve the rural environment (Todaro, 1989). Villages are full of new and undiscovered opportunities that can be explored in a timely manner to create opportunities and new businesses for the villagers. In this regard, those approaches are sustainable that, due to changes in technology and the market, constantly assess market and technological needs and provide a more appropriate employment model (Evans & Rauch, 1999; Onetti, Zucchella, Jones, & McDougall-Covin, 2012; Toro-Jarrín, Ponce-Jaramillo, & Güemes-Castorena, 2016; Trigkas, Anastopoulos, Papadopoulos, & Lazaridou, 2020). To this end, development through business clusters has recently been considered by economic and industrial policies (Bergman & Feser, 2020; Cottineau & Arcaute, 2020; Pereira, Temouri, & Patel, 2019; Sarkar, Yap, Vaidyanathan, & Agasty, 2020; Wang, 2020; Wilson & Popp, 2017; Zhang & Warner, 2017). Porter (1998) identifies clusters as organizations such as government training centers and other educational, research institutions (such as universities, standards regulators, vocational training providers, and business associations) that provide information, research and technology support.

The United Nations Industrial Development Organization defines clusters as the geographical and sectoral focus of manufacturing and service activities that produce and sell a range of related and complementary products and services. The geographical focus creates economy of scales in a particular manufacturing sector and accelerates the development of technical, management and financial services (UNIDO, 2003). Clusters provide a good basis for forming partnerships between individuals and public and private organizations in an area and promoting local production, innovation and collective learning (Breschi & Malerba, 2005; Innocenti, Capone, & Lazzeretti, 2020; Kamath, 2020; Saebi & Foss, 2015; Stock & Watson, 2010).These clusters can gain better to competitive markets because of better access to skills, shared services, physical and scientific infrastructure, networking, marketing, manufacturing systems, innovation and financial resources (Baden-Fuller & Haefliger, 2013; Balabanis, Theodosiou, & Katsikea, 2004; Mills, Reynolds, & Reamer, 2008; Najib & Kiminami, 2011). As a competitive tool for networking, therefore, clusters not only facilitate regional development strategies but also enable them to compete in global markets (Berg, Thuesen, Ernstsen, & Jensen, 2019; Brachert, Titze, & Kubis, 2011; Kujala, Artto, Aaltonen, & Turkulainen, 2010; Mihajlovic, 2014). The results of various studies show that clusters are especially important in creating employment and can be a good model for sustainable rural employment through collective productivity, specialized labor division, collective collaboration, interactive learning and other things that are needed to become more competitive (Das, 2020; Drummond & Snowball, 2019; Hsueh & Lin, 2020; Ivolga, Lazareva, Dashkova, & Takhumova, 2020; Koroleva & Kurnikova, 2020; Lee, Wall, & Kovacs, 2015; Luo, 2019; Novani, Putro, & Hermawan, 2015; Odinokova, 2019; Pereira & Caetano, 2015; Thornton, Henneberg, & Naudé, 2013). Tourism cluster as a cluster-based development approach is a useful framework and set of processes that can enable regions to redefine how they address economic issues, moving away from narrowly focused projects and programs to more systematic and integrated strategies where responsibilities for action lie with all stakeholders in the economy (Gollub, Hosier, & Woo, 2003).

Despite the importance of different business clusters, especially in rural areas, no scientific and comprehensive effort has been made to explain

tourism business clusters in Iranian villages. Hamadan province is one of the provinces with many tourism opportunities in its villages in different fields for employment that can provide the necessary livelihoods and added value for the villagers in a targeted economic chain. But despite such capabilities, most youth and rural residents in the province have no proper jobs and this has led to their migration to the surrounding cities. Due to the abundance of tourism resources and attractions, especially in the rural and natural areas of the province, also the low utilization of these capacities and on the other hand less need for investment resources, the rural tourism cluster was selected as the focus of this study. There are 22 tourism target villages in Hamadan province, and among those, Ashtaran village was selected. The main reason for the village's selection by the research group was that there had been no research in the area of tourism cluster so far, and in fact, there was an untapped field of research. In addition, the village of Ashtaran in the lowlands of Alborz and the protected area of Khan Gormez, the historical castle of Hamzeh Khan in the village, the presence of pristine landscapes that dazzle the eyes of every tourist, the texture and beautiful architecture of the village, often made of stones, and being located on the beautiful and ancient road of Ganjnameh in Hamadan has been another reason for choosing the village of Ashtaran as the target population in this study. Therefore, this research seeks to find scientific answers to the following questions:

What socio-economic resources and potential are needed to create tourism clusters in the village of Ashtaran? What are the infrastructure measures and plans for the development of tourism in the village of Ashtaran? What individuals, institutions and organizations can be identified to support the development of rural tourism clusters? What are the tourism services needed to create tourism clusters in the village of Ashtaran?

2. Research Theoretical Literature

The overall structure of a tourism cluster consists of four units. They includes tourism service providers, material suppliers, tourists, various support systems (Nordin, 2003). The well-known theory of Porter's cluster diamond presents the four components of an effective industrial cluster, consist of (1) firm strategy, structure, and rivalry, (2) demand conditions, (3) supporting industries, and (4) input conditions.

According to Gollub and his colleagues (2003), despite continuing change and dynamic nature of a tourism cluster, it can be mapped out as economic input foundation level, suppliers, and final exports (tourism destinations). The supplier level in tourism consists of three levels of providers supporting the visitor experience: 1) Primary level: This level of suppliers consists of the accommodations, restaurants, and retail stores that are part of the visit to the destination or event. 2) Secondary level: This level comprises suppliers that are intermediaries between the visitor and the destination: inbound travel agents and tour operators, transport providers (air carriers, car, tour and local bus). 3) Tertiary level: This level includes the suppliers who support the infrastructure of the destinations and primary and secondary level suppliers. These include management and accounting, facility and equipment maintenance, marketing and reservations systems, working capital (lines of credit), furnishings, food services, catering and entertainment services (Fig. 1).

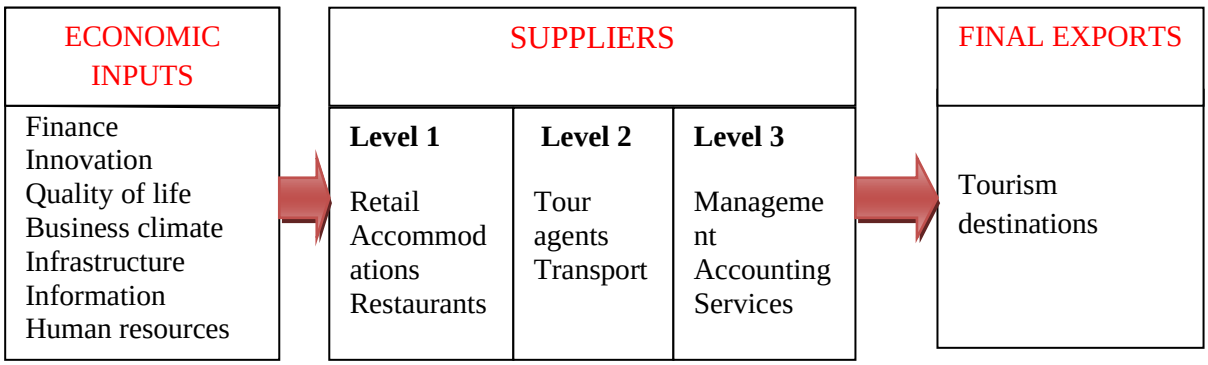

Fig 1. A tourism cluster structure
(Source: Gollub et al. 2003)

Rural areas have become attractive places for tourists due to their high diversity in cultural fields, traditions, customs and natural resources (Rezvani & Mansourian, 2018). The approach of developing tourism clusters as an economic and social system seeks to integrate all the opportunities and resources in one geographical place to create job and income for a rural place (Miller & Gibson, 2005). Harris, William, & Griffin (2012) describe the social and economic role of rural tourism as follows: this type of tourism supports rural families, and to a greater extent, their communities; it helps their economies; maintaining local employment is another goal and provides incentives to preserve traditions, and communicates citizens with the villagers.

Hamedan Province is one of the few geographical areas that has attracted tourists, scholars and those interested in culture and monuments from all over the world, with about 1,800 buildings and historical sites, as well as beautiful nature and tourist attractions. The same number of special talents is enough to make Hamadan a great pole for the tourism industry in Iran. In recent years, 22 villages in the province of Hamadan have been introduced as tourism target villages with the registration of the Organization of Cultural Heritage, Handicrafts and Tourism. Wonderful old villages have a lot to say with the architecture, crafts, and culture of their people in the heart of the beautiful countryside. It should be noted that the existence of some of the above factors in the village is sufficient to determine the value of its texture and not all indicators need to be present.

Tourism, as a diverse entrepreneur, and generative industry, encompasses a wide range of employment opportunities. Tourism employs women, youth, and also low-educated people and creates an environment for participation and empowerment for vulnerable groups. Also, given the lower barriers and inputs, tourism provides investment opportunities for small business creation and employment (Telfer & Sharpley, 2015). Winters, Corral, and Mora (2013) point out the benefits of tourism economy in poverty alleviation in disadvantaged and local areas and believe that there is a widespread consensus on tourism potential for poverty alleviation, especially in developing countries. Many developing countries actually have natural, cultural and historical resources that, with proper coordination and planning, can generate employment and income for local people at the core of a lucrative and sustainable tourism industry. According to García-Villaverde, Elche, and Martínez-Pérez (2020), social capital is effective in developing tourism clusters. Therefore, one of the factors in strengthening and improving tourism clusters is the interaction of the managers of such businesses with the market and the changes that occur in the market. Fernando and Long (2012) identify factors affecting tourism clusters including internal resources, support systems, public and private organizations and institutions, demand conditions, innovation and technology factors, and destination position. Jackson and Murphy (2006) on the role of clusters in regional tourism clusters in Australia have stated that the successful regions economically are more inclined to cluster development and lack of strong local leadership and weak linkages between firms are cluster development barriers. Finally, it has been concluded that business clusters are very suitable for use in regional areas.

In a study, Castillo, Garone, Maffioli, and Salazar (2015) examined the impact of tourism policy on employment in Argentina. Their results show that the implementation of tourism development policy in Salta province increased tourism jobs by 11 percent each year, and in general between 2003 and 2013 had an impact of 112 percent.

In Iran, there have been many studies on the impacts of rural tourism so far, but few studies have been conducted on tourism clusters. Below are some of the most important of them. In a research about identifying and analyzing tourism cluster in Shiraz city, Hajimohammad-Amini, Tawallaei, and Farjad (2013) argue that partnership relationships between tourism cluster units are regarded as a key feature of successful tourism clusters. Barmaki (2013) identified agricultural and horticultural clusters, food production and beverages, livestock, poultry, silkworm and honeybee breeding and hunting as the economic pioneer clusters in Hamadan province. The results of Kazemi-Esfa (2015) research showed that factors such as investment, human resources training, management and planning, encouragement of the private sector to cooperate, employment and publicity were important factors in the development of rural tourism. The results of Erjaie, Moradnejadi, Salavarzi, and Ghasemi (2016) showed that

handicrafts had the highest priority to develop non-agricultural clusters and it is the most suitable option for tourism clustering. After that, the processing industries were second priority, and the small size enterprises were third priority.

According to Talaneh (2016) research, there is a good geographical focus for the development of tourism clusters in the city of Sari, but there is a weak inter-agency cooperation relationship. Due to the weakness of the relations and problems found in tourism service centers, tourism cluster implementation is essential for the development of these centers. Based on the two models of Electric and Pralong Jafari and Hosseini (2018) estimated tourism value of the Hamadan tourism target villages in four appearance beauty, scientific, cultural-historical and socio-economic criteria. Based on both the Electric and Pralong models the villages of Varkaneh, Simin, Barfjin, Gashai, Abaro, Malhamdareh, Haidarah and Ashtran had higher scores respectively; the most important potential in this regard was the better tourism infrastructure than other target villages. The results of Ahmadi, Cheraghi, and Soltani (2018) study show that the factors of infrastructure, local capabilities, policy making and publicity have led to the formation of ecotourism development in rural areas of Zanjan city of Sohrain plain. The results of Nikraftar and Nosratifar (2018) showed that in Alborz province, entrepreneurship opportunities are prioritized along with natural and recreational attractions, followed by ecotourism, souvenirs and handicrafts. Ecotourism roads and rural houses with details of rural life are among the most important opportunities identified to launch a business in the field of rural tourism. The results of Sharifzadeh, Abdollahzadeh, Jivar, and Diwsalar (2019) showed that the consequences of the formation agricultural industrial clusters in the villages resulted in the extraction of six factors: (1) promoting agricultural economic development, (2) promoting social development, (3) increasing production capacity in agriculture, (4) promoting and developing agricultural entrepreneurship, (5) the development of the agricultural market, and (6) the development of human capital in the agricultural sector.

Most of the relationships between tourism businesses are poor and unorganized. Mashhad's high turnover of tourism facilities and recognition of Mashhad in terms of providing catering services nationwide, were some of the strengths and low interaction, lack of tourism finance centers were some of the weaknesses of Mashhad's tourism sector (Soltani & Bostan, 2018). Based on the theoretical background of the research conducted about tourism clusters, the conceptual model of this research is presented as follows.

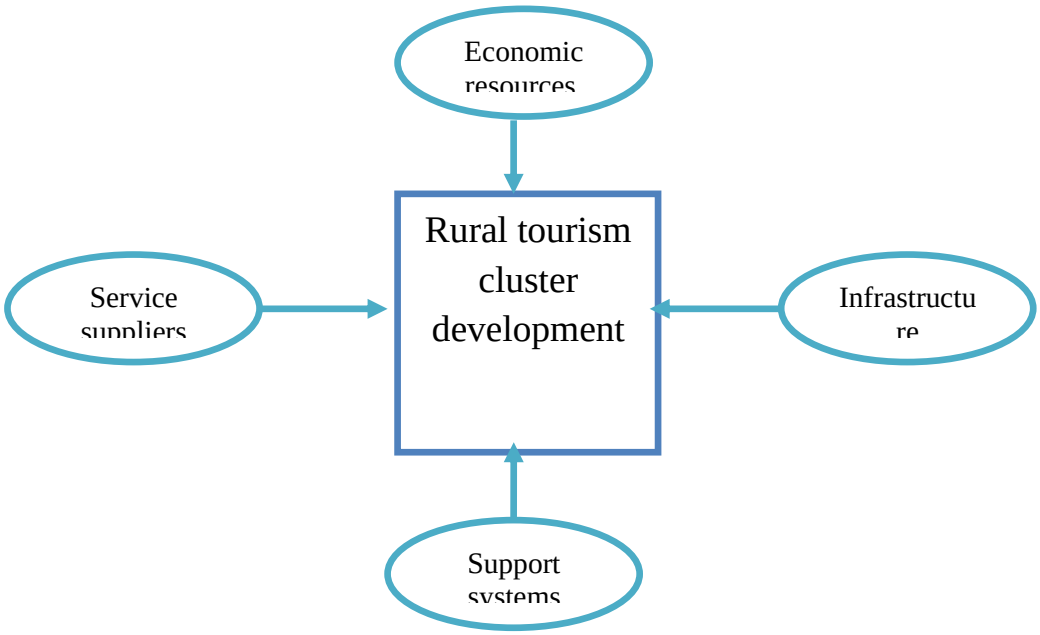

Fig 2. Conceptual model of rural tourism cluster development

3. Research Methodology

3.1 Geographical Scope of the Research

Village of Ashtaran is located around 20 km of Tuyserkan city in south slopes of Alvand Mountains and northern slopes of Khan Gormes in Hamadan province, in the central part of Khorramrud sector. The village of Ashtaran connects to neighboring cities in three main ways. The village topography is relatively rugged and mountainous over 1810 meters above sea level. The population of the village in 2006 was about 1328 people in 365 households, which decreased by 254 persons to 1074 in 362 households in 2016 (Statistical Yearbook, 2016). The main job of the villagers is the agriculture and horticulture and the main garden products of this village are plums, apricots, almonds, grapes and apples. Wheat and barley farms are the next ranks of agricultural products in this village (Statistical Office of Economic Planning Deputy of Hamadan Province, 2016).

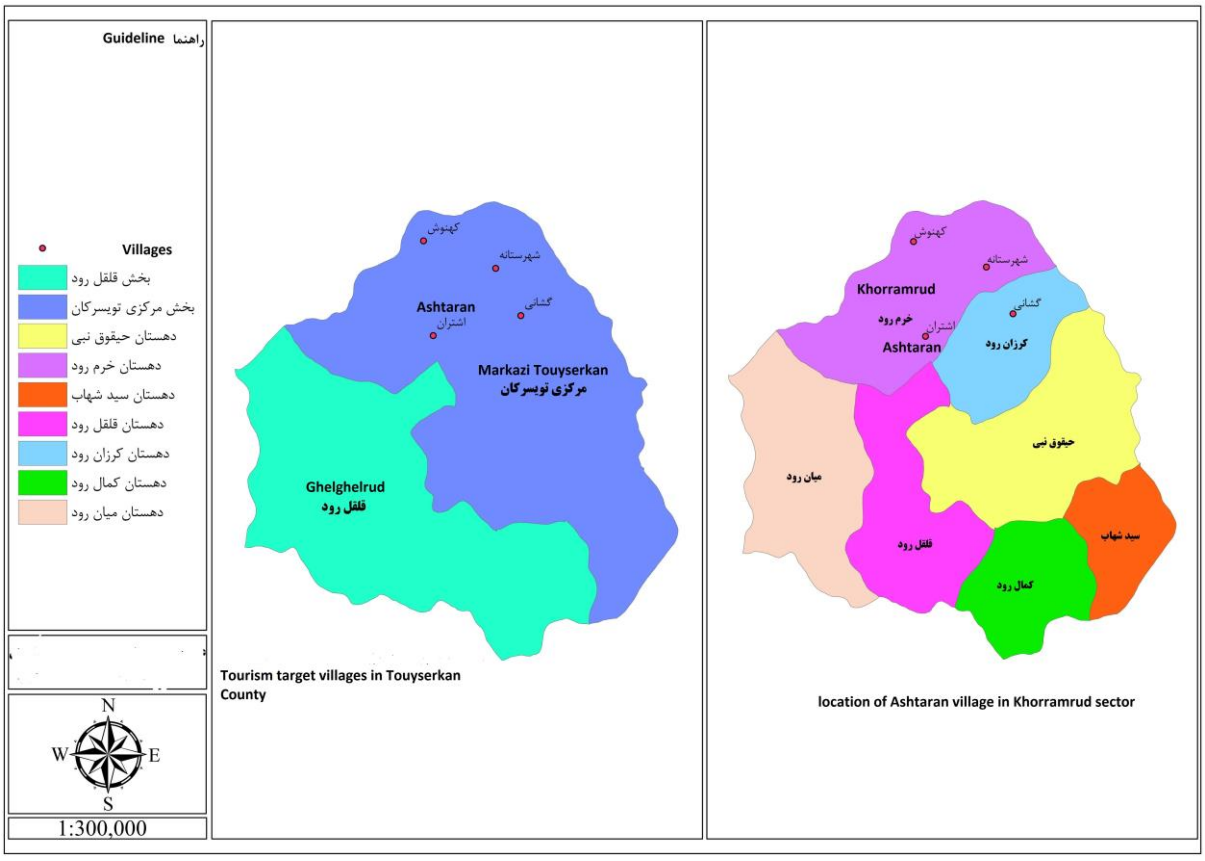

Fig 3. Location of Ashtaran village in Tuyserkan county and Khorramrud sector

3.2. Methodology

This research was an applied research aimed at investigating the factors affecting rural tourism cluster. The statistical population of the study consisted of two groups including experts on rural tourism in Hamedan province (21 people) and 360 villagers from Ashtaran village. The experts were selected without sampling but the villagers were randomly selected using Krejcie and Morgan table leading to a group of 185 individuals as the sample. The data collection method was designed using library research and documents; also, brainstorming sessions with experts were conducted with the aim of designing questionnaires for tourism cluster in Ashtaran village. In the data analysis section, structural equation modeling (SEM) with PLS6 software was used to determine the contribution of each independent variable in explaining the variance of the dependent variable (rural tourism cluster development). Tables 1 to 5 show the observed and latent variables (dependent and independent variables) used in the development of rural tourism clusters.

Table 1. Independent variables (Economic factors)
(Source: Research finding, 2019)

Economic factors	Code	Economic factors	Code
Existence of mineral water in the highlands of Khan Gormaz	X9	Rangeland potentials in the southern slopes of Alvand	X20
Potential of medicinal plants' production	X10	Breeding of livestock and poultry in industrial form	X21
Potential of extraction granite and silica	X11	Seasonal rivers of Khorramrud and Kondar	X22
Potential to create an industrial complex	X12	Mountaineering potential in the altitudes of Alousan, Ghezel Arsalan and Khan Gormas	X23
Carpet weaving	X13	The potential of cycling	X24
Morvar weaving	X14	Home business tourism	X25
Sofa and Inlay	X15	Historic castle and castle bath	X26
Gilim (Rug)	X16	Mushroom cultivation	X27
Processing industries on grapes, walnuts, plums	X17	Aquaculture	X28
Processing industries on dairy products	X18	Producing of organic products	X29
Agricultural potentials	X19		

Table 2. Independent variables (Infrastructure factors)
(Source: Research finding, 2019)

Infrastructure factors	Code	Infrastructure factors	Code
Art-cultural potentials such as music, art, celebrations, and beliefs	X30	Supporting the supply of products in local and regional markets	X46
Existence of Imamzadeh Ibrahim and Imamzadeh Taherben Ali	X31	Strengthening home businesses in the various areas of the handicraft and processing industries	X47
Branding of Ashtaran village products	X32	Insurance of agricultural and horticultural products	X48
Research potentials in the field of tourism according to antiquity, architecture and pristine nature	X33	Accountability of county officials in implementing rural projects	X50
Forming a New Government Policy entitled "Co-operative Village"	X43	Educating the villagers in various forms	X51
Financial troubleshooting and banking facilities, especially guarantees	X44	Culture building through local and national media	X52
Organizing production processing and marketing of products	X45		

Table 3. Independent variables (Service factors)
(Source: Research finding, 2019)

Service Factors	Code	Service Factors	Code
Ecotourism start ups	X64	Introducing the culture and history of the village	X70
Launch Local Marketplace	X65	Nature Tour	X71
Launching home and family business factories	X66	traditional restaurant	X72
Launch of public services (parking, restroom, dining room)	X67	Traditional and local exhibitions	X73
Launching recreational facilities	X68	Introducing the architecture of the village	X74
Preparation of village skilled and unskilled labor force certificate	X69	Launching the museum	X75

Table 4: Independent variables (Organizational factors)
(Source: Research finding, 2019)

Organizational factors	Code	Organizational factors	Code
Ability to attract financial support from governmental organization	X53	Ability to raise funds through the county or provincial governorate	X59
Ability to attract financial support from private agencies	X54	Ability to raise funds through the universities	X60
The ability to get funds from international organizations	X55	Ability to raise funds through the banks	X61
The ability to get funds from cooperatives and unions	X56	Ability to raise funds through the neighbors	X62
Ability to get funds through the Tourism and Cultural Heritage Organization	X57	Ability to raise funds from relatives and friends	X63
Ability to get funds through agricultural Jihad Organization	X58		

Table 5: Dependent variables (Tourism development factors)
(Source: Research finding, 2019)

Tourism development factors	Code	Tourism development factors	Code
Management and protection of rural resources (water and energy)	X34	Agricultural development programs	X38
protection and effective utilization of ecological resources	X35	Implementation of research projects	X39
Development of greenhouse cultivation	X36	Providing financial and banking facilities	X40
Encouraging people to invest in the village	X37	Investment in the development of small-scale enterprises	X41

4. Research Findings

Descriptive results: Findings showed that the mean age of the rural people was 37.47 years with a standard deviation of 16.96. The youngest was 17 and the highest was 77. 80.3 percent of the respondents were men and the rest were women. 55.7 percent were married and 44.3 percent were single. Regarding the level of education, the findings indicated that the highest frequency (31.1 percent) belonged to those with a high school diploma and the lowest frequency (8.2 percent) to illiterate people. Also, 19.7 percent had primary education, 19.7 percent had secondary education, and 21.3 percent had university education. The main job of the majority of those samples was “agriculture” with 42.7 percent; 14.2 percent were self-employed; 26.5 percent were workers and 16.5 percent were students.

4.1. Tourism Development Measurement Model of Ashtaran Village

In analyzing the measurement model, it is necessary to examine the internal reliability, external reliability, convergent validity and divergent validity. The reliability of each of the variables in the model is determined by the factor loadings of each index. The relevant value of each factor loadings of the variables should be greater than or equal to 0.5 (Falker & Miller, 1992). The results for factor loadings are shown in Figure 4.

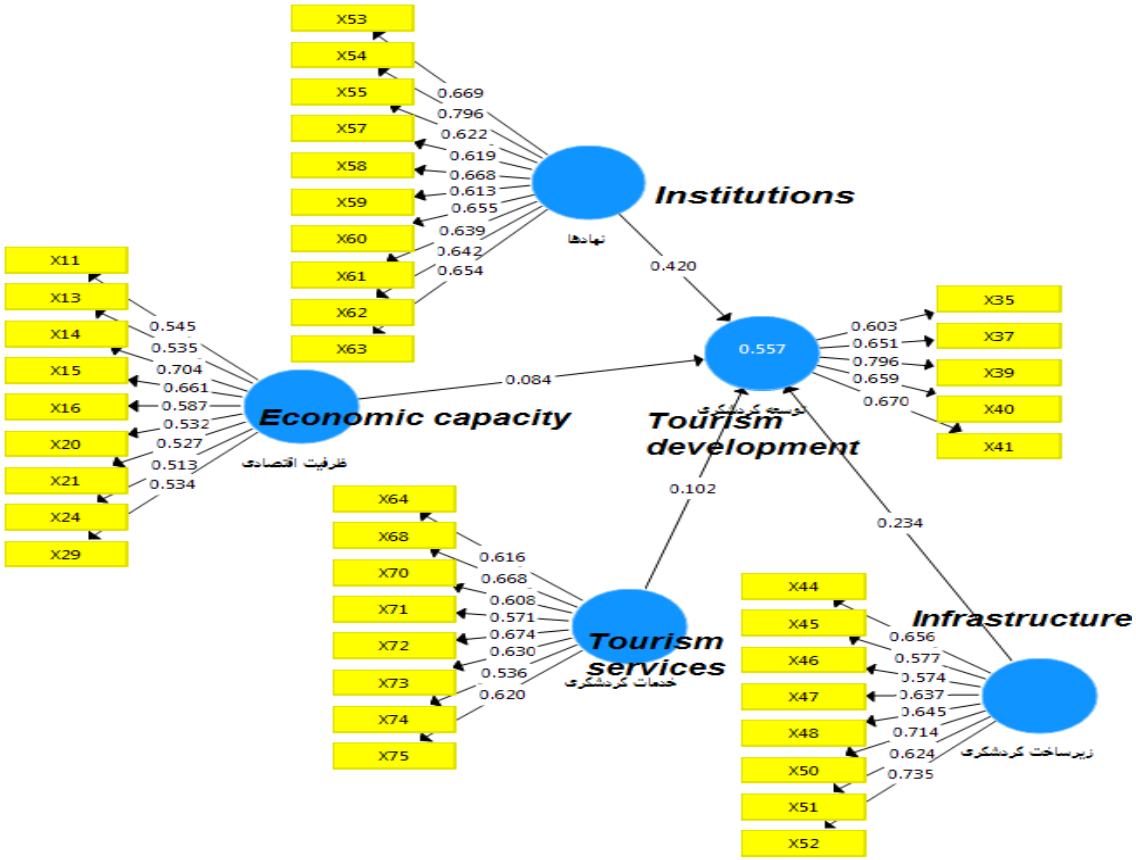

Fig 4. Research measurement model and factor loads after removing some observed variables
(Source: Research finding, 2019)

As shown in the figure 4, the values of the factor loadings associated with the observable variables (except for variables X12 ،X17، X18 ،X19 ،X22 ، X23 ،X25 ،X26 ،X27 ،X28 ،X30 ،X31 ،X32 ، X33 ،X34 ،X36 ،X38 ،X42 ،X43 ،X49 ،X56 ، X65 ،X66 و X67) are above 0.5 and therefore it can be said that the measurement model has a relatively good reliability in terms of the observable variables indices. It should be noted that the variables mentioned above due to the low load factor were removed from the equation and the measurement model of tourism development was conducted after the removal of these variables. The second criterion for the reliability of latent variables is the composite reliability (internal consistency) of the variables whose value must be greater than or equal to 0.7 (Nanley, 1978). The values obtained for this index also indicate the acceptable reliability of the latent variables (Table 6).

The third criterion for examining the internal stability of the variables is convergent validity, which is analyzed by the Average Variance Extracted (AVE) criterion. This index represents the amount of variance a variable (latent variable) obtains from its indices. For this criterion, Fornell and Locker (1981) suggested values greater than 0.5. As shown in the table 6, the values of Average Variance Extracted (AVE) for the component of tourism development, tourism infrastructure and institutions are acceptable and average for the component of tourism services and economic capacity. Therefore, the measurement model has relatively good convergent validity.

Table 6. reliability and convergent validity (AVE) among the variables
(Source: Research finding, 2019)

Latent variable	Cronbach Alpha	composite reliability	Average Variance Extracted (AVE)
Tourism Development	0.706	0.809	0.561
Tourism Services	0.768	0.830	0.481
Tourism Infrastructure	0.800	0.851	0.519
Economic Capacity	0.749	0.814	0.490
Institutions	0.855	0.884	0.535

To assess the divergent validity the square root of AVE is calculated. This value must be greater than the correlation value of other variables. In table 7, the main diameter values represent the second root of AVE and other values also show the correlation between variables. As can be seen, the diagonal elements have values more than other values (values shown in column). It can be said that all the factors have good divergent validity (see Table 7).

Table 7. Divergent validity among the variables
(Source: Research finding, 2019)

Latent variable	Tourism Development	Tourism Services	Tourism Infrastructure	Economic Capacity	Institutions
Tourism Development	0.715				
Tourism Services	0.595	0.720			
Tourism Infrastructure	0.638	0.617	0.694		
Economic Capacity	0.556	0.470	0.551	0.702	
Institutions	0.679	0.648	0.647	0.574	0.660

Different models of goodness of fit were used to evaluate the fit of this model. Among the numerous indices that exist in this regard, the non-normalized fit index (NNFI), the normalized fit index (NFI), the goodness fit index (GFI), are all interpreted for good models ranging from 0.90 to 1, which in this study all items are above 0.9. Also, if the index of the root mean square error of approximation (RMSEA) is less than 0.8, it shows a good fit to the model, which is 0.63 in this study (Table 8).

Table 8. Fit indicators of measuring model of factors affecting rural tourism development
(Source: Research finding, 2019)

Index	Standard value	Calculated value
GFI	upper than 0.9	0.89
NFI	upper than 0.9	0.92
NNFI	upper than 0.9	0.91
RMSEA	Lower than 0.8	0.63

4.2. Analysis of Structural Model of Rural Tourism Development

In the following, the structural model of the research is analyzed. There are five latent variables in the model, and 67 observed variables. The variables of institutions, economic capacity, tourism services, and tourism infrastructure were as independent variables, and tourism development as the dependent variable.

The coefficients of each path are also shown in Fig. 5. The coefficients are acceptable if the P-value is less than 0.05 and the factor loadings are more than 0.5. The results show that the coefficients of the whole paths are significant and therefore all the independent variables of the model have a significant relationship with tourism

development. In the structural model of research, the highest impact with beta coefficient of β=0.420 related to institutions on rural tourism development and the relationship was positive and significant. This result shows that if the trusted institutions are able to attract capital for tourism, they will have a significant role in the development of rural tourism.

Thereafter, the component of tourism infrastructure is ranked second with an impact factor of 0.24. This result means that tourism infrastructure has a positive and significant impact on the development of rural tourism. The tourism services component has the third priority in terms of impact priority with a factor of 0.102. It is concluded that tourism services have a positive and significant relationship with the dependent variable; in other words, these factors can play an important role in promoting rural tourism. Economic Capacity is in fourth place with an impact factor of 0.04.

Overall, 56 percent of the dependent variable of tourism development in the village of Ashtaran is explained by four factors: institutions, tourism infrastructure, economic capacity, tourism services. The prediction power of the designed model is analyzed using the coefficient of determination (R^2) for the dependent variable. Chin (1998) set weak values of the coefficient of determination below 0.19, values ranging from 0.20 to 0.32 as moderate, values ranging from 0.33 to 0.66 as good and values above 0.67 as strong. With regard to this result that 56 percent of the variance in the dependent variable (tourism development) were explained by predict variables (i.e., institutions, economic potential, tourism, infrastructure, tourism), it can be concluded that the predicted power of structural model is enough and good.

Table 9. Path coefficients and the significance level in the model of rural tourism cluster development
(Source: Research finding, 2019)

Path	Path coefficient	Sig.	Result
Tourism Services--- Tourism Development	0.102	0.001	+
Tourism Infrastructure--- Tourism Development	0.234	0.001	+
Economic Capacity--- Tourism Development	0.084	0.044	+
Institutions--- Tourism Development	0.420	0.001	+

5. Discussion and Conclusion

In the structural model of the present study, among the factors influencing tourism development of Ashtaran village (i.e., institutions, economic potential, tourism, infrastructure, tourism services), the institutions component was the first to be influenced and from the viewpoint of respondents, plays the most important role in explaining the dependent variable (tourism development). This relationship is positive and meaningful and shows that if trusted institutions are able to attract capital for tourism, they will have a significant role in the development of rural tourism. Erjaie et al. (2016) also conclude in his study that the support of institutions, especially the government, has been an important factor in the success of industrial clusters in Guilan. Lee (2016), Wilson and Popp (2017), Soltani and Bostan (2018), and Kazemi Esfah (2015) also achieved similar results in their studies.

According to the coefficients, it can be concluded that the ability to attract capital from different institutions had the greatest role in the development of tourism cluster in Ashtaran village. This means that the more capital is attracted to tourism, the better its development. It is suggested that the support of various organizations, especially the municipality and the Cultural Heritage Organization, be used in order to raise awareness of tourism potentials and opportunities in the village of Ashtaran. For example, the use of city-wide advertising banners, catalogs, national media advertising, the introduction of the village through telegram channels, the establishment of tourism camps to familiarize with the village's native culture, holding various exhibitions nationally and internationally to identify rural capacities, are important to know more about Ashtaran village by various organizations and people as a target village. People and organizations awareness into the village makes it easier for them to invest in the

area and invest more money into the village's tourism cycle, which can be spent on tourism development. Another point in this regard is the various guidelines, regulations and bylaws issued by the authorities and institutions in support of tourism development in the villages, and lack of attention to these guidelines has made it difficult to implement them in practice. In this regard, it is suggested that, along with these supporting guidelines and regulations, their operational guarantees be considered. A monitoring committee, for example, could be formed with members from various tourism agencies, including the Jihad of Agriculture, the Provincial Government, the Tourism and Cultural Heritage Organization, the university, and the technical and professional organization, to oversee the proper implementation of resolutions. In addition, strategies such as supporting eco-tourism, providing low-cost facilities and supporting cooperatives and the establishment of rural micro-credit funds can be mentioned to raise funds.

The tourism infrastructure component is ranked second in terms of impact on the tourism cluster development. This result means that tourism infrastructure has a positive and significant impact on the development of rural tourism. This result is consistent with the studies by (Ahmadi et al., 2018; Jafari & Hosseini, 2018; Onetti et al., 2012; Pereira & Caetano, 2015; Pereira et al., 2019; Sharifzadeh et al., 2019; Talaneh, 2016). Among the variables of this component, culture building through local and national media, education of the villagers in various forms and monitoring and accountability of city and sector officials in the implementation of rural projects received the highest rating and from the respondents' point of view as the most important factor in tourism development. Considering the importance of having experienced and skilled human resources, it may be advisable to offer training classes for the villagers to familiarize them with tourism issues. A skilled human resource that is familiar with the ways of attracting tourists and knowing the languages of the world can better communicate with tourists and can provide the basis for tourism development in the village. As a result, the tourist is also more satisfied and this will make his/ her trip a repeat in the future.

The component of tourism services is ranked third in terms of impact priority. It can be concluded from this finding that tourism services have a positive and significant relationship with the dependent variable, so providing high quality tourism services and, of course, reasonable prices can have a significant impact on tourism cluster development. In this regard, the establishment of cheap accommodation units with favorable services, the establishment of affordable accommodation units with affordable prices, the establishment of recreational and entertainment centers for the survival of tourists, the sale of handicrafts, as one of the most important economic opportunities in the village of Ashtran should be offered at favorable prices. Of course, it should be noted that in addition to the establishment of these centers and their equipment and support, they should be introduced to tourists. In this directions, establishing niche markets for the introduction of accommodation units, recreation and entertainment centers, and the sale of indigenous products, especially rural handicrafts, can be helpful.

The economic capacity component is ranked fourth in terms of impact compared to other factors and has a positive and significant relationship with tourism development. Ashtaran Village has much economic potential for attracting tourists and developing a sustainable tourism cluster, including mineral water in the highlands of Khan Gormas, potential of medicinal plants, potential of granite and silica mining, potential of industrial complexes, potential of handicrafts, and processing agro-food crops and livestock. The results showed that among these economic capacities, handicrafts and agro-processing industries have high potential and can be one of the main axes in tourism cluster development. Therefore, this study proposes that a specialized financial institution such as agricultural banks or tourism financial institutions specifically support the production activities related to these industries in the village in order to develop tourism clusters.

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Research Article

بررسی عوامل مؤثر بر توسعه خوشه گردشگری روستایی (مطالعه موردی روستای اشتران شهرستان تویسرکان)

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چکیده مبسوط

۱. مقدمه

یکی از اهداف کلان توسعه در اغلب کشورها کاهش بیکاری و توسعه فعالیت‌های شغلی است. امروزه مبحث اشتغال صرفاً یک بحث اقتصادی یا مربوط به یک کشور خاص نیست، بلکه تقریباً تمامی جوامع به‌نوعی با معضل بیکاری دست‌به‌گریبان‌اند و ابعاد این معضل تمامی بخش‌ها ازجمله امور اجتماعی، فرهنگی، اقتصادی و حتی سیاسی و امنیتی را نیز متأثر ساخته است. دانشمندان و صاحب‌نظران امر توسعه معتقدند مشکلات شغلی و بیکاری در روستاها شکل پیچیده‌تر و ابعاد گسترده‌تری دارد؛ چراکه فقر گسترده، نابرابری فزاینده، بیکاری، مهاجرت، حاشیه‌نشینی شهری و غیره را به همراه دارد. این در حالی است که روستاها مملو از فرصت‌های جدید و کشف‌نشده‌ای هستند که بهره‌برداری به‌موقع از این فرصت‌ها و ایجاد کسب‌وکارهای جدید و رقابت‌پذیر می‌تواند مزایای چشمگیری را برای روستاییان به همراه آورد. در این راستا رویکردهایی پایدار هستند که با توجه به تغییرات فناوری و قواعد و مقررات بازار، به ارزیابی مداوم نیازهای بازار و ضرورت‌های فناوری پرداخته و بتوانند مدل اشتغال مناسب‌تری ارائه کنند.برای همین منظور اخیراً توسعه از طریق خوشه‌های کسب‌وکار، در سیاست‌های اقتصادی و صنعتی کشورهای توسعه‌یافته جای خود را بازکرده است.

۲. مبانی نظری تحقیق

ساختار کلی یک خوشه گردشگری شامل چهار واحد می باشد. شامل واحدهای ارائه‌ی خدمات گردشگری، تامین‌کنندگان مواد اولیه، گردشگران، نهادهای مختلف. بنابراین در یک خوشه گردشگری به منظور جذب گردشگر و رسیدن به ارزش اقتصادی از این طریق سه سطح وجود دارد. این سطوح عبارتند از: سطح خدمات گردشگری، شامل اقامتگاه‌ها، رستوران‌ها و مراکز خرده فروشی. سطح دوم شامل آژانس‌ها و تورهای برگزارکننده، شرکت‌های حمل و نقل هوایی و زمینی و سطح سوم شامل مدیریت و حسابداری، تسهیلات و تاسیسات نگهداری، بازاریابی و شبکه‌ی رزرواسیون، خدمات اغذیه، خدمات مهمان‌پذیری و سرگرمی، ساخت و ساز، مصالح، تجهیزات و سرمایه‌گذاری است. البته برخی محققان از سطح نهاده‌ها و عوامل زیربنایی-اقتصادی خوشه نیز سخن به میان آورده‌اند و آن را شامل نیروی انسانی، نوآوری و خلاقیت، نظام مالی، شبکه‌های زیرساختی فیزیکی و ساختار اطلاعاتی می‌دانند.

۳. روش تحقیق

این پژوهش، از نوع تحقیقات کاربردی بوده که باهدف بررسی عوامل مؤثر بر خوشه گردشگری روستایی انجام‌شده است. جامعه آماری پژوهش شامل دو گروه کارشناسان حوزه گردشگری روستایی در سطح استان همدان به تعداد ۲۱ نفر و اهالی روستای اشتران به تعداد ۳۶۰ خانوار تشکیل می‌دادند که کارشناسان به صورت تمام شماری و اهالی روستا به شیوه تصادفی با استفاده از جدول کرجسی و مورگان تعداد ۱۸۵ نفر از آن‌ها انتخاب شد. روش جمع‌آوری اطلاعات با استفاده از بررسی منابع و سوابق مطالعاتی همچنین جلسات بارش فکری با کارشناسان امر با هدف طراحی سؤالات پرسشنامه خوشه گردشگری روستای اشتران طراحی شد. در بخش

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تجزیه‌وتحلیل داده‌ها برای تعیین سهم هر یک از متغیرهای مستقل در تبیین واریانس متغیر وابسته (توسعه خوشه گردشگری روستایی) از مدل‌یابی معادلات ساختاری (SEM) به کمک نرم‌افزار PLS_6 استفاده شد.

۴. یافته‌های تحقیق

به منظور تحلیل مدل ساختاری توسعه گردشگری در این تحقیق، پنج متغیر مکنون و ۶۷ متغیر مشاهده‌پذیر مورد بررسی قرار گرفته است. مؤلفه‌های «نهادها»، «ظرفیت اقتصادی»، «خدمات گردشگری»، «زیرساخت گردشگری» به‌عنوان متغیر مستقل، و متغیر «توسعه گردشگری» به‌عنوان متغیر وابسته ایفای نقش می‌کنند. نتایج نشان می‌دهد که ضرایب تمام‌مسیرها معنی‌دار است و بنابراین همه مؤلفه‌های مدل رابطه معنی‌داری با توسعه گردشگری دارند. در مدل ساختاری پژوهش، بیشترین تأثیر (۰/۳۹۳) را مؤلفه «نهادها» بر مؤلفه «توسعه گردشگری روستایی» داشته و ارتباط این دو مثبت و معنی‌دار است. کمترین تأثیر (۰/۰۸۴) نیز متعلق به رابطه بین مؤلفه ظرفیت اقتصادی با توسعه گردشگری روستایی است. درمجموع ۵۶ درصد از متغیر وابسته توسعه گردشگری در روستای اشتران توسط چهار عامل نهادها، زیرساخت‌های گردشگری، ظرفیت‌های اقتصادی، خدمات گردشگری تبیین می‌شود.

۵. بحث و نتیجه گیری

در مدل ساختاری پژوهش حاضر، از میان متغیرهای تأثیرگذار بر توسعه گردشگری روستای اشتران («نهادها»، «ظرفیت اقتصادی»، «خدمات گردشگری»، «زیرساخت گردشگری»، مؤلفه «نهادها» در رتبه اول تأثیرگذاری قرارگرفته و از دیدگاه پاسخگویان بیشترین نقش را در تبیین متغیر وابسته (توسعه گردشگری) داراست. این نتیجه نشان می‌دهد که چنانچه نهادهای متولی توانایی جذب سرمایه در امر گردشگری را داشته باشند؛ نقش قابل‌توجهی در توسعه گردشگری روستایی خواهند داشت. بنابراین طبق نتایج به دست آمده، توانایی جذب سرمایه از نهادهای مختلف بیشترین نقش را در توسعه خوشه گردشگری در روستای اشتران دارا می باشد. بدین معنی که هر چه سرمایه بیشتری جذب گردشگری شود زمینه توسعه آن بهتر فراهم می‌شود. برای جذب سرمایه پیشنهاد می‌شود از حمایت سازمان‌های مختلف به‌ویژه شهرداری و سازمان میراث فرهنگی در رابطه با تبلیغات بیشتر جهت شناساندن ظرفیت‌ها و پتانسیل‌های گردشگری در روستای اشتران استفاده شود. به‌عنوان نمونه استفاده از آگهی‌نماهای تبلیغاتی در سطح شهر، کاتالوگ‌ها، تبلیغ از طریق رسانه ملی، معرفی روستا از طریق کانال‌های تلگرامی، ایجاد کمپ‌های گردشگری به‌منظور آشنایی با فرهنگ بومی روستا، برگزاری نمایشگاه‌های مختلف در سطح ملی و بین‌المللی به‌منظور شناساندن ظرفیت‌های روستا موجب می‌شود مردم و سازمان‌های مختلف روستای اشتران به‌عنوان یک روستای هدف گردشگری را بیشتر بشناسند.

کلیدواژه‌ها: خوشه گردشگری، گردشگری روستایی، اشتغال روستایی، توسعه روستایی، شهرستان تویسرکان.

تشکر و قدردانی

این مقاله بر گرفته از طرح پژوهشی می باشد که با حمایت دفتر امور روستایی و شوراهای استانداری همدان و استفاده از اعتبارات این استانداری انجام شده است. بنابراین نویسندگان بر خود لازم می‌دانند از حمایت‌ها و زحمات بی‌دریغ آن اداره سپاسگزاری نمایند.

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Research Article

Studying the Development of Rural Areas in Kohgiluyeh and Boyer-Ahmad Province Using PROMETHEE Method

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Abstract

Purpose- The cities of Kohgiluyeh and Boyer-Ahmad province are in a deplorable condition in terms of rural development indices. The proper planning for optimal allocation of resources requires the analysis of development indices in the province, so that we can attain balanced and exhaustive development by capitalizing on existing forces and capacities of the cities to bring about prosperity and happiness for all people. In the present study, in order to identify the current status of development in the province and its rural areas, we have used eight effective criteria and 40 items (sub-criteria) to identify and classify rural areas in this city and rural areas.

Design/methodology/approach- This is a descriptive-analytical study with an applied approach that adopts a regional approach to the geographical area. In order to model the level of development, according to the goals of the research, the development indices of the province were collected based on library resources. After identifying and reviewing the study indices, the weight of each index was determined based on the mathematical models used in the PROMETHEE decision making method. Finally, the results were entered in GIS software and the output maps were drawn.

Findings- The results suggest that Boyer-Ahmad city with the highest net output flow is highly developed, followed by Basht and Lande cities.

Originality /Value- This paper is categorized as new rural studies as it investigates 602 villages in Kohgiluyeh and Boyer-Ahmad province using a PROMETHEE decision-making method. The results of this study can have many implications for rural planning researchers.

Key words- Kohgiluyeh and Boyer-Ahmad province, PROMETHEE method, Rural areas, Development indicators, Rural development leveling.

Paper type- Scientific & Research.

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1. Introduction

In the process of planning and development of rural areas, it is necessary to identify and analyze the current status of villages and study their facilities and challenges in various fields in order to guide the planners in setting the development goals and determining appropriate policies and strategies. In this process, determining the levels of rural development and evaluating the strengths and weaknesses of each region in economic, social, cultural and physical areas lay the ground for optimal allocation of resources and facilities for harmonious, integrated and balanced development of villages (Fathollahzadeh & d Mehdizadeh, 2013). There are several ways to classify and rank regions, all of which are intended to alleviate regional inequalities. In addition to natural, economic, and social characteristics, such inequalities are influenced by politics and planning strategies.

The planners have developed several techniques and methods to identify and analyze the causes of inequality and regional differences by exploring the degree of development and ranking of regions (Nazmafar & Ali Bakhshi, 2017). One of these decision-making methods is PROMETHEE, which considering its hybridity and expansion potentials at various national, regional, urban and rural levels, can have multiple applications in assisting and advising the planners and authorities at diverse levels of decision making.

In the present study, in order to identify, analyze and model the development of rural areas in eight cities of Kohgiluyeh and Boyer-Ahmad provinces, 40 effective and accessible indicators were developed based on valid scientific and statistical documents and resources including 2016 population and housing census, statistical yearbooks, and population statistics of villages as well as the resources obtained from the administrative centers and institutions of the province

The cities of Kohgiluyeh and Boyer-Ahmad province are in deplorable conditions in terms of rural development indices. Hence, proper planning for optimal allocation of resources calls for the analysis of the extent of development in provincial regions, so that we can achieve balanced and inclusive development by tapping on existing forces and capacities in the cities and consequently bring prosperity for all people. The main question raised in this study is "What is the level of development of rural areas in cities of Boyer-Ahmad, Kohgiluyeh, Gachsaran, Dena, Bahmaei, Basht, Charam and Lande in Kohgiluyeh and Boyer-Ahmad provinces?"

2. Research Theoretical Literature

2.1. Rural Development and its Characteristics

Rural development describes proper and efficient management and operation of basic, natural, financial and human resources of the rural areas to achieve a suitable and desirable consumption pattern and to employ the technical facilities that meet the demands of the present and future generations (Falsoleiman, Mekaniki & Eghtedari, 2019). Traditionally, rural development has focused on the use of natural land resources such as agriculture and forestry. Anyway, changes in global production networks and growing urbanization have altered the characteristics of rural areas. Tourism, special products, and alternative entertainment, resource extraction and agriculture are the main economic drivers of these areas (Ghaffari & Salehi, 2013).

Development indices are statistical criteria that describe the status of diverse dimensions of development in an abridged but comprehensive manner. Agricultural development, industrial development, services, infrastructure, educational and health indicators are examples of development indices (Kalantari, 2010). In most of previous research, a multi-criteria decision-making model has been used to investigate indicators in various economic, social, cultural, industrial, service, educational, infrastructure dimensions. For each of these indices, separate sub-indices could be defined. In this study, eight main indices and 40 sub-indices have been used as follows:

- Demographic index includes population, literate population, employed and unemployed population;
- Healthcare Index includes health centers and health houses, mortuary, sewage system, veterinarian, physician;
- Business-service index includes cooperative stores, bank, fuel station, bakery, grocery store and kerosene distribution center;
- Cultural-sport index includes rural park, public library, play grounds and gym;

- Infrastructure utilities index includes water, electricity and gas;
- Political-administrative index includes Islamic Council, Dehyari, Agricultural Service Center, police station;
- Scientific-educational index includes kindergarten, primary school, boys middle school, girls middle school, boys high school, girls high school, vocational high school and technical and vocational high school;
- And, communication and transportation index includes access to post office and post boxes, telecommunication office, access to public transport, Internet connectivity, asphalt road, dirt road, rural master plan;

2.2. Rural Development Ranking

Through the ranking of rural areas, it is possible to determine the status of development and deprivation. One of the benefits of this ranking is providing an extended and integrated hierarchy of rural service centers. It provides access to a wide range of functions for a number of people, allowing a comparison of the level of regional development in different areas in order to identify possible causes of underdevelopment (Badri, Akbarian & Jawaheri, 2006). What is meant by ranking is the hierarchical position of villages based on diverse indicators of sustainable development, which merges environmental, social and economic dimensions. In fact, ranking is a type of hierarchical grouping of identical phenomena, which is performed based on a set of criteria or characteristics and evaluates the status of each criterion relative to others. Grouping at the classification is designed as a statistical tool, which is intended to provide a framework for analyzing and presenting a broad range of generalizable data (Ziaian, Firoozabadi & vallahie 2015).

2.3. Rural Development Models

The adoption of quantitative criteria and methods to rank settlements in the spatial system of regions not only leads to the unraveling of inequalities in settlements, but also serves as a measure of mitigating and eliminating the existing inequality (Ziari, Zanjirchi & Sorkh Kamal, 2010). The wave of adopting quantitative models began during the 1960s, along with the issues related to the level of development, which extended the application of these methods to determining the level of regional development.

Since this decade onward, mathematical models coupled with the application of various quantitative models and different statistical methods and prevalent use of computer software stimulated the desire of politicians, planners and geographers to adopt these techniques in the logical justification of their choices (Badri & Akbarian Ronizi, 2006). Regional ranking based on the level of development is often viewed as a multi-criteria decision-making issue in terms of socio-economic development, which could be addressed in a variety of manners. In these models, the decision maker seeks to choose the best option according to the desired purpose and the characteristics and criteria of the study. These models, which have multiple applications in ranking issues, are also known as ranking models (Akbari & Zahedi Kivan, 2008). With regard to assessing and determining the level of development, there are a variety of methods and techniques to organize and evaluate information, depending on the credibility and trustworthiness of the information and the skill of the programmer (Badri et al., 2006).

2.4. Research Background

Many studies have explored extent of rural development using multi-criteria decision-making models in Iran and other countries. In these studies, various technologies such as geographic information system (GIS), questionnaires, and multi-criteria decision-making models have been used. Some of these studies are as follows.

Lee & Hong (2007) performed a sustainable analysis of Chinese Taipei by selecting 51 indices, concluding that these indices were dissimilar in terms of sustainability. Environmental and social indices move in the direction of sustainability, while economic and institutional indicators are relatively unstable. Soares, Marquês & Monteiro (2003) proposed a method to classify different regions of Portugal in an attempt to support regional development policy. This ranking was based on multivariate statistical techniques of factor analysis and cluster analysis using 33 economic, health, educational and cultural indicators.

In another study identified regional inequalities in Romania using the model of variance analysis and dispersion analysis. They showed that in terms of social and health indices, there were significant differences between Bucharest, the Romanian

capital, and other parts of the country. Polednikova (2014), in a survey of some EU countries using the multi-criteria decision-making method, TOPSIS and sensitivity analysis, illustrated that there was growing inequality between EU countries in terms of urban and rural development indicators, and this inequality was more pronounced in some regions.

In a critical and analytical study based on 14 factors affecting the development of rural areas in the Czech Republic, Straka and Tozova (2016) reported that although there were several indices for identifying and ranking development in rural areas, there were no identical indices to describe rural development. Mosayebi, Barghi, Rahimi, & Ghanbari (2017) investigated the prioritization of development strategies in rural areas by adopting a sustainable development approach to villages in the northwestern region of Isfahan province using four categories of economic, social, physical-spatial, environmental indicators. They also examined the impact factor of these indices by AHP technique and PROMETHEE method. The results suggest that among above indicators, the index of creation and expansion of new jobs, facilities and infrastructure, and adaptability with regional potentials are of the utmost importance. On the other hand, based on these indicators and according to the strategies selected by experts, it turned out that the strategy of tourism development planning and public participation strategy was ranked first among the optimal rural development strategy. (Aliaei and Azizi 2018), used a descriptive-analytical approach to investigate and analyze the level of development of villages in Vakilabad village using 37 indices in three environmental, socio-cultural and economic dimensions through factor analysis and GIS. The results suggest a significant difference between the villages of this village in terms of the level of development, which could be ranked in three groups consisting of high level of development, medium level of development and low level of development.

Sojasi Qeydari, Sadeghloo & Mahmoud (2009) conducted a study based on VIKOR model to rank villages based on bioavailability indicators in Nezamabad rural district of Azadshahr city. They found that the villages of Ghorychai and Haji Nabi had the lowest rank based on 16 biodegradability indices in the studied rural areas, while the villages of Aqchali, Alia and Bahram Sufi had the highest rank.

Development indices are statistical criteria that describe the status of different dimensions of development in an abridged but comprehensive way. Agricultural development, industrial development, services, infrastructure, educational and health indices are examples of development indices (Kalantari, 1998). In most of previous research, a multi-criteria decision model has been used to examine indices in various economic, social, cultural, industrial, service, educational, and infrastructure domains for each sub-indicator.

There are several reasons that corroborate the originality of the present study. With regard to the study of rural planning in Iran, few studies have adopted PROMETHEE decision-making method. In 2013, a special software for this decision-making model called Visual PROMETHEE was introduced. This software has several advantages, which highlight the importance of this decision-making model for planning development in rural areas. Some of these advantages are listed below.

1. Practical features and graphical analyses with specific color schemes;
2. Ability to examine thousands of indices and options;
3. Different analysis features such as GIS and Web, which offer planners a broader view of the area;
4. Possibility of considering the views of all experts up to thousands of experts and questions;
5. Providing access to analyses related to the quality and risk of the project; ability to compare numbers along with quantitative and quantitative weights;
6. Comparison of positive and negative criteria for analysis irrespective of their number; Ability to employ six preference functions for comparison under different conditions and regions;
7. Combining PROMETHEE decision making method and GIS;

Other innovations of this research include studying a statistical population of 277569 people, 602 villages with a population of over 100 people in 45 counties and 8 towns, which is unprecedented in Iran in terms of its large statistical samples.

Kohgiluyeh and Boyer-Ahmad is among the deprived provinces of Iran, and even though most of the natural areas of the province are located in rural areas, rural residents have difficult living conditions. Since a large portion of the province's

resources and services are unequally distributed, it is very important to study the development of rural areas in this province, as it presents a novel dimension that can contribute to proper planning.

2. Research Methodology

2.1 Geographical Scope of the Research

Kohgiluyeh and Boyer-Ahmad Province is located in the southwest of Iran with Yasuj as its capital. It is surrounded by Chaharmahal and Bakhtiari province in the north, Fars and Isfahan provinces in the east, Fars and Bushehr provinces in the south and Khuzestan province in the west. With respect to geographical coordinates, this province is located between 30 degrees and 8 minutes and 30 seconds to 31 degrees and 29 minutes and 45 seconds latitude and between 49 degrees and 52 minutes and 35 seconds to 51 degrees and 41 minutes and 22 seconds longitude. With an area of 15504 square kilometers, according to the latest national administrative divisions in 2016, it comprises eight cities (Boyer-Ahmad, Kohgiluyeh, Gachsaran, Dena, Bahmaei, Basht, Charam and Lande) ((Kohgiluyeh and Boyer-Ahmad Provincial Management and Planning Organization, 2014:98). According to the official report, the population of the province in 1996 was 713052 people. As noted in the 2016 General Population and Housing Census, approximately 186,320 households live in the province, of which 103,270 households settle in urban areas and 82,558 households in rural areas and there are 492 non-resident households. According to the latest administrative divisions in the same year, the province consists of 8 cities, 17 towns, 19 districts, 45 villages, 1643 inhabited settlements and 595 uninhabited settlements (Kohgiluyeh and Boyer-Ahmad Provincial Management and Planning Organization, 2017).

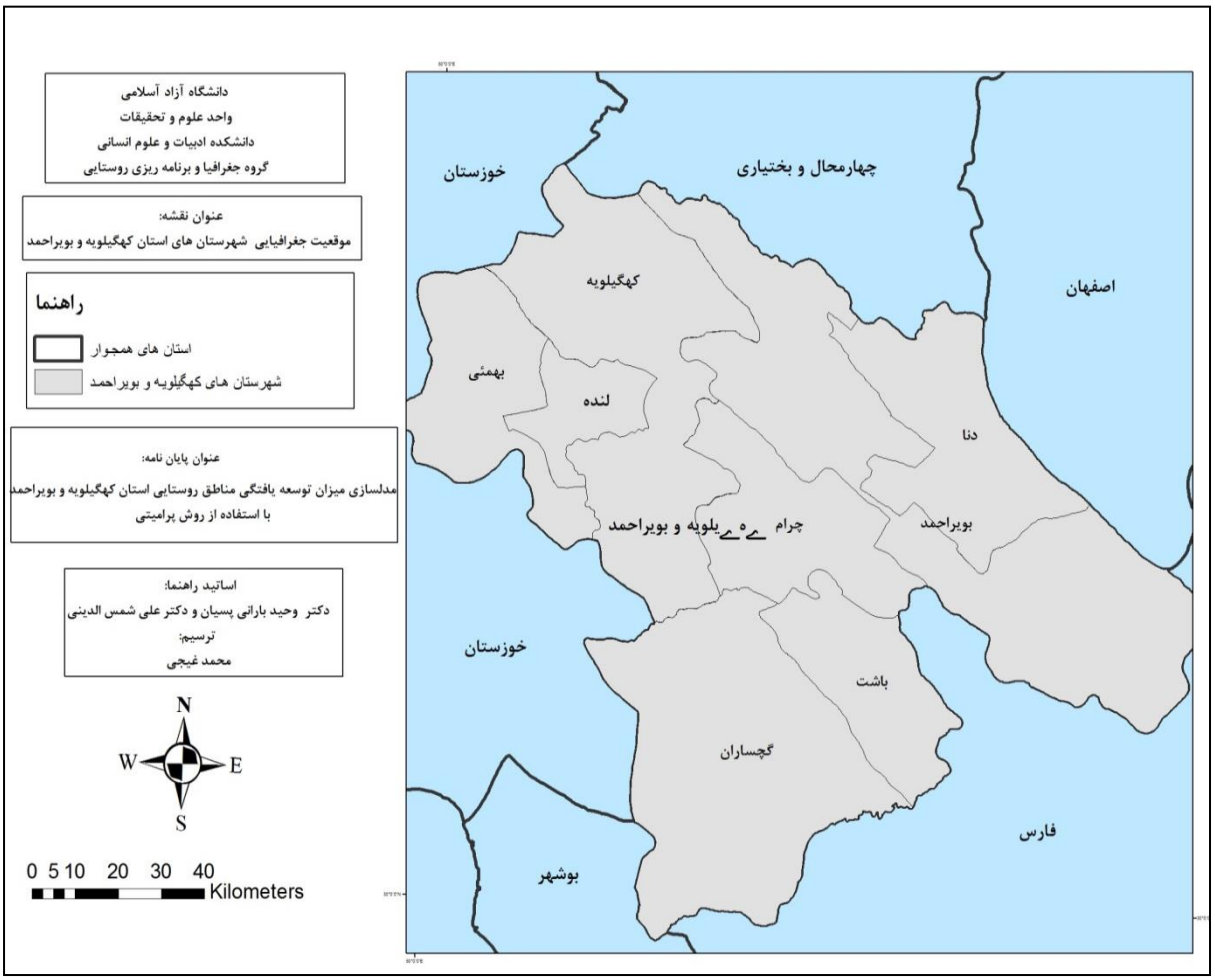

Figure 1. Kohgiluyeh and Boyer-Ahmad province's location map

3.2. Methodology

This is a descriptive-analytical study that falls in the category of applied research in terms its goals. To model the level of development, based on the research objectives, the development indices of the province were collected using library resources. After identifying and reviewing the main indices of the research, we first determined the weight of each index based on the mathematical models used in the PROMETHEE decision making method, and then entered the results to GIS software to draw the output maps.

2.3. Data Analysis Method

The PROMETHEE decision-making method was first introduced by two Belgians, Jean-Pierre Brans and Bertrand Mareschal, in 1982 at a conference at Laval University (shojaeian, , Omidypour & Moradi, 2014:185). Among the main advantages of this method are its simplicity, clarity and reliability of the results. This method can apply the evaluation process to a limited set of restricted alternatives, as a partial or complete ranking. It contains the obvious effect of each criterion and its weight on answers, the high efficiency of the algorithm adopted in this method despite its simplicity and reliance on the positive (Max) or negative criteria (Min), as well as positive and negative prioritization or net ranking flow, which are known as optimal and non-optimal solutions, or similarity index in models such as fuzzy TOPSIS and TOPSIS (Shojaeian & Moradi, 2015). Various models of this method have been proposed to investigate decision-making problems, including the partial ranking of options, complete ranking of options, ranking based on a sustainable range for continuous modes and resolving decision problems with constraints, which are labeled as sensitivity analysis in the tool (Daripoor & Moradi, 2017). One feature of this model is calculating copious views and criteria relative to each other. Features such as spider web analysis (GAIA Web) constitute other features of the software. Despite PRO map analysis, this model does not suffer from drawbacks such as qualitative or quantitative criteria so that the decision maker is able to quantitatively and qualitatively compare some criteria in a matrix by assigning a weight of 1 to 9 in the AHP model and Expert Choice software or a weigh of 1 to 5 in the TOPSIS model, regardless of the quantitative or qualitative nature of criteria. Another feature that distinguishes this model is passivity of using Yes and No weighting for the comparison of indices (Shojaeian & Moradi, 2019).

4. Research Findings

The PROMETHEE method requires a generalized criterion be linked to each index fj (j = 1,2,3,…,k). To do so, a set of six instances of generalized criteria are presented to the decision maker, which are numbered from I to VI. Therefore, an effective choice is obtained through the interaction of the decision maker and the analyst's agreement on understanding the degree of preference (Shojaeian et al., 2014:26). In this method, six generalized criteria for the preference function are suggested to the decision maker, which include Usual, U-shape, V-shape, Level, Linear, and Gaussian criteria (Daripoor & Moradi, 2016). In the PROMETHEE model, options are ranked based on paired comparison in each index. The comparison is made on the basis of a predefined preference function in the range of [0, +1]. The P preference function is used to compare options a and b in terms of index j (Daripoor & Moradi, 2017:114).

$$P_j(a,b) = P_j\left[d_j(a,b)\right]$$

e

Step 1. In the first step, we need to differentiate each of the options based on the following relationship.

$$(a,b) = f_j(a) - f_j(b)$$

Step 2. The preference of each option over other options: after calculating the difference of options, the value of $PP_j(ab)$ is obtained.

Step 3. Total balanced preference of options:

$$\pi(a,b) = \sum_{j=1}^{k} w_j\, p_j(a,b)\ , \qquad (\sum_{j=1}^{k} w \ = 1)$$

Step 4. Obtaining a positive and negative ranking flow: Options can be ranked with a positive or negative flow.

Positive ranking flow or output flow: It indicates the priority of option A over other options. The largest $\phi^{+}(a)$ reveals the best option.

Negative ranking or input flow: It indicates the priority of other options over option A. The smallest $\phi^{+}(a)$ represents the best option.

$$\phi^{+}(a) = \frac{1}{n-1}\sum_{x \in A} \pi = (a, x)$$

$$\phi^{-}(a) = \frac{1}{n-1}\sum_{x \in A} \pi = (a, x)$$

Step 5. Calculating Ranking Net flow: This indicates a balance between positive and negative ranking flows with a higher net flow showing a preferred option.

Step 6: Complete ranking of PROMETHEE II. In this method, a balance is established between positive and negative external ranking flows. The net flow indicates a preferred choice. The complete ranking of options (PROMETHEE II) is defined as follows and the preferred (P) relations and partial ranking of options are determined (Daripoor, Moradi & Mansouri, Z. 2016:28). The most important output of the PROMETHEE method is shown in Table (1). In this figure, the software automatically normalizes all the data and statistical information extracted in the form of eight indicators and forty sub-indicators or items. In this ranking, which was performed for eight cities by comparing 40 indices, Boyer-Ahmad city obtained the highest net output flow and the lowest negative output flow. The city of Lande also had the highest negative output flow and the lowest positive output flow. This ranking was based on the net flow of the city or option (Boyer-Ahmad, Kohgiluyeh, Gachsaran, Dena, Bahmaei, Charam, Basht and Lande).

Table 1. Net, positive, negative and output ranking flows for Kohgiluyeh and Boyer-Ahmad province
(Source: Research Findings, 2020)

Level of development	Negative output flow (Phi-)	Positive output flow (Phi+)	Net output flow (Phi)	Town	Development rank
Very developed	0.0788	0.9113	0.8325	Boyer-Ahmad	1
Developed	0.2118	0.7488	0.5369	Kohgiluyeh	2
	0.3842	0.5813	0.1970	Gachsaran	3
Moderate	0.3793	0.5369	0.1576	Dena	4
Deprived	0.5271	0.3793	-0.1478	Bahmaei	5
	0.6355	0.2562	-0.3793	Charam	6
Very deprived	0.6552	0.1872	-0.4680	Basht	7
	0.8822	0.0936	-0.7291	Lande	8

According to Table (1), Boyer-Ahmad has the highest level of development with a net output flow of 0.832, followed by Kohgiluyeh (0.336), Gachsaran (0.719), Dena (0.157), Bahmaei (-0.147), Charam (-0.379), Basht (-0.468) and Lande (-0.729). This decision-making method has other features, including the comparison of each sub-index with eight cities and provision of the output flow separately.

Table 2. Output flow ranking of commercial-service index in Kohgiluyeh and Boyer-Ahmad Province
(Source: Research Findings, 2020)

Negative output flow (Phi-)	Positive output flow (Phi+)	Net output flow (Phi)	City	Development rank
0000/0	0000/1	0000/1	Boyer-Ahmad	1
2041/0	6735/0	4694/0	Kohgiluyeh	2
3469/0	6122/0	2653/0	Gachsaran	3
3061/0	4694/0	1633/0	Dena	4
5714/0	2245/0	3469/0-	Bahmaei	5
5714/0	2041/0	3673/0-	Charam	6
6531/0	1020/0	5510/0-	Basht	7
6939/0	0612/0	6327/0-	Lande	8

Table 2, which compares cities of this province in terms of commercial-service indices, lists the number of villages with cooperative stores, banks, fuel stations, bakeries, grocery stores, and the kerosene distribution centers. This ranking is based on the net flow of the cities (Boyer-Ahmad,

Kohgiluyeh, Gachsaran, Dena, Charam, Bahmaei, Basht and Lande). Accordingly, Boyer-Ahmad city is the most developed city in the province.
In this ranking, the status of Bahmaei and Charam cities has changed compared to the final ranking. The fact that highlights the importance of this research is the comparison of the province's counties in terms of rural areas or villages, and the nature of relationships between options (towns and counties). Table (3) shows the positive, negative, and net output flows for rural areas in five categories.

Table 3. The degree of development of rural areas in Kohgiluyeh and Boyer-Ahmad provinces
(Source: Research Findings, 2020)

Rank	Negative flow	Positive flow	Net flow	County	Town	Degree of Development
1	051/0	858/0	806/0	Sarrud Jonubi	Boyer-Ahmad	Very development
2	045/0	846/0	801/0	Pataveh	Dena	
3	051/0	840/0	789/0	Dehdasht Sharqi	Kohgiluyeh	
4	062/0	778/0	710/0	Imamzadeh Jafar	Ghachsaran	
5	102/0	738/0	636/0	Sarrud Shomali	Boyer-Ahmad	
6	113/0	726/0	608/0	Lishter	Ghachsaran	
7	113/0	721/0	608/0	Sadat Mahmoudi	Dena	
8	125/0	704/0	579/0	Dasht-e Rum	Boyer-Ahmad	
9	113/0	693/0	579/0	Dehdasht Gharbi	Kohgiluyeh	
10	187/0	608/0	420/0	Behmaei Garmsiri Jonubi	Bahmaei	Developed
11	221/0	522/0	301/0	Sepidar	Boyer-Ahmad	
12	221/0	517/0	295/0	Tayebi Sarhadi Gharbi	Kohgiluyeh	
13	267/0	528/0	261/0	Boyer Ahmad Garmsiri	Ghachsaran	
14	255/0	488/0	233/0	Behmaei Garmsiri Shomali	Bahmaei	
15	255/0	483/0	227/0	Taybi Sarhadi Sharghi	Kohgiluyeh	
16	272/0	465/0	193/0	Tutnade	Dena	
17	238/0	420/0	181/0	Zilaei	Boyer-Ahmad	
18	318/0	443/0	125/0	Bahmaei Sarhadi Sharqi	Kohgiluyeh	
19	227/0	386/0	113/0-	Margon	Boyer-Ahmad	Moderately developed
20	306/0	352/0	045/0-	Cheram	Cheram	
21	329/0	335/0	011/0-	Dena	Dena	
22	403/0	358/0	045/0-	Babuei	Basht	
23	403/0	329/0	073/0-	Ludab	Boyer-Ahmad	
24	369/0	289/0	079/0-	Sarasyab Yousefi	Bahmaei	
25	406/0	380/0	079/0-	Bibi Hakimeh	Ghachsaran	
26	397/0	284/0	113/0-	Bahmaei Sarhade Gharbi	Kohgiluyeh	
27	437/0	301/0	113/0-	Alaghchin	Cheram	
28	437/0	244/0	193/0-	Kabgiyan	Boyer-Ahmad	Deprived
29	443/0	238/0	204/0-	Rock	Kohgiluyeh	

Rank	Negative flow	Positive flow	Net flow	County	Town	Degree of Development
30	406/0	221/0	238/0-	Tayebi Garmsiri Shomali	Lande	
31	471/0	233/0	238/0-	Doshman Ziyari	Kohgiluyeh	
32	465/0	215/0	250/0-	Chin	Boyer-Ahmad	
33	500/0	238/0	261/0-	Sarfaryab	Cheram	
34	573/0	243/0	329/0-	Talkhab	Basht	
35	534/0	170/0-	363/0-	Chenar	Boyer-Ahmad	
36	551/0-	153/0-	397/0-	Kafshkanan	Bahmaei	
37	642/0	142/0	500/0-	Poshte Zilayi	Cheram	
38	619/0	108/0	511/0-	Kuhe Mara Khami	Basht	
39	647/0	136/0	511/0-	Ali Tayeb	Lande	
40	647/0	079/0	568/0-	Kakan	Boyer-Ahmad	
41	676/0	051/0	625/0-	Tayebi Garmsisi Jonubi	Kohgiluyeh	Very deprived
42	681/0	045/0	636/0-	Ajam	Kohgiluyeh	
43	738/0	068/0	670/0-	Sarabiz	Basht	
44	761/0	045/0	715/0-	Shitab	Lande	
45	795/0	014/0	784/0-	Vahdat	Lande	

According to Table (3) and the net output flow presented in the table, the ranking of rural areas of Kohgiluyeh and Boyer-Ahmad Provinces can be obtained as follows:

Very developed villages: Sarrud Jonubi (0.806), Pataveh (0.801), Dehdasht Sharqi (0.789), Imamzadeh Jafar (0.710), Sarrud Shomali (0.636), Lishter (608) / 0), Sadat Mahmoudi (0.608), Dasht-e Rum (0.579) and Dehdasht Gharbi (0.579)

Developed villages: Bahmaei Garmsiri Jonubi (0.420), Sepidar (0.301), Taybi Sarhadi Gharbi (0.295), Boyer Ahmad Garmsiri (0.261), Bahmaei Garmsiri Shomali (0.233), Taybi Sarhadi Sharghi (0.2277), Tutnade (0.391), Zilaei (0.181) and Bahmaei Sarhadi Sharghi (0.125)

Medium villages: Margon (-0.113), Charam (-0.045), Dena (-0.011), Baboui (-0.045), Lodab (-0.073), Sarasyab Yousefi (079) 0), Bibi Hakimah (-0.07.09), Bahmaei Sarhadi Gharbi (-0.113) and Al-ghachin (-0.113)

Deprived villages: Kabgian (-0.391), Rock (-0.204), Tayebi Garmsiri Shomali (-0.238), Doshman Ziyari (-0.238), Chin (-0.250), Sarfaryab (06.261), Talkhab (-0.329), Chenar (-0.363) and Kafshkanan (-0.397)

Very deprived villages: Posht-e Zilaei (-0.500), Kuhe Mare Khami (-0.511), Aali Tayeb (-0.511), Kakan (-0.568), Tayebi Garmsiri Jonubi (-0.625), Ajam (-0.636), Sarabiz (-0.670), Shetab (-0.715) and Vahdat (-0.784)

4.1. Final Ranking of Options

In this study, step four is presented as positive ranking flow (Phi +) or negative ranking flow (Phi-) and step five is presented as the net output flow (Phi). Figure (2) compares cities with a network of nodes and edges. In this figure, as depicted by the ranking of indices, Boyer-Ahmad is ranked first in terms of the level of development with the highest phi + and the lowest phi-. As we move down in the list of top options, the importance of that option declines with the city of Lande obtaining the last priority.

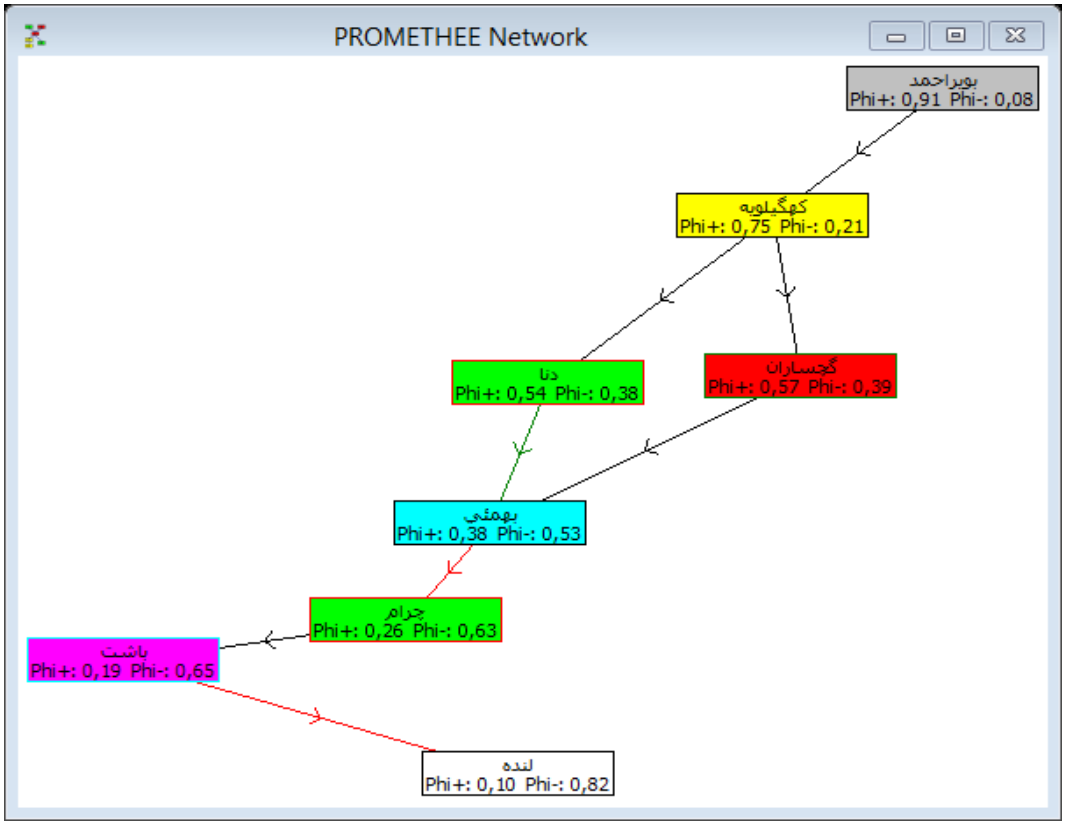

Figure 2. Network modeling of the degree of development in Kohgiluyeh and Boyer-Ahmad provinces
(Source: Research Findings, 2020)

To improve the efficiency of the PROMETHEE method, it is recommended to use the GAIA (geometrical analysis for interactive aid) method with a special modeling technique. In the analysis of multi-criteria problems, it is of utmost important to help the decision maker with the opposing indices and the effect of each index's weight on the final results. GAIA's special modeling method provides such analyses, which are based on PROMETHEE, and add graphic and descriptive analyses to this method. In this method, the set of options can be presented with n points in the next K space. Since there are more than two indices, it is impossible to get a clear picture of the n-dimensional space, and so the analysis of the original composition will correspond to the two-dimensional analysis of options. In this method, options that are in line with the pragmatic decision axis are recommended by PROMETHEEII (Shojaeian et al., 2014).

GAIA and GAIA Web analytics are the most important software analyses of the PROMETHEEII model. The most important feature of this analysis is the level of risk and accuracy or validity of the project. This analysis, which resembles alpha analysis in SPSS software, evaluates expert opinions automatically and assigns a weight in the range of 0 to 100% to the output analysis. A higher weight of outputs (above 70) exhibits the higher level of the project. According to the diagram below, the alpha coefficient and quality of this study is 87.3%, which reflects high reliability of the research and its procedure.

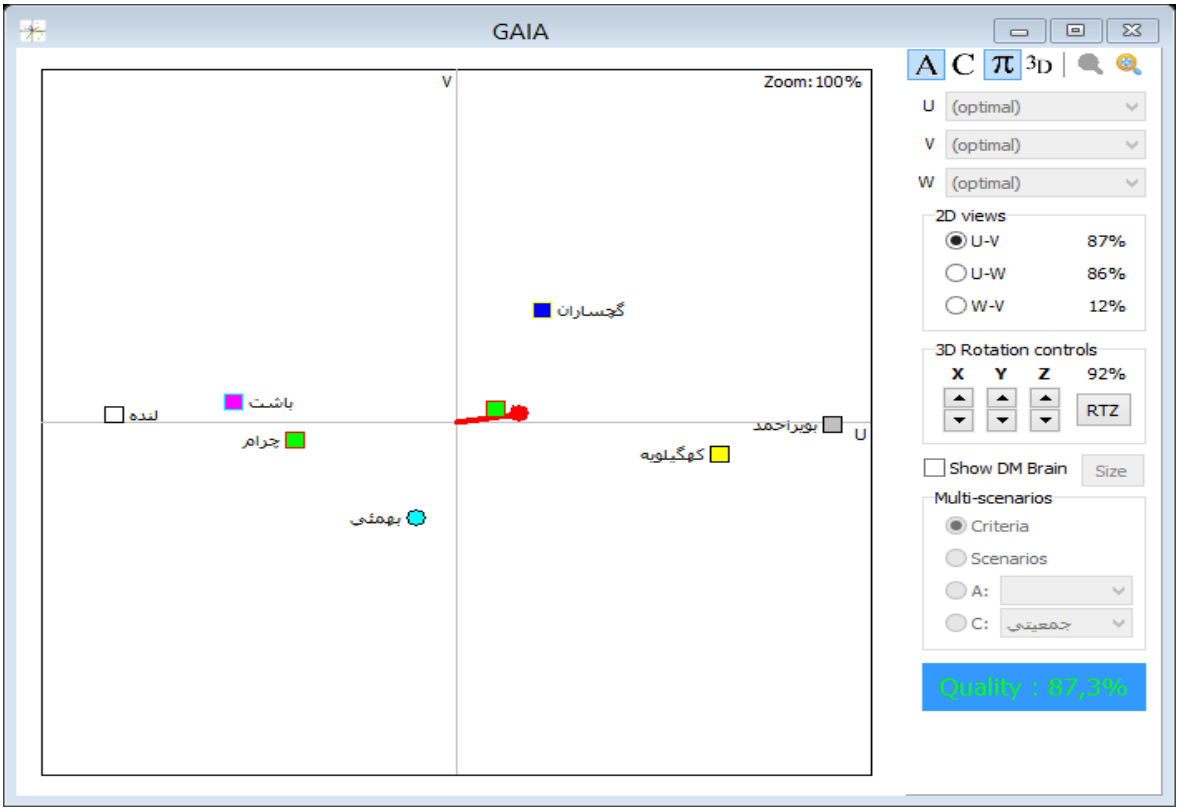

Figure 3. Development modeling with GAIA analysis of Kohgiluyeh and Boyer-Ahmad Provinces
(Source: Research Findings, 2020)

In the PROMETHEEII method, a specific weight is assigned to each criterion, and the classes of each criterion in the input map can assume different weights, as do criteria themselves. This method is highly compatible with the weighting method of the hierarchical process. There are many models for assigning weight to criteria, the most important of which are rating or ratio weighting methods and analytic hierarchy process (AHP).

After determining the final weight of each criterion, these weights are merged in the GIS to assign a weight to each layer and then overlay them in the GIS. Finally, for each of the desired criteria, based on the number of effective layers and the impact of these layers, the appropriate area is identified for prioritizing cities with respect to the level of development.

In this method, different classes are assigned to different weights and flexible combinations are derived from maps, which cover a range of numbers. Overlay logic is divided into two union and intersection types. Union overlay is a method where all layers and their components are visible in a single layer, but in intersection overlay, the existing layers are intersected to find the appropriate location that meets all project conditions. The type of overlay used for positioning is intersection. In this paper, the union overlay has been used. After obtaining the final weights of the net output flow, we need to prepare and draw the final maps. At this stage, the researcher prepares the output map based on the routing procedure. To do so, primary maps are revised based on the latest administrative divisions and converted into Raster files for normalization. In the next stage, the maps of research area, i.e. the cities of Kohgiluyeh and Boyer-Ahmad Province, are merged based on the output weights, which is the net output of the PROMETHEEII method, to prepare the final map. As shown in the outline map (4), Boyer-Ahmad is classified as very developed, and Kohgiluyeh and Gachsaran are classified as developed. They are highlighted in yellow in the map. Dena has a medium level of development (in blue). Bahmaei and Charam fall in the category of deprived areas (in green). Finally, Basht and Lande are classified as very deprived regions.

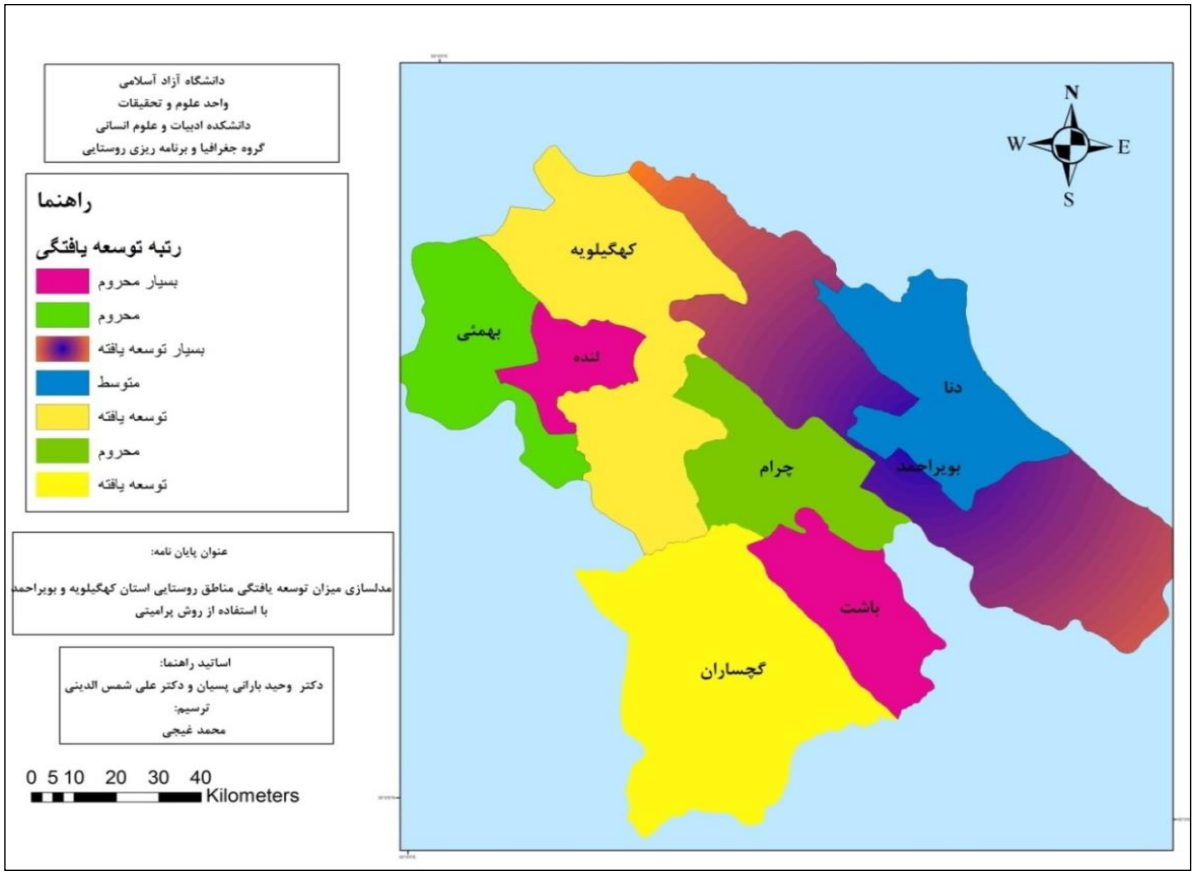

Figure 4. Final map of the development rate of Kohgiluyeh and Boyer-Ahmad cities
(Source: Research Findings, 2020)

5. Discussion and Conclusion

In most developing countries, there are often few regions with a high level of development in terms of public services and economic and social prosperity. These areas play a key role in generating revenue and prompting national production, which comes at the expense of backwardness in other regions and widening inequality between regions across the country. Similarly, in Iran, regional disparities and inequalities are alarmingly on rise. This situation has given rise to serious problems such as migration from deprived areas to more developed areas.

In the process of this research, PROMETHEEII method was used and based on eight indices and 40 items, which are consistent with the definitions of development indices, the development rank of rural areas in Kohgiluyeh and Boyer-Ahmad province were determined. According to the results and development rankings of cities based on 40 indices in the PROMETHEEII decision-making method, the main research question was answered.

In the study area, Boyer-Ahmad is the most developed city in this province; Accordingly, Boyer-Ahmad is the most privileged and developed city of the province with a net output flow of 0.832. Kohgiluyeh and Gachsaran with a net output flow of 0.336, and 0.79, respectively, are ranked among the developed areas. Dena with a net output flow of 0.157 is ranked as moderately developed, and Bahmaei and Charam with a net output flow of -0.147 and -0.379, respectively, are ranked as deprived areas. Finally, Basht and Lande with a net output flow -0.468 and -0.729 are ranked as very deprived areas, respectively.

What justifies the importance and necessity of this research is the growing divergence in the directional development of cities and villages in the cities of the province, which has generated a gap between the residential areas in this province. For this purpose, it is important to study and analyze the status of regions in terms of rural development as a basis for future planning. By determining the quantitative and qualitative status of various indices under the current conditions based on their fundamental capabilities, a

promising future can be envisioned. Furthermore, the assessment of rural indices in terms of the level of development can offer an overview of the geographical conditions of the region in terms of the level of development and stabilization of the population in rural areas, which ultimately contributes to rural development in this province.
Climate diversity, strategic geographical location, abundant tourist attractions and mineral resources are just some of the potentials of Kohgiluyeh and Boyer-Ahmad Province, each of which is sufficient to transform the socio-economic indices of this province. In view of this, the following suggestions can be made:

- Prioritizing the basic needs of villagers including provision of drinking water, improved quality of people's access to bakery and high-quality flour, the need for health services and facilities, access to fuel and energy (gas piping), which are essential for the development of rural life.
- Providing welfare facilities in the villages (e.g., health facilities, sports facilities, proper communication roads, proper residential facilities, etc.) will pave the way for building accommodation in the villages, which will preclude migration to the cities.
- Giving priority to deprived and very deprived rural areas in rural development plans and programs, especially the rural areas of Bahmaei, Charam, Basht and Lande counties.
- Making bottom-up planning and placing a premium on public participation of target groups in regional planning
- And establishing and strengthening service centers in the central villages and counties and striking a balance in the distribution of infrastructure in all villages across the province.

As far as the authors are concerned, this is the first study to examine the rural areas of Kohgiluyeh and Boyer-Ahmad province using a decision-making method. By indexing and weighting the factors affecting rural development, the present study offers a new model for ranking villages, regions and geographical locations in Iran in general. Also, the use of PROMETHEEII model in this research can be a guide for researchers and academic circles or planning organizations of Iran. At the provincial levels, it can also be consulted as a reference for the allocation of resources and credits and fostering the development of cities in Kohgiluyeh and Boyer-Ahmad Province, while recognizing the weaknesses of rural development in each city and their capabilities.

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Research Article

میزان توسعه یافتگی مناطق روستایی استان کهگیلویه و بویراحمد با استفاده از روش PROMETHEE

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چکیده مبسوط

۱. مقدمه

شهرستان‌های استان کهگیلویه و بویراحمد به لحاظ برخورداری از شاخص‌های توسعه‌یافتگی روستایی در سطح مناسبی قرار ندارند؛ به‌گونه‌ای که برای برنامه‌ریزی مناسب جهت تخصیص بهینه منابع به شناخت میزان برخورداری مناطق استان از شاخص‌های توسعه نیازمندیم تا از این طریق بتوان با به‌کارگیری نیروها و ظرفیت‌های موجود در شهرستان‌ها به توسعه‌ای متعادل و همه‌جانبه برسیم که رفاه و سعادت تمامی افراد را به همراه داشته باشد. سؤال اساسی که در این پژوهش مطرح می‌شود این است که میزان توسعه‌یافتگی مناطق روستایی هرکدام از شهرستان‌های بویراحمد، کهگیلویه، گچساران، دنا، بهمئی، باشت، چرام و لنده در سطح استان کهگیلویه و بویراحمد چگونه است؟

۲. مبانی نظری تحقیق

توسعه روستایی به معنای اداره و بهره‌برداری صحیح و کارآمد از منابع پایه، منابع طبیعی، منابع مالی و منابع انسانی روستا به‌منظور دستیابی به الگوی مصرف مناسب و مطلوب و به‌کارگیری امکانات فنی و تشکیلات مناسب که تأمین‌کننده نیاز نسل امروز و نسل‌های آینده می‌باشد. در ارتباط با مدل‌سازی میزان توسعه روستایی با استفاده از مدل‌های تصمیم‌گیری چند شاخصه مطالعاتی زیادی در داخل و خارج کشور صورت گرفته است. به چند دلیل پژوهش حاضر متفاوت و برای اولین بار ارائه‌شده است؛ در مطالعه برنامه‌ریزی روستایی ایران کمتر موضوعی یافت می‌شود که از روش نرم‌افزاری جامع برای این مدل تصمیم‌گیری به نام Visual PROMETHEE به بازار ارائه‌شده این نرم‌افزار دارای مزایایی می‌باشد؛ که اهمیت این مدل تصمیم‌گیری را برای برنامه‌ریزی‌ها توسعه نواحی روستایی دوچندان کرده است که در ادامه به نمونه‌ای از این مزایا اشاره‌شده است:

- ✓ قابلیت‌های و تحلیل‌ها گرافیکی کاربردی با رنگ‌بندی مشخص؛
- ✓ قابلیت بررسی هزار شاخص و گزینه و حتی شاخص‌ها و گزینه‌های بیشتری نسبت به همدیگر؛
- ✓ تحلیل‌های نظیر GIS و Web که برنامه‌ریزان را قادر به دیدی بهتری نسبت به منطقه می‌نماید؛
- ✓ توجه به نظرات تمامی کارشناسان تا هزاران کارشناس و پرسش‌شونده؛
- ✓ وجود تحلیل‌های مربوط به میزان کیفیت و ریسک پروژه؛ قابلیت مقایسه اعداد و وزن‌های کیفی و کمی؛
- ✓ و غیره.

۳. روش تحقیق

این پژوهش به لحاظ هدف از نوع پژوهش‌های کاربردی و به لحاظ حیطه جغرافیایی رویکردی ناحیه‌ای دارد، بر اساس نوع مطالعه توصیفی ـ تحلیلی است. برای مدل‌سازی میزان توسعه‌یافتگی با توجه به هدف پژوهش شاخص‌های توسعه‌یافتگی استان بر اساس منابع کتابخانه‌ای گردآوری گردید. پس از شناسایی و بررسی شاخص‌های موردنیاز در امر پژوهش وزن هر شاخص ابتدا بر اساس مدل‌های ریاضی به‌کاررفته در روش تصمیم‌گیری PROMETHEE آماده

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شد و درنهایت نتایج به‌دست‌آمده به نرم‌افزار GIS برده و نقشه‌های خروجی ترسیم گردید.

۴. یافته‌های تحقیق

در بیشتر کشورهای درحال‌توسعه، یک، دو یا درنهایت چند منطقه، ازنظر خدمات عمومی و شکوفایی اقتصادی و اجتماعی وضعیت مناسبی دارند و نقش اصلی را در ایجاد درآمد و تولید ملی ایفا می‌کنند که این مهم به بهای عقب نگه‌داشتن مناطق دیگر و افزایش شکاف و نابرابری بین مناطق و نواحی کشور تمام می‌شود. در ایران نیز تفاوت‌ها و نابرابری‌های ناحیه‌ای به‌طور نگران‌کننده‌ای در حال افزایش بوده است. این وضعیت به بروز مشکلات جدی نظیر مهاجرت از مناطق محروم به نواحی برخوردار و توسعه‌یافته‌تر منجر شده است. در این پژوهش گام چهار به‌صورت (+Phi)جریان رتبه‌بندی مثبت یا جریان رتبه‌بندی منفی (-Phi) ارائه و نشان داده‌شده است، گام پنجم نیز به‌صورت جریان خالص خروجی (Phi) نشان داده می‌شود. نتایج با شبکه‌ای از گره‌ها و یال‌ها، مقایسه شهرستان‌ها را نشان می‌دهد. در این شکل رتبه‌بندی شاخص‌ها به‌گونه‌ای ارائه‌شده است که شهرستان بویراحمد دارای بیشترین برخورداری و در اولویت اول قرار دارد و دارای بیشترین +phi و کمترین -phi می‌باشد. پس‌ازآن هرچه از گزینه برتر به‌سوی گزینه‌های پایین حرکت کنیم به همان میزان از اهمیت آن گزینه کم می‌شود و شهرستان لنده که آخرین اولویت باشد، برسد.

۵. بحث و نتیجه‌گیری

در محدوده موردپژوهش و در سطح مقایسه بین شهرستانی، شهرستان‌های بویراحمد توسعه‌یافته‌ترین شهرستان می‌باشد؛ بنابراین شهرستان بویراحمد برخوردارترین شهرستان استان و دارای جریان خالص خروجی (۰/۸۳۲)، می‌باشد. شهرستان کهگیلویه دارای جریان خالص خروجی (۰/۵۳۶)، شهرستان گچساران دارای جریان خالص خروجی (۰/۱۹۷)، در رتبه شهرستان‌های توسعه‌یافته قرار دارند. شهرستان دنا دارای جریان خالص خروجی (۰/۱۵۷)، در رتبه متوسط توسعه، شهرستان بهمئی دارای جریان خالص خروجی (۰/۱۴۷-) و شهرستان چرام دارای جریان خالص خروجی (۰/۳۷۹-)، در رتبه شهرستان‌های محروم و درنهایت شهرستان باشت دارای جریان خالص خروجی (۰/۴۶۸-) و شهرستان لنده دارای جریان خالص خروجی (۰/۷۲۹-)، در مرتبه بسیار محروم توسعه‌یافتگی می‌باشند. درنهایت می‌توان بیان کرد، واگرایی در امر توسعه جهت‌دار شهر و روستا در سطح شهرستان‌های استان کاملاً مشهود است که این امر موجب شکاف، بین نواحی سکونتگاهی در این استان شده است و به همین منظور، بررسی و تحلیل جایگاه مناطق ازلحاظ توسعه روستایی به‌عنوان مبنایی برای برنامه‌ریزی‌های آتی دارای اهمیت بسزایی است

کلیدواژه‌ها: استان کهگیلویه و بویراحمد، روش پرامیتی، مناطق روستایی، شاخصه‌ای توسعه‌یافتگی، سطح‌بندی توسعه روستایی.

تشکر و قدردانی

پژوهش حاضر برگرفته از رساله دکتری نویسنده اول (محمد غیجی)، گروه جغرافیا، دانشکده علوم انسانی، دانشگاه آزاد اسلامی واحد علوم و تحقیقات، تهران، ایران است.

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Research Article

Identifying and Evaluating Businesses with Branding Potential in Rural Areas (Case study: Turkmen Sahara Region – Iran)

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Abstract

Purpose: In recent years, it has become more necessary to seek and apply new strategies to strengthen the foundations and diversification of economic activities in rural areas. Accordingly, in the context of the new theories of sustainable development, one of the approaches that is of great importance for the growth and sustainability of businesses in today's complex environments is branding. Therefore, the main purpose of this study was to identify businesses with branding potential in Turkmen Sahara of Golestan province in Iran. The overwhelming limitations of product marketing are supporting the declining revenues of traditional sources in dealing with competitive markets as well as trying to expand, making available and identifying regional products with a branding approach

Design/methodology/approach: In this study, we first identified and localized the branding indices and then identified the brand-liable products in the region using the Additive Ratio Assessment (ARAS) method in multi-criteria decision making.

Findings: The results showed that among the indicators of brand products in rural areas, satisfaction index with weight of 0.095 was put in the first place followed by adaptability with weight of 0.091, quality-orientation approach with a weight of 0.086 and valuable with a weight of 0.081. Also, among the common businesses and products in the region, cotton cultivation with a coefficient of 0.971 was the first priority followed by carpet weaving with a coefficient of 0.966, traditional foods with a coefficient of 0.952, Turkmen horse breeding with a coefficient of 0.943 and eco-tourism with a coefficient of 0.924 for planning the branding of products and services based on Brand Explanatory Indexes and using ARAS method .

Practical implications: The study provides a perspective on the process of branding products and services in rural areas.

Originality/value: This paper makes two major contributions: first, the introduction of branding indicators for rural businesses, and second, applying decision making models in the process of branding products and services with brand potential in rural studies.

Key words: Branding, Rural business, Additive Ratio Assessment (ARAS), Turkmen Sahara.
Paper type- Scientific & Research.

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1. Introduction

The current economic situation in rural areas of Iran has been declining, with widespread displacement and migration of villagers to cities, the loss of traditional businesses and institutions due to a lack of proper markets for their products, the spread of poverty and unemployment and food insecurity. The overwhelming marginalization of rural populations, and cases like this, shows that, in practice, the vital development goals of sustained income growth, expansion of productive employment, and more equitable growth benefits in rural areas have failed. The continuation of this process has resulted in the weakening of territorial cohesion. On the other hand, these areas often have widespread untapped economic potentials that could be better exploited and contribute to the well-being of rural residents (Crosta, Davies, & Maguire, 2006; Ghadiri Masoum & Najafi Kani, 2003; Rezvani, Baghbani, &jafari, 2014). Therefore, seeking and applying new planning solutions by planners has made it more and more necessary to strengthen economic foundations and diversify economic activity in rural areas.

Accordingly, in the context of new sustainable development theories, one of the approaches to business growth and sustainability in today's highly competitive and complex environments is branding that is of paramount importance. That process of designing and building a business centered around the brand and engaging in ongoing interaction with customers to achieve competitive advantage (Urde, 1999; Salehi, Ikhlasi &Tahri, 2016)

In fact, this approach involves creating and maintaining a set of valuable features and characteristics for the product to make it consistent, relevant, attractive and distinct from the customer's point of view (Chernev, 2018; Luong, Vo, & Le, 2017). In other words, branding is a new strategy for empowerment, capacity building and institutionalization in rural areas that is of great importance in the process of sustainable economic development of the countryside, thus providing a suitable context and development tool for economic development of countries, especially developing countries (Verheul, Wennekers, Sudretsch, & Thurik, 2001; Eftekhari, Sajasi Gheidari &Mahdavi, 2016).

According to studies by the European Market Research Association in the last decade, 45% of the world's assets are allocated to bran (Asadollahi, 2015). It is an inside-out approach that is the core brand of the business and its strategy. In this approach, the brand is a strategic solution to interact with the stakeholders, namely producers, consumers and market forces. The underlying rationale for this view is that having a strong brand can make stronger gains and be more consistent in marketing performance (Urde, 1999; Salehi, Ikhlasi &Tahri, 2016). In the past, managers have believed that branding is an enterprise-specific activity (Merrilees, 2007), but today, it has been proven that the development of rural businesses with a branding approach has a significant role to play in the development of the world economy. Accordingly, in the last decade, researchers have paid much attention to these types of businesses and their marketing and this has led to the rapid growth of these businesses (Moriarty, Jones, Rowley, & Kupiec-Teahan, 2008; Khodadad Hosseini. Golabi & yadollahi, 2016). Studies show a positive attitude to branding in this type of activity (Bauer, Heinrich, & Martin, 2007) .Because of these strategic reasons, almost all marketing activities range from new product development to retail advertising products focusing on making brands. Therefore, if branding is done correctly and with a certain kind of intelligence, it ensures the success of businesses to become a long-term strategy for poverty alleviation and diversification into the rural economy. However, despite the many benefits of branding, evidence suggests that limited research has been conducted on branding as one of the enablers of rural economics and businesses due to the native conditions in our country. Therefore, in view of the necessity and importance of the subject, this study aimed at identifying brand-capable businesses in rural areas of Turkmen Sahara in Iran and answer to questions like what the indicators of branding of rural businesses are in the study area? And based on the Brand Explanatory Indexes, which businesses in the study area have the most potential for branding?

2. Research Theoretical Literature

The intellectual frameworks of business facing the market have undergone numerous changes over the past decades. The starting point of this

evolution can be seen in the production paradigm that emerged in the leading countries after the industrial revolution. In this context, factories were able to produce large-scale standard products and the customer could, without much choice buy these products. Another key paradigm emerged from that was the concept of sales, which, given the increasing level of technology within their organizations, the manufacturers decided to design and manufacture new products, with the main aim of increasing sales. However, the rise of competitive space and the globalization of business space have also shown the inadequacy of the sales framework, so a new paradigm has emerged with the marketing concept according to which companies are researching the production and supply of their products, whether goods or services in the marketplace and getting feedback from customers. The ultimate goal, meanwhile, was to create more customer satisfaction. But today, a newer framework has emerged in advanced economies, which is interpreted as the brand paradigm (Holt & Holt, 2004; Esteghlal, 2016). Accordingly, the brand has now become one of the main venture capital funds of rural businesses seeking to motivate customers to use specific products or services to help them manage the level of vulnerability and risk of their activities and minimize economic impact in rural areas against economic shocks (Abimbola, Vallaster, & Kocak, 2007; (Eftekhari, Sajasi Gheidari &Mahdavi, 2016).

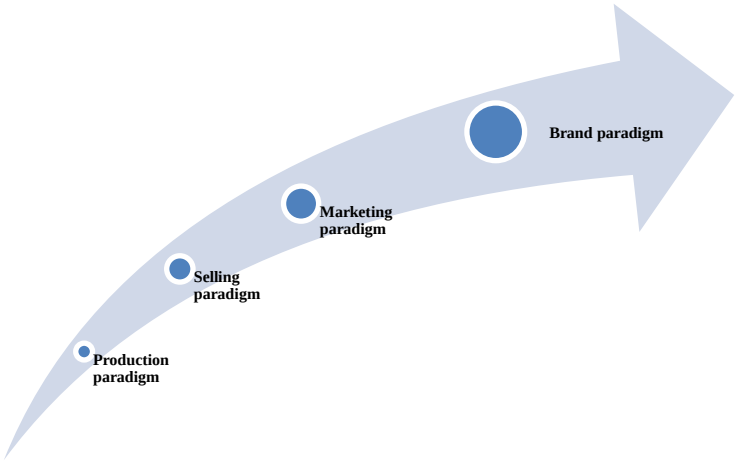

Figure 1. The evolution of business paradigms

Brand is actually an abstraction of identity, authenticity, character, and difference. For this reason, business exchanges are vital and represent the synergistic effect of all marketing efforts and act as a strategic tool to increase the efficiency and effectiveness of rural businesses (Piehler, Schade, & Burmann, 2019). In defining these types of businesses, three criteria can be considered; first, to provide services to villagers, second, to be located in the rural area, and third, to supply and sell rural services and products, including food and other natural products, handicrafts, recreational activities or environmental goods (Bosworth, 2012; Bosworth & Turner, 2018). These types of businesses are carried out according to the size of the villages and using rural facilities and equipment and are particularly effective. In other words, these types of activities can be said to take place on a small and medium scale and in the living space, and their scope of operation is broadened locally and partly on a regional scale. In most cases, their investment is small and relies on personal and family labor. In such businesses, it is easier to make decisions and deal with sudden changes (Odoom, Narteh, & Boateng, 2017; Onugu, 2005). Given this generalization, there are several reasons in the brand literature for branding rural businesses in today's competitive world. From a customer view, reducing perceived financial and non-financial risks and research costs are key benefits to the brand. For the brand owners, the key issue is the ability to offer better prices than competitors, the ability to gain more market share, the ability to retain customers through brand loyalty and reduce marketing costs, measure brand equity and consider different cognitive aspects for attention to branding (Chen, 2001). In fact, a good brand directs consumer choice in a highly complex market

environment, thus, the same brands create shortcuts in the consumer decision-making process that adds to customer loyalty. Since the majority of customers choose names that they know, customer loyalty to these companies is greater (Herremans, Ryans, & Aggarwal, 2000). According to researchers such as, branding plays a decisive role in enhancing the effectiveness of economic activities and the ability of businesses to communicate internally and externally (Abimbola, 2001). This can be considered from a number of perspectives; firstly, the brand that an entrepreneurial firm chooses is depending on its application level, valuable in encouraging the entrepreneur to focus more on the core value he or she intends to offer to customers (Merrilees, 2007). In addition, branding leads to a better and faster business model formation (Abimbola, Vallaster, & Kocak 2007) and increases the acquisition of customers in the early stages of business startups and, subsequently, with customer loyalty, it ensures business that significantly enhances the likelihood of financial support.

The brand is one of the most important assets of a businesses as well as the entrepreneur, and include the prejudice, perception and embodiment of the personality of the brand, and, on the other hand, include structures and levels of understanding and awareness of brand management, goals and ultimately, through market, the nature of the product affects the nature of competition and business attitudes (Ojasalo, Nätti, Olkkonen, & Management, 2008). Based on the above, the following are some of the foreign studies in this field: According to studies (Mowle & Merrilees, 2005) branding as a central component of marketing impacts rural businesses through inter-organizational factors, marketing mix, market research and consumer behavior. Some also believed that branding is an important factor in the development of businesses and exports of Carpet products in Iran (Melewar, Small, Pecotich, & Ward, 2007). According to research (Kanama & Nakazawa, 2017), branding ensures the safety and quality of the product in the minds of consumers and provides more revenue for a business (Krake, 2005). Prior studies showed that brands have become an important process of employment creation and business development through the growth and creation of organizations. Also, (Low & Lamb, 2000) considered the most important goals of branding rural businesses as recognizing and understanding customer needs and changes in production technology and service delivery to meet customer needs for competitiveness, prevent elimination in the economic cycle along with diversification to rural economy patterns and change.

Branding has also been the subject of various studies in the country, some of which are mentioned here. In an article, Golabi and Mehrabi (2010) identify and conceptualize the process of entrepreneurial branding in small and medium enterprises of active entrepreneurs in the food industry. The process of implementing the article is based on the process of conducting a case study in accordance with the theory of Gauri. The research findings indicate that the entrepreneurial brand in entrepreneurial enterprises, as an applied tool, is for the integration of all business processes.

Esfahanian (2011) in reviewing and developing a suitable model for the development of Iranian saffron, conclude that branding is an important factor in business development and export of products such as saffron. It can introduce product easier, faster and more practical than the past in market. Aghasafari and Karbasi (2016), in their article entitled "The impact of attitudes on branded products (case study, rice)" examined the tendency of consumers to rice products (using fuzzy technique method). The results showed that consumers have positive attitude towards branded rice, and the reasonable price of this type of rice is the most important factor influencing the tendency to buy this kind of rice.

Sarshoumi (2016), in a study entitled "Branding and Strategic issues for Isfahan Handicrafts with PCDL Method", which was based on quantitative and qualitative data on structured interviews and questionnaires, This results were obtained:1. Quality and price of products are the determining characteristics for customers in branding. 2. The shape of the logo, audio and video media are also the most important advertising options**.**

Fazli (2014) in a qualitative study in multi cases has examined branding in home-based businesses. The focus of study is on nutrition. The results of analyzing the components of brand value, marketing, brand positioning, etc. shows that the quality of the product, creativity and innovation in the production of products and some unique features of the product have played the most

important role in the process of branding and development of these businesses.

The most important goals of branding rural businesses obtained by Eftekhari et al. (2016) was recognition and understanding customer needs and change in production technology and service delivery to meet customer needs in order to be competitive prevent elimination in the economic cycle along with diversification of rural economic patterns and change in the field of geography, and market activities. (Abbasi, Sharifzadeh, Abdullah Zadeh& Mahboubi,2017) did a study aimed at introducing entrepreneurial marketing in agricultural cooperatives. The study has a special approach to branding, which was done in a review and analytical way. They concluded that branding is a central component in entrepreneurial marketing. So it can be the key to success for marketing of agricultural products by agricultural production cooperatives.

The results of Mousavi, Sepahvand and Shariatnejad (2017) A study in explaining the components of branding for tourism, indicates that by branding, declining demand for tourists issue, insufficient knowledge of tourists about tourism and information and low advertising about natural attractions and history will be resolved.

In general, considering the previous materials and the past studies, it can be stated that in the current competitive and complex environment, brands are extremely important in growth, durability and longevity of businesses. In this article, we tried to provide a framework for branding of rural businesses to understand the realities of economic activity in the villages of the study area.

3. Research Methodology

3.1 Geographical Scope of the Research

Turkmen Sahara area is 65.4% of Golestan province with a total area of 13373.7 km2. The region is bounded on the west by the Caspian Sea and from the north to Turkmenistan as shown in Figure (2) and from the east to the North Khorasan Province. According to the latest census in 2016, the province consists of six districts (Maravetapeh, Kalaleh, Gonbad, AgGla, Bandar Turkmen and Gomishan) with 11 urban points and 493 residential villages that make up the majority of Turkmen population.

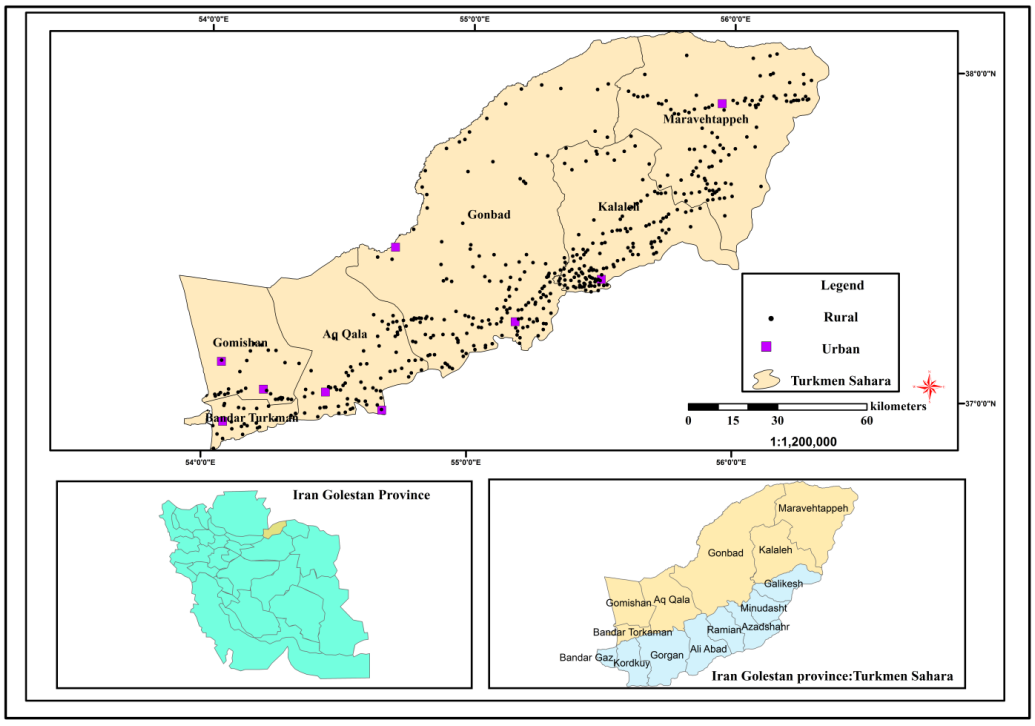

Figure 2. Geographical location of the study area

The economy in the region relies primarily on agricultural activities, with crops such as wheat, barley, cotton and canola being the major contributors. In addition to farming, livestock (horse, camel, cattle, etc.), eco-tourism activities, traditional crafts and service jobs are complemented by rural men and women. Figure (3) shows the spatial distribution of some of the common economic activities of the villages in the region.

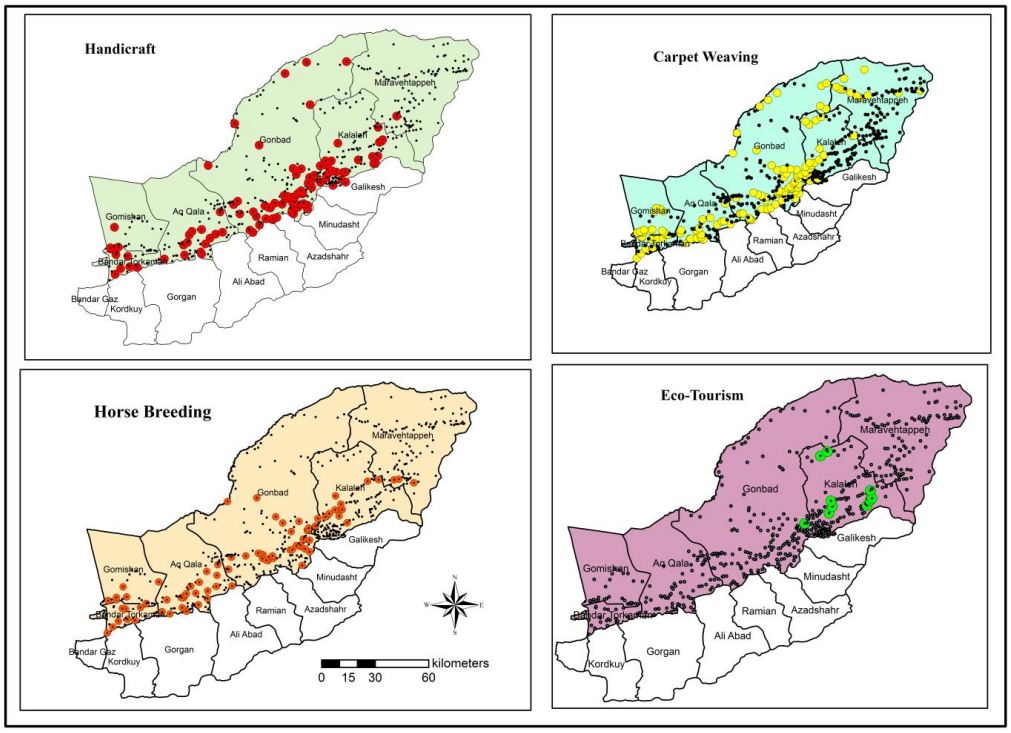

Figure 3. Spatial Distribution of Common Businesses in Turkmen Sahara

3.2. Methodology

This study was an applied exploratory, descriptive and analytical using library and field methods. In the process of research, using weight techniques, after reviewing the theoretical basics, the weights of rural brand products and services were identified and determined, and, then, ARAS method was used to identify the brand-capable businesses in the region. For this purpose, to obtain brand explanatory indexes, firstly, by analyzing the literature of branding and internal and external experiences, a correlated set of 20 indicators was extracted, and then, to achieve indigenous indicators appropriate to the situation and conditions of the region, the opinions of 20 university professors in Golestan province, 20 administrative experts and 30 local administrators (head to the district, district council representatives and village councilors) were used to evaluate the importance of the selection criteria. Then, based on the sum of mean scores and standard deviation, using cumulative weighting technique, the top 10 indicators that had the highest allocation weights were selected and the status of 17 products (business) and the routine services in rural areas were evaluated based on the selected indices in a 5-point scale using the ARAS method.

So far, several techniques have been used to rank options. However, this important point has always been of interest to decision-making scientists to use models that can consider the internal relationships between the factors used in evaluation techniques. A review of the literature shows that the use of such models has been very limited. Therefore, in order to be functional, a comprehensive and general model is needed. Models that can take into account the internal relationships of decision criteria and take advantage of the expert opinions of experts, also consider the uncertainty in the judgment of experts. The Aras technique is based on this theory. Logically, he believes that complex phenomena can be understood using simple

relative comparisons. This technique is a powerful way to provide performance rates and the degree of desirability of the various options relative to the optimal situation, which also facilitates relative application.

Also, the effectiveness of this method in solving complex decision-making problems along with fuzzy and gray models is another prominent feature**.** The capability of this technique has been confirmed in many studies for ranking, and therefore it is one of the most reliable multi-criteria decision-making techniques (Dehghani & Ali Akbari Nouri, 2016; Arab, Hosseini Dehshiri, & Nasiri, 2017). In this method, the sum of the weighted and normalized values of the criteria for each option that represents the condition of an option is divided by the sum of the weighted and normalized values of the best option. This ratio is called the degree of optimality. On the basis of this degree, the options are ranked (Zavadskas & Turskis, 2010).

3.3. Research variables and indicators

Due to the literature and definitions of brand theory and branding, and operational models, it seems that the most acceptable approach to planning the branding of rural businesses is to use references and indicators. Based on internal and external studies, as shown in Table (1), it led to the identification of twenty indicators which explain the business and products and services of the brand

.

Table 1. Explanatory Indicators of Brand Businesses

Sources: Farshchi, (2013); Pirhadi (2016); Shahsavar and Alam Tabriz (2014); Amani (2016); Khodadad Hosseini et al. (2014); Saffariyeh (2016); Rahmani (2010); Ahmadi and Khodami (2012); Mousavi et al. (1396); Piehler&etal(2018), Keller (2006), Rothe & lamont, (1973); Kwong & Candinegara (2014), Arbore, Busacca, & Services (2009); Kim & Hyun (2011)

Indicator	Definition
Valuable	There is more value than material value for the product or activity that has a material and spiritual value that will increase the incentive to purchase among customers.
Credibility	Improving consumer perception and greater customer loyalty that will lead to product development and product sales.(Garrido-Morgado, González-Benito, & Martos-Partal, 2016)
Believability	Having credible and feasible reasons for customers to improve and respond to customers' needs and interests for product development and operation
Adaptability	Less vulnerability to market activities and environmental conditions, affecting different groups (customer persuasion) and more flexible responses to market fluctuations, leading to continued production and product development or activity
Interest	There are emotional benefits for consumers that drive increased purchasing and development activities
Satisfaction	Customer satisfaction with the product or activity that leads to the continuation of the long-term consumer relationship with the product or activity((Arbore, Busacca, & Services, 2009)
Lovely	In the sense of forming and encouraging innovation, recruiting and retaining talented and trained forces for productive development and productivity.
Charm	The product or activity is visually and entertainingly popular (having popularity) in a way that leads to increased consumer buying of the product.
Supportive	The product or activity can be legally, competitively and privately protected, invested and maintained (receiving support and cooperation) and the product has a large share of value added in rural, regional and national areas
Feasibility	Supporting customer-friendly mental interactions and convincing them of product or activity realities
Qualitative	Quality assurance to the customer or the degree to which the product is faultless so it is valuable to the customer while satisfying their needs, so they recommend it to others.
Competitiveness	Creating a distinction between businesses and competitors (being unique) that enables the product or activity to stay in the customers' minds with the benefits and promises and influence their experiences (Schivinski & Dabrowski, 2016)
Durability	Strengthen the customer's mental and productive interactions with the product, leading to increased commitment and the use of resources and forces in the market, leading to product development and long-term activity
Competitiveness	Having the advantage of delivering superior value to customers and creating a powerful, desirable and

Indicator	Definition
	unique mindset that enhances and thrives on core business activities such as production and sales.
Permeability	In the sense of having a favorable market position and covering different consumers (the ubiquity and stability of access to the product), the consequence of which is to stimulate demand for product development and activity (Keller & Lehmann, 2006)
Diversity	Having the ability to produce and sell in different market shapes and conditions and take advantage of different capacities to offer and sell in the market that lead to diversification of sources of income
Efficiency	The speed and responsiveness of a product or activity in delivering customer service that, while providing satisfaction, will increase productivity and prosperity and business development.
Sustainable market	Having a good market over the long term with easy access to technology and broadening the scope of product penetration will lead to product development and transfer to foreign markets
Self-sufficiency	The dependence of manufactured goods in terms of materials and technology abroad and high domestic consumption, which comprises a large volume of product, plays an important role in the development of production, employment and living standards (Poveda, 2011)
Existence	In the sense of sufficient resources and physical access to produce and supply the product

4. Research Findings

Using the opinions of experts and local managers, as seen in Table (2), the final weighted satisfaction indices (0.095) ranked first followed by adaptability (0.091), and qualitative with a weight of (0.086). It is worth mentioning that in this paper, after screening the indices using the deviation method, a mean of 10 indices was extracted to identify businesses and products with brand capability at the Turkmen Sahara region.

Table 2. Ranking Results of Business Branding Indicators

indicator	Final weight	indicator	Final weight	indicator	Final weight	indicator	Final weigh t
Interest	0.004	Efficiency	0.028	Supportive	0.052	Sustainable market	0.076
Feasibility	0.009	Differentiability	0.034	Durability	0.058	Valuable	0.081
Diversity	0.014	Believability	0.038	Credibility	0.062	Qualitative	0.086
Lovely	0.019	Existence	0.043	Permeability	0.067	Adaptability	0.091
Self-sufficiency	0.024	Competitiveness	0.048	Charm	0.071	Satisfaction	0.095

Finally, in order to identify businesses with brand capability, out of the total of 17 common businesses in the region, consideration was given to evaluating each business according to ten brand indices in Table 3 using the opinions of experts and Local managers shown in the form of the initial matrix.

Table 3. Brand Evaluation Matrix of Products and Services

Product/Business	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}
Optimum	4.49	4.37	4.31	4.09	3.98	4.22	4.35	3.89	3.80	4.37
Wheat	3.85	3.71	3.28	3.34	3.20	3.49	3.35	2.74	2.82	3.28
Cotton	4.42	4.32	3.95	4.05	3.94	4.02	3.91	3.89	3.80	4.37
Rapeseed	3.97	3.83	3.57	3.52	3.52	3.60	3.37	3.69	3.29	3.95
Soybean	3.20	3.26	2.94	3.02	2.95	2.86	2.82	2.88	2.69	3.23
Horse breeding	4.28	4.17	3.97	3.88	3.82	4.02	4.35	3.55	3.62	3.85
Carpet weaving	4.49	4.37	4.03	4.09	3.95	4.22	4.29	3.42	3.77	3.88
Palas Bafi	3.32	3.37	3.17	3.32	3.20	3.37	3.51	2.85	2.72	3.00
Turkmen baking	4.03	4.09	3.80	3.89	3.65	3.89	3.92	3.32	3.38	3.49
Needlework	3.92	3.17	3.26	3.15	3.08	3.32	3.35	2.86	2.88	2.82
Wool weaving	3.15	3.25	3.42	3.22	3.03	3.29	3.20	2.69	2.72	2.65
Silk weaving	3.11	3.35	3.29	2.85	3.14	3.31	3.32	2.88	2.80	2.92
Local clothing	3.88	3.88	3.80	3.65	3.54	3.62	3.98	3.11	3.40	3.45
Furniture	3.57	3.62	3.58	3.25	3.37	3.31	3.43	3.37	3.14	3.45
Traditional foods	4.12	4.29	4.31	4.09	3.98	3.82	4.15	3.60	3.80	3.71

Product/Business	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}
Traditional ritual	3.98	3.98	3.86	3.75	3.62	3.58	3.88	3.35	3.26	3.20
Traditional games	3.91	3.83	3.85	3.49	3.58	3.52	3.78	3.40	3.34	3.31
Eco-tourism	4.20	3.92	3.92	3.74	3.77	3.78	4.26	3.68	3.68	3.78
total	69.86	68.78	66.31	64.39	63.32	65.24	67.22	59.17	62.57	62.71

X_1	X_2	X_3	X_4	X_5
Valuable	Qualitative	Satisfaction	Adaptability	Credibility
X_6	X_7	X_8	X_9	X_{10}
Durability	Charm	Supportive	Permeability	Sustainable market

The results of the analysis of the findings, as shown in Table 4, indicate that the following products and services are ranked among the branding businesses in the rural areas of Turkmen Sahara region, respectively.

Table 4. The degree of utility and ranking of rural businesses with branding capability

Rural products and services	S_i	$K_i = {S_i}/{S_0}$	Rank
Optimum	0.064	1	
Cotton	0.062	0.971	1
Carpet weaving	0.062	0.966	2
Traditional foods	0.061	0.952	3
Horse breeding	0.060	0.942	4
Eco-tourism	0.059	0.924	5
Turkmen baking	0.057	0.894	6
Local clothing	0.057	0.889	7
Traditional ritual	0.056	0.870	8
Rapeseed	0.055	0.867	9
Traditional games	0.055	0.860	10
Furniture making	0.052	0.814	11
Wheat	0.050	0.788	12
Palas Bafi	0.048	0.759	13
Needlework	0.048	0.758	14
Silk weaving	0.047	0.739	15
Wool weaving	0.047	0.731	16
Soybean	0.046	0.713	17

A) Cotton: This product is at the top of the desirability of branding businesses in rural Turkmen Sahara region with a coefficient of 0.971. As Figure (4) shows, the yield of cotton in this region is between 4500 and 5700 kg and is based on Thermophile and salinity-tolerant plant physical characteristics and local cotton such as Sahel, Golestan, Latif, Sajedi and Armaghan, which are cultivated there.

Figure 4. Cultivation of cotton plant in Turkmen Sahara

B) Carpet weaving: This product is ranked second in favor of branding businesses in Turkmen Sahara region with a coefficient of 0.966. Carpets and rugs are one of the most prominent masterpieces of Turkmen folk art, usually woven on horizontal devices. As shown in Figure 5, carpet weavers display their lifestyles, social behavior, and ethnic desires by creating beautiful flowers in geometric shapes derived from the material and spiritual features of Turkmen nomads.

Figure 5. Carpet weaving in Turkmen Sahara

C) Traditional foods: This product ranks third in favor of branding businesses in rural Turkmen Sahara region with a coefficient of 0.952. Turkmens often sit on the ground and around a table to eat for food called Sachagh, a table that has unique Turkmen cuisine such as Chekdirmeh, Qatlama, Ekmak, Bastarma and Bolama, which resonates with the traditional customs and culture of the Turkmen Sahara region. As Figure (6) shows, the most famous food in this region is Chekdirmeh, traditionally cooked in a pot called "Kazan". The main ingredients are meat, rice, onions and tomato paste.

Figure 6. Local food in the Turkmen Sahara region

D) Turkmen Horse: Turkmen horse breeding with a coefficient of 0.942 ranks fourth in favor of branding businesses in rural areas of Turkmen Sahara region. Turkmen horse is one of the best breeds of the world. The horse was discovered in the Altai cemetery in the BC and lived in the Turkmen Sahara region. As shown in Figure 7, it has a slender body and, unlike many other breeds of horse, is flat and has a height of between 148 and 155 cm, with long and movable ears, wide breasts, sloping shoulders, wide widths, strong joints, tight angles, and with the ability to withstand heavy sports movements. Among the well-known breeds of Turkmen horse are Yamut, Akhal Teke, Chenaran (a mix of Turkmen horse and Arabian horse).

Figure 7. A species of Turkmen horse

E) Eco-tourism: Eco-tourism with a coefficient of 0. 924 was ranked fifth in favor of branding businesses in rural areas of Turkmen Sahara region. As shown in Figure 8, the tourism resorts are examples of locally owned small-scale businesses that, while introducing the culture of the Turkmen Saharan people, provided a good opportunity to empower the local community by attracting domestic and foreign tourists.

Figure 8. An example of native resorts in the Turkmen Sahara region

5. Discussion and Conclusions

Today, to revitalize the national economy, countries are using the rural economy as an untapped economic opportunity, a new aspect of which is business branding, which is widely emphasized by marketing researchers and experts. In fact, branding is a redefinition of the way rural businesses bring innovation, risk-taking and multi-functionality. Therefore, organizations and individuals can rely on branding, and provide growth and development for their businesses. Moreover, if we imagine the past decades of prosperity and entrepreneurship in businesses and co-operatives, given the prevailing conditions of the current economy, branding is the driving force of businesses in the present era as the brand determines growth and falling of a business. In fact, branding is one of the key principles and techniques of marketing that, like other marketing practices, will ensure business success if done correctly and with a certain kind of intelligence. Therefore, in the present study, branding is considered as a relative solution to important issues of rural areas of Turkmen Sahara region through regular linking of rural settlements with urban centers, encouraging product marketing, reforming urban-rural links and creating appropriate business spaces in various sectors of agriculture, industry and services to help develop the villages of the region. The results of this study showed that the most accepted approach in achieving this, in the first step, is applying a set of indicators, because, it is now widely accepted that indicators are very useful tools for linking economic, social and environmental issues, both quantitatively and qualitatively for analyzing business performance and predicting future performance and plans, and they are also used to help them make decisions.

But, what is noteworthy here is the problem of localizing these indices with regard to local and regional conditions and characteristics. Based on this, the researchers first extracted 20 major indicators by examining the branding literature, then, utilized experts' opinions to localize branding indicators and finally 10 indicators of adaptability, quality of products and services, satisfaction, credibility, durability, attractiveness, product support, permeability and having a sustainable market for business branding were identified in the Turkmen Sahara region. In addition, the results of this study confirmed the ability of the ARAS decision-making model to solve complex decision-making problems and its effectiveness and ease of use in identifying traditional businesses and prioritizing them for branding. Accordingly, among the common businesses and products in the Turkmen Sahara region, cotton farming, carpet weaving, traditional foods, horse breeding and eco-tourism development were offered to planners in rural areas, respectively. A comparative study of the present study with other studies which conducted in this field, (Abbasi, Sharifzadeh, Abdullah Zadeh & Mahboubi,2017; Shahsavar & Alamtabriez, 2014; Isfahanian, 2011; Amani, 2016; Kanama & Nakazava, 2017; Melewar, Small, Pecotich & Ward, (2007)) indicated that branding is a strategic tool for sustaining and promoting

indigenous and traditional products due to market instability and increasing competition in national and global levels. It requires proper and principled planning but, in this study, instead of dealing with a specific product, contrary to the studies, rural businesses (products and services) and their ranking are one from the perspective of branding, which is also methodologically using the decision technique. Multi-character sampling is distinguished from other studies.

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Research Article

شناسایی و ارزیابی محصولات با قابلیت برندسازی در مناطق روستایی (مطالعه موردی : منطقه ترکمن صحرای استان گلستان)

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چکیده مبسوط

۱. مقدمه

رویکرد برندسازی پایه و اساس یک مدل حمایتی از مشاغل کوچک را تشکیل می‌دهد که به منظور کاستن از نابرابری‌های بین شهر و روستا، ایجاد اشتغال، افزایش مشارکت مردمی ، افزایش تولید، بهبود کیفیت محصولات و ایجاد ارزش افزوده برای محصولات فراگیر شده است. بر این اساس در چارچوب و نظریه‌های جدید توسعهٔ پایدار جهت رشد، دوام و ماندگاری کسب وکارها در محیطهای رقابتی و پیچیدهٔ امروزی مطرح و از اهمیت فوق‌العاده‌ای برخوردار است که در آن فرآیند طراحی و ایجاد یک کسب وکار حول محور برند و در تعامل مداوم با مشتریان با هدف دستیابی به مزیت‌های رقابتی انجام می پذیرد.
در گذشته مدیران براین باور بودند که برندسازی فعالیتی مختص به شرکت‌های بزرگ است اما امروزه ثابت شده است که توسعهٔ کسب وکارهای روستایی با رویکرد برندسازی سهم قابل توجهی در پیشرفت اقتصاد جهان برعهده دارند. بر این اساس در دهه اخیر محققان توجه بسیاری به این نوع کسب وکارها و بازاریابی آنها مبذول نموده‌اند و این موضوع سبب رشد سریع این کسب وکارها شده است. به عبارتی می توان آن را الگویی نوین برای توانمندسازی، ظرفیت‌سازی و نهادسازی در مناطق روستایی به شمار آورد که اهمیت بالایی در فرآیند توسعهٔ پایدار اقتصادی دارد.
به واسطه این دلایل استراتژیک تقریبا همهٔ فعالیت‌های بازاریابی در گسترهٔ توسعه محصولات جدید تا تبلیغات بکار رفته برای خرده فروشی محصولات بر روی ساخت برندها متمرکز هستند.

این موضوع ما را بر آن داشت تا ضمن بررسی کسب وکارهای روستایی در منطقه ترکمن صحرا چارچوبی برای برندسازی این کسب وکارها فراهم شود. بنابراین پژوهش حاضر به بررسی و شناسایی کسب وکارهای با پتانسیل برند در سکونتگاههای روستایی منطقه ترکمن صحرا پرداخته است در این مسیر شناسایی و بومی-سازی شاخص‌های برندسازی کسب وکارها و رتبه‌بندی کسب وکارها از منظر برندسازی مدنظر قرار گرفته است.

۲. مبانی نظری تحقیق

چارچوب‌های فکری کسب و کار در مواجهه با بازار در طول دهه‌های گذشته با تحولات متعددی روبروی گردیده است. نقطه شروع این سیر تحول را می توان از پارادیم تولید در نظر گرفت که پس از انقلاب صنعتی بوجود آمد و مهمترین موضوع تولید کالاهای بیشتر بود پس از آن مفهوم فروش بود که هدف اصلی آن افزایش فروش بود. با رقابتی و جهانی شدن فضای کسب وکار پارادایم جدید با مفهوم بازاریابی بوجود آمد که بر طبق آن، شرکت ها تولید و عرضه محصولات خود ، اعم از کالا و خدمات، را با تحقیق در بازار و دریافت نظر مشتریان انجام می‌دادند ولی امروزه چارچوب جدیدتری در اقتصادهای پیشرفته مطرح شده است که به پارادایم برند تعبیر می‌کنند و بعنوان یکی از اصلی‌ترین سرمایه‌های کسب وکارهای روستایی تبدیل شده که به دنبال برانگیختن مشتریان به استفاده از محصولات یا خدمات خاص می‌باشد تا از این طریق بتواند سطح آسیب‌پذیری و ریسک فعالیت‌های اقتصادی در مناطق روستایی را در برابر شوک‌های اقتصادی به حداقل برساند و به مانند ابزار راهبردی برای افزایش کارایی و اثربخشی کسب وکارهای روستایی عمل می‌نماید.

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با واکاوی مطالعات صورت گرفته مشخص می‌شود که بیشتر مطالعات عمدتا برند را ابزاری جهت دستیابی به اهداف بازاریابی قلمداد می‌کنند و کمتر به عنوان استراتژی یک کسب وکار بویژه در مناطق روستایی مطرح است.

۳. روش تحقیق

این پژوهش به لحاظ هدف از نوع کاربردی و روش انجام آن، اکتشافی، توصیفی و تحلیلی با استفاده از شیوه‌های کتابخانه‌ای و میدانی است. جامعهٔ آماری تحقیق را سه‌گروه ، شامل ۲۰ نفر از اساتید توسعه روستایی دانشگاه‌های استان گلستان ، ۲۰ نفر از کارشناسان ادارات دولتی مرتبط با توسعه روستاها و ۳۰ نفر از مدیران روستایی شامل؛ بخشداران، نمایندگان شوراهای بخش و نمایندگان دهیاران تشکیل داده‌اند. که با روش نمونه‌گیری هدفمند انتخاب شده‌اند. جهت تجزیه و تحلیل داده ها نیز از مجموع نمرات میانگین،انحراف معیار، تکنیک‌های وزن‌دهی جمع رتبه‌ای و آنتروپی شانون و تصمیم‌گیری چند شاخصه ارس(ARAS) استفاده شده است.

۴. یافته‌های تحقیق

نتایج حاصل از بررسی های انجام شده در سطح مطالعات داخلی و خارجی منجر به شناسایی ۲۰ شاخص تبیین کننده کسب و کارها ، محصولات و خدمات برند گردیده است که در میان شاخص‌ها، رضایتمندی با وزن نهایی (۰/۰۹۵) در رتبه اول ، انطباق‌پذیری با (۰/۰۹۱) در رتبه دوم و کیفیت‌گرایی با وزن نهایی(۰/۰۸۶) در رتبه سوم قرار دارند. با توجه به نتایج حاصل از تحلیل یافته‌ها با استفاده از تکنیک ارس(ARAS)، از میان کسب وکارها (محصولات و خدمات) رایج در منطقه جهت برندسازی، زراعت پنبه با ضریب کاربرد ۰/۹۷۱ در اولویت اول، قالی‌بافی با ضریب ۰/۹۶۶در اولویت دوم، غذاهای سنتی با ضریب ۰/۹۵۲ در اولویت سوم ،پرورش اسب ترکمن با ضریب ۰/۹۴۳ در رتبه چهارم و اقامتگاه‌های بوم‌گردی با ضریب ۰/۹۲۴در رتبه پنجم اولویت برای برندسازی محصولات و خدمات قرار دارند

۵. بحث و نتیجه‌گیری

از آنجائیکه کسب وکارهای روستایی در مقایسه با شرکت‌های بزرگ بطور معمول با محدودیت‌هایی از جمله عدم دسترسی به منابع، نبود بازار مناسب برای تولیدات آنها،کاهش درآمد و مواردی از این دست مواجه می‌باشند بنابراین با یک برنامه‌ریزی دقیق و درگیر نمودن تمامی بخش‌های این نوع کسب وکارها اثر محدودیت‌ها را می‌توان به حداقل رساند. بر این اساس در چارچوب و نظریه‌های جدید توسعهٔ پایدار یکی از رویکردهایی که جهت رشد،دوام و ماندگاری این نوع از کسب وکارها در محیط‌های رقابتی و پیچیدهٔ امروزی مطرح و از اهمیت فوق‌العاده‌ای برخوردار است برندسازی می‌باشد که در آن فرآیند طراحی و ایجاد یک کسب وکار حول محور برند در تعامل مداوم با مشتریان صورت می‌گیرد و اهمیت بالایی در فرآیند توسعهٔ پایدار اقتصادی روستا دارد.

بنابراین در مطالعه حاضر،برندسازی به عنوان یک راه حل نسبی برای مسائل مهم نواحی روستایی منطقه ترکمن صحرا مورد توجه قرار گرفته تا با کارکردهای خود از طریق اتصال منظم سکونتگاههای روستایی با مراکز شهری،ترغیب بازاریابی محصولات ، اصلاح پیوندهای شهری-روستایی و با ایجاد فضاهای مناسب کسب وکار در بخش‌های مختلف کشاورزی،صنعت وخدمات به توسعه روستاهای منطقه یاری رساند. نتایج این مطالعه منجر به شناسایی۱۰ شاخص انطباق‌پذیری ، میزان کیفیت محصولات و خدمات، رضایتمندی، اعتبارمندی ، دوام‌پذیری، جذابیت ،حمایت-پذیر بودن محصول، نفوذپذیری و داشتن بازار پایدار جهت برندسازی کسب وکارها در منطقه ترکمن صحرا گردید و از میان کسب وکارها و محصولات رایج منطقه ترکمن صحرا به ترتیب زراعت پنبه، قالی بافی، غذاهای سنتی، پرورش اسب و توسعه اقامتگاههای بوم‌گردی جهت برندسازی به برنامه ریزان در مناطق روستایی پیشنهاد می‌شود.

کلیدواژه‌ها: برندسازی،کسب و کارهای روستایی، تکنیک تصمیم-گیری چندشاخصه (ARAS) ، ترکمن صحرا.

تشکر و قدرانی

پژوهش حاضر برگرفته از رساله دکتری نویسنده اول(حسین سادین)، گروه جغرافیا، دانشکده علوم انسانی، دانشگاه تربیت مدرس تهران، ایران است.

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Research Article

Social Capacities to Facilitate the Establishment of Solar Energy Technology and its Effects on Sustainable Rural Development (Case Study: Kerman Desert Region, Iran)

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Abstract

Purpose: The use of solar energy has long been human interest. Some countries are trying to gradually replace fossil energy with solar energy because of special benefits such as lack of environmental pollution, frequency, immortality, and sustainable access. The potential of solar energy provides a good platform for the development of marginal villages and regions that are deployed away from urban centers or rural population centers. However, in some countries, despite the favorable weather conditions, for various reasons, the use of solar energy technology is still not commensurate with the potentials.

Design/Methodology/Approach: This research adopted a descriptive-analytical method to explain the potentials of solar energy technology for sustainable rural development in the study area on 400 randomized samples. The potential and process of developing and expanding solar energy technology, as an effective factor, was determined by 34 items under indicators such as education and awareness-raising, knowledge and skills, trust-building, capacity building, participation, and partnership in investment. The dependent research variable was also measured through 106 items in ecological, socioeconomic, and physical dimensions of settlement development.

Findings: The results suggested that the utilization of solar energy technology was effective in promoting sustainable development indicators of rural settlements in the study area. Hence, it is suggested to pay further attention to improving training and raising awareness as well as building support for villagers to increase the level of employment, participation, and investment in the utilization of solar energy technology.

Keywords: Solar energy, Sustainable rural development, Kerman desert region, Iran.
Paper type- Scientific & Research.

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1. Introduction

The promotion of rural development dimensions is regarded as one of the main objectives for governments, especially among the developing countries since villages are encountering with different problems such as poverty, unemployment, poor economic infrastructure, inadequate internal services, low productivity in the agricultural sector and rural production sector, climate change and lack of sustainable energy, as well as the destruction of natural resources despite relatively rich natural and agricultural resources. Also, challenging problems have largely impeded the development of rural areas (Byrd, Bosley, & Dronberger, 2009).

During the last decades, paying attention to indigenous knowledge of residents and raising their awareness for the optimal use of diverse environmental resources such as solar energy to achieve socio-economic development has been regarded as one of the key strategies presented for the sustainability of socioeconomic and environmental dimensions as well as the development of local settlements (Amundsen & Martinsen, 2015). Using solar energy technology includes huge capacity for building wealth and reducing poverty among underdeveloped villages, especially in those villages which are far from urban centers and rely more on fossil-fuel supply centers (Kruckenberg, 2015). Also, raising people's awareness about using this energy through innovative agricultural strategies and providing equal opportunities for all people will enable them to improve providing social services and increasing information levels to support food security (Bakhshizadeh, Hosseinpour, & Pahlevanzadeh, 2011). Further, revisiting policies for collaborative investment in the field of modern energy can be helpful (Katikiro, 2016). Thus, during recent years, using solar energy technology has expanded significantly across different countries, which has generated huge benefits in these countries, especially among remote rural centers. Accordingly, these countries have paid more attention to maximize the benefits of solar energy technology by utilizing efficient and effective technologies (Mutula & Van Brakel, 2006).

A large number of experts in the area of rural development argue that the appropriate use of solar energy capacities, along with adopting new techniques and methods can help improve the quality of life and the variety of productions in the rural areas (Pasten & Santamarina, 2012). The process of improving the quality of life among villagers is accelerated when people have sufficient access to sustainable energy (Bridges, 2005). Accordingly, the use of solar energy technology can be considered as a measure for public prosperity and social welfare among other things, and a powerful means for monitoring socio-economic development planning and a gauge for assessing the fulfillment of psychological, spiritual and material needs within the community, which rely on both subjective-qualitative and objective-quantitative indicators (Epley & Menon, 2008; Streimikiene, 2015).

Therefore, during recent years, the development of communication tools has improved the infrastructure and the possibility of receiving solar energy technology in all rural areas has exerted an enormous impact on the level of development, quality of life among the villagers, and their life satisfaction. In this regard, the villages of the area under study in Kerman province are assumed to include great potentials for receiving solar energy due to their favorite climatic conditions and numerous sunny days. The rural areas in this region employ a variety of methods to use solar energy technology for diverse purposes. However, many challenges are facing solar energy technology to expand infrastructure and provide the underlying structural services among the villages in this region. These challenges are mainly concerned with training and awareness-raising, knowledge and information, capacity building and empowerment, and participation of villagers in using solar energy. Moreover, planners' and policymakers' attention to the role of villagers for investing in new and solar energy infrastructures and the lack of close relationships between planners and the people, as well as underestimating the potentials of rural residents are regarded as the major reasons for the lack of training and controlling these people over solar energy. Furthermore, these factors have compromised the sustainability and the socio-economic development of rural settlements. Therefore, addressing solar energy technology as a stimulus for economic activity and the basis for

transformation and rural development can play a significant role on improving housing and the environment, agricultural activities, livestock, horticulture and an improved level of welfare among the villagers as well as reducing national costs and saving fossil fuels. Thus, the present study seeks to answer the following questions:

1. Which indicators can facilitate and influence using solar energy technology in the studied area?
2. To what extent, do the establishment and expansion of using solar energy technology contributes to the promotion of sustainable development in the rural settlements within the study area?

2. Research Theoretical Literature

The sustainable development approach has attracted the attention of associations and experts as a result of international congress and discussion on environment and development since the 1970s. Using renewable energy plays a significant role in those experts advocating the integration of environmental and ecological factors into the development trends of urban and rural activities. Accordingly, the approach developed into a paradigm with several applications in various urban and rural areas as well as natural resource management, which provides various paradigms in an integrated manner (Zizumbo-Villarreal & Roja-Caldelas, 2011). According to Najam & Cleveland (2005), it is essential to consider the diversity of sustainable development dimensions regarding the application of new and renewable energy. Thus, the diversity of socioeconomic, cultural, natural, and environmental dimensions is as follows:

1. Environmental sustainability: The use of new and solar energy technology should be compatible with the conservation of environmental, biological, and related processes.
2. Sustainability of cultural and social factors: The use of new and solar energy increases the humans' control over their lives and determines the identity within the society without any conflict with the cultural and value factors which are affected by these factors.
3. Economic sustainability: The use of solar energy technology should be economically emphasized and necessary monitoring measures should be taken to preserve for future generations (Najam & Cleveland, 2005).

Based on this method, enormous potentials are available for meeting global demand for energy. The energy provides an opportunity for developing economies, meeting the energy needs, creating employment, and setting up manufacturing and service industries which have attracted a lot of attention in developing countries, especially in remote and rural areas (Pfeiffer & Mulder, 2013). Therefore, it offers huge potentials for developing the regions, especially employing in remote and rural areas (Alper & Oguz, 2016). Based on the previous studies, the implementation of the projects related to the use of solar energy technology in deprived and rural areas with higher unemployment rates will contribute to the stability of the population in these areas, and the alleviation of depopulation in these areas and an increase in growth and productivity (Akella, Saini, & Sharma, 2009). Further, it can provide important implications for providing energy infrastructure among the countries which are using these resources (Cook, 2011). Hence, solar energy can play a pivotal role in accelerating sustainability, developing social and economic dynamics, as well as developing the physical condition of these countries if they are used effectively (Heshmatian, Shamsi, & Shamsi, 2012).

Also, the development of solar energy can meet a large part of this demand without any need for displacing the villages. Further, the abundance of this energy in some regions can be observed as a relative advantage of these areas and a stimulus for their further development (Sartipipour, 2012). Solar energy technology can be used at the micro and macro levels which contribute to an improvement in efficiency and participation in development, the promotion of lifestyle, and cost reduction in the service sector (Zhao, Zuo, Feng, & Zillante, 2011). Further, solar energy can play an integral role in accelerating development, increasing social and economic dynamism, and improving the physical condition of developing countries in the case of appropriate use (UNECA, 2006). To design a strategy for the development of solar energy technology in line with the objectives of sustainable rural development, financial and legal means, development and awareness-raising, empowerment, capacity

building, and training should be taken into consideration (Süsser, Döring, & Ratter, 2016).

In Iran, the necessary conditions are available for providing financial incentives through the establishment of the Renewable Fund. The development of the financial support system and expansion of solar energy technology organizations as well as the adoption of innovative approaches will contribute to the establishment of sustainable structure and financial mechanisms and the preparation of the ground for domestic and foreign investors (Mohebbigargarii, Coul, & Sistani, 2016). Also, raising the level of knowledge and awareness among villagers and their capability for incorporating the technology in socioeconomic activities which can aid rural development as well as fostering the capacity of residents to adopt solar energy technology concerning agricultural and non-agricultural activities should be considered as the top priorities (Amundsen & Martinsen, 2015).

Thus, empowering villagers for efficient and effective use of solar energy can improve their productivity and boost rural development indicators (Bansal & Kumar, 2011). Empowering villagers as a way of fostering self-reliance and self-confidence, and diminishing dependence can help marginalized groups to strengthen their organization and unshackle themselves from the dominance of structures or relationships (Sharma & Kirkman, 2015). Improving the villagers' knowledge and skills can facilitate establishing NGOs and adopting appropriate strategies in addition to accessing resources and solar energy (Rossberger & Krause, 2015). Thus, empowering villagers as an effective means can play a pivotal role in adopting solar energy technology in rural settlements, which has attracted growing attention due to the increasing demand of the villagers to ascertain and advance the goals of social and economic life. In practice, it has raised the awareness, knowledge, and information of societies about the integral role of it in which solar energy has contributed to sustainable rural development in addition to raising the villager's level of satisfaction and willingness through adopting solar energy.

2.1. Background Review

Inconsistent results were reported on the renewable energy potentials for local stakeholders as well as its effects on rural sustainable development. For example, Fang (2011), in his study in East Asia and China, addressed the role of empowering local stakeholders to participate in technical training for renewable energy and suggested that local stakeholders' participation and co-operation in disseminating education significantly contribute to gain the benefits of solar energy to optimize the pattern of economic consumption in rural settlements. Mondal and Klein (2011) in their study in South Asia and Bangladesh indicated that drawing on solar energy technology has environmental implications in terms of reducing air pollution in addition to contributing to the optimal use of energy sources. Also, the results demonstrated that the use of modern sources of energy significantly affected the local economy (Mondal & Klein, 2011).

Further, the findings of Chandrasekar and Kandpal (2007) study in India emphasized that education and awareness, along with the capacity building of local stakeholders for fostering their knowledge and skills in utilizing modern energies, could significantly influence the environmental and economic dimensions of rural settlements in India. Furthermore, based on the results, enhancing the local stakeholders' confidence and trust supported their engagement for this type of energy, due to the role of solar energy technology in improving environmental quality, as well as its cost-effectiveness (Chandrasekar & Kandpal, 2007). In Southwest Asia, Iran has been accentuating the use of modern energies to reduce gender inequality through empowering environmental sustainability. Hence, empowering local stakeholders has been underscored for the new sources of energy to cope with the challenges of climate change. In addition, the findings of Afsharzade, Papzan, Ashjaee, Delangizan, Van Passel, & Azadi (2016) revealed that reaping the benefits of modern energies calls for creativity in politics and policy making. Further, the underdevelopment of using solar energy was related to the lack of attention to infrastructure upgradation, resource management, and economic benefits (Afsharzade et al, 2016).

In another study, Alam, Nor, Ahmad, & Hashim (2016) indicated that investing in this type of energy can have a remarkable effect on developing social welfare and environmental infrastructure in addition to alleviating poverty. Thus, policy changes were recommended for promoting the interventions of the private sector

for investment in green energy and widespread promotional campaigns by regarding the benefits of this type of energy (Alam et al, 2016).

In another study in African countries such as Zambia and South Africa, Mfune and Boon (2008) reported some barriers playing a major role in participating stakeholders such as disregarding appropriate policies to inform local stakeholders about the benefits of solar energy technology, high costs of using this type of energy, the underdevelopment of infrastructure, and lack of attention to advertising the benefits of renewable energy (Mfune & Boon, 2008). Also, Kenfack, Bossou, & Tchaptchet (2017) suggested that some internal factors such as little attention to raising public awareness, and an improper infrastructure for using solar energy technology and legal, financial and judicial issues related to the appropriation of solar energy as external factors, along with the weak presence of NGOs and public institutions have reduced the stakeholders' interest in exploiting modern energies in Central Africa and Cameroon (Kenfack, Bossou, & Tchaptchet, 2017)

Further, Aglina, Agbejule & Nyamuame (2016) emphasized a shift in policy towards participatory investment across different sectors in West Africa and Ghana. Accordingly, the need for strengthening the creation of capacity through NGOs was emphasized as a way of improving the use of solar energy (Aglina, Agbejule, & Nyamuame, 2016).

In East Africa, the findings of Katikiro (2016) in Tanzania have highlighted the need to raise the stakeholders' awareness to implement renewable energies and offer facilities to investors (Katikiro, 2016).

In another study, Musall and Kuik (2011) concluded that the stakeholders' ownership could play a role in encouraging investors to utilize new energies in European countries such as Germany (Musall & Kuik, 2011). Späth and Scolobig (2017) pinpointed the need for empowering stakeholders to turn to modern sources of energy in Western Europe, France, and Norway, especially at three levels of informing, consulting, and collaborating to make the transition possible. Thus, advising stakeholders on how to reap the benefits of solar energy and raising their information level were stressed along with strengthening the stakeholders' cooperation to exploit this source of energy (Späth & Scolobig, 2017).

In American countries, the participation and cooperation of all institutions and organizations with local stakeholders were highlighted in changing the procedures for benefiting from the new energies and entering into the market related to this type of technology (Banal-Estañol, Calzada & Jordana, 2017).

In Canada, Denis & Parker (2009) reported that giving authority for local decision-making is essential for encouraging stakeholders to raise their knowledge of solar energy technology. Further, the exchange of ideas and partnerships for putting the ideas into practice which can take place within the framework of rules through networks was emphasized (Denis & Parker, 2009). Finally, Bahadori, & Nwaoha (2013) showed that government policies are aimed at replacing all types of fossil fuels with renewable energy in Australia. Also, some incentives such as lending for the institutional investor, in addition to creating a close collaboration between research centers and technical centers to provide new energy services, were highlighted (Bahadori & Nwaoha, 2013).

By considering all the above-mentioned studies, it seems that the promotion of the indicators involved in the development of solar energy technology is effective in line with regional development, which can activate the optimal development cycle by promoting and improving environmental-ecological and social-economic indicators in rural settlements. Based on the new framework, solar energy offers potentials to residential centers, especially in rural areas away from urban centers and marginal areas and outskirts of cities, based on their socio-economic functions, infrastructure, and services to create a mutual interaction.

Thus, regarding Africa, the United States, Europe, Australia, East, and West Asia and Iran, the development of solar energy technology about rural settlements could increase agricultural and non-agricultural production, improve infrastructure and services, and subsequently promote natural, social, economic and physical environment indicators. Hence, solar energy technology can play a major role in the socio-economic development of human settlements, especially among rural areas. It is worth noting that despite the effect of using solar energy

technology on regional and local development, a small number of studies were conducted in Iran, especially at macro and regional levels. Therefore, the present study seeks to explore the indicator of using solar energy technology for sustainable rural development in the rural settlements of the desert region of Kerman province, Iran.

2.2. A theoretical model of the study

Based on the literature review, the theoretical approaches of the present study are based on the conceptual model. Based on this model, the main question is related to see whether the use of solar energy technology as an effective factor with all of its dimensions and indicators plays a significant role in promoting the indicators related to sustainable rural development, and whether they are mutually interrelated in this regard or not. Also, the present study discusses whether the facilitators related to the process of using solar energy such as education and awareness, knowledge and skill development, trust and capacity building, and investment of rural stakeholders can stimulate their participation in the decision-making process and investment in creating this technology, which can be seen as the potentials of exploiting solar energy technology for improving the indicators for sustainable rural development in Iran.

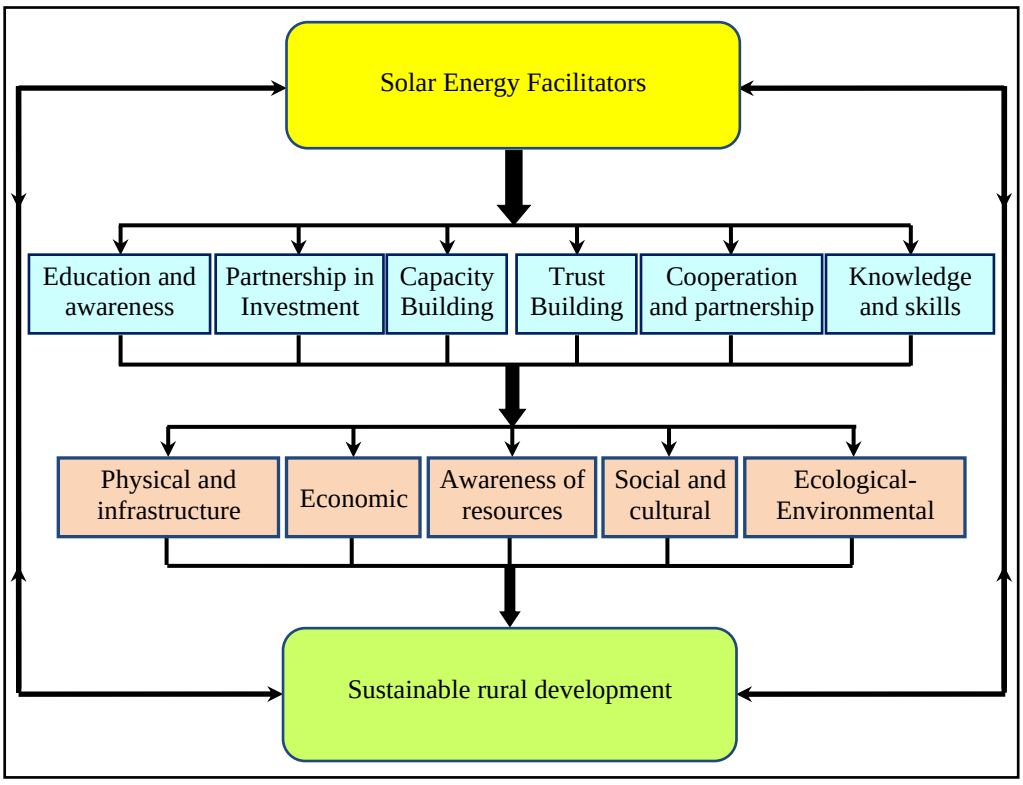

Figure 1. The conceptual model of the study based on the literature review and research background
(Source: Research findings, 2019)

3. Research Methodology

3.1. Geographical Scope of the Research

Kerman province is located between 21' 54 ° and 34' 59° east longitude and 29' 26° to 32° north latitude in the southeastern part of Iranian central plateau, with an area of 181785 km which covers more than 11% of the total area of Iran, which makes it one of the largest provinces in this country. Kerman, served as the south-east center of Iran, neighbors Yazd and Fars in the west, Hormozgan in the south and Sistan and Baluchestan Province in the east. Of the maximum and minimum height of the province lies in Hezar Heights in Bardsir (4473 m) Shahdad plain (117m), respectively. The average annual precipitation of the province was estimated at 188.5 mm during 2013-14, which ranged from 188.5 mL in the southwest (Baft Heights) to less than 65.5 mL (Shahdad plain) and Lut Desert in the eastern part of the province. The average air temperature in the same year ranged from less

than 13.2° in the center of the province (Hezar Heights) to more than 33.1° in Shahdad plain and Lut Desert. Based on the statistics in 2016, the population of the province was estimated 3164718, as the ninth populous province in Iran. Kerman is one of the most important and historical provinces of Iran, acting as the industrial, cultural, political, academic-scientific, religious center among the southeastern provinces in Iran.

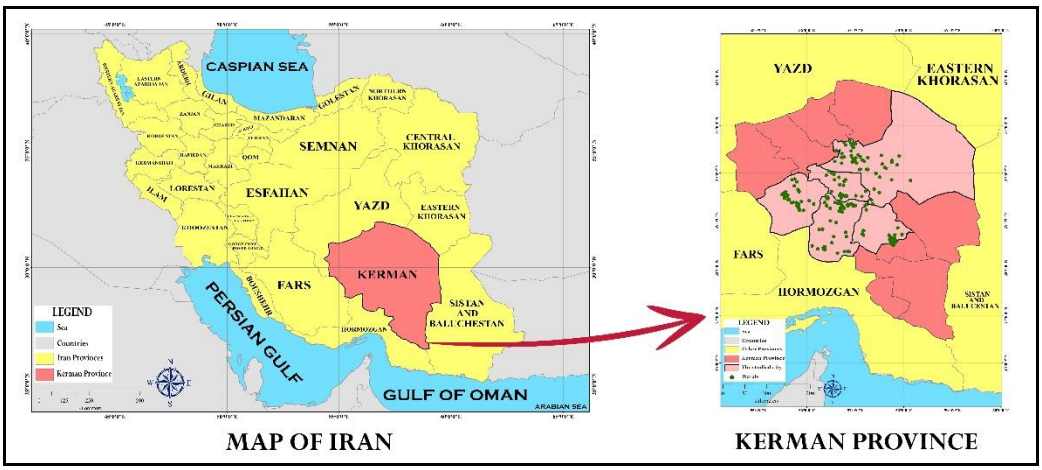

Figure 2. The geographical area of the study
(Source: Research findings, 2019)

3.2. Methodology

To explain the research objectives, a descriptive method was used for studying using solar energy technology facilitator for sustainable rural development. The population included 41 villages that used solar energy in Sirjan, Jiroft, Bardsir, Baft, Kerman, solar energy based on the data derived from the Statistical Center of Iran in 2016, among which, 31 were randomly selected as the sample. The sample included 11374 households as the rural population, who were selected based on a multi-stage sampling method. The sample size is 400 households based on the Cochran's formula. The selection of households among 31 villages was based on the percentage of household distribution in villages under study using a random sampling method including stratified sampling in the first stage and then simple random sampling (Kothari, 2009). Table 1 represents the parameters selected based on the literature review. Table 2 displays the factors influencing solar energy technology facilitators using for rural development including 6 scales and 34 subscales. Finally, Table 3 indicates the sustainable rural development in the area under study including 6 scales and 106 subscales.

Table 1. Indicators used in the previous studies about solar energy facilitators
(Source: Data analysis based on literature review, 2019)

Effective indicators in the process of solar -energy facilitators	**Researchers**
Education and awareness	Fang, 2011; Chandrasekar & Kandpal, 2007; Mfune & Boon, 2008; Kenfack, Bossou & Tchaptchet, 2017; Katikiro, 2016; Späth & Scolobig, 2017; UNECA, 2006
Knowledge and skills	Chandrasekar & Kandpal, 2007; UNECA, 2006
Cooperation and partnership	Fang, 2011; Chandrasekar & Kandpal, 2007 ; Alam et al., 2016; Kenfack, Bossou & Tchaptchet, 2017; Denis & Parker, 2009; UNECA, 2006; Banal-Estañol, Calzada & Jordana, 2017
Trust building	Chandrasekar & Kandpal, 2007; UNECA, 2006
Capacity building	Chandrasekar & Kandpal, 2007; Aglina, Agbejule & Nyamuame, 2016; Cebotari et al., 2017; UNECA, 2006
Partnership in investment	Alam et al., 2016; Aglina, Agbejule & Nyamuame, 2016; Cebotari et al., 2017; Bahadori & Nwaoha,2013; UNECA, 2006

Table 2. Scales and subscales facilitating the formation and development of solar energy technology facilitators
(Source: Data analysis based on literature review, 2019)

Indicator	Items
Knowledge and skills	Villager's knowledge and awareness of vi about using solar energy technology Residents' knowledge and ability in rural areas to deal with using solar energy technology problems Knowledge about the status of investment and allocation of credits for using solar energy technology Awareness of decisions related to the use of using solar energy technology The role of learning and training in the efficiency of using solar energy technology The effect of education on participation in making decisions on using solar energy technology The role of training in fostering creative thoughts by using solar energy technology
Education and awareness	The amount of training offered by organizations in charge of using solar energy technology The success rate of training courses organized by the organizations in charge of using solar energy technology The degree of access to solar energy education opportunities The scale of information-raising activities undertaken to promote educational programs related to solar energy The skills obtained from the training for encouraging people to use solar energy
Cooperation and partnership	Increasing rural population solidarity by using solar energy Establishing regular meetings with rural people to discuss the significance of using solar energy Using the facilities and local people's capabilities for promoting using solar energy Establishing a group of volunteers to monitor and evaluate the use of solar energy Collaborating between local authorities and people to support the use of using solar energy Emphasizing people's contribution to the use of using solar energy
Trust building	Raising people's awareness of the revenues derived from using solar energy Reinforcing people's confidence in using solar energy Paying attention to people's energy demands Fulfilling the promises made for people about using solar energy Inviting officials and relevant experts to attend public meetings on using solar energy Enhancing people's level of confidence about the effect of using solar energy Changing the attitude of public institutions about the villagers' low potentials
Capacity Building	Adopting educational and practical plan for using solar energy Raising public awareness about the use of solar energy Contributing to the decision-making process of solar energy Contributing to the provision of financial resources for the expansion of using solar energy Increasing the local people's motivation to utilize solar energy by considering banking facilities Enhancing the experts' willingness to share their knowledge of using solar energy with villagers Increasing the social interaction for the use of solar energy
Partnership in investment	Increasing the spirit of partnership in all stages of creating and using solar energy Raising the people's partnership in investing in solar energy Enhancing the people's participation in deciding on the use of solar energy

Table 3. Scales and subscales of sustainable rural development about the effects of using solar energy technology
(Source: Data analysis based on literature review, 2019)

Indicators	Items
Ecological-environmental dimensions	Monitoring the condition of pastures Improving the condition of vegetation and forests Preserving endangered plant species Improving the condition of crops and gardens Increasing biodiversity (plant and animal) Improving soil quality Supporting campaigns aimed at impeding desertification Preserving the reserves of surface water and underground water quality Enhancing the quality of surface and underground water Increasing the productivity of water derived from springs and Qantas Protecting agricultural lands Preventing soil erosion
Social and	Preparing the ground for maintaining the rural population

Indicators	Items
cultural dimensions	Improving the villagers' interaction and participation
	Fostering the social solidarity of the community
	Improving the demographic situation of rural areas
	Promoting people's living standard
	Increasing the residents' awareness
	Improving the growth of rural population
	Promoting the literacy level of male villagers
	Improving the literacy level of female villagers
	Increasing the rural residents' awareness about social problems
	Increasing rural residents' awareness of economic problems
	Promoting rural residents' skills in different fields
	Contributing to the diversity of skills among rural residents in different fields
	Emphasizing the rural residents' education to familiarize them with economic concepts
	Empowering rural residents to participate in social issues
	Increasing the power of bargaining and involvement in local decision-making
	Improving the training courses offered for solar energy
	Developing individual and group capacity among local residents
	Promoting individual and family skills
	Increasing social solidarity among villagers
	Developing people's trust in each other
	Supporting NGO activities
	Increasing the level of participation and cooperation among villagers
	Supporting the conservation of natural and historical heritages
	Raising the local people's awareness about the significance of resources in future
	Playing a role in managing and planning the village
	Improving the local people's involvement and contribution in making decisions
	Ensuring the adaptability of professional and training skills based on the needs of local community
Economic dimensions	Increasing the villagers' income level
	Supporting the investment of private sector
	Advocating the establishment of home-based workshops and stores
	Improving the villagers' skills and expertise
	Supporting the production and sale of handicrafts
	Promoting the status of the industry in rural areas
	Improving the export of agricultural products
	Supporting women's employment in rural industries
	Improving land and housing prices in rural areas
	Increasing the value of lands in rural areas
	Facilitating the process of changing land use
	Promoting men's employment in villages
	Increasing women's employment in villages
	Promoting the production of local handicrafts
	Creating new jobs
	Improving the villagers' purchasing power
	Expanding local markets
	Reducing the youths' unemployment in rural areas
	Increasing the total agricultural employment in rural areas
	Increasing the total non-agricultural employment in villages
	Increasing the workers' participation in agricultural activities among rural areas
	Increasing the workers' involvement in non-agricultural activities in villages
	Supporting the diversification of agricultural activities
	Supporting the diversification of non-agricultural activities in villages
	Increasing the yield per hectare of crops in the village
	Increasing the yield per hectare of garden products in the village
	Increasing the share of irrigated agricultural land among rural areas
	Increasing the share of lands allocated to dray farming among rural areas
	Expanding the area of agricultural lands

Indicators	Items
	Expanding the area of horticultural lands Promoting job diversification in villages Setting up and expanding small-scale credit funds (unofficial sources) in villages Developing and expanding official financing sources (banks) in villages Improving the level of savings among rural areas Improving the situation of peasant and small-scale beneficiaries in villages Increasing the share of villagers in the production of handicrafts and workshops Improving investment in agricultural activities among the villages Improving investment in non-agricultural activities among the villages Facilitating the access of rural residents to the market and commercial centers Promoting active enterprises in rural areas Supporting service industries
Physical and infrastructure dimensions	Improving water supply infrastructure Improving the conditions of roads and communication paths among rural areas Expanding landline networks Developing mobile communication networks Improving the condition of electricity networks and lighting in rural roads Expanding the infrastructure of gas supply networks Developing the infrastructure of the sewage networks Supporting and building up agricultural infrastructure Developing sports facilities and complexes Improving the infrastructure of rural industries Promoting fuel supply infrastructure Expanding the infrastructure of transportation network Promoting the health and medical conditions of rural areas Reinforcing the infrastructure for building construction
Education and resource awareness	Raising the local people's awareness about solar energy Improving the interaction between trainers and people concerning the solar energy Improving the quantity and quality of training related to solar energy Improving the residents' awareness of the benefits of solar energy Stressing the role of using solar energy in helping resource conservation Explaining the role of solar energy in the economic justification of resource conservation Developing and improving the quality of natural resources Increasing people's awareness about the significance of resources Increasing the level of awareness and sensitivity among the related authorities and managers about the significance of resources Enhancing the people's participation in protecting and preserving resources Fostering a sense of appreciation and gratitude towards nature in people Raising the local residents' awareness about the use of solar energy

Cronbach alpha coefficient is used to determine the reliability of qualitative subscales (Hafeznia, 2009). In the present study, Cronbach alpha of 0.815 was obtained for qualitative subscales. To assess the validity, the relevant individuals' comments and opinions in the Institute for Economic Research, Rural Planning and Agricultural Development of Jihad, the experts in New Energy Organization, New Energy Institute, and the Center for Natural Resources and Agricultural Researches in Kerman Province were collected for ensuring face validity.

Also, descriptive statistical methods were used to describe age groups. Kendall correlation coefficients were used to determine the relationship between the dependent and independent variables by considering the integrative nature of variables. Further, multivariate regression was used to determine the general relationship between dependent and independent variables, the potentials of using solar-energy facilitators in sustainable rural development.

4. Research Findings

A total of 400 respondents including 73% men and 27% female were selected for data analysis. Table 4 indicates the detailed specifications of the participants.

Table 4. Descriptive statistics for the participants (N = 400)
(Source: Research Findings, 2019)

Features		N	Percentage
Gender	Male	292	73
	Female	108	27
Education	Primary school	114	28.5
	Middle school	66	16.6
	High school diploma	62	15.6
	Associate degree	93	23
	Bachelor degree	53	13.3
	Master degree and higher	12	3
Job	Farmer	114	28.52
	Livestock farmer	93	23.33
	Service jobs	76	18.9
	Office jobs	56	14.1
	Retired persons	36	8.9
	Others	25	6.25

4.1. The effect of using solar energy technology on promoting sustainable development indices

As indicated in Tables 2 and 3, the effect of using solar energy technology on promoting sustainable rural development indicators was measured based on various scales and subscales. Hence, the dependent and independent variables were obtained based on the mean responses of the rural residents who used solar energy on a 5-point Likert scale.

Based on the literature review and the research background, the facilitators of using solar energy technology are influenced by six scales including education and awareness-raising, knowledge and skills, cooperation and participation, trust-building, capacity building, and investment partnerships. The use of solar energy technology can contribute to the promotion of sustainable rural development indicators if the process is implemented appropriately. Accordingly, the effect of the solar energy was evaluated based on the improvement of sustainable development indicators among rural settlements of Kerman province, Iran.

4.2. Relationship between people's education and awareness-raising of using solar energy technology and the promotion of sustainable development indices

Table 5 indicates the results of the role of education and awareness in using solar energy technology. Based on the results, no significant relationship is observed between these two factors and sustainable rural development ($p > 0.211$). There is no significant correlation between the subscales provided by the relevant organizations in charge of solar energy including the success rate of training courses implemented by the organizations in charge of solar energy, the degree of accessing to solar energy education opportunities, the role of information raising to provide educational programs for solar energy and skills obtained from the training related to participation in solar energy startups and improving sustainable rural development. In other words, the villagers in the present study struggle with many challenges in accessing education and training about solar energy. That is, organizations and institutions have failed to provide the necessary training and information in creating and expanding the structure of solar energy.

4.3. Relationship between the knowledge and skill of using solar energy technology and the promotion of sustainable development indices

Knowledge and skill for solar energy is a combination of seven subscales. The results of Kendall's tau-b test indicated a significant relationship between knowledge and skill and improving sustainable rural development (Table 5). Also, all subscales of knowledge and information, the impact of training on participation in decision making related to solar energy as well as the effect of training on nurturing innovative ideas about the use of solar energy were significantly related to the development of rural settlement in the significance level of 0.05 and 95% confidence level. However, the effect of

training on increasing solar energy efficiency was not confirmed. In other words, no significant relationship was found between the items related to the pervasiveness of education and sustainable development in the selected villages, due to the lack of sufficient training for empowering villagers. The villagers' knowledge and skills are obtained from the sources other than those authorities in charge of creating a solar energy framework.

4.4. Relationship between cooperation and the villagers' participation in using solar energy technology and the promotion of sustainable development

Table 5 displays the six subscales related to the cooperation and the villagers' participation. The results of Kendall's tau-b test indicated that the scale was significantly related to improving sustainable rural development (P=0.000). Besides, all 6 subscales of participation were significantly correlated with improving the indicators for sustainable rural development at the significance level of 0.05 and a 95% confidence level. However, local managers' cooperation with local people about solar energy failed to promote sustainable development.

4.5. Relationship between trust-building in using solar energy technology and the promotion of sustainable rural development

As indicated in Table 5, a significant relationship was observed between trust-building and improving sustainable rural development indicators (r = 0.417). However, no significant relation was reported between fulfilling the promises related to solar energy and inviting officials and experts to attend public meetings on solar energy.

4.6. Relationship between capacity building in using solar energy and the promotion of sustainable development

Table 5 represents a combination of seven subscales that influence sustainable development among rural settlements. Based on the results, capacity building was significantly related and to the dimensions of sustainable development of villages (r = 0.458). Also, all seven subscales of the capacity building were significantly correlated with improving sustainable rural development indicators at the significance level of 0.05 and 95% confidence level although, the experts' willingness of sharing their knowledge with villagers about solar energy was not confirmed.

4.7. Relationship between partnership for investment in using solar energy and the promotion of sustainable rural development

Based on the results of Kendall's tau-b test, the correlation coefficient of 0.514 suggests a significant and direct relationship was reported between all the related subscales and the promotion of rural settlement (r = 0.514). Reinforcing partnership in solar energy leads to an increase in the quantitative and qualitative use of solar energy and the promotion of sustainable development indicators for rural settlements.

Table 5. Relationship between using solar energy technology and sustainable rural development
(Source: Research findings, 2019)

Parameters affecting the using of solar energy	Variable	Mean	SD	Kendall's tau_b test		Correlation
				r	Sig	
Education and awareness-raising	Sustainable rural development	1.305	0.35620	0.214	0.304	-
Knowledge and skill		3.568	0.43437	0.435	0.000	+
Cooperation and partnership		4.625	0.54727	0.434	0.000	+
Trust building		4.418	0.44291	0.417	0.000	+
Partnership in investment		4.280	0.73900	0.514	0.000	+
Capacity building		4.641	0.56873	0.458	0.000	+

Finally, as indicated in Table 6, a significant relationship was observed between the potentials of using solar energy technology and promoting the indicators of sustainable rural development of rural settlements in Kerman province. Accordingly, appropriate use of solar energy technology potentials among the selected villages could improve the indicators related to the sustainable development of the settlements.

Table 6. Relationship between the potentials of using solar energy and the promotion of sustainable rural development

(Source: Research findings, 2019)

Parameters influencing the use of solar energy	Dependent variable	Mean	SD	Kendall's tau_b test		Correlation
				r	Sig	
Potentials of solar- energy technology	Promoting sustainable rural development indicators	3.76	0.823	0.581	0.000**	+

** Significance at 99% level

4.8. Final evaluation of the effect of using solar energy technology on the promotion of sustainable rural development

To determine the degree of correlation, multivariate regression was used to study the correlation among five variables including knowledge and skills, partnership, trust-building, investment partnership, and capacity building in the process of using solar energy technology and promoting sustainable rural development in the study area. The results indicated a positive correlation between the development of settlements using solar energy and five independent variables (r=0.512). Besides, based on the adjusted coefficient of determination, 62/1 % of the variation in the development of settlements by using solar energy technology could be explained by the linear combination of the five variables (Table 7).

Table 7. Regression results of five main variables and the promotion of sustainable rural development

(Source: Research findings, 2019)

Multiple Correlation Coefficient (r)	Coefficient of Determination R^2	Adjusted moderated coefficient	The standard error of measurement
0.512	0.654	0.621	0.009

Further, based on the F value at a 99% confidence level, the integration of independent variables could significantly explain and predict the variation in the dependent variables of the development of residential areas by using solar energy based on the rural residents' viewpoints.

Table 8. ANOVA for determining the effect of regression related to five main variables on improving sustainable rural development

(Source: Research findings, 2019)

Model		Sum	df	Mean squares	F	Sig.
1	Effect of regression	31.616	6	6.323	119.698	0.000
	Remainder	13.946	264	0.053		
	Total	45.563	269			

Finally, based on the standardized coefficient of the effect of independent variables on the dependent variable, the results obtained from a group of residents indicated that training failed to improve sustainable rural development. Also, based on the determination coefficient of variables on sustainable rural development, the capacity-building with a coefficient of 0.343 had the highest effect on improving sustainable rural development, followed by participation (0.310), partnership (0.257), confidence building (0.198) and knowledge and awareness (0.190).

Table 9. Coefficients of the effect of independent variables on dependent variables based on rural residents' viewpoints

(Source: Research findings, 2019)

Coefficients (a)						
Model		Non- standard coefficient		Standard coefficient	T	Sig.
		B	Std. Error	Beta		
1	Intercept	0.756	0.189		3.989	0.000
	Knowledge and skills	0.180	0.034	0.190	5.352	0.000
	Cooperation and partnership	0.233	0.030	0.310	7.712	0.000
	Confidence Building	0.184	0.035	0.198	5.068	0.000
	Partnership in investment	0.143	0.020	0.257	7.091	0.000
	Capacity building	0.248	0.026	0.343	9.393	0.000

Therefore, according to rural residents, the significance of education and awareness-raising in the process of establishing and expanding solar energy has not been considerably emphasized in the present study. The authorities in charge of implementing solar energy projects in the studied area have failed to provide the necessary education and training in this respect although the effect was positive in other dimensions which could contribute to the promotion of the indicators related to sustainable rural development.

5. Discussion and Conclusion

Using solar energy technology offers an effective means of addressing poverty and underdevelopment among villages. By increasing the people's level of knowledge by implementing innovative agricultural strategies and providing equal opportunities, they can play a role in improving socioeconomic services and raising the level of information to support food security. During recent years, the development of communication tools, an improvement in infrastructures, and the ease of access to these facilitators in all rural areas have greatly influenced the quality of life among villagers and the promotion of sustainable rural development dimensions.

Based on the results of the present study, a direct and positive linear correlation was observed between promoting the development of rural settlements and the use of solar energy. Therefore, the promotion of sustainable rural development indicators for using solar energy is measured through some indicators such as education, knowledge and skill, cooperation and partnership, trust-building, and capacity building in the conservation of natural resources. Concerning the impact coefficient of variables on the development of sustainable rural development indicators, the capacity building had the highest effect on sustainable rural development in the present situation, followed by cooperation and partnership, participation, trust-building, knowledge, and skills, respectively. However, based on the standardized coefficient of the effect of independent variables on dependent variables, the effect on rural development was only insignificant based on the educational dimension. Therefore, by considering the rural respondents' perspectives, only education and awareness-raising are suffering from insufficient attention of authorities in charge of developing solar energy in the current situation and more effective measures should be adopted to raise the villagers' level of knowledge.

The results of the present study were inconsistent with the findings reported in the United States, Europe, Africa, and even Asia including the study of Chandrasekar and Kandpal (2007) in India and Fang (2011) in China. Based on these studies, the extent and type of training are effective in raising the villagers' awareness and understanding of the optimum use of solar energy technology. Thus, in the study area, rural settlements have not been able to attract sufficient investment in various uses of solar- energy and improve the infrastructure required for further expansion of this technology despite the significance of participation and investment in investment. Currently, the use of solar energy in the studied area is mainly restricted to domestic applications; therefore, the positive benefits of using solar energy can be reaped through investment in its development and expansion to provide infrastructural and developmental services to people. Moreover, there

is a direct relationship between the promotion of sustainable development indicators of settlement and the role of solar- energy. In other words, from local respondents, there is a significant relationship between the process of developing and expanding solar energy and all items in ecological-environmental dimensions of the dependent variable of sustainable development. Indeed, the use of solar energy technology has improved the natural environment of the settlements in the studied area in terms of the quality of water, thanks to the proper utilization and mechanization of wells, and reinforcement of pastures and forests due to reduced exploration of these resources as sources of fuel.

Concerning socioeconomic indicators affecting sustainable rural development, despite the direct and positive linear relationships, due to limited investment in solar energy technology and limited access to credit and banking resources, there are still many challenges facing the expansion of solar energy technology use. Therefore, concerning social and economic indicators affecting the sustainable development of rural areas, a large portion of solar energy potentials are still untapped due to the above-mentioned factors, and a small share of villagers and their limited involvement in developing solar energy infrastructures. Further, disregarding the authorities in charge of promoting solar energy for technical and vocational training programs to encourage the optimal use of new energies, in general, and solar energy, in particular, has deteriorated the role of solar energy despite its effect on all aspects of sustainable rural development in the area under study.

Considering the literature on this issue which highlights the importance and potential of solar energy technology for promoting ecological, social, and cultural, economic and environmental indicators in rural areas, it is necessary to link the promotion of sustainable development indicators to planning method for embellishing and developing technology-related projects, improve the indicators related to sustainable rural development underlined by proper use of technology through adopting the appropriate social and economic policies of the government based on development planning.

Therefore, the proper recognition of the potentials related to the process of establishment and development of solar energy can help promote government-led policy-making and inspire sustainable rural development.

Also, the proper utilization of technology within the framework of empowerment and capacity building among local and rural stakeholders has rendered the previous "top-down" approach to the development of this type of technology for sustainable rural development which is ineffective at the local and regional level. However, it supports "bottom-up" initiatives as well as the process of establishing and developing, which is vital for improving rural and non-agricultural activities, fostering social activities, and enhancing the indicators related to the natural environment and rural infrastructure and services.

Finally, it is required for the local government in the study area to take initiatives in identifying local programs in this field and make planning for the proper development of solar energy technology to promote the facilitators used for establishing and developing solar energy to increase the sustainable development among rural settlements.

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Research Article

ظرفیت‌های اجتماعی برای تسهیل استقرار فناوری انرژی خورشیدی و اثرات آن بر توسعه پایدار روستایی (مورد مطالعه: منطقه بیابانی استان کرمان، ایران)

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چکیده مبسوط

۱. مقدمه

فناوری انرژی خورشیدی از پتانسیل فراوانی برای ایجاد ثروت و سرمایه، مقابله با فقر و توسعه نیافتگی روستاها به ویژه در روستاهایی که فاصله بیشتری از کانون‌های شهری و مراکز تأمین سوخت‌های فسیلی دارند، برخوردار است. روستاهای مورد مطالعه با توجه به شرایط اقلیمی حاکم برآن و فراوانی تعداد روزهای آفتابی قابلیت زیادی در به کاربردن انرژی خورشیدی دارند اما چالش‌هایی در زمینه آموزش و آگاهی بخشی، دانش و اطلاعات، ظرفیت‌سازی و توانمندسازی و مشارکت روستاییان در رابطه با انرژی خورشیدی وجود دارد. این مسائل پایداری و توسعه اجتماعی ـ اقتصادی سکونتگاه‌های روستایی را با مشکل مواجه کرده است. پرداختن به موضوع مساله در ارتباط با فناوری انرژی خورشیدی به عنوان محرک فعالیت‌های اقتصادی و مبنای تحول و توسعه روستایی می‌تواند تاثیر مستقیمی بر بهبود مسکن و محیط زیست، فعالیت‌های کشاورزی، دامداری، باغداری و ارتقاء سطح رفاه روستاییان در کاهش هزینه‌های ملی و صرفه جویی و ذخیره منابع انرژی فسیلی داشته باشند و از اهمیت زیادی برخوردار است.

۲. مبانی نظری تحقیق

نگرش توسعه پایدار که از نشست‌ها و مباحث بین المللی درباره محیط و توسعه از دهه ۱۹۷۰ میلادی تا کنون حاصل شده، هنوز مورد اقبال مجامع و کارشناسان قرار دارد. کارشناسانی که هوادار ادغام مسائل زیست محیطی و اکولوژیک در روندهای توسعه فعالیت تولیدی در عرصه شهری و روستایی هستند و بحث فنآوری انرژی‌های تجدیدپذیر برای آن‌ها از اهمیت ویژه‌ای برخورداراست. این رویکرد نتیجتا به پارادایمی انجامید که در عرصه‌های مختلف شهری و روستایی و همچنین مدیریت منابع طبیعی کارایی دارد و پارادایم‌های گوناگونی را به نحوی یکپارچه پیشنهاد می‌کند. بالابردن سطح دانش و اطلاعات روستاییان و توانمندی آن‌ها در به‌کارگیری این فناوری در فعالیت‌های اجتماعی ـ اقتصادی می‌تواند مددرسان توسعه روستایی باشد و توجه به امر توانمندسازی و ظرفیت‌مندی ساکنان محلی در پذیرش فناوری انرژی خورشیدی در ارتباط با مقوله‌های مربوط به فعالیت‌های کشاورزی و غیرکشاورزی آن‌ها است. توانمندسازی روستاییان به مثابه یک ابزار کارآمد نقش مهم و انکارناپذیری در پذیرش فناوری انرژی خورشیدی در سکونتگاه‌های روستایی دارد. در عصر حاضر نیز به دلیل نیاز جدی روستاییان به دانستن و آگاهی برای پیشبرد اهداف زندگی اجتماعی و اقتصادی بر اهمیت آن بیش از پیش افزوده شده است و عملا در بالا بردن سطح آگاهی، دانش، اطلاعات جوامع در پذیرش این تکنولوژی نقش مهمی دارد و علاوه بر ارتقاء سطح رضایت‌مندی و پذیرش روستاییان در به‌کارگیری فناوری انرژی خورشیدی مددرسان توسعه پایدار روستایی نیز می‌شود.

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۳. روش تحقیق

تحقیق حاضر با استفاده از روش توصیفی ـ تحلیلی است. جامعه آماری تعداد ۴۱روستا در شهرستان‌های سیرجان، جیرفت، بردسیر، بافت، کرمان و غیره هستند. تعداد خانوار این ۳۱ روستای نمونه برابر با ۱۱۳۷۴ خانوار بوده که حجم جامعه آماری خانوار روستایی را تشکیل می‌دهد. با توجه به موضوع و جامعه آماری، روش نمونه‌گیری چند مرحله‌ای است. حجم نمونه محاسبه شده برای ساکنین محلی بر اساس فرمول کوکران تعداد ۴۰۰ خانوار نمونه است. انتخاب خانوارها در ۳۱ سکونتگاه روستایی نمونه با در نظر گرفتن درصد توزیع آن‌ها به نسبت خانوار روستاها با استفاده از نمونه گیری ترکیبی تصادفی شامل نمونه گیری نسبی یا طبقه‌ای در مرحله اول و سپس تصادفی ساده بوده است. برای تعیین ارتباط بین مؤلفه های اثرگذار و اثرپذیر تحقیق با توجه به ترتیبی بودن متغیرها از ضرایب همبستگی کندال تائوبی استفاده شد. تعیین ارتباط کل متغیرهای پتانسیل استفاده از فناوری انرژی خورشیدی در توسعه روستایی، از رگرسیون چند متغیره استفاده شد.

۴. یافته‌های تحقیق

روستاییان منطقه مورد مطالعه چالش‌هایی برای دسترسی به آموزش و آگاهی بخشی در زمینه انرژی خورشیدی دارند. شاخص دانش و مهارت در زمینه فناوری انرژی خورشیدی حاصل متغیر ترکیبی ۷ گویه است که رابطه معناداری بین این مولفه با بهبود شاخص‌های توسعه پایدار روستایی وجود دارد. با استفاده مناسب از قابلیت‌ها و پتانسیل‌های فناوری انرژی خورشیدی در روستاهای مورد مطالعه، شاخص‌های توسعه پایدار و پایداری این سکونتگاه‌ها نیز ارتقاء یافته است. نتایج به‌دست آمده رگرسیون، نشان داد میان توسعه سکونتگاه‌هایی که از فناوری انرژی خورشیدی استفاده می‌کنند، با عوامل پنجگانه اثرگذار به میزان ۰/۵۱۲همبستگی وجود دارد. بر اساس ضریب استاندار شده تاثیر متغیرهای مستقل بر متغیر وابسته، نتایج در گروه ساکنان محلی نشان داد که تاثیر آماری در بعد آموزش بر میزان ارتقاء شاخص‌های توسعه پایدار روستایی معنادار نبوده است. از نظر ضریب تاثیر متغیرها بر میزان توسعه پایدار روستایی، متغیر ظرفیت‌سازی در شرایط موجود با ضریب تاثیر ۰/۳۴۳ بیشترین میزان اثر را برارتقاء شاخص‌های توسعه پایدار روستایی دارد. پس از آن متغیرهای مشارکت با ضریب ۰/۳۱۰، بعد شراکت با ضریب تاثیر۰/۲۵۷، بعد اعتمادسازی با ضریب تاثیر ۰/۱۹۸، دانش و اطلاعات با ضریب تاثیر ۰/۱۹۰ بر ارتقاء شاخص‌های توسعه پایدار روستایی اثرگذارند.

۵. بحث و نتیجه گیری

نتایج پژوهش نشان می‌دهد که میان ارتقاء شاخص های توسعه سکونتگاه‌های استفاده کننده از فناوری انرژی خورشیدی همبستگی خطی مستقیم و مثبت وجود دارد. ارتقاء شاخص‌های توسعه پایدار روستایی از به‌کارگیری انرژی خورشیدی از طریق مجموع شاخص‌های بعد آموزشی، بعد دانش و مهارت، بعد همکاری و مشارکت، بعد اعتماد سازی، بعد شراکت و بعد ظرفیت سازی در حفاظت از منابع طبیعی سنجیده شده است. متغیر ویژگی‌های ظرفیت سازی در شرایط موجود بیشترین میزان تأثیر برشاخص‌های توسعه پایدار روستایی داشته است. پس از آن به ترتیب متغیرهای همکاری و مشارکت، متغیرهای شراکت، اعتماد سازی، دانش و مهارت بر میزان توسعه روستایی اثرگذارند. ضریب استاندار شده تاثیر متغیرهای مستقل بر متغیر وابسته نشان می‌دهد که تاثیر آماری تنها در بعد آموزش بر میزان توسعه روستایی معنادار نبوده است. رابطه مستقیمی بین ارتقاء شاخص‌های توسعه پایدار سکونتگاه‌ها با نقش فناوری انرژی خورشیدی وجود دارد. استفاده از فنآوری انرژی خورشیدی باعث بهبود وضعیت محیط طبیعی سکونتگاه های منطقه مورد مطالعه از نظر کیفیت آب به دلیل بهره‌برداری مناسب و برقدار کردن چاه‌ها، پوشش مرتعی و جنگلی به دلیل کاهش استفاده از این منابع برای سوخت شد. در ارتباط با شاخص‌های اجتماعی و اقتصادی اثرگذار بر توسعه پایدار روستایی، به رغم وجود رابطه خطی مستقیم و مثبت، به دلیل سرمایه‌گذاری محدود در ارتباط با انرژی خورشیدی و دسترسی محدود به اعتبار و منابع بانکی هنوز مشکلات فراوان در زمینه گسترش استفاده از انرژی خورشیدی در فعالیت‌های عمرانی و زیربنایی روستاها وجود دارد.

کلیدواژه‌ها: انرژی خورشیدی، توسعه پایدار روستایی، منطقه بیابانی کرمان، ایران.

تشکر و قدردانی

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فهرست مندرجات

عنوان	صفحه
■ نقش آفرینی گردشگری در پایداری روستایی (مطالعه موردی: منطقه روستایی گلان، شهرستان آمل) ریحانه سلطانی مقدس، مصطفی طالشی	(۱۴-۱)
■ تحلیلی بر عوامل کلیدی مؤثر بر گسترش مهاجرت‌های روستایی با تأکید بر مسئله اسکان غیررسمی (مطالعه موردی: محله شیرآباد زاهدان) محسن سقایی، سیدرضا آزاده، فهیمه فدایی جزی، فاطمه جعفری	(۳۳-۱۷)
■ الگوی فرآیندی برنامه‌ریزی روستایی بر مبنای تجربیات طرح‌های توسعه اجتماع‌محور (طرح‌های دهه ۱۳۹۰ در کانون‌های بحرانی سیستان، ریگان و جازموریان) حسین ابراهیم‌زاده آسمین، ابوذر پایدار	(۵۲-۳۵)
■ بررسی عوامل مؤثر بر توسعه خوشه گردشگری روستایی (مطالعه موردی روستای اشتران شهرستان تویسرکان) رضا موحدی، لیلا زلیخایی سیار، مهرداد پویا، غلامعلی آیینی، مختار بهادری	(۶۹-۵۳)
■ میزان توسعه یافتگی مناطق روستایی استان کهگیلویه و بویراحمد با استفاده از روش PROMETHEE محمد غیجی، علی شمس‌الدینی، وحید بارانی پسیان، ریباز قربانی نژاد	(۸۶-۷۱)
■ شناسایی و ارزیابی محصولات با قابلیت برندسازی در مناطق روستایی (مطالعه موردی : منطقه ترکمن صحرای استان گلستان) حسین سادین، مهدی پورطاهری، عبدالرضا رکن الدین افتخاری	(۱۰۳-۸۷)
■ ظرفیت‌های اجتماعی برای تسهیل استقرار فناوری انرژی خورشیدی و اثرات آن بر توسعه پایدار روستایی (مورد مطالعه: منطقه بیابانی استان کرمان، ایران) ناصر شفیعی ثابت، نگین سادات میرواحدی، سعیده هراتی‌فرد	(۱۲۳-۱۰۵)

داوران این شماره به ترتیب حروف الفبا

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دکتر ولی‌الله نظری (استادیار جغرافیا و برنامه‌ریزی روستایی دانشگاه فرهنگیان)

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، جدای از ارزشیابی کیفی 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 یا انصراف داده شده پس از سه ماه 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 انجام آخرین تصحیحات احتمالی به نشانی الکترونیکی نویسنده ارسال خواهد شد. چنانچه ظرف مدت یک هفته پاسخی از سوی نویسندگان واصل نگردید به معنای موافقت آنها با اصلاحات انجام شده تلقی 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 قبل از انجام ترجمه، 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 فرایند ارزیابی علمی و پذیرش نسبت به ترجمه آن اقدام شود.

آدرس پستی: مشهد- میدان آزادی- پردیس دانشگاه فردوسی مشهد- دانشکده ادبیات و علوم انسانی- دفتر مجلهٔ پژوهش و برنامه‌ریزی روستایی.

کد پستی: ۹۱۷۷۹۴۸۸۸۳ تلفن و نمابر: ۰۵۱-۳۸۷۹۶۸۴۰ پست الکترونیکی Rplanning@um.ac.ir

وب سایت: http://jrrp.um.ac.ir/

فرم اشتراک (یک ساله/ دوشماره) **مجلهٔ 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 پذیرش از نشریه نرسیده است، مقالهٔ خود را به مجلهٔ دیگری برای چاپ ارسال نفرمایند.

۲ . مقالات انگلیسی با قلم نازک Times New Roman11 با نرم افزار Word تهیه شود. مقالات، روی کاغذ A4 (با حاشیه از بالا ۳ و پایین ۲ و راست ۲ و چپ 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 نباید ازحدود 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 نظرگرفتن 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 زیر عنوان مقاله ذکر شود. ضمناً 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 ۳۰۰ dpi ارائه شود. اندازهٔ قلم‌ها 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 علمی، نشانی دقیق (کد پستی، تلفن، دورنگار و پست 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 حاوی مقدمه، مبانی 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 بعدا 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 که ارجاع به کارهای چاپ شده فقط به زبان فارسی بوده و در اسامی لاتین معادل آن در زیر نویس همان صفحه ارائه شود. به عنوان نمونه: (شکوئی، ۱۳۸۷، ص. ۵۰) یا (وودز، ۲۰۰۵، ص. ۲۷).

۹. ۲ در پایان مقاله، منابع مورد استفاده در متن مقاله، به ترتیب الفبایِ نام خانوادگی نویسنده بر اساس الگوی فهرست نویسی APA تنظیم گردد.

نمونه فارسی:

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بسم الله الرحمن الرحيم

دانشکده ادبیات و علوم انسانی

مجلّهٔ پژوهش و برنامه‌ریزی روستایی

سال نهم، شمارهٔ ۳، تابستان ۱۳۹۹، شمارهٔ پیاپی ۳۰

صاحب امتیاز: دانشگاه فردوسی مشهد
مدیر مسئول: دکتر حمید شایان
سردبیر: دکتر علی‌اکبر عنابستانی

دستیار سردبیر: مهدی جوانشیری
مدیر اجرایی: زهرا بنی‌اسد
ویراستار انگلیسی: مرکز ویراستاری ادبیات
حروف‌نگاری و صفحه‌آرایی : الهه تجویدی
شمارگان: ۵۰ نسخه

نشانی: مشهد، دانشگاه فردوسی مشهد، دانشکدهٔ ادبیّات و علوم انسانی دکتر علی شریعتی، کد پستی ۹۱۷۷۹۴۸۸۸۳ ، نمابر: ۳۸۷۹۶۸۴۰ (۰۵۱)
بها: داخل کشور: ۲۰۰۰۰ ریال (تک‌شماره) خارج کشور: ۲۵ دلار (آمریکا- سالانه)، ۲۰ دلار (سایر کشورها- سالانه)
درگاه الکترونیکی: http://jrrp.um.ac.ir/ E-mail:Rplanning@um.ac.ir

*** این مجله در جلسهٔ کمیسیون بررسی نشریات علمی کشور مورخ ۱۳۹۲/۲/۲۵ رتبهٔ علمی- پژوهشی دریافت و طی نامهٔ شمارهٔ ۳/۱۸/۳۵۷۲۸ در تاریخ ۱۳۹۲/۳/۱۳ ابلاغ گردیده است.**

این مجلّه در پایگاه های زیر نمایه می‌شود:
- **پایگاه استنادی علوم جهان اسلام (ISC)**
- **پایگاه اطلاعات علمی جهاد دانشگاهی (SID)**
- **پایگاه بانک اطلاعات نشریات کشور (Magiran)**
- **فهرست دسترسی آزاد مجلات (Doaj)**
- **Index Copernicus- RICeST- ISI-Noormags- Googlescholar- Civilica- Oaji**

دانشگاه فردوسی مشهد

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مجله پژوهش و برنامه ریزی روستایی

سال نهم، شماره ۳، تابستان ۱۳۹۹، شماره پیاپی ۳۰

■ **نقش آفرینی گردشگری در پایداری روستایی** ۱
(مطالعه موردی: منطقه روستایی گلان، شهرستان آمل)
ریحانه سلطانی مقدس، مصطفی طالشی

■ **تحلیلی بر عوامل کلیدی مؤثر بر گسترش مهاجرت‌های روستایی با تأکید بر مسئله اسکان غیررسمی (مطالعه موردی: محله شیرآباد زاهدان)** ۱۵
محسن سقایی، سیدرضا آزاده، فهیمه فدایی جزی، فاطمه جعفری

■ **الگوی فرآیندی برنامه‌ریزی روستایی بر مبنای تجربیات طرح‌های توسعه اجتماع‌محور (طرح‌های دهه ۱۳۹۰ در کانون‌های بحرانی سیستان، ریگان و جازموریان)** ۳۵
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■ **بررسی عوامل مؤثر بر توسعه خوشه گردشگری روستایی (مطالعه موردی روستای اشتران شهرستان تویسرکان)** ۵۳
رضا موحدی، لیلا زلیخایی سیار، مهرداد پویا، غلامعلی آیینی، مختار بهادری

■ **میزان توسعه یافتگی مناطق روستایی استان کهگیلویه و بویراحمد با استفاده از روش PROMETHEE** ۷۱
محمد غیجی، علی شمس‌الدینی، وحید بارانی پسیان، ریباز قربانی نژاد

■ **شناسایی و ارزیابی محصولات با قابلیت برندسازی در مناطق روستایی (مطالعه موردی : منطقه ترکمن صحرای استان گلستان)** ۸۷
حسین سادین، مهدی پورطاهری، عبدالرضا رکن الدین افتخاری

■ **ظرفیت‌های اجتماعی برای تسهیل استقرار فناوری انرژی خورشیدی و اثرات آن بر توسعه پایدار روستایی (مورد مطالعه: منطقه بیابانی استان کرمان، ایران)** ۱۰۵
ناصر شفیعی ثابت، نگین سادات میرواحدی، سعیده هراتی‌فرد

شاپا: ۲۵۱۴-۲۳۲۲