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بررسی اثرات خشکسالی بر ساختار اقتصاد روستایی (مطالعه موردی: دهستان گلاب شهرستان کاشان)

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چکیده مبسوط

۱. مقدمه

سالی که میزان بارش آن کمتر از میانگین دراز مدت بارش در منطقه باشد، خشکسالی اتفاق می افتد. پژوهش حاضر به دنبال بررسی تاثیر بحران خشکسالی بر ساختار اقتصادی روستایی است. منطقه مورد مطالعه در شهرستان کاشان ، دهستان گلاب که در اقلیم خشک واقع شده و حیات آن منابع آب سطحی و به ویژه زیرزمینی منطقه وابسته است که با بروز خشکسالی در سالهای اخیر به شدت با مشکل کم آبی مواجه شده است. تحقیق حاضر با توجه به معضلات ناشی از خشکسالی در منطقه انجام گرفته و به دنبال آن است که در مرحله اول با توجه به همه جوانب به ویژه قدمت کشاورزی در منطقه امکان استمرار و توسعه کشاورزی با روشهای مناسب در شرایط کم آبی و خشکسالی را بررسی نموده و در مرحله بعد راه کارهایی را جهت کاهش اثرات این پدیده بر اقتصاد و کیفیت زندگی روستاییان به منظور رسیدن به معیشت پایدار در منطقه ارائه می کند.

۲. مبانی نظری

بر اساس گزارش استانداری استان اصفهان خشکسالی در شهرستان کاشان وارد هفتمین سال خود شده است بر این اساس میزان آبدهی قنات ها و چشمه های این شهرستان ۴۸۰۷ لیتر در ثانیه رسیده است این رقم در سال زراعی ۱۳۹۱ به ۲۶۷۶ لیتر در ثانیه کاهش یافته است. همچنین میزان آبدهی قنوات و چشمه ها در این شهرستان بیش از ۴۴ درصد کاهش داشته است. کاهش بارندگی ها و پراکندگی نامناسب بارندگی در فصول زراعی سال از دلایل عمده برای بوجود آمدن این خشکسالی های اخیر می توان عنوان کرد. براثر این خشکسالی ها بیش از ۶۲۴ هکتار باغ های شهرستان خشک و یک هزار و ۱۷۶ هکتار نیز محصول تولید نکرده و یا با کاهش تولید ۸۰ درصد مواجه بوده اند. افزون بر این به علت خشکسالی سال زراعی ۹۲ – ۹۱ بیش از دو هزار و ۷۲ هکتار از زمین های زراعی کشاورزی شهرستان کشت نشده اند. بحران خشکسالی در منطقه از سال ۱۳۸۴ آغاز گردیده و هرچه به جلو پیش رفته شدت و خسارات ناشی از آن بر منطقه به ویژه نواحی روستایی بیشتر شده طوری که ساکنین نواحی روستایی برای تامین آب شرب خود دچار مشکل جدی شده اند . بر اساس نقشه ی بارش طی دوره ی ۱۳۸۵-۱۳۹۱ و وضعیت خشکسالی طی سالهای(۱۳۹۲-۱۳۹۱) شهرستان می توان روند پدیده خشکسالی را بررسی کرد . وضعیت بارش در شهرستان کاشان ، به میزان۱۱۵-۱۴۷ میلیمتر را نشان می دهد این حاکی از کاهش میزان بارشها در این دوره می باشد که این وضعیت به خودی خود بر روستاهای شهرستان کاشان از جمله بخش برزک تاثیر بسیار زیادی در عرصه اقتصادی به ویژه کشاورزی روستا گذاشته است.نقشه خشکسالی نیز این وضعیت را به خوبی نشان می دهد طوری که محدوده مورد نظر با کاهش ۲۰-۴۵ درصدی از بارش نرمالمواجه است و دارای وضعیت خشکسالی متوسط می باشد.

۳. روش شناسی

هدف پژوهش حاضر کاربردی و با استفاده از روش توصیفی-تحلیلی انجام شده، همچنین جمع آوری داده ها به شکل اسنادی و میدانی(پرسشنامه) صورت گرفته جامعه آماری شامل ۳۱۷

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پرسشنامه که به تصادفی در دو بخش اثرات خشکسالی بر ساختار اقتصادی نواحی روستایی منطقه و راه کارهای مقابله و کاهش اثرات خشکسالی بر کشاورزی محدوده تکمیل گردیده .روایی آن از طریق صوری و مصاحبه با کارشناسان و ضریب پایایی عوامل اقتصادی(۳۱ گویه) از طریق آلفای کرونباخ این میزان(۰/۷۹۴) به دست آمده است. تحلیل داده ها بر مبنای تکنیک تحلیل عاملی به عنوان روشی تحلیل چند متغیره بهره گرفته شده تا هم داده ها کاهش یابد و متغیر های مربوطه پالایش شوند و هم مولفه های زیربنایی معنی داری در این زمینه به دست آید. مجموعه تحلیل عاملی انجام شده دارای یافته ها و نتایج به شرح زیر می باشد. بر اساس یافته های حاصله مقدار KMO برای اثرات خشکسالی بر ساختار اقتصادی برابر با ۰/۶۳۴ است و مقدار ویژه بارتلت آن ۷۱/۵۲ که در سطح معنی داری بیش از ۹۹ درصد قرار دارد(جدول ۱) و از مناسب بودن مجموعه مورد نظر برای تحلیل عاملی حکایت می کند. تحلیل عاملی، اثرات خشکسالی بر ساختار اقتصادی به استخراج۵ عامل انجامیده است که عامل های استخراج شده همراه با مقدار ویژه و درصد واریانس آنها ارائه شده است، همین طور از شاخص SPI برای نشان دادن وضعیت خشکسالی منطقه استفاده گردیده .شاخص SPI که بر اساس احتمال بارندگی در زمان (هفته، ماه، سال) بنا شده است و در برنامه ریزی خشکسالی کاربرد دارد. این شاخص پیش آگاهیهای لازم در مورد خشکسالی را می دهد شاخص SPI نشان دهنده وضعیت خشکسالی می باشد ،برای بیان کمی خشکسالی از شاخص های خشکسالی استفاده می شود. با استفاده از این شاخص ها اطلاعات لازم درباره آغاز ، خاتمه و شدت خشکسالی در مقیاسهای زمانی و مکانی مختلف فراهم می آید.

۴. بحث و نتیجه گیری

در واقع خشکسالی به عنوان یک بحران ملی در نوع خود پدیده ای پیچیده و بغرنج است و به مثابه یک موقعیت بحران زا ، مدیریت و مقابله موثر در راستای کاهش اثرات مربوطه نیازمند رویکردی جامع هم از بعد شناسایی زمینه ها و ریشه یابی علل آسیب پذیری و هم از بعد طرح و پیگیری سازو کارهای سازنده در فرآیند مدیریت زیست محیطی این بحران در پرتو یک رویکرد جامع نگر در تمامی ابعاد است. نتیجه گیری یافته های حاصله در پژوهش حاضر در ارتباط با بررسی اثرات خشکسالی بر ساختا اقتصادی نواحی روستایی را تبیین می کند بر این اساس می توان بیان داشت اثرات متعددی از این پدیده متوجه جنبه های مختلف زندگی ساکنین روستایی باالخص شرایط و وضعیت اقتصادی آنها است .این اثرات در بررسی های انجام شده که از بین آنها عامل درآمد و سرمایه با درصد واریانس ۵۴/۴۵۲ بیشترین تاثیر را بر خشکسالی منطقه دارد. بی تردید پژوهش و برنامه ریزی در فرآیند مقابله و کاهش اثرات خشکسالی فقط با شناخت علل و اثرات خشکسالی پایان نمی یابد، بلکه پس از شناخت زنجیره علت - اثر در بحران خشکسالی در ابعاد مختلف نوبت به چاره اندیشی جهت ریشه کنی یا کاهش تاثیرگذاری علل مزبور و کاهش حدت و شدت اثرات و پیامدهای حاصله می رسد. این مهم از طریق راه کارها و تکنیکهایی جهت مقابله و کاهش این اثرات و انسجام بخشی به آنها در یک برنامه ی راهبردی – عملیاتی با هدف ظرفیت سازی و توانمند سازی در افق های زمانی بلند مدت ، میان مدت و کوتاه مدت در فرآیندهای مختلف جریان پدیده خشکسالی درسیر چرخه ای پیش آگاهی ، آماده سازی،مقابله و کنترل ، احیا و بهبود به خصوص در جوامع روستایی به عنوان جوامعی بسیار آسیب پذیردر برابر بحرانهای مختلف طبیعی به ویژه خشکسالی ، به انجام می رسد . بررسی راه کارها و تکنیک های مقابله و کاهش اثرات خشکسالی در این پژوهش به ۳ مولفه مدیریت منابع آب و آبیاری، مدیریت و ظرفیت سازی نهادی و تکنیکهای موثر در کاهش تاثیرات خشکسالی انجامیده که هریک از این مولفه ها می توانند محور یک برنامه کار و طرح عملیاتی برای کاهش تاثیرات خشکسالی به خصوص در بخش اقتصادی و کشاورزی در جوامع روستایی محسوب شوند که از بین آنها نیز مولفه ی مدیریت منابع آب و آبیاری با درصد واریانس ۲۷/۱۱۳ می تواند به عنوان مهمترین راه کار مدیریتی به منظور کاهش اثرات بحران خشکسالی در منطقه مورد استفاده ی برنامه ریزان و دستگاه های مربوطه قرار گیرد.

کلیدواژه‌ها: خشکسالی، اثرات اقتصادی،توسعه نواحی روستایی،دهستان گلاب، تحلیل عاملی.

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Investigating Effects of Drought on Rural Economic Structure Using Factor Analysis (Case Study: Golab Dehestan of Kashan County)

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Abstract

Purpose: The ever-growing population and issues related to water scarcity for developing agricultural lands raised concerns about supplying needed water. The studied area has faced several droughts from 2006 on, and such climatic drought has shown its consequences in economic situation of villages in the area, in addition to reduced amount of rainfall. The present study aims to investigate the effects of the drought on the rural economic structure of the studied area, and recommend strategies and solutions for development adapted to drought and water scarcity conditions in the region in order to be assured of rural livelihoods based on capabilities of the region.

Methods: This study is a descriptive-analytic and causal-field study. Considering the region's total population (1809 persons), 317 questionnaires were completed by the inhabitants of two villages of Azaran and Varkan in the studied area. Gis and SPSS softwares were also used for statistical analyses (factor analysis model).

Result: The results gained from the factor analysis of the effects of the drought on the economic dimensions in the region can be categorized into 5 major components, which have 54.452%, 21.271%, 10.112%, 10.031%, and 4.001% variance, respectively. To develop agriculture and reduce the impacts of such crisis on the economy of the region, three main strategies were presented using factor analysis and the extracted components with variances of 27.113%, 25.241%, and 23.930%.

Keywords: Development of rural areas, Drought, Economic impacts, Factor analysis, Rural district of Golab.

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1. INTRODUCTION

1.1. Problem Statement

The drought occurs when the amount of rainfall is less than the long-term average precipitation in the region, (Kaviani, Alikhani, 1999. 576). Drought is considered as one of inevitable and damaging features of Iran's climate and it is happening frequently in our country. Meanwhile villages have suffered the most damages because of their dependence on the natural resources including water. The dependency of rural economy on agriculture in the country and the region, on the one hand, and the direct relationship of agricultural products with water resources and rainfall, on the other hand, have imposed the most damages to rural households. One of the first consequences of this phenomenon is the pressure imposed on water resources and aquifers and their reduced natural feeding (Davarpanah, 2001. 2). Of other losses by such natural disasters can be addressed to threatened environment, intensified desertification, and loss of biodiversity and the lack of revitalization of flora and fauna in short time (Rostamifar, 1997; 25). Of the natural accidents and disasters affected the human population in recent decades, the frequency and severity of drought has imposed more losses than other natural disasters (Wilhite, 1993; 137).

The studied area, rural district of Golab, is located in the county of Kashan in an arid climate and its life is depending on surface and especially underground water resources in the area. In recent years, this area is faced the problem of water scarcity. The present study has been conducted regarding the problems caused by drought in the region, and seeks to investigate at first the possibility of continuation.

1.2. Background Review

Saleh & Mokhtari in 2007 examined the social and economic implications of drought on rural households in the province of Sistan. The purpose of their study was to investigate the effects and consequences of drought on employment, income and investment in agricultural sector, food security and migration. In examining economical and social consequences, it was studied factors such as income rate, farm income, area under cultivation and livestock numbers, also in another study, Rezaie, Mahmoud Hosseini & Sharifi 2010 analyzed and explained the impact of drought on rural districts of the province of Zanjan (a case study of the village of Hajj Arash). The results from factor analysis showed that the drought impacts on Hajj Arash village can be classified into three categories: economic, environmental and social - psychological factors. Also Sharafi & Zarafshani 2011 came in his paper to the conclusion that wheat farmers have been faced the most and the least losses by the drought in Ravansar and Kermanshah, respectively and Kiani 2012 examined also economical and social effects by the crisis of water resources in the river basin of Zayandeh Rood in the east plain of Isfahan province. The results revealed that this phenomenon impacts the structure of the river basin of Zayandeh Rood. And finally, the study offered some strategies to reduce the effects of water scarcity in this area. In another study of Rahmaniyan in 1999 also studied the issue and concluded that this crisis can not be easily passed with minimal losses with no programs about the drought. Undesirable consequences resulted from this crisis can be reduced by applying different programs and experiences of other countries, Holden and Shiferaw 2004 concluded in their study on the effects of drought that household welfare was more influenced by the effects of drought on prices of livestock and agricultural products than its direct effects, also Kenny in 2008 focused in his study on the social impacts of drought, and addressed to issues such as physical and psychological stress, anxiety and depression, family conflicts, reduced quality of life, increased immigration, overall increase in poverty, as the most important social consequences caused by drought and Tian Yu, (2010) concluded in his study entitled "Can American cereals tolerate the drought?" that grains suffered the highest losses caused by drought and it increased over time, whether in terms of quantity or a percentage of average

yields. Berry 2011 have stressed in their study that farmers' mental health was jeopardized by drought and rural development programs had positive effects on increased flexibility and ability to cope with chronic negative effects of drought in rural areas in this county also Expressing in his paper, Al-Maghrebi (2012) found out by variance analysis of his study's data that different osmotic potential affects significantly all parameters except the heavy weight of roots. Whereas all growth parameters, sowing and germination (except number of roots under examination) can be used in research and laboratory experiments as optional parameters to distinguish between tolerance and sensitive plantations under drought's stress. Apparently these parameters are suitable for testing and evaluation of plantations under drought's stress. In another study Kim & Austin (2013) investigated the drought and the future of rural communities in his paper. The results of their study forecast opportunities and challenges for adaptation to climate changes in the region of Victoria, Australia. And it is not merely a drought but it has some impacts on water resources and agriculture leading to economic and environmental crisis in the region.

2. METHODOLOGY

2.1. Studied area

Rural district Golab is located in the district of Barzak, the county of Kashan, Isfahan province, at 33º and 49' north and 51º 33' east to Greenwich midday. According to census in 2012, this rural district has a population of about 6071 people (www.wikimapia.org, Iran Organization of Statistics, 2012). The district has 8 villages of which it was chosen 2 villages of Azaran and Varkan because of their Located in a desert area and More dry weather dominates the lack of height in this area has been aggravating the drought situation, greater susceptibility to drought. These two villages have 591 households and a population of 1809 peoples.

Because of the domination of arid climate and desert parameters in the region, there are several small rivers located in the region running in cold seasons and used as a source of supplying water but it is not enough (Geranmayeh Poor, 2012).

Agriculture is one of the most important and fundamental activities in the region. In general, of the rural residents in the region, 73.3%, 13.9%, 6.9%, 4% are farmers, free workers, self – employment, manufacturing workers and employees, respectively, and only 2% of them are practicing rural activities. The district of Barzak possesses 20 springs, 7 subterranean canals, and 3 wells. The current water applied in the agricultural sector in the region is provided by subterranean canals and springs.

2.2. Materials & Methods

The study was of applied in terms of purpose, and of descriptive-analytic in term of method. Data was collected in a documentary and field (by questionnaire) method.

The statistical population consisted of 317 questionnaires, completed randomly in two parts: the drought effects on the economic structure of the rural areas in the region and strategies to cope and reduce the effects of drought on agriculture in the region. Its validity. was done nominally and through interviews with experts and the reliability coefficient of the economic factors (31 items) was calculated as 0.794 using Cronbach's alpha. Data was analyzed based on factor analysis by multivariate analysis method in order both to reduce the data and to refine the relevant variables and to be achieved significant infrastructural components also As SPI index is used to show the region's status. Chance of precipitation SPI index based on time (week, month, year) is built and used in the planning of drought. It gives the necessary knowledge about the drought is the SPI represents drought, drought indices are used to express a little drought. Using these indicators, information about the beginning, end and intensity of droughts are different in time and space scales.

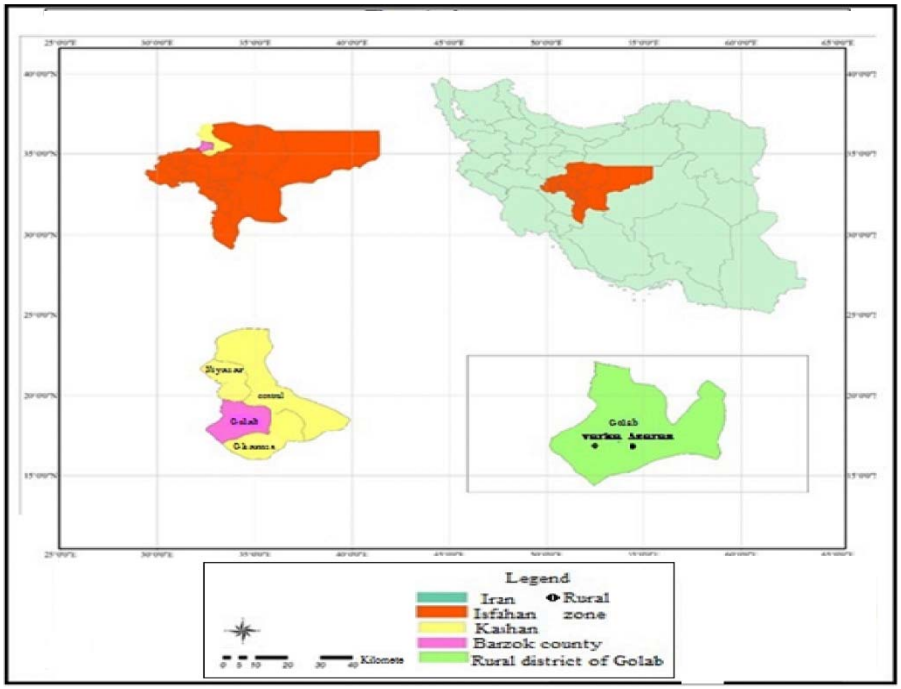

Figure 1. The study area
(Source: Statistics Center of Iran)

3. THEORETICAL FRAMEWORK

3.1. Rainfall and drought in the region

According to a report submitted by the governor of the province, the county of Kashan has faced its seventh year of drought. Accordingly, the discharge rate of aqueducts and fountains in this county is 4807 liters per second. This figure reduced to 2676 liters per second in the crop year 2012. The discharge rate of aqueducts and fountains have fallen more than 44% in this county. Reduced rainfall and poor distribution of rainfall during the crop years are of the main reasons for the recent droughts. Because of the drought, over 624 acres of gardens dried up and 1176 acres of lands produced nothing or faced a reduction in the products by 80% (Zylaly, 2012). Moreover, more than 2072 acres of arable lands in the county were not cultivated in the crop years 2012 and 2013 because of the drought. Drought crisis began in the region in 2005, and the severity and losses resulted from the drought influenced the region, especially the rural areas, much worse, so that the inhabitants of rural areas have been in serious trouble to supply their drinking water. The trend of the drought can be studied based on the rainfall pattern in a period from 2006 to 2012, the status of drought in the county in 2012-2013 and During the years 2006-2012 The rate of average rainfall in the county of Kashan is 115-147 mm, indicating a reduction of rainfall during this period, and it has affected greatly the economy, especially the agriculture, in the rural areas of Kashan county including the district Barzak. To review the drought situation in the area of statistical data on rainfall collected from 1985 to 2010 and then the SPI is calculated each year and the situation in the region in terms of wet and dry years marked using the average precipitation over a period of 6 years we have drawn a map of rainfall and drought conditions in the region. The map of drought reveals this situation very well, so that the studied area has faced a reduction of 20%-45% in the rainfall and a moderate drought. To analyze the economic variables such as income rural households, quality of life, employment, cultivation and .... variables using factor analysis and Varimax rotation was carried out among 31 economic factors in their questionnaire 5 the major

factor is reduced and then naming them through the loading of each variable at the time, was named the 5 factors have been economic.

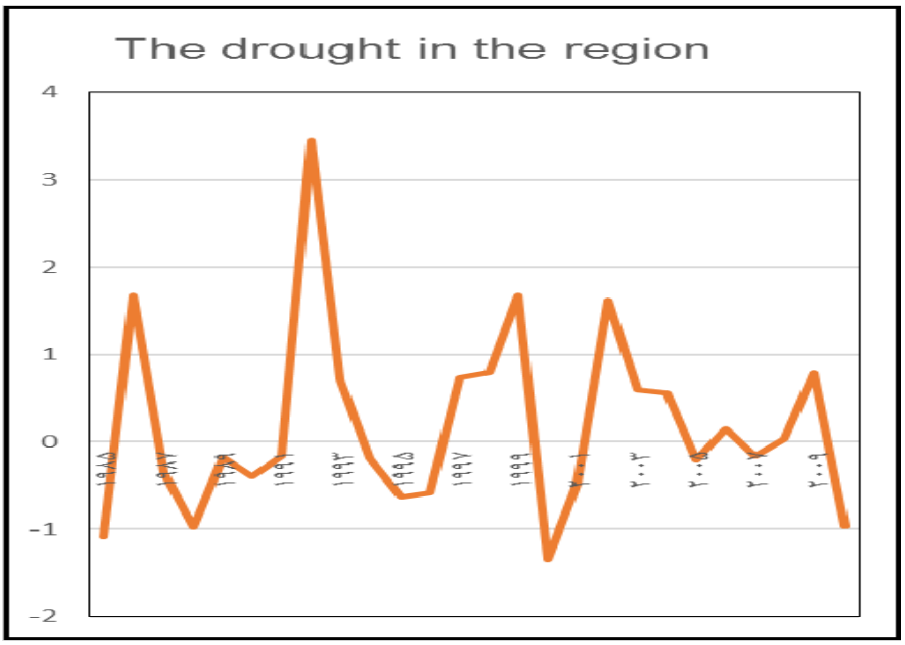

Figure 2. The drought in the region by index SPI
(Source: Statistics Center of Iran)

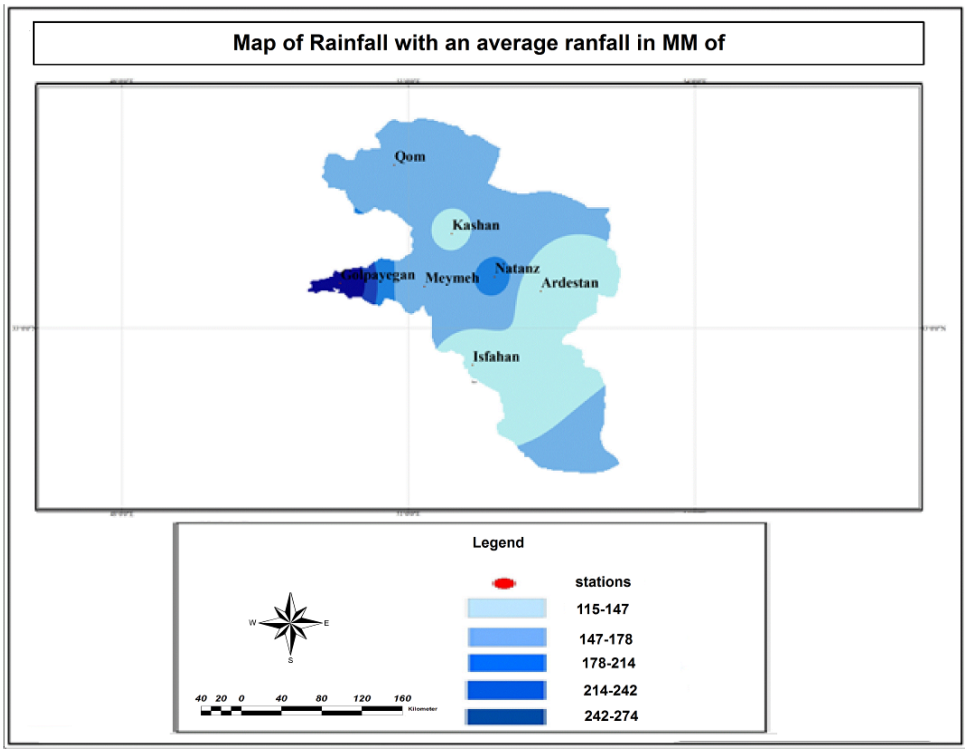

Figure3. Map of rainfall with an average rainfall in mm between 2006 and 2012
(Source: Climate Organization of Kashsn County- re drawing)

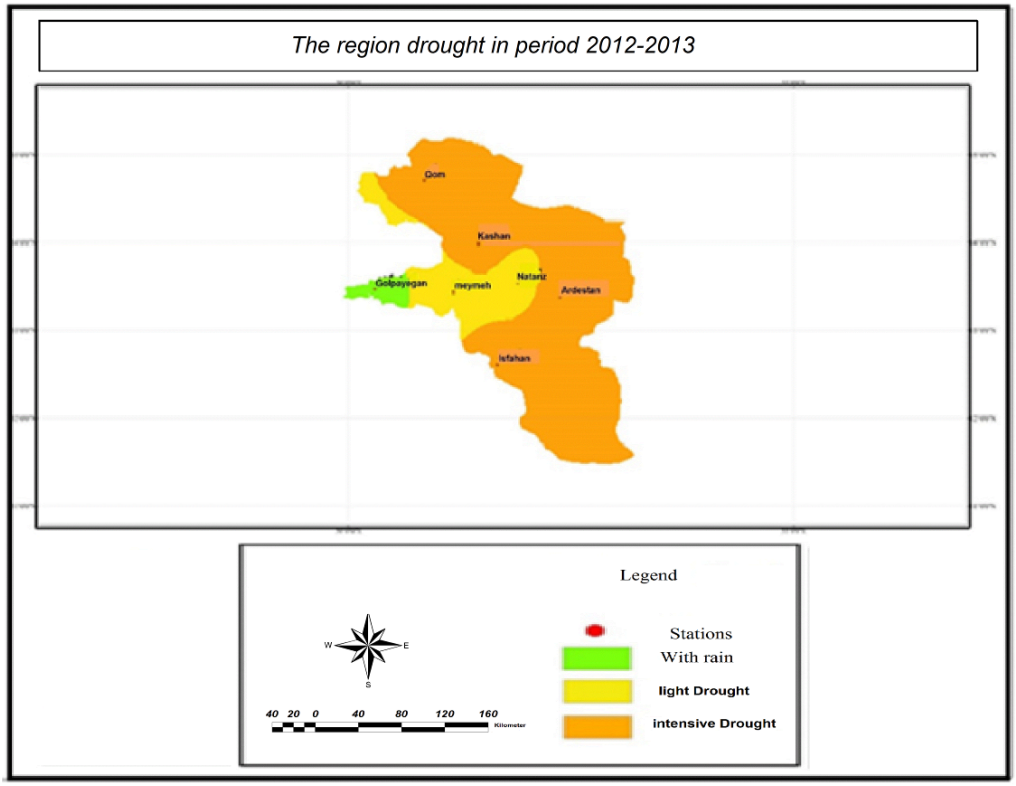

Figure 4. The region's drought in between 2012 and 2013
(Source: Climate Organization of Kashsn County- re drawing)

4. DISCUSSION

4.1. Factor analysis of the drought effects on economic structure of rural area in the studied region:

Based on the findings the KMO value for the effects of drought on the economy is equal to 0.634, and its Bartlett Eigen value is 71.52, which is at significant level of 99% Table (1), indicating the suitability of the data for the factor analysis. The factor analysis on the drought effects on the economy led to 5 factors. The obtained factors and their Eigen values and variance percentage are shown in Table (2). The factors were named at Table (3) according to the nature and conceptual relationship of reasons for each factor. Based on the findings from Table (2), the first factor income and investment with Eigen value of 15.340% determines 54.452% of the whole variance. The second factor, i.e. quality of life with Eigen value of 10.916 specifies 21.371% of variance. The employment is the third factor with Eigen value of 8.055 defines 10.112% of variance. The fourth factor is the agriculture with Eigen value of 6.281 and determines 10.031% of variance. And finally, the fifth factor, that is economic losses with Eigen value of 5.026 specifies 4.001% of variance. In general, above 5 factors determine the variance by 99.967%, indicating a high percentage of variance explained by these factors. But the drought effects on the economic structure of the rural areas in the region have been resulted from the factors shown in Table 3, assuming the variables with factor loadings greater than 0.54 after the rotation of factors according to Varimax method and denominating them. Economic structure, including variables such as income, investment, employment and ultimately the well-being of the economic and other fields. Therefore, after the 31 economic factors and more effective questionnaire for the 5 major factor is selected, you can see the results in Table 3.

Table1. the KMO and Bartlett drought effects on the economy

(Source: Research Finding, 2015)

KMO	Bartlett	Significant level.
634/0	**52/71**	**00/0**

Table2. Factors extracted from factor analysis of the effects of drought on the economy

(Source: Research Finding, 2015)

Operating	Eigenvalues	Percent of the variance	The cumulative frequency of variance
first	340/15	452/54	54/452
second	916/10	371/21	75/723
third	055/8	112/10	85/835
fourth	281/6	031/10	95/866
fifth	026/5	001/4	99/967

Table 3. Factor loadings for each of the variables obtained from the rotation matrix (impact of drought on ...)

(Source: Research Finding, 2015)

Operating Name	The effects of drought on rural economic structure of the region	Load factor
Income and Investing	Income	0. 786
	Capital stock	0. 613
	Miscellaneous revenues	0. 581
	Investment risk	0. 534
	The cost of water supply	0. 825
	Investment in agriculture	0. 666
	Incentives to invest in agriculture	0. 479
Quality of life	Low wages, lack of employment opportunities	0. 779
	Displacement unwanted workplace	0. 763
	Purchasing power of the rural	0. 491
	Reliance on government aid and subsidies	0. 624
	The price of land and gardens	0. 591
	Selling prices of agricultural products	
Occupation	Diversification of rural employment (reverse)	
	Restructuring of employment in rural areas.	0. 456
	Turning to urban jobs as workers	0. 668
	Employment opportunities in the agricultural sector	0. 750
	Widespread unemployment	0. 685
Agriculture	Changes in cropping patterns (product) to reverse	
	Performance of agricultural production	0. 764
	Cultivation	0. 731
	Operation the gardens	0. 656
	Of Animal Production	0. 677
Economic damage	Animal Diseases	0/493
	Plant pests and diseases	
	Agricultural debt	0. 624
	Prices of production inputs (fertilizers, seeds, pesticides, etc.)	0. 791
	Supply of production inputs	0. 730
	Damage to livestock production	0. 475
	Number of livestock	0. 514

4.2. Factor analysis of solutions to cope and reduce the drought effects on agriculture sector in the region:

According to the results presented in Table (4), KMO value for a set of strategies and solutions to cope and reduce the drought effects on the agriculture in the region id equal to 0.763, and its Bartlett value is 784.459 at a significance level of 99% (Table 4), indicating the suitability of the studied collection for factor analysis. It was used the factor analysis in order to classify the factors in accordance with the theoretical framework of the study, and because so many factors were extracted, the Eigen value greater than one was considered as the criterion. The extracted factors with their Eigen values are shown in Table (5). According to Table (5), the first factor with Eigen value of 11.08 determines 27.113% of variance, followed by the second factor with Eigen value of 9.88 indicating 25.241% of variance. Finally, the third factor with Eigen value of 8.53 indicates 23.930% of variance. Above three factors indicate altogether 76.284% of variance. The position of variables in factors greater than 0.54 after the rotation of the factors in Varimax method and denominating factors are as described in Table (6).

Table 4. The KMO and Bartlett of solutions

(Source: Research Finding, 2015)

KMO	Bartlett	Significant level
0.763	459.784	0.000

Table 5. Factors extracted from factor analysis and mitigate the effects of drought on agricultural coping strategies

(Source: Research Finding, 2015)

Operating	Eigenvalues	Percent of the variance	The cumulative frequency of variance
first	11. 08	27. 113	27. 113
second	9. 88	25. 241	52. 354
third	8. 53	23. 930	76. 284

Table 6. Factor analysis of the work and techniques of combat and mitigate the effects of drought on agricultural

(Source: Research Finding, 2015)

Operating Name	the effects of drought on agriculture	Load factor
Management of Water Resources and Irrigation	Irrigation techniques	0. 853
	How to transfer water from irrigation canals	0. 731
	Change the water	0. 501
	Use of water in the stream channels and prevent split	0. 667
	Prevent loss of surface runoff	0. 779
Management and institutional capacity building	Create a local organization to monitor water sharing	0. 821
	Collect water to protect water resources	0. 931
	And modification projects in livestock breeding	0. 647
Effective techniques to counter and mitigate the effects of drought	Land Consolidation	-
	Change the pattern of crops resistant to drought and salinity	0. 653
	Land leveling	0. 504
	Rivers coverage	0. 781
	Using the model of several Cultivation	0. 793
	Intensive cultivation per hectare	0. 623
	Lack of culture in times of drought	-
	Use sand	0. 675
	The use of straw	0. 820
	Construction of water supply and storage pool	0. 779
	Planting trees in deep	0. 665
	Use nylon and spread it on the ground	0. 924
	Greenhouses and planting vegetables	0. 737
	The use of nitrogen fertilizers	0. 557
	Restoration and repair fields	0. 702
	Observe crop rotation.	0. 915
	Replace heavy livestock animals Light	0. 668
	Reducing the area under cultivation	0. 459

5. CONCLUSION

Rainfall trends in Iran show that this country is going toward arid condition, and it should be accordingly considered plans and programs to manage the water resources.

Indeed, given the current situation and trends, the importance of appropriate usage and exploitation of resources will be crucial. In fact, the drought as a national disaster in itself is a complex phenomenon, and the effective management to reduce the relevant impacts necessitates a comprehensive approach both in terms of identifying key reasons and causes of vulnerability and in terms of planning and following up the appropriate strategies in environmental management of this crisis in the light of a holistic approach in all areas.

The findings of this study indicate regarding the effects of drought on economic structure of rural areas that the life of rural residents is faced various effects of such phenomenon. Such effects were investigated, of which the factors income and investment with 54.452% of variance have the greatest effect on the drought in the region. Undoubtedly, research and planning to deal with and to reduce the effects of drought is not limited only to recognizing the causes and effects of the drought, but after determining the chain of cause - effect of the drought crisis in various dimensions, it is time to find a solution to eliminate or reduce the impacts of above causes, the severity and intensity of resulted impacts and outcomes. It will be realized through strategies and techniques to deal with and to reduce such impacts and to integrate such solutions into a strategic-operational program for capacitating and empowering in a long-term, medium-term and short-term horizon to forecast, become prepared, deal and control, revitalize and improve the consequences especially in rural communities recognized as highly vulnerable to various natural disasters, particularly drought. Investigating strategies and techniques to deal and reduce the drought impacts in this study, it was obtained three components of management of water resources and irrigation, management of fundamental capacitation, and techniques effective in reducing the effects of drought. Each of these components can be considered as an operational planning to reduce the effects of drought, especially in the economy and agriculture sectors in rural communities, among which the management of water resources and irrigation component with 27.113% variance can be regarded as the most important managerial solution for authorities and decision makers to reduce the effects of the drought crisis. However, the water resources in the region are faced with water scarcity and even they are desiccated because of successive droughts (Shahr Tash Zende Rood, 2010, 150). The drought has desiccated more than 624 acres of gardens in the county, and 1176 acres of lands didn't bear any products or faced a cut of 80% in farm yields (Zylaly, 2012).

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