

Study the Effects of Drought on the Economic and Social Aspects of Rural Areas (Case Study: Sivand River basin in Marvdasht city)

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Abstract: Drought is a natural disaster inevitable phenomenon, has long been based on a wide variety of different countries of the world in hot and dry regions and increases occurred frequently. Drought is a common phenomenon in Iran is seen as the social and economic impacts on local communities, including in particular the villagers. Due to the high vulnerability of rural communities in the social and economic impact of drought on rural communities study was conducted in neighboring Sivand River. In order to do research in the form of a questionnaire survey and Student's t-test was used. The sample size according to the number of households studied 11 villages, 370 were considered. The results showed that drought on all the villages studied economic and social adverse impact, but it residents in the villages is different. So if the average effect of drought on economic indicators in the villages are: Sivand (3.97), Mansourabad (4.47), Dashtbal (4.36), Khalaf Tahouneh (4.55), Hashtijan (4.53), Hajiabad (4.53), Zangiabad (4.05), Shamsabad (4.56), Firouzi (4.01), Fathabad (3.74) and Emadabad (4.49). The results showed that in the opinion of head of household, the recent drought impact on rural communities is a social indicator. Average calculated for the entire village was higher than average favorable social indicators (3). So, for the village are: Sivand (3.75), Mansourabad (4.32), Dashtbal (4.2), Khalaf Tahouneh (4.26), Hashtijan (4.28), Hajiabad (4.31), Zangiabad (3.67), Shamsabad (4.07), Firouzi (3.74), Fathabad (3.92) and Emadabad (4.17).

[Hamidreza Shirazi, Behrooz Gharani Arani, Asghar Norouzi. **Study the Effects of Drought on the Economic and Social Aspects of Rural Areas (Case Study: Sivand River basin in Marvdasht city)**. *Nat Sci* 2016;14(10):24-29]. ISSN 1545-0740 (print); ISSN 2375-7167 (online). <http://www.sciencepub.net/nature>. 5. doi:[10.7537/marsnj141016.05](https://doi.org/10.7537/marsnj141016.05).

Keywords: Drought, Economic and Social Consequences, Sivand River

1. Introduction

A continuous decline in the rate of average rainfall, the drought situation in the long run it is considered that in any climatic condition may occur, but its features such as intensity, duration and magnitude of droughts are different from one place to another (Heidari et al., 2006, 12). Drought has been defined from different perspectives, producing drought, hydrological, agricultural and economic-social. The socio-economic perspective, when the drought has caused water shortages for human needs is economic and social abnormalities. This type of drought is the result of complex environmental processes that affect human society. Due to the crisis of water resources and loss of agricultural production, it is natural that the negative economic effects of living in the area affected by drought occur during which the negative effects of drought in different parts of the community and the issues of poverty, unemployment, disease prevalence, cause insecurity and more. Drought socio - economic occurs when the demand for an economic good due to lack of water

supply is the result of insufficient rainfall exceeds the supply, in order to minimize the drought is clear that the transfer is inevitable crisis management to risk management and monitoring and evaluation is essential to monitor and assess drought drought indices is of great importance (Ghasemi, 2007, 21).

Problem statement

Socioeconomic drought can be considered in both rural and urban society. So that the rural population is expected to be higher due to greater reliance on fragile land and water resources. Drought affects different aspects of life in rural communities and can lead to rural migration. Natural and indiscriminate extraction of groundwater drought in recent decades has haunted East Marvdasht city gradually. So that a significant population of these areas have migrated to the city of Shiraz. This process gradually reached the city center and the West. So that perennial rivers such as the River Kur and Sivand the city gradually become seasonal rivers are dry. Western areas of the city, being rich in underground water volume still affected the effects were not severe

drought, but over time this will occur. This study intends that the economic and social effects of drought in rural areas Sivand River Basin review. Overall, 11 villages in this area will be considered. Income from agricultural activity was evident in all the villages and in recent years the indiscriminate withdrawal of groundwater that can have significant adverse effects on long-term leave. The study area with the problem of declining groundwater levels, increased soil erosion, loss of income and migration from the countryside to the city. So the researcher to answer this question is to what drought significant economic and social impacts on the area is rural?

Literature Review

Huang and colleagues (2000) have described the drought crisis in the region heavy to the extent of the water used in agriculture fell from 64 percent to 31 percent in the years 1993-2001 and the drought reduced the area under cultivation is irrigated rice production as well as production and performance.

Dinar et al (2000) Effects of drought on rural communities in seven southern African countries, including crops, livestock, and water, and employment, prices for food, pasture and fuel were classified. Their water because of drought on rural water sector to reduce water contamination and described the consequences of this human diseases and mortality of livestock, knew loss and waste products and Immigration.

Beik Mohammadi et al (2005) in his study on the rural economy Sistan and solutions to help tackle the effects of drought 1998-2004 speak up when it Sistan Iran due to its special geographical position has always faced with the regional drought; But the drought of 1998-2004 was more extensive and more destructive, so that should say a lot has shaken the pillars of Sistan rural economy. Since the economic and social life depends Sistan and our life has Helmand, reduce and finally cut the annual Helmand and reduce our level and turning it into a dry pan over recent years has been the emergence of hydrologic drought that this is the source of all kinds of losses and economic damage throughout the region, as well as rural areas. The lack of fact-sighted and scientific reaction against this phenomenon contributes to the problem and the amount of damage and losses have widened.

Salem (2008) in a study of the impact of the drought on the lives of nomadic tribes in the city of Tabas Taheri argues that the economic and social impact of drought on the population studied and the development process has been slow. Decrease in the average number of livestock per household, drastically reducing the number of livestock heavy, sharp changes of light trap, a sharp reduction in the average weight of cattle, reducing the production of

handicrafts and ultimately, reduced production and average income per household compared to the period prior to the drought of the economic impact of the drought has been. Also, of the social effects of drought, it is possible to reduce the population of this tribe and particularly the migration of seasonal and temporary migration was noted. The negative effect of drought, degraded pastures and reduced the quantity and quality of forage was produced.

Karami et al. (2009) in their study of the effects of drought on farmers can be attributed to the effects of socio-economic, agronomic, environmental and pointed fear the future. So that people failed these effects more strongly felt. Farmer's factors, the effects of drought on technological factors, economic factors, environmental factors, agronomic factors, the level of knowledge and insights about their faith. Due to the difference in the effects of drought on agriculture, it is necessary to identify and classify them and then depending on the characteristics of each class, strategies and appropriate recommendations to reduce the effects of the drought.

Afrozeh et al. (2009) in his study of the negative effects of drought and strategies to deal with it (Case Study: Sistan) argue that the drought in urban and rural areas have had different effects. Its impact on rural communities that are more severe than in urban areas because of the direct impact of drought on rural people are often sources of income. The decline in rural incomes caused their migration to the cities in the hope that they can find their income had been expected.

Khoshakhlagh et al. (2010) in his study to evaluate the drought in 2007-2008 and its effects on water resources and agriculture (Case Study: Shiraz city) have shown that high intensity and effects of drought in 2007-2008 Marvdasht city has had a severe negative water resources and agriculture.

Ground water level changes and input the dam with SPI index is a time lag to changes. In the study due to lack of water to provide water for crops during the growing season, the rate of harvest per unit area is considerably reduced compared to previous periods, For example, the wheat harvest water in the city of Shiraz studied in 3/38 percent over the previous year (2006-2007) has been reduced. Alipoor et al (2013) in relation to the economic and social impacts of drought on farmers' community as that between perceived drought by farmers variables of education, income and participation in training courses and there is a significant negative relationship. As a result of the effects of drought on the economic situation of farmers, the five factors, including increased production costs, reduced wheat production, reducing agricultural economics, agricultural futures to reduce production capacity and output of agriculture and

social effects of drought on agriculture in five factors: an increase in social problems, loss of health and nutrition, psychological effects of drought, social conflicts and poverty in society were classified.

Educational and extension methods to reduce the effects of drought in five factors promoting proper cultural practices, farm management training, encouraging farmers to cope with drought, education and empowerment of farmers and drought were classified knowledge base. Riyahi et al. (2013) Social and economic impact of drought on rural areas in the city warmly reducing income and savings, changes in the occupational structure of the village, increased tendency to migrate from the countryside, reduce participation and social relationships and reduce livestock and agriculture as the production.

Adeli et al. (2014) in his research as drought and economic repercussions in rural areas (Case Study: Rural Dodangeh in the city) suggest that the drought was water in 1387-88, the region worst drought in decades. This phenomenon reduces the yield of rain-fed crops, number of livestock, the land is irrigated and rainfed and household income. As well as the financial capability, age, non-agricultural employment, the ability to repay bank loans, consumer expenditures and the amount of irrigated land and rainfed most important determinants of economic vulnerability of farmers from the drought. Based on these findings, recommendations for mitigating the effects of drought and improve economic policy and the management of this phenomenon is presented.

Research Methodology

The research method based on practical purposes and based on descriptive analytical nature, case that survey with a random sample of villages in the dam

area Marvdasht city run and then collect data using SPSS software, the data are analyzed. Table 1 shows the community and the sample size based on Cochran each of the 11 surveyed villages.

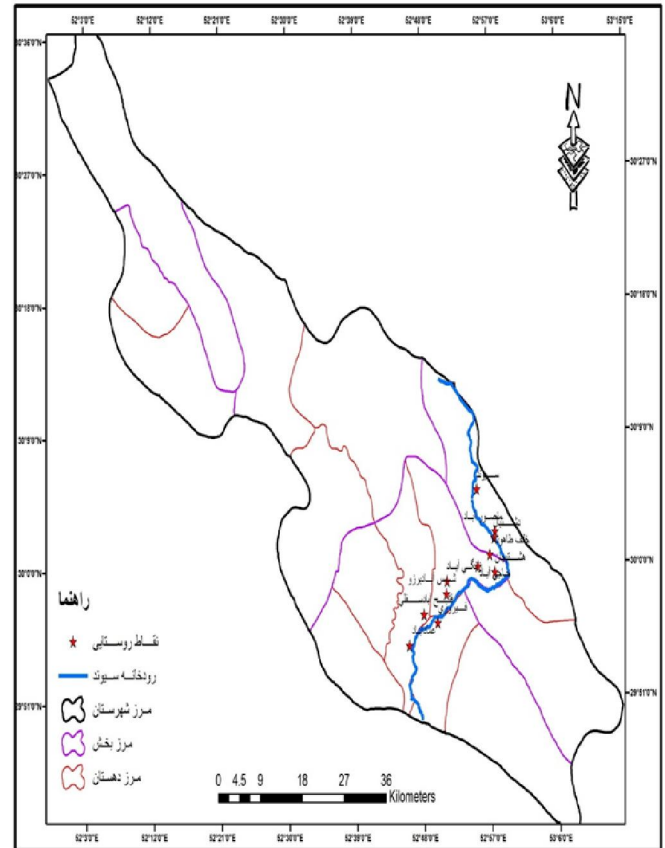


Figure 1: Geographical location of villages

Table 1: population and sample size

Name of the village	Population	Family	Number of samples
Sivand	3268	982	58
Dashtbal	540	159	10
Mansourabad	109	30	2
Hashtijan	429	104	6
Khalaf Taouneh	1282	369	22
Hajiabad	2030	499	30
Shamsabad	1301	364	22
Zangiabad	4064	1159	70
Firouzi	2898	820	49
Fathabad	4795	1297	78
Emadabad	917	250	15
Total	21633	6033	362

Thus, through Cochran formula the sample size was 362 people. The Cronbach's alpha coefficient was

used to determine the reliability of that amount was 0.787.

The introduction of the study area

Overall, 11 villages were selected as study sites in the study, all of which have been evaluated within the city limits (Figure 1).

Table 2: Population and later studied rural households (2011)

Name of the village	Population	Family
Sivand	3268	982
Dashtbal	540	159
Mansourabad	109	30
Hashtijan	429	104
Khalaf Taouneh	1282	369
Hajiabad	2030	499
Shamsabad	1301	364
Zangiabad	4064	1159
Firouzi	2898	820
Fathabad	4795	1297
Emadabad	917	250
Total	21633	6033

The overall population of 21633 people. The number of families settled in 6033 (Table 2).

Research findings

In this section we analyze one sample t-test results for the two main indicators researched the economic and social impacts of drought on rural residents Sivand, DashtBal, Mansoor Abad, Hashtijan, Khalaf Talaouneh, Haji Abad, Shamsabad, Zangiabadi, Firouzi, Fath Abad and EmadAbad. Economic impact of drought index consists of 32 questions and the social effects of drought index is composed of 24 questions. Questions are actually changing role play. The following results are presented separately for each of the villages.

The impact of drought on rural economic indicators studied

Compare the effects of drought on economic indicators in rural communities in the path indicates the significance of this impact is Sivand River. As Table 3 shows the greatest impact related to Shamsabad village (4.56), Khalaf Tahouneh (4.55) and Hashtijan and Haji Abad (4.53). Review activities in the economic income residents of these villages show heavy reliance on agricultural activities and consequently, the amount of water stored underground aquifers. Given that the underground water level has fallen sharply. The September 2004 to September 2008, the average annual decline in groundwater levels equal to 0.29 and 0.87 meters.

The figure of date September 2008 to September 2015, reached to 7.7 and 0.97 meters annually which represents an increase groundwater is declining rapidly. In recent years indiscriminate withdrawal of groundwater has caused the village to face water shortages and have dug deep wells to supply water needed for agriculture to high construction costs.

Of course, as the results show that with the exception of two villages Fathabad rest of the villages Sivand and severe economic effects suffered as a result of drought. Two villages of Fathabad (3.74) and Sivand (3.97) have suffered the least impact of the main reasons that can be attributed to alternate livelihoods.

This means that Fath Abad village near the city of Shiraz because there is an industrial city that has some considerable work. On the other hand there are shops in the village of Sivand around the old highway Isfahan-Shiraz has a variety of ways to earn money.

The results show that the frequency of natural hazards, particularly droughts livelihoods can reduce adverse effects. Despite several ways people can earn in a village in the event of damage and damage their hopes of an activity income from other activities.

Table 3: Average calculated economic indicators disaggregated by rural

Name of the village	Calculated average	Average Mean	confidence level
Sivand	3.97	3	0.000
Mansourabad	4.47		
Dashtabl	4.36		
Khalaf Talaouneh	4.55		
Hashtijan	4.53		
Hajiabad	4.53		
Zangiabad	4.05		
Shamsabad	4.56		
Firouzi	4.01		
Fathabad	3.74		
Emadabad	4.49		

Source: Research Findings, 2015

The impact of drought on rural social indicators studied

The results raised questions about the social impact of drought on rural communities, study shows first of all, in the rural areas have significant social effects of drought. Next, the results suggest that the

effect on each of the different rural communities. That Mansoor Abad (4.32), Haji Abad (4.31) and Hashtijan (4.28) as the most effective and villages Zangiabadi (3.67), Firouzi (3.74) and Sivand (3.75) the lowest social impacts have been incurred.

Table 4: Average social index calculated separately village

Name of the village	Calculated average	Average Mean	confidence level
Sivand	3.75	3	0.000
Mansourabad	4.32		
Dashtabl	4.2		
Khalaf Talaouneh	4.26		
Hashtijan	4.28		
Hajiabad	4.31		
Zangiabad	4.67		
Shamsabad	4.07		
Firouzi	3.74		
Fathabad	3.92		
Emadabad	4.17		

Source: Research Findings, 2015

Conclusion:

Drought during the second half of the twentieth century has become and loss of crops and the emergence of various disasters such as famine is widespread. This study aimed to investigate the effects of drought on socio - economic status of farmers, rural communities nearby have been Sivand River. For this purpose, 11 villages were selected as statistical population. According to the household population of each village, 362 questionnaires were distributed randomly among households. In order to comparison of the one-sample t test was used. The results showed that drought on all the villages studied economic and social adverse impact, but it the residents in the villages is different. So if the average effect of drought on economic indicators in the villages are: Sivand (3.97), Mansourabad (4.47), Dashtbal (4.36), Khalaf Tahounch (4.55), Hashtijan (4.53), Hajiabad (4.53), Zangiabad (4.05), Shamsabad (4.56), Firouzi (4.01), Fathabad (3.74) and Emadabad (4.49). Average calculated above average in all villages desirable is 3. This means that drought in these areas, crop rotation is reduced and farmers to bring production tonnage and higher prices throughout the year to provide for their land under cultivation. Ranchers generally compensate for the loss of their livestock numbers increase, resulting in more pressure on arable land and pasture. Uncontrolled exploitation of underground aquifers has caused groundwater levels drop too much money is spent each year

excavation of the wells. In these years, the rent of land and the subsequent cost of increased agricultural production. Days and hours of unemployment in the villages in unproductive seasons and increased production. More fattening cost and the amount of animal products (meat and milk) declined. In general, drought and other adverse issues have caused increased households, income, followed by a decline in purchasing power. Low variety of ways to earn a living for rural residents face more droughts and incur the adverse effects of natural hazards. The results showed that in the opinion of head of household, the recent drought impact on rural communities is a social indicator. Average calculated for the entire village was higher than Average favorable social indicators (3). So, for the village are: Sivand (3.75), Mansourabad (4.32), Dashtbal (4.2), Khalaf Tahounch (4.26), Hashtijan (4.28), Hajiabad (4.31), Zangiabad (3.67), Shamsabad (4.07), Firouzi (3.74), Fathabad (3.92) and Emadabad (4.17). In recent years, drought and consequently reduce rural incomes, reduce incentives for young people to start a family and family disputes has increased. The drought inhabitants of the spirit of cooperation they have with each other and government agencies reduce social crimes like theft and has increased. The drought also increased conflict over water resources and the mutual respect is reduced.

Suggestions:

In this section, some of the suggestions to reduce the effects of drought as well as social communities to enhance resiliency.

1. To identify potential start-up businesses in rural areas were home to enhance the diversity of livelihoods and thus reduce the risk of damage to agriculture and cattle breeders' village.

2. The attempt to change the cropping pattern and prevent rice production in order to maintain groundwater reserves, especially in the village of Dasht Bal, Fars, Khalaf Tlahvnh, Hashtijan and Fathabad.

3. The development of agro-based small industrial workshops to increase employment opportunities in rural areas and reduce migration to cities.

4. Efforts to prevent land fragmentation and the empowerment of farmers to enhance production efficiency.

5. Industrial livestock development, especially in the village of Mansourabad to prevent rangeland degradation, soil erosion and deterioration of the natural countryside.

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7/10/2016