

# **DRAUGHT, THE CORNERSTONE OF RURAL DEVELOPMENT STOP (THE CASE STUDY OF DARAB)**

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**Abstract-**Over the last 20 years, draught has left some damages in Iran, besides the evacuation of rural areas it has endangered life or faced it with a serious threat. Rural areas are so dependent on water, soil and climate and the failure of these factors as the cornerstone of development as well as the lack of rural development cause production deduction and finally rural development stop. This paper investigates the effects of draught on agricultural products in Darab especially two main crops namely Wheat and Corn and also its effect on rural development stop in some villages. The statistical population includes 275 villages and cites that 105 villages have been selected. The course study is 20 years from 1991 to 2011. The results of research showed that if the principles of life and its style are not changed and also if the government does not cooperate, rural development will stop and rural life will be endangered that its results affect urban life.

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**Key words:** Draught, Rural Development, Production, Darab

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## **I. INTRODUCTION**

The crisis of water shortage and its consequences have made life so complicated that it requires no explanation. Among these results, we can name agricultural threat in arid and semi-arid areas. Due to the reduction of precipitation, the water reserves steadily gone shortcomings and its adverse effects are more evident. As a result of increasing demand for water and worrying decline of groundwater in the areas affected by draught, the prices will increase and the farmers' income will decrease. Therefore the deduction of agricultural income paves the way for rural development stop.

Draught has many dimensions which can be observed gradually over a relatively long time after being occurred. In this regard, a various division has been made. Some classify the effects of draught to direct and indirect effects (Whilhte, 2007,3). The other incidents and natural disasters of draught is the most natural processes cause damages to human being, ecology and their relief (Pourtaheri et al, 2011, 35). However, human societies accepted draught as an inevitable factor but its occurrence, size and repetition depend on geographical and climatic condition, human etc.. (Hansson, 2008, 465). Gate believes that draught is a climatic event and its specifications depend on term, continuation, severity and extent of the affected area and can be short and less harmful or long and fatal (Gate, 1993, 48). This event differs from dryness because dryness means dry whether in fact but we mean lack or shortage of precipitation in general and the dominance of arid climatic condition in that region during years (Kordovani, 2001, 48). In draught not only aberrant weather forecasts but also we should expect other serious abnormalities in other routine affairs. Darab city experienced some draughts during the last years which have remained some negative effects on natural phenomena such as springs dryness, destruction of pastures and reducing table. These

factors endanger water resources and cripple rural economy. Therefore it threatens rural life seriously and provides the ground for unwanted migration, poverty, insecurity and social damages and finally rural development stop (Shakoor, 2007, 121). So, given the fact that the economy and livelihood of Darab city have been stabled on agricultural base, therefore the economy of these areas depends on precipitation and water resources and the continuation of this process leads to the income reduction (Bostani 2010, 7). However, draught in any way has remained its ecological, economic, social and management effects and leads to rural development stop (Singh et al, 263, 17).

## **II. RESEARCH METHODOLOGY**

Considering subject of study and its importance, the required data have been gathered via studying archive and library documents. Therefore the main research method is analytical descriptive method and then the present findings have been evaluated from quantitative approach using relationship between mathematical functions and their proof. Wherever required, the data have been analyzed using SPSS software..

Since Darab city has a vast area with 275 villages and cities, 105 villages were selected.

Darab is a city located in the Southeast part of Fars province between 54° 33' to 55° 28' E longitude and 27° 53' to 28° 55' N latitude (Shakoor, 2001, 11).

## **III. DISCUSSION**

Darab city is a few regions having large variety of crops with exceptional location not only in Fars province but also in the country. This diversity which reflects diversity of climate, mountains and plains dispersion and favorable weather, caused that the tropical crops such as date are cultivated in the south side and the cold crops are cultivated in the

mountainous regions of this city. This capability is important in rural development but since the first effect of draught is appeared on water resources, therefore, it should be said that most of the wells in the regions have been dried due to the shortage of precipitation since the last 20 years and the table of groundwater has gone down to 50 m in some regions.

Considering the natural conditions of land, it can be said that draught has special order to some extent in some courses. As it is known, the draught period are about 10-11 years, 30 years and a century and various regions of the world are affected by it (King, 1975, 65). Table 1 presents years of draught during 20 years in Darab.

**Table 1: Years of draught in Darab city**

1370	298*	1371	360 mm	1372	645	1373	204*	1374	342	1375	375
1376	238*	1377	323	1378	322	1379	166*	1380	190*	1381	218*
1382	419	1383	368	1384	95*	1385	317*	1386	136*	1387	57*
1389	281	1390	159*								

Source: Meteorology Office of Darab city, 2012  
Putting into account the average of precipitation in Darab city which is 300 mm, the years of draught in this city is ten years.

The effect of annual precipitation on products and an area under wheat cultivation in Darab city During statistical period of 20 years, the area under cultivation and Wheat production is significant.

**Table 2: The average of annual precipitation (an area under wheat cultivation in Darab city, 1991-2011)**

Year	Area under Wheat cultivation (Hectare)	Yields in Ton	Average of Annual precipitation in Darab (mm)
1370	29743	91505	298
1371	31863	150375	360
1372	38540	142407	645
1374	42351	153326	204
1374	53662	162851	342
1375	47284	104673	614
1376	45887	157779	380
1377	35433	139789	317
1378	40596	167809	113
1379	48440	127419	166
1380	34985	104649	190
1381	3822	168408	218
1382	43579	188911	419
1383	43689	133372	368
1384	28257	150401	95
1385	27937	133314	317
1386	22804	143327	136
1387	26194	133114	57
1388	22987	130118	297
1389	27437	132719	281
1390	26937	132817	159

Source: Agricultural Jihad, Darab City, 2011 If the findings in table 2 are navigated linearly such that an area under wheat cultivation is shown with X(G) symbol, Wheat production in Darab with Y (G) and annual precipitation with Z (G), the equations (1), (2) and (3) can be calculated.  
(yg 000025/0) + (Xg 001/0) + 1/270/1 = (G)Z (1)

$$(G)m 4- 1080400 - (g)z 400 = (g) y \quad (2)$$

$$zg 3/1 + 56359- yg 67/0 = (g)X \quad (3)$$

In equations 1,2 and 3, the average amount of wheat for each statistical year can be calculated. It should be mentioned that the correlation between the crop structures of Wheat (rainfall, area under cultivation

and harvest) is weak and about (+0/2) which is related to the weakness of statistical findings of precipitation and the nature of Wheat, because this

product will be cultivated by water farming system and the effect of any climatic changes of precipitation will be neutralize with regular irrigation of product.

**Table 3: Annual precipitation (an area under corn cultivation in Darab city 1991-2011)**

Year	Area under Corn Cultivation (Hectare)	Yields in Ton	Average of Precipitation
1370	11875	83125	298
1371	10756	80670	360
1372	7365	55237	645
1373	11639	87299	204
1374	7491	56182	342
1375	7931	79317	614
1376	19730	147975	380
1377	21157	158677	317
1378	20252	157890	113
1379	15033	112474	166
1380	16040	120300	190
1381	17021	127657	218
1382	18023	126161	419
1383	19032	152125	368
1384	20712	165626	95
1385	20265	162220	317
1386	21309	170472	136
1387	21459	171672	297
1388	22456	180336	297
1389	25670	205360	281
1390	26332	225368	159

Source: Agricultural Jihad, Darab city, 2011

If an area under corn cultivation is shown with Y (P) symbol and the average of annual precipitation is shown with Z (P), the following equations are specified and calculated:

$$yp \ 0027/0- \ xp \ 0055/506/42-(P)Z \quad (1)$$

$$04xp/2-p \ z \ 187563- \ 370 = (p) \ y \quad (2)$$

$$yp \ 592076- \ zp \ 181 = (p) \ x \quad (3)$$

In equations 1 to 3, considering the need of managers or civil or rural development planners, we should calculate precipitation based on probability or return period. By specifying area under cultivation, the average amount of Corn will be obtained and by exercising some of these factors and changing them, we can calculate them peripherally.

## CONCLUSION

Based on a simple definition of village as a unit of national economy, it is clear that water, soil and climate are infrastructural bases of rural economy that any damage in them will make rural economic system inefficient. As villagers make their living through

agriculture and cultivation, it is evident that because the rate of production decreases per unit area, so that only production can be regarded as an aspect of family economy which does not awarded additional income for the villagers. Therefore poverty will increase in the society and lead to rural development stop.

The results of research show that draught reduces function of agricultural products in the area followed by a sharp reduction of product and the beginning of the decline of population in rural areas and finally rural development stop. Considering the fact that draught causes huge economic losses to the villagers such as reduction of agricultural products, increasing soil erosion, outbreak of pests and various diseases, reducing quality of pastures, lack of water and food for livestock feeding and drinking, unemployment of farmers and selling assets and properties etc..., this is all leads to poverty in rural communities and finally rural development stop. Although the actuator role of economic development does not mean that selecting this way condemns rural development of city to be specialized in the production of agricultural products,

but the purpose is to understand that due to gradual increase of complex bases, we can achieve the foundation of rural development. On the other hand, it should be noted that the agricultural development is not purpose but it is motivating tool for economic development and emergence of activities which brings rural development to an end in the area and can be a bridge between industry and services and also raises employment rate and final rural development. On the other hand, it is worth mentioning that considering frequent draughts in Iran specially in South and East, research projects should be seriously carried out with the cooperation of government and this dilemma should be controlled through interaction with the structure of rural economy to stop rural development process, stable environmental balance and remain the society safe from the improper consequences of this structure.

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