



ASSESS THE DROUGHT DYNAMICS AND ITS IMPACT ON LIVESTOCK SECTOR: FOOD SECURITY PROSPECTS IN BALOCHISTAN, PAKISTAN

Dr. Muhammad Naeem
Senior Veterinary Officer
Livestock and Dairy Development Department
Panjgoor Pakistan
drabdullahdostain20005961@gmail.com

Dr. Abdul Sitar Bugti
Senior Veterinary Officer
Livestock and Dairy Development Department
Dera Bugti Pakistan
sbugti94@0@gmail.com

Dr. Muhammad Hanif Buledi
Senior Veterinary Officer
Livestock and Dairy Development Department
Kech Turbat Pakistan
hanifbuledi72@gmail.com

Abstract

This study was assessing the drought dynamics and its impact on the livestock sector within terms of food security prospects in three selected districts of Balochistan. Descriptive design was used. 3 districts such as Chaghi, Jhal Magsi, and Killa Abdullah were selected. Three hundred (300) livestock farmers in drought prone districts were selected through random sampling. One hundred (100) respondents from each district were selected. Cronbach's Alpha program range was .88 to .79. Pearson Chi-square tests were carried out. SPSS used for data breakdown. P-value was considered significant at $p < 0.05$ level. Results revealed that the majority (72%) of the selected livestock farmers fell into 21-40 years' age groups. More than half (52%) of respondents were illiterate. Majority 89% of the respondents were male. Highly significant variances were found three (3) out of three (3) items regarding drought dynamics, livestock trends and food security prospects. Food security nutrition theme should be promoted by using livestock enlargement so as to enhance the livelihood options of



livestock farmers. Modern livestock practices should be arranged so as to scale up livestock farmer indigenous professional skills. A wide-ranging livestock initiatives and strategies should be settled so as to minimize the magnitude of upcoming drought spell and alleviate or combat the drought resilient at province level.

Keywords: drought dynamics, assess livestock sector, food security, Balochistan, Pakistan

1.1 Introduction

Food insecurity, persisting drought and extreme poverty are major problems and constant natural disasters in Pakistan. At national level approximately 24% of the demographic population of the country fell into the below poverty line. Multidimensional Poverty Index (MPI) indicates the miserable condition of the country regarding poverty, around (38.8%). On the other hand, food security aspects present a desolate picture. After FATA areas, Balochistan contains the 2nd highest Multidimensional Poverty Index (MPI) at country level (HIICS, 2016; and GoB, 2019).

However, within terms of food security dynamics during the period of 2015 to 2017, in Pakistan, 20.5% of population faced the malnourished as reported by the various international age ices such as World Health Organization (WHO), United Nations Children's Fund (UNICEF), World Food Programme (WFP), International Fund for Agricultural Development (IFAD) and Food and Agriculture Organization of the United Nations (FAO) (GoB, 2019).

Balochistan is the least developed province of Pakistan. Smallest province within terms of demographic population and largest region regarding land masses possession. Trading fisheries is the major occupation in the coastal belt, which constitutes roughly two thirds of the country. On the other hand, the Balochistan region is blessed with lavish assets as a natural resource. Socio-economic condition of the common populations around directly or indirectly these trade (GoB, 2019).

Balochistan region is prone to various natural menaces like periodic earthquakes, sporadically floods or torrential rain, and persisting drought spell. As a result, the food security dynamics was not achieved and to a greater extent the livestock sector was severely affected. But still the livestock sector is the major and revenue generating sector in Balochistan (GoB, 2019).



Livelihood options of the rural masses embedded around livestock or animal husbandry sector. But unfortunately, the recent drought spell is damaging the livestock sector in several districts mostly in central and western parts of the province since 2016. However, in this context, various Balochistan districts are under the average to severe drought situations. As a result, the socio-economic condition and food security dynamics of the livestock farmers are severely impacted ((HIICS, 2016).

1.2 Drought Spell in Balochistan

Scarcity of water or lack of precipitation over an extended period in any shape erroneously as defined as drought. Basically the drought is a natural disaster and only physical phenomenon (Dyson-Hudson, 1991; Wilhite, 1995; ADDS, 1996; Norman et al., 1999; and Rathore, 2005). On the other hand, the human beings frequently worsen the climate conditions as a result of the drought, this phenomenon is meteorologically also depicted as climate change. Pakistan, Afghanistan, Iran, Tajikistan and India hit by the persisting drought (Watson et al., 1998).

According to the Federal Bureau of Statistics (FBS) (1998) report, in Pakistan, the Balochistan region is severely affected and then Sindh province as a result food securities are vulnerable. In Balochistan, around 30% of the population was seriously affected during the drought spell. Drought or natural hazard is a vulnerability feature in humanities that seriously affected completely spheres of lives (Hazell et al., 2001).

Further, the livestock sector was at the edge of being detrimental in Balochistan due to the drought spell. 36.59 percent of the livestock sector was damaged (GoB, 2000-02). Livestock is the prime occupation of the people in Balochistan, which is contributing 70% of the livelihoods options of the people. The revenue generation process of the Balochistan people is based on the livestock sector either directly or indirectly. But unfortunately the livestock sector has declined due to persisting drought conditions as a result the food security aspects in Balochistan and also rural farmers were affected. During the drought period almost 26 districts faced the severe drought condition and lack of precipitation in Balochistan (Shafiq et al., 2005).

1.3 Drought Dynamics and Livestock Condition in Balochistan

Livestock sector was victimized due to the recent drought condition. Socio-economic condition of the livestock farmers is badly affected and damaged at a considerable rate. Owing to the four flung areas at Balochistan level it was very hard to estimate the impact of drought damages or losses related with food security but instantaneous impacts are the



most awful. Livestock is the imperative segment of the Balochistan economy and also GDP. During the period of 2004, the deterioration in livestock or animal husbandry sector might be incompletely explicable through impact of “Bird Flu Virus” in local poultry trade. Covid-19 is the very serious concern, the cut down of the higher growth potentially as a result of the downward trend in the livestock sector revealed. On the other hand, livestock at province level has a very significant and protecting business contour and major revenue stream for livestock farmers, that might eliminate the extreme rural poverty. During the drought spell as a natural calamity mostly in Balochistan goat and sheep are affected in the livestock sector during Kharif and Rabi season (Shafiq, and Kakar, 2007).

Water reservoirs and resources are damaged or drying-off by the persisting drought in Balochistan as a result the ecosystem of the province, environment of the province, rural livestock and agriculture are damaged. On the other hand, socio-economic situation has also impacted (Mahmood & Rodriguez, 1993; Mahmood, 1995).

In Balochistan due to the prolonged drought spell the green pockets were converted into arid precincts mostly in upland areas. Consequently, food security dynamics have vanished. Accordingly, livestock like sheep, camel, buffalo, cattle and goat business at province level impacted directly and heavy losses in this sector (Quraishi et al., 1993).

1.4 Significance of the Study

For policy-makers: Current study would be helpful for policy implementation at grass root level in vulnerable districts of Balochistan. In this regard, recognizing the pertinent decisions and addressing the food security prospects in its link livestock sector in Balochistan, Pakistan.

For future researchers: Findings and results of this research would also be beneficial for other livestock stakeholder who carry out any kind of investigation in future regarding the drought dynamics and its impact on livestock sector and food security prospects themes and areas.

For department: Current effort findings would be helpful and obliging the departmental prospects not only locally but also on a national level for researchers.

1.5 Problem Statement



Recent drought conditions have eroded the socio-economic condition and livelihood opportunities of livestock holders in Balochistan. Diversity of drought conditions on the other hand, in Balochistan has stressed the entire sphere including the livestock sector. Recent drought incidence has affected not only the agriculture sector but also diminishing the simultaneous water resources and animal husbandry sector as well. As a result, food security is decreasing. In fact, the drought circumstance has a comprehensive web which severely affects the livelihood options of the rural masses. Therefore, present research was designed so as to assess the drought dynamics and its impact on the livestock sector: food security prospects in Balochistan, the province of Pakistan.

1.6 Objectives of the Study

Following specific objectives were developed:

1. To evaluate the demographic characteristics of the respondents.
2. Assess the drought dynamics and its impact on the livestock sector and food security prospect in Balochistan.
3. To produce solid recommendations regarding drought dynamics linked with the livestock sector and food security prospects.

1.7 Methodology Consideration

Study design used in this research by nature was descriptive (Nachmias & Nachmias, 1992; and Trochim, 2000; and Ghauri & Gronhaug, 2005). Livestock importance in drought prone areas of study areas was determined, because natural disaster is multidimensional phenomena (Kincheloe, 1991; Stallings, 1997; and Cresswell, 1998). Accordingly, primary data was used in this research so as to assess the drought dynamics and its impact on the livestock sector especially the food security prospects at the Balochistan level. A quite detailed questionnaire in this regard was developed keeping in view study objectives (Bryman, A. and Bell, E., 2007; and Al-Shatrat et al., 2013). Likert scale was applied (Likert, 1932). Face to face interaction as a prime technique was used with the help of inquiry form. Three districts such as Chaghi, Jhal Magsi, and Killa Abdullah were selected by using random sampling. Three hundred (300) livestock farmers in drought prone districts were selected through random sampling. One hundred (100) respondents from each district were selected. Big data depicts a more generalized outcome within terms of study achieved results (Bryman and Bell, 2007). Cronbach's Alpha program range was .88 to .79. Which indicates that the inner-consistency of the questionnaire was perfect (Pallant, 2007; and Nunnally, 1978). Diverse types of graphic and table were used. Pearson Chi-square tests were carried out to assess the drought dynamics and its relationship on livestock productivity within terms of food security



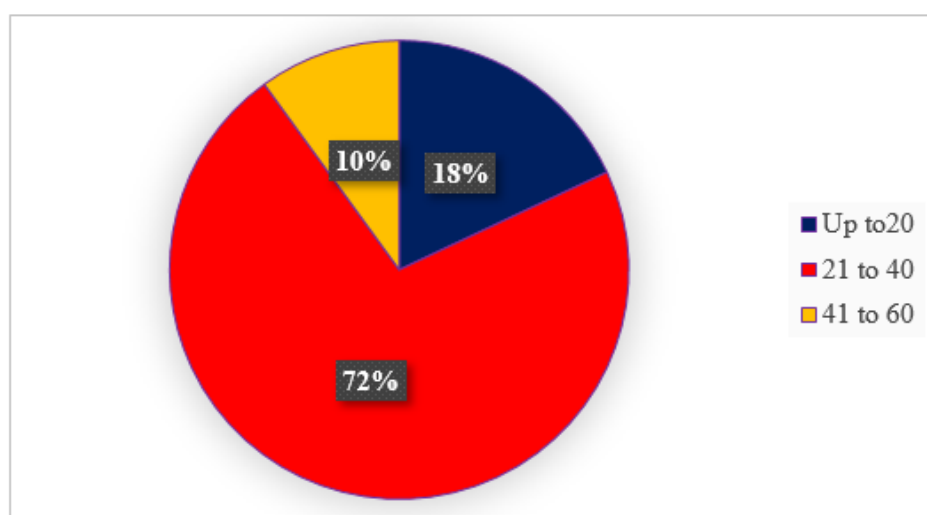
prospects. Finally, filled questionnaires were put into the Statistical Package for the Social Sciences (SPSS) for further analysis (Pallant, 2007). Calculate mean score and standard deviation entered. Confidence level set on 95%, in this regard the error margin as a confidence interval 5% actualized as reliable estimates according to accepted statistical criteria. P-value was considered significant at $p < 0.05$ level.

1.8 Findings of the Study

1.8.1 Socio-Economic Profile

Basically, the socio-economic term is driving and borrowing from the social and economic development term. Socio-economic profile is the independent parameters in this research. House structure, household unit, education profile and age were the imperative socio-economic profile or structurer (Amable, 2003; Dopfer, 2012; and Mann, 2011). The data as a basic information was collected from livestock respondents from three purposively districts.

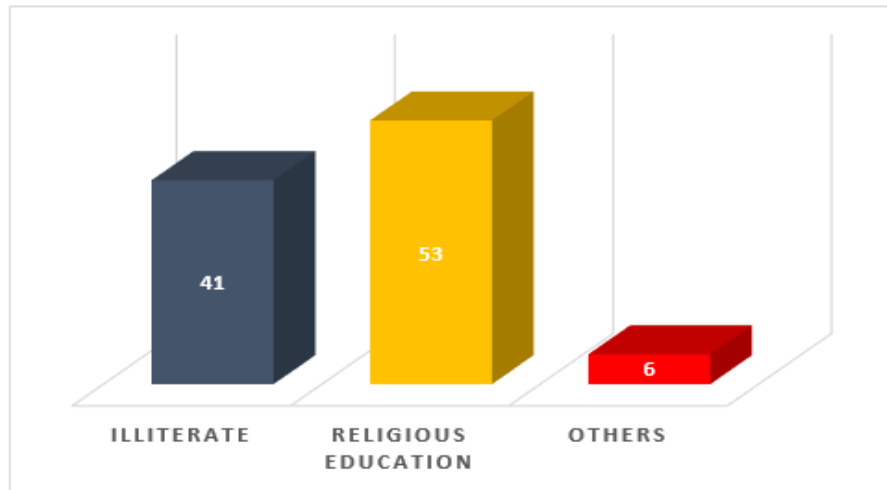
Figure-1, Distribution of Respondents About Age



Age is the vital social-economic variable shown in figure-1. Results revealed that the majority (72%) of the selected livestock farmers fell into 21-40 years' age groups. While, 18 to 10 percent of the livestock farmers fell up to 20 and 41 to 60 years' age classes respectively.

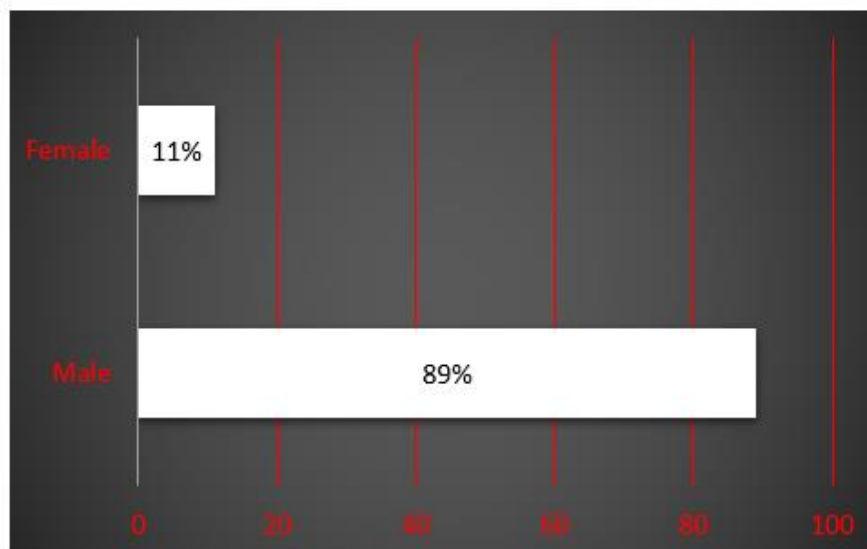


Figure-2, Distribution of Respondents about Education Status



Education level is another very imperative socio-economic segment based on actualities of the livestock farmers. The educational hierarchy possible is presented in figure-2. Finding depicts that more than half (52%) of respondents were illiterate in three selected districts of Balochistan. Most of the livestock farmers were achieved and got religious education from different Madrasas at district level.

Figure-3, Distribution of Respondents About Gender





Respondents were categories into two classes like male and female respondents as shown in figure-3. Majority 89% of the respondents were male by gender while 1% of the respondents were female by nature.

Table-1 Pearson Chi-Square Result

Drought dynamics and its impact on livestock sector	Value	DF	Asymp: Sig. (2-sided)
<i>DROUGHT DYNAMICS</i>			
Pearson Chi-Square	51.337 ^a	8	.000**
Likelihood Ratio	50.881	8	.000
Linear-by-Linear Association	18.280	1	.000
Phi	.414	-	.000
Cramer's V	.293	-	.000
<i>LIVESTOCK SECTOR</i>			
Pearson Chi-Square	167.804 ^a	8	.000**
Likelihood Ratio	190.407	8	.000
Linear-by-Linear Association	68.909	1	.000
Phi	.748	-	.000
Cramer's V	.529	-	.000
<i>FOOD SECURITY PROSPECTS</i>			
Pearson Chi-Square	66.166 ^a	8	.000**
Likelihood Ratio	74.505	8	.000
Linear-by-Linear Association	18.200	1	.000
Phi	.470	-	.000
Cramer's V	.332	-	.000
No. of Valid Cases = (300) livestock farmers 5% level significant* Scale: ***<0.01** and p<0.05**			



This research was exploring the perception of the respondents about drought dynamics, livestock sector features and security prospects in selected districts of Balochistan as shown in table-1. 0.05 level was set on as alpha level. Chi-Square Pearson was applied so as to measure the various dependent variables at ($p \leq 0.05$) level. PCS test and value highly significant such as 51.337^a, 167.804^a and 66.166^a as group-wise respectively. Hitherto, calculated values as measured as 0.05 level about assessing the drought dynamics and its impact on livestock sector: food security prospects in Balochistan, Pakistan. In this regard the 0.00 to 0.05 level and values were highly significant. While, a high variance was observed in the following statements.

- Drought dynamics (Pearson Chi-Square= 51.337^a, $p < .005$),
 - Livestock sector feature (Pearson Chi-Square=167.804^a, $p < .005$); and,
 - Food security prospects (Pearson Chi-Square=66.166^a, $p < .005$) respectively.
- Hence, the highly significant variances were found three (3) out of three (3) items regarding drought dynamics, livestock trends and food security prospects.

1.9 Conclusions and Recommendations

Livestock the imperative and mainstay of the province economy. More than 70% of the rural populations of the Balochistan directly or indirect links from this sector. But recent drought is damaging the whole sphere including the livestock sector. Keeping in the view study specific objectives and achieved findings following recommendations were developed. Food security, nutritional development, and livestock expansion in drought hit areas of the Balochistan is the major and prime task of government. In this regard, food security nutrition theme should be promoted by using livestock enlargement so as to enhanced the livelihood options and social protection of the rural farmers and livestock farmers. Modern livestock practices, innovative technology, trainings and capacity building programs for the livestock farmers should be arranged on mandatory basis so as to scale up livestock farmer indigenous professional skills. Promote the female livestock farmer's skills regarding poultry and herd farming. A wide-ranging livestock initiatives and strategies should be settled so as to minimize the magnitude of upcoming drought spell and alleviate or combat the drought resilient at province level



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