

Perception and understanding of small scale cherry farmers regarding Climate change effects and food insecurity in Balochistan

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Abstracts

Climate change has affected almost all sectors of life. Agriculture which is known as the backbone of Pakistani society in term of employment, livelihood and food security has been badly affected by climate change. Droughts, floods and rise in global temperature over the course of time has drastic effects on food security. The extended adverse consequences of expanded temperatures on grain yields in the low scope locales suggest that the food security of most non-industrial nations including South Asian nations is probably going to become weak in not-so-distant future. Simultaneously, differential effects of environmental change on food production in various areas of the planet are probably going to have results on worldwide food costs and exchange. The aim of the present study is to identify the understanding and perception of small scale farmers about the effects of climate change on food security in Balochistan. The study relies on both primary and secondary data and population of the study is small scale cherry farmers of Balochistan.

Key words: Climate change; droughts; vulnerability; impacts; food security

Introduction

Climate change is considered as an alarming issue which affects a large number of people around the world, with the latent to cause disorder on lives, environments and nearby, public and worldwide economies potential (Dube,

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Nhamo et al. 2020). It is irrefutable that food security has been antagonistically influenced due to climate change. Underdeveloped nations and, most importantly, deprived people will quite often be most in danger as they are facing the issue of limited incomes and capacities to adjust, relieve and acclimate. Pakistan is no exemption; research proposes that it is among the nations most impacted by the effects of climate change. Its circumstances are negatively affecting the environmental variety of the country. The varied landscape of Pakistan series from high mountains to parched deserts, from timberlands to levels, from plains to stream estuaries generally home to a scope of environments on adjacent livings rely (Gitz, Meybeck et al. 2016).

As climate change acquires pace all over the planet, nations need solid versatile capacities to manage the threat. Pakistan is among the top ten nations that are mostly at threat from the adverse consequences of climate change (Eckstein, Hutfils et al. 2018). The highest position of climate change on the "Global Climate Risk Index" is owing to the enormous damage of lifespan and financial pulverization experienced right after floods, dry spells and heat waves (Mehmood and Kamal 2014).

Disasters, for example, cataclysmal floods protracted scarcity in Balochistan, multifarious difficulties for the utmost susceptible. Climate inconsistency obvious by increase in the temperatures, varying rainfall examples and imperatives on the accessibility of water also grants difficulties for livings and the general budget, especially in the crucial farming area (Mehboob 2021). In general, "42.3% of Pakistan's workforce, and 67% of the workforce in rural areas", is direct or indirectly related to farming. Regular climatic tremors have affected the agriculture sector, expanding food uncertainty amongst impacted societies. Their predicament is all really difficult given the partial local dimensions and asset requirements. This brands food security a genuine challenge for the country. The Management agrees on the matter of great concern, as imitated in crucial strategies (Arif, Riaz et al. 2019).

Because of climate change, rainfall volatility has become higher. As per the Scarcity recommendations given in Feb. 2021, "Pakistan in overall received below normal (- 31%) rainfall between October 2020 and January 2021). The primary thrust was in Balochistan (- 73.2%) and Sindh (- 70.2%)". Balochistan might get low rainfall predominantly this year (Ahmad and Afzal 2022). Around here, the crop of wheat is gathered before and the following

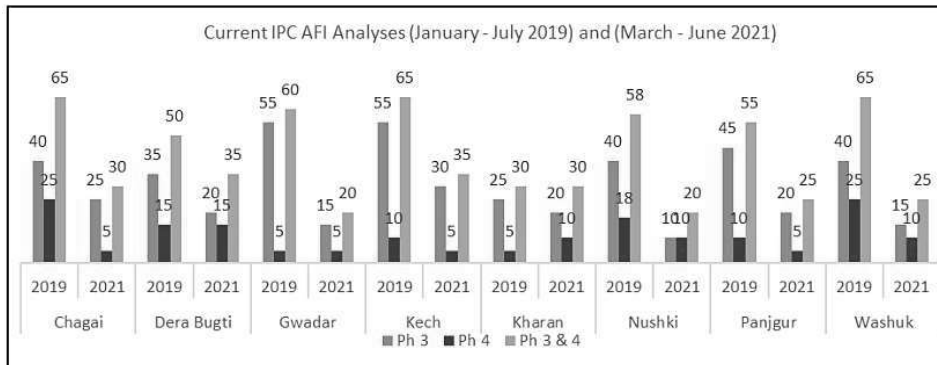
harvests will be at their early phases. Hence, these rains might be positive for the current yields. While, “North-Eastern Balochistan might get 3-4 spells of light to moderate rainfall especially from mid-April till the end of May, and afterwards restarting during the first and third week of July and mid-September. At this specific time, ordinarily, the wheat crop is at shooting to heading stages”(Hirji, Nicol et al. 2018).

Literature Review

Pakistan is facing the issue of Climate Change in the shape temperature increments, rainfall decrease in the arid plains and expansions in the monsoon areas and to wrap things up, accelerated glacial melt(Mustafa 2011). all those different developments require a more profound knowledge of the impacts Current change in climate in the recent five years. In this setting, the intimidations to food security keep on one essential matter to be examined in view of efficiency investigation. It has been investigated what climate change means for the agrarian efficiency in Pakistan's four areas, especially Balochistan. To portray the impact of climate change. Thus, we ought to imagine minor stages of output in the arid zones with more important climatic tension and unfavorable impacts on food security over the lower rural yields(Ahmed, Schmitz et al. 2011).

A few regions in Balochistan have been encountering scarcity since a long period. In this circumstance, the “Natural Disasters Consortium (NDC) led the Balochistan Drought Needs Assessment (BDNA)” in 14 scarcity impacted regions. Utilizing the NDC evaluation information and other optional data, the IPC Acute Food Insecurity Analysis focuses on the scarcity impacted populace in the 14 told regions was led. Out of the 14 regions dissected, eight regions are likewise investigated in this IPC examination(Khair, Mushtaq et al. 2012).

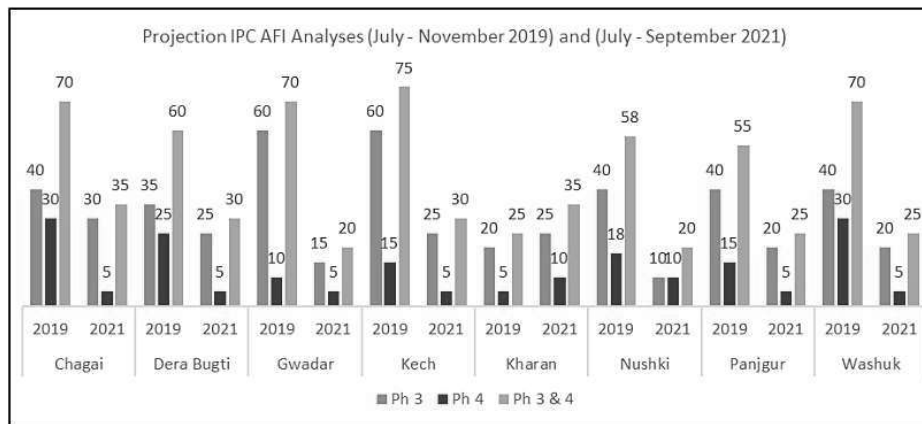
Figure 1. Current IPC Acute Food Insecurity Index in Balochistan (March – June, 2021)



The analysis of 2019 shows much higher as compare to that of 2021 commonness of populace in IPC Phase 3 (Crisis), especially to the impacts of delayed scarcity on access to food and accessibility. it has been observed that rural districts of Balochistan are still high food insecurity, nonetheless, the circumstance worked significantly contrasted with the 2019 investigation. During the 2021 examination, some districts is grouped in IPC Phase 3 (Crisis) throughout both present and forecaststages(Hashmi, Belgacem et al. 2021).

Significant livelihoods and population of the rural areas are vigorously agriculture and domesticated livestock-based with large numbers of them dependent on domesticated livestock rearing. They were seriously impacted by delayed scarcity starting around 2016, with great rainfall that acquired development the food security circumstance, however, this development has been somewhat balanced by COVID-19, downpours/flooding/snowfall, grasshopper pervasion and increasing food costs in 2020 and gentle to direct scarcitiesituations in mid-2021(MISHRA and KUMAR).

Figure 2. Current IPC Acute Food Insecurity Index in Balochistan (July – Sep, 2021)



During the last 20 years climate catastrophes have assailed Pakistan. Contrasted with the period earlier 1995, the recurrence and strength of dangerous climate occasions have expanded. While explicit catastrophes can't be credited exclusively to climate change, the routineness and size of cataclysmic events in Pakistan over the course of the last many years highlight the changing climate as a significant causal component(Ullah, Nafees et al. 2019). Districts that are inclined to cataclysmic events, for example, floods, “frigid lake explosion floods (GLOFs), drought, landslides, earthquakes, hill torrents, cyclones and tsunamis”. Public examinations foresee that these occasions will happen througheternally more prominent recurrence in the next few periods(Ullah, Nihei et al. 2017).

The “International Panel on Climate Change (IPCC)” figures that increase temperature in Asia, will appear through increasein the temperatures, rainfall limits and a change in the period of monsoon. Almost certainly, changes in precipitation at low latitudes won't considerably surpass natural variability, as indicated by the “Representative Concentration Pathways (RCP)” 2.6 situation. By the mid-21st hundred years, variations in the mean yearly temperature will surpass 2°C in many pieces of Pakistan. (Sivakumar and Stefanski 2010). Climate forecasts for Pakistan demonstrate a normal in temperature’s increase somewhere in the range of 1.4°C and 3.7°C toward the finish of the 2060s. Forecasts show an extensive expansion in the recurrence of 'hot' days and evenings, and abatement in 'cool' days and evenings, as

portrayed. These patterns suggest a huge change in temperatures, which will rise consistently throughout this long time, encompassing a portion of Pakistan's region (Du Plessis 2016). The "Economist's Global Food Security Index 2017" positions Pakistan 77th of 113 nations of food affordability, accessibility value and wellbeing it is estimated that out of total 47.8 out of 100, close by a fourth component regular assets and versatility (Nasir, Ashfaq et al. 2021).

Figure 3. Global Food Security Index of Pakistan, 2017



Source: The Economist Intelligence Unit. 2017. Global Food Security Index 2017.

Balochistan with the maximum predominance of food insecurity, starvation and scarcity in Pakistan is with the populace confronted different tremors counting high food costs, locust tree epidemics all intensified by the effects of climate change. About 0.76 million people are assessed to confront high stages of serious food insecurity recently, relating to the conclusion of the sine wave period and the start of the gaining period. The examination of the forecast time frame relating to the post-harvest period demonstrates that the quantity of individuals in Calamity and Emergency stages is supposed to lessen somewhat to 0.73 million. The horrifying act is in this way expected to safeguard livelihoods and decrease food utilization holes of people in Calamity and Emergency periods of intense food insecurity (Idris 2021).

Research Methodology

The present study is quantitative in nature the target population of the study were small scale Cherry farmers of district Ziarat. Total population of the study was 277 respondents. Sample was drawn through Arkin and Colton (1963) formula. The data was analyzed through "Statistical Package for Social Sciences (SPSS)".

Results and discussion:

Table: 1 explains the age of the subjects of the study.

| Age | | | | | |
|-------|-------|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | 1.00 | 45 | 16.2 | 16.2 | 16.2 |
| | 2.00 | 74 | 26.7 | 26.7 | 43.0 |
| | 3.00 | 112 | 40.4 | 40.4 | 83.4 |
| | 4.00 | 46 | 16.6 | 16.6 | 16.6 |
| | Total | 277 | 100.0 | 100.0 | 100.0 |

Table: 1 explains the age of the subjects of the study. Statistics in the table shows that majority

40.4 % of the subjects of the study were 41-50 years old whereas 26.7 % of the subjects of the study were 31-40 years. Data further displays that 16.6 of the subjects of the study were above 51 years while 16.2 of the subjects of the study were in the age group of 20-30 years

Table 2: Describes the educational attainment of the respondents.

| Education Level of the respondents | | | |
|------------------------------------|-----------------|-----------|---------|
| S No | Education Level | Frequency | Percent |
| 1 | Illiterate | 74 | 26.7 |
| 2 | Primary | 113 | 40.8 |
| 3 | Matric | 44 | 15.9 |
| 4 | FA/FSc | 46 | 16.6 |
| | Total | 277 | 100.0 |

Table 2 describes the educational attainment of the respondents. Statistics displays that majority 40.8% of the respondents were having primary education while 26.7% of the respondents were illiterate. Statistics further shows that 16.6% of the total respondents have completed their education

tell FA/FSc where as 15.0% of the respondents shows their education as matric.

Figure 4: Farming experience of farmers



Figure 4 discloses about the farming experience of the participants. The subjects of the study were asked that for how many years are they engaged in Agriculture. Data shows that majority 30.3% of the subjects of the study were having 15 years of farming experience while 23.1% of the subjects of the study were having 25 years of farming experience. Statistics in table further shows that 18.8% of the subjects of the study were having 30 years of farming experience whereas 15.2% of the subjects of the study were having 10 years of farming experience. Data also shows that 7.6% of the subjects of the study were having 8 years of farming experience while only 5.1% of the subjects of the study were having 5 years' experience in farming.

Figure 5: showing source of awareness regarding climate change

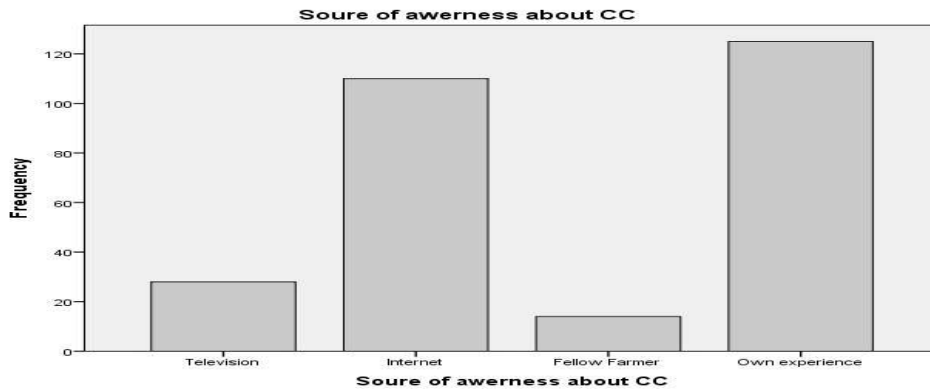


Figure 5 shows data about source of awareness about the climate change. Statistics shows that majority 45.1% of the respondents shows their own experience as source of awareness about the climate change while 39.7% of the respondents shows internet as a source of awareness about climate change. Moreover, the statistics show that 10.1 of the respondents shows Television as a source of awareness while only 5.1% of the respondents shows fellow farmer as source of awareness about climate change.

Table 3 shows framers opinion about causes of climate change

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------------------------|-----------|---------|---------------|--------------------|
| Natural disasters | 28 | 10.1 | 10.1 | 10.1 |
| Lack of rainfall | 36 | 13.0 | 13.0 | 23.1 |
| Deforestation | 55 | 19.9 | 19.9 | 43.0 |
| Human sins | 84 | 30.3 | 30.3 | 73.3 |
| Industrialization | 10 | 3.6 | 3.6 | 76.9 |
| over exploitation of resources | 10 | 3.6 | 3.6 | 80.5 |
| over population | 54 | 19.5 | 19.5 | 100.0 |
| Total | 277 | 100.0 | 100.0 | |

Table 3 indicates results about the opinion of the participants on causes of climate change. Data illustrates that majority 30.3% of the respondents were of the view that human sins are the cause

of climate change while 19.9% responded deforestation as the cause of climate change. Data further shows that 13% of the respondents mentioned lack of rain fall as the cause of climate change. 19.5% of the respondents were of the view that overpopulation is the cause of climate change. 10.1% of the respondents only responded natural disasters as cause of climate change

Conclusion

Worldwide climate change is probably going to influence food and livelihood security of the large numbers of the farmers and evicted in Balochistan. The climatic changes can possibly restrict the future capacity of farmers of Balochistan to remain agronomically independent. This study was an effort to analyze the perception of small scale farmers regarding climate change. The collected data reveals that majority of the farmers perceives that human sins, overpopulation and deforestation are the causes of climate change that reflects the current perception and awareness level of farmers in regard to climate change. This study also illustrated that majority of the farmers are primary pass and majority of the farmers reported that internet and their own experience as their source of awareness about climate change. The results of this study provides means of interventions to the government and other concerned departments for intervening at the level of awareness and educating the farmers regarding climate change and its effects on agriculture. The government along with private organizations needs to find Urgent ways to expand its versatile ability to confront current as well as future climatic risks. The government of Balochistan ought to make a move since it requires investment for versatile practices to become successful. These variation methodologies should all the while considering the foundation of changing interest and food security because of globalization, populace increment and pay development, as well as the financial and natural outcomes of conceivable transformation choices for the small-scale farmers.

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