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FARMERS PERCEPTION ABOUT FLOODS EFFECTS ON AGRICULTURE LANDS ALONG THE RIVER JHELUM

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ABSTRACT

In the study farmers perception about floods effect on agriculture lands along the river Jhelum find out. The study based on primary data collection method. The study which had taken along the river Jhelum where agriculture lands exist in local language called "Bella". In this study three hundred farmers from fifteen union councils selected through stratified random sampling technique. From each union council twenty respondents were taken. Their perceptions were found by the questionnaires. The questionnaires were in close ended form. After the collection of data SPSS software was used to analyze the data and descriptive statistical analysis performed. The results indicated by the tables and graphs.

Keywords: Flood, Perception, Agriculture land, Along the River

1. INTRODUCTION

Flood is natural phenomenons which do not exist only in the Pakistan but it spread on world level. Flood is a hazard when it brought destruction than called disaster. In Pakistan the province Punjab gifted by five rivers which flow on its surface in different dimension. These rivers have also benefits as well as provide loss in the form of floods. In district Jhelum the river Jhelum also present which effect on the two tehsils property and agriculture lands which lying along the river Jhelum. Husain (2015) described that in Pakistan the unfavorable climatic condition effected property and infrastructure, brought destruction in agricultural yield, rehabilitation and rebuilding costs of those areas distressed by environmental disasters. Dadzie and Acquah (2012) found that the farmers attitude to control the disaster risk play an important role to mitigate the effect of environmental risk. Saqib, Ahmad, and Panezai (2016) indentified risk management is a typical process of farmers. The decisions in these uncertain situations are based on their perception about external environment, information and their attitudes and preferences.

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Khalil and Zaheer (2013) highlighted that the topography of Pakistan had diversification which caused the change of climate. The climate of Pakistan is dry and hot but last few years there was a great variation in the climate. Many districts and urban areas lying along the rivers remained on a great risk to confront with different flood types i.e. riverine flood, flash flood and urban flood particularly in Punjab province of Pakistan. As a recent World Bank report warns Pakistan of the occurring of five major risks related mainly to climate change or global warming including floods and seriously threatens nearly half of the country's population. Due to the floods agriculture land was also affected and disrupts the productions. When flood occur it change the soil chemistry of the flood prone areas. In the report ("Pakistan Floods 2014: Recovery Needs Assessment And Action Framework 2014-16,") described about that in 2014 flood the Pakistani institute SUPARCO estimates indicated that the reduction in the rice was around 217000 ton, in sugar cane 726000 ton and 250000 bales of cotton production reduced. Along with this seed stocks and agriculture tools and destruction of irrigation channel affect the agriculture sector. So that the farmers made perception to escape from the such types of risks. Kusakari et al. (2014) discussed that at the world level different researchers study the farmer's perception about the world modern issue of the climate change. They also study the effect of climate change on agriculture. The perception of the farmers could not be authentic but the knowledge to compete with the socio economic issue gained by this process. The perception of farmers related to agriculture sector play an important role to make policies for the growth of economy. In this study the objective to find the perception from the farmers was very crucial to understand the mitigation about flood risk and preparedness about it.

2. MATERIALS AND METHODS

In this research to collect the data about the farmer's perception primary method was used. Along the river Jhelum there were 15 union council farmers who have agriculture land in flood prone areas called "Bella". To cover the farmer's perception of all the study areas stratified random sampling technique was used. The questionnaires were used to get perception. The sample size of the questionnaire was three hundred in close ended form. From each union council twenty farmers were selected randomly to get perception. After the collection of data SPSS software was used to transfer questionnaire in computer for analyze the data. The descriptive statistical analysis was performed to make the table and figure. For the design of graph MS Excel was used.

2.1 Study Area:

The study area of research was District Jhelum, Punjab Pakistan. Jhelum is laying 32◦ 56' North latitude and 73◦ 44' East longitude. Jhelum has four tehsils which names are tehsil Jhelum, Pind Dadan Khan, Dina and Sohawa. The two tehsils of district Jhelum were affected which are

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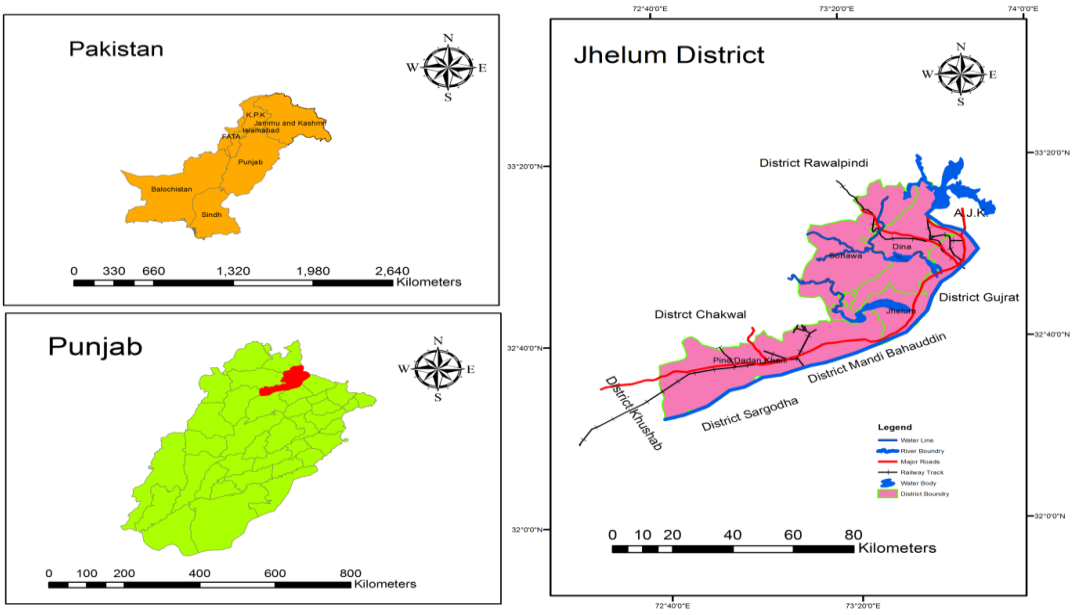
tehsil Jhelum and Pind Dadan Khan. These two tehsils are located alongside the river. The tehsil Pind Dadan laying between 32◦ 27' and 32◦ 50' N and 72◦ 32' and 73◦ 29' E with an area of 875 square miles. Tehsil Pind Dadan Khan is bounded on the south east by the Jhelum river. Tehsil Jhelum is bounded east and south east by the Jhelum river and both side of Nala Gahan and Banah are adversely affected by flood.



Source: Author 2016

3. RESULT AND DISCUSSION

In the research different types of questionnaire were asked which related to the floods effect on agriculture land. Different types of information have to gain by this research. The perception of farmers and the question which was asked and included in the questionnaire are as under.

3.1 Is the flood effect on the soil condition?

During the interview 100% farmers were justified that the floods affected on the soil condition. The farmers replied that some where flood increase the fertility and at some places floods spread sands and erode the soil and decrease the soil fertility. The farmers also tell that where small streams and tributaries water flow it always spread sandy material and decrease the soil fertility.

3.2 Soil fertility effect:

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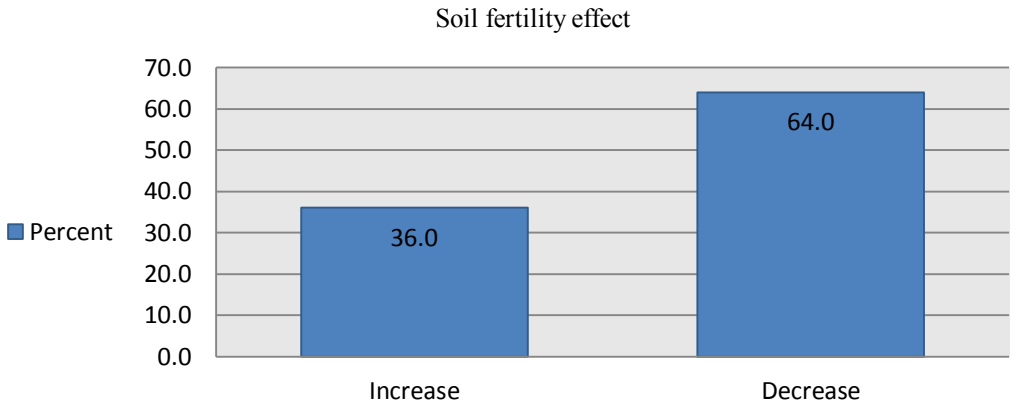
After the first question if the respondents reply was in agree that the soil effect through flood then this question asked from that respondent. The respondents share their views or experience about the soil fertility effect. The respondent's vision enlisted in the diagram.



Source: Author 2016 (Figure: 1)

The diagram describe that 36% farmers were those whose reply was that the flood increase the fertility of the soil. But 84% farmer's perceptions were that the floods decrease the fertility of the soil.

3.3 Is the flood effect changing the cropping patterns?

Flood which is a natural hazard it effects on changing the cropping pattern. But to know from the farmer's perception it will be clearer either cropping pattern change or not. The farmer perception about this question is as under.

	Frequency	Percent
Yes	287	95.7
No	13	4.3
Total	300	100

Source: Author 2016 (Table: 1)

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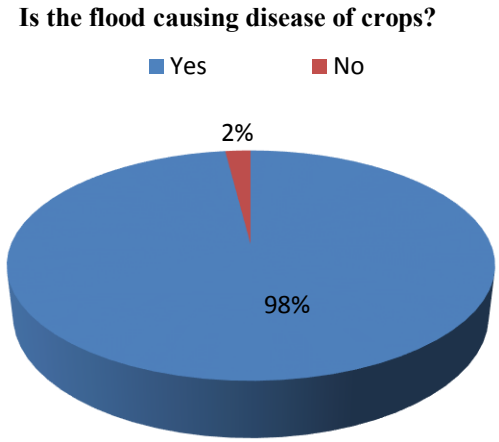
The table indicates that 95.7% farmers perception were that the cropping pattern effected through flood. They gave information that where the farmers grow pulses sesame and cotton now that cultivated area dominant with the sugar cane. The 4.3% farmers were those whose response were diverse from the others farmers. They replied that no changes have seen in the cropping pattern. Because the occurrence about the flood has no information either it comes or not so the farmers were compelled to grow that crops which they need.

3.4 Is the flood causing the diseases of the crops?

Flood not only changes the cropping patterns but it caused to the diseases of the crops. Through this question the perception level had taken from the farmers that they know about the crops diseases or not. Through the diagram it will be clear how many farmers have awareness about the diseases of the crops or their crops effect with disease.



Source: Author 2016 (Figure: 2)

The diagram indicates that 98% farmers were those who replied that absolutely flood is the source of diseases and damage of the crops. Only 2% farmers were those who replied that flood do not cause the disease.

3.5 After the flood method use to save the crops:

During the interview when farmers reply that flood cause to disease of the crops than the next question was asked from the farmers which method used to save the crops. In the questionnaire two methods were given. The first method was spray and second was spill out the water from the fields. Some of the farmers were those who used both methods to save the crops. Their descriptions enlist through the table

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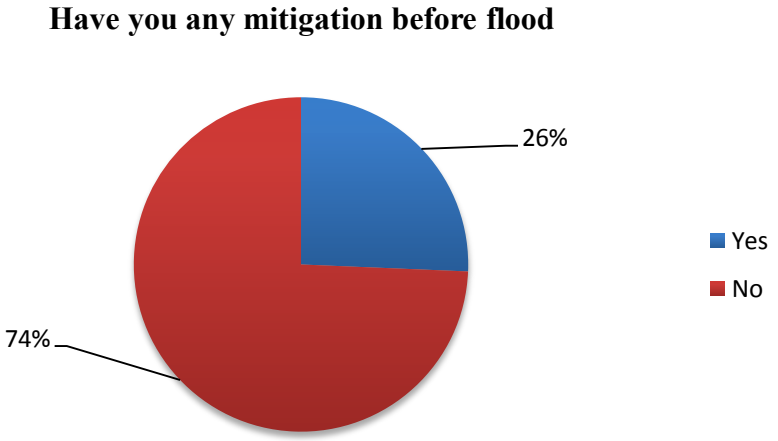
	Frequency	Percentage
Spray	268	89.3
Spill out the water	11	3.7
Both	21	7.0
Total	300	100

Source: Author 2016 (Table:2)

After the flood 89.3% farmers were those who reply that they used spray method to save the crops. The method spill out the water from their fields their percentage were 3.7%. Only those farmers used these methods that have proper system and their agriculture lands were on the bank of river or streams. Seven percent farmers were those who used both methods to save the crops which effect through flood.

3.6 Have you any mitigation before flood?

Flood which is a great risk for the farmer's who have agriculture lands alongside the river Jhelum. To find out the perception of the farmers this question includes knowing how many farmers who have any mitigation to escape from the flood risk. The description mentioned through the diagram.



Source: Author 2016 (Figure: 3)

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The diagram indicates that 26% farmers were those who have mitigation before the flood. They grow reed plant which botanical name is phragmites to reduce the force of water. Most of the farmers were those who have no any mitigation before the flood.

3.7 Flood warning and its type:

In the research three hundred farmers were respondents. All the respondents' replies were that they receive flood warning. From those respondents the next question which was asked that was type of the warning. In the flood warning different farmers received different warning types.

- **3.7.1 Flood alert:** It issue to alarm the people when weather conditions favorable for heavy rain which expected the source of floods.
- **3.7.2 Flood warning*:*** Flood warning declared when flooding is imminent.
- **3.7.3 Severe flood warning**: This type of warning issue when there will be condition of flash flood.

In these types the farmer's percentages were as:

	Frequency	Percentage
Flood Alert	76	25.3
Flood Warning	169	56.3
Severe Flood warning	55	18.3
Total	300	100

Source: Author 2016 (Table:3)

The table reveals that 25.3% farmers were those who received flood alert, 56.3% farmers were those who gain flood warning and 18.3% farmers were those who received severe flood warning.

3.8 Source of flood warning:

The farmers who get flood warning their sources were different. In the questionnaire some major sources were include. These sources were radio, T.V, local govt. and NGO. The percentage of the farmers from these sources indicates through the diagram.

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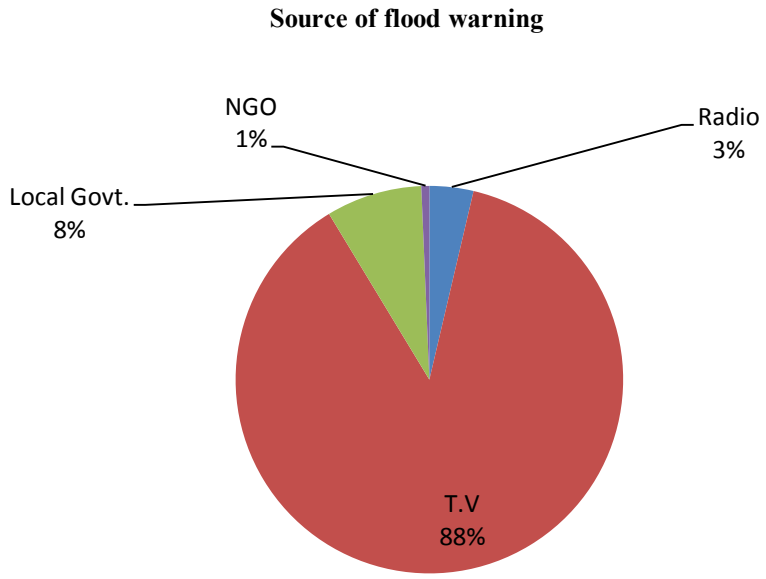

Source: Author 2016 (Figure: 4)

The diagram explains that there were 87% farmers who received flood warning through the T.V. Four percent respondents were those who received warning through radio. Eight percent farmer's source of flood warning was local govt. and only 1% received flood warning through NGO.

4. CONCLUSION

The study reveals that farmer's have different perceptions about the floods effects along the river Jhelum. The study also indicates that farmers of those areas mostly attached with television news which was the main source to awareness about the flood warning. And the farmers apply their own practical work to save the agriculture land from the risk of damage of crops and erosion of the soil from flood. The growth of phragmites plants play important role to reduce the intensity of water. This study is also important to make further planning for the governmental and nongovernmental organizations to reduce the risk of those areas lying along the river Jhelum.

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